Marine Technology Special Collection, Newcastle University

Periodicals Histories: (only trade and industry technical magazines, research journals)

Listed in the same sequence as the Collection's holdings shown on the Collection's website for ***Search Collection*** then ***Periodicals***.

MacGregor News, n1, 1956 - to date. The house magazine of MacGregor & Company founded in 1939, Whitley Bay, Northumberland, England to serve shipping companies and shipyards. Refs: MacGregor http://www.macgregor.com , MacGregor News recent issues free online http://www.zepro.dk/?id=2218

Example pages: **MacGregor News**, 1956, [no.1], pp[1-3]. *Watertightness with MacGregor covers*.

MacGregor News, 1958, no.9, pp[1-2]. *N/S Savannah*. "First nuclear ship. One of the many peaceful applications of atomic energy". Announcing the proposed construction in the US of the 9,500 dwt bulk cargo ship fitted to MacGregor steel cargo hatch covers – a great coup for the British company. [She was built to demonstrate the concept of non-military nuclear propulsion was possible. She became a touring demonstration for the "Atoms for Peace Programme" and in doing so helped to ease the fears and thus access for nuclear warships to be accepted in some ports around the world. Construction and operation proved to be much more difficult, dangerous, and uneconomic than anticipated. She was the first of very few nuclear-powered cargo/passenger ships, all of which were research/experimental!]. Later came lots of nuclear powered naval vessels, especially submarines.

MAC GREGOR NEWS

PUBLISHED QUARTERLY BY INTERNATIONAL MAC GREGOR ORGANIZATION 1956

WATERTIGHTNESS WITH MAC GREGOR COVERS

Le m/s Capitaine Rio au large du Cap Bon octobre 1954

INTRODUCING - MAC GREGOR NEWS

Shipping circles are expressing more and more interest in Cargo-handling. Consequently, there is to-day a well defined need for reliable facts and figures on the many problems of Cargo-handling. The purpose of Mac Gregor News is to provide such information in the form of a carefully edited periodical.

Mac Gregor News is published, not only to help present users of Mac Gregor equipment get the best possible return for their investments, but also indicate to prospective users how they, too, may benefit by employing these time-and-money-saving devices.

In so far as possible, the illustrations shown Mac Gregor News will be photographs of new and interesting installations, each a proven success Company names will be included if available although these will be withheld when so requested.

Mac Gregor News will be published for YOUR benefit, and at no cost to you. We invite and welcome any opinions and suggestions you may be disposed to give us that may contribute to making Mac Gregor News more valuable to those whom it is intended to serve.

HEAVY LOADS ON DECK

Paris, 6 th June, 1956.
AP/JB

Société Mac Gregor-Comarain,
96 bis, Rue du Ranelagh,
PARIS - 16ème

Dear Sirs,

Upon our return, we find your letter of April the 30 th forwarded by our Technical Department.

Here are the few informations that we have on the transport of heavy equipment. We have, many times, loaded heavy parcels on our ships " Cap. P. Maric ", Cap. Louis Malbert " and " Pont Aven ". Thus, we have transported several times locomotives to Algeria and Spain. These machines weighed 68 t. each and we managed to put two per panel, that is 137 t. per panel.

Our " Pont Aven " loaded on her panels 3 & 4 a Tug boat of 100 t. and our " Malbert " two boilers per panel weighing together 120 t.

We have found no noticeable distortion of the panels. The only precaution to take is to spread the weights evenly by laying them on a large expanse of wood.

We are joining herewith, a photo showing the loading of boilers on panel n° 4 of the " Malbert ". We repeat that each of those boilers weighed 60 t.

We are at your disposal for any further information that you may require.

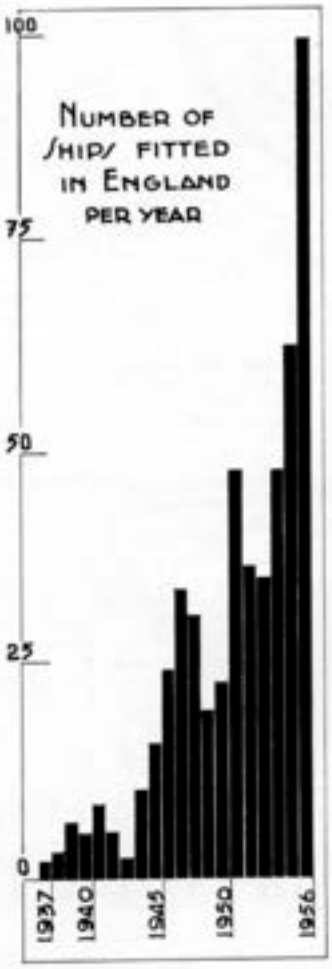
Yours faithfully,

Manager.

INCIDENTALLY, THOSE PANELS WERE NOT REINFORCED

MAC GREGOR of WHITLEY BAY

Mr. J. MAC GREGOR, M.B.E.
CHAIRMAN



Mr. R. MAC GREGOR
DIRECTOR

In 1926 several colliers were lost in the North Sea through the failure of wooden hatch covers. This set the minds of Robert and Joseph Mac Gregor working. The latter joined a Mr. King in developing Mac Gregor ideas on steel hatch covers.

Prior to this, Mr. Joseph Mac Gregor had worked with Palmers Shipbuilding Company at Jarrow-on-Tyne and with some of the Sunderland shipyards. In 1912 he was a manager of Smith's Dock Company of North Shields and in 1923, general manager of the Ship Repair Department of Palmers at Swansea.

Mr. Robert Mac Gregor also started his career with Palmers of Jarrow-on-Tyne and after service with shipyards in Glasgow, Hull and on Tyneside, went to Dunkirk and Antwerp.

At the out-break of the first world war, he returned to England as the Managing Director of Dibbles Limited of Southampton. Later he worked as a Consulting Engineer.

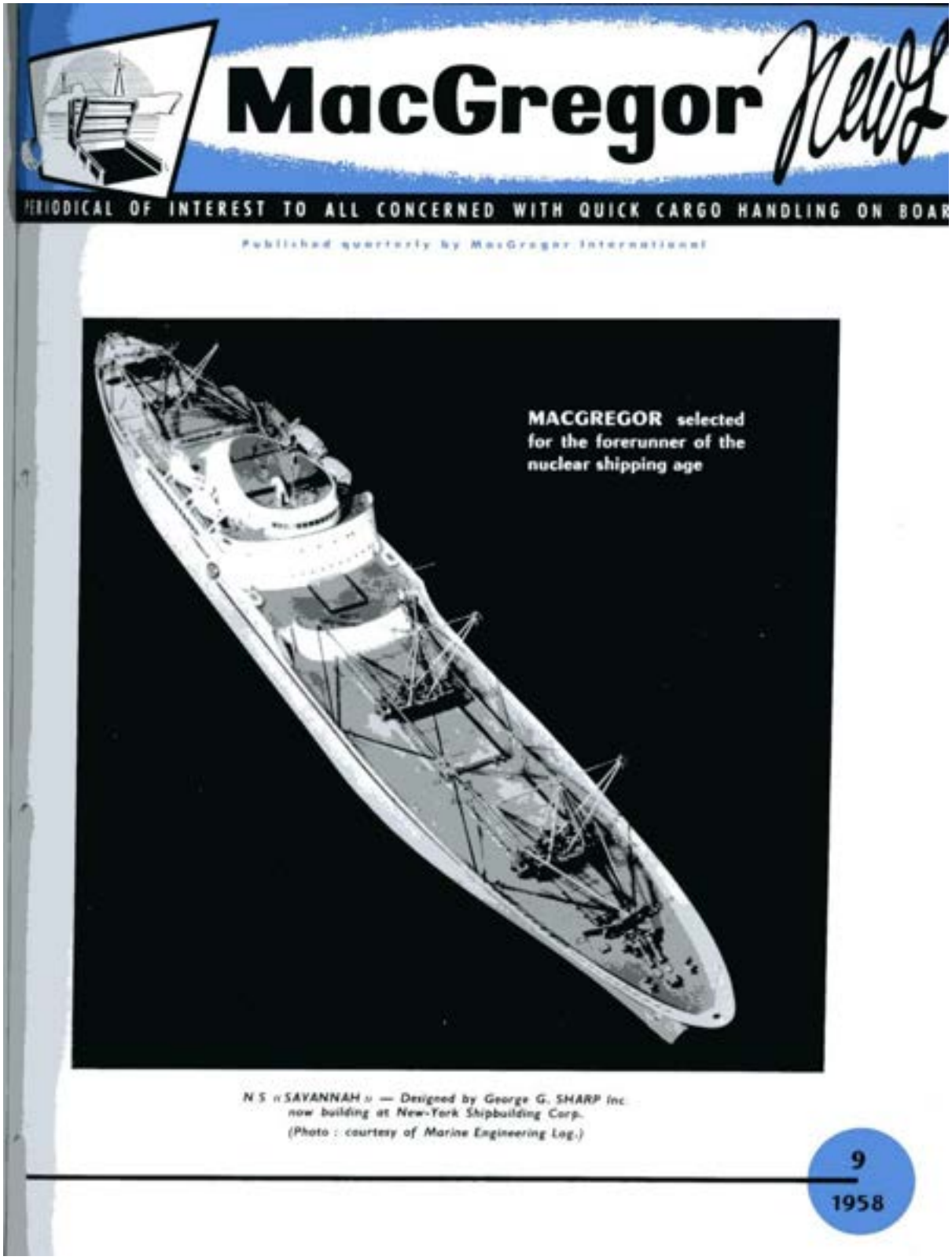
In 1937, the two brothers teamed up to design and promote steel hatch covers and real progress was then made, first on the "Individual Pull" and later on the "Single Pull", systems.

Since 1947, Mac Gregor companies all over the world, under the guiding hand of Mr. Henri Kummerman, have designed, manufactured and installed steel hatch covers for a great proportion of ships now at sea and in shipyards.

In our next issue, we shall describe the world wide Mac Gregor Organization and the wide field it covers in the promotion of cargo handling devices, aimed at the quicker turn around of ships in ports.

PARIS INTERNATIONAL MEETING of MAC GREGOR TECHNICIANS

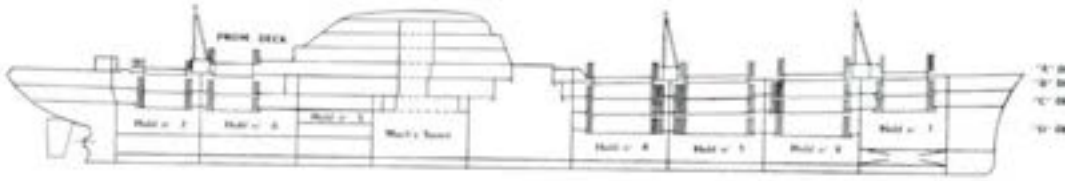
As every year, Mac Gregor Technicians from all over the world will meet in Paris in October to discuss international problems and ensure a better world service for all Mac Gregor users.


MacGregor News
PERIODICAL OF INTEREST TO ALL CONCERNED WITH QUICK CARGO HANDLING ON BOAR
Published quarterly by MacGregor International
MACGREGOR selected for the forerunner of the nuclear shipping age
N S « SAVANNAH » — Designed by George G. SHARP Inc
now building at New-York Shipbuilding Corp.
(Photo : courtesy of Marine Engineering Log.)
9
1958

First nuclear ship
N/S "SAVANNAH"

BIG SUCCES

One of the many peaceful applications of atomic ener



This history making vessel designed by George G. Sharp, Inc. for joint Maritime Administration Atomic Energy Account, is presently under construction at New York Shipbuilding Corporation, Camden, New Jersey. Scheduled for delivery in 1960, the 9,250 cargo-DWT vessel is destined for world wide commercial service, to demonstrate the utilization and benefits of atomic power in peaceful pursuits.

Since every phase of the equipment selected must meet the highest obtainable degree of perfection, we at MacGregor and National - U.S. Radiator experience a great new feeling of pride at having been chosen to design and furnish the Hatch Covers for the N.S. "SAVANNAH". With this realization of our responsabilities, we dedicate our fullest efforts towards upholding the trust vested in us.

Our congratulations to all of those outstanding Americans t whose foresightedness, ingenuity and skill, this forerunner nuclear shipping age, the N.S. "SAVANNAH" was conceived and possible.

The 21 hatchways of the N.S. "SAVANNAH" will be fitted wit Gregor hydraulic steel hatch covers as follows:
Promenade deck: hatch N° 6 - Hydraulic, flush, watertight covers.
"A" deck: 5 hatches - Hydraulic, raised, watertight, hinged
"B" deck: 6 hatches - Hydraulic, flush, watertight, hinged
"C" deck: 6 hatches - Hydraulic, flush, non tight, hinged co
"D" deck: 3 hatches - Hydraulic, flush, non tight, hinged co

*

U.S.N.S. "COMET"

The first ROLL-ON/ROLL-OFF ship designed specifically for this purpose, is fitted THROUGHOUT with MacGregor hydraulic equipment.

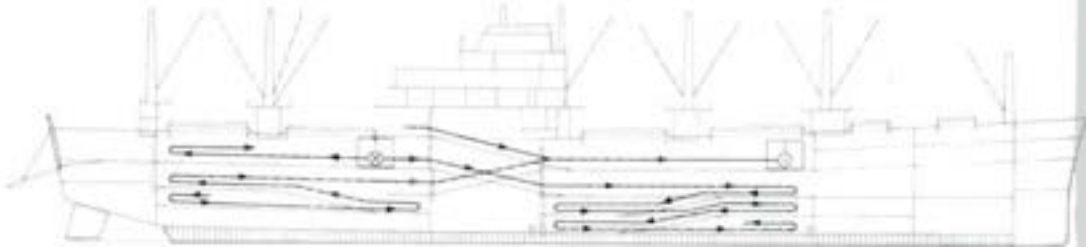
A now familiar sight in the United States as well as to many Eur ports is the U.S.N.S. "COMET", the prototype (Roll-on Ro Vehicle Cargo Ship.

Built at Sun Shipbuilding and Dry Dock Company, Chester, Pe vania, for Military Sea Transportation Service, this ships' holds co over 60,000 square feet of vehicle parking area, with loading unloading being accomplished by means of oversized Sideports, Hatches and Ramps.

For this unique ship, MacGregor and National - U.S. Radiator com their efforts in designing, developing, and fabricating over 883 t diversified hydraulic equipment.

Unusually massive Main and 'Tween deck hatch covers, the l capable of sustaining closely stowed 40-ton army tanks and ve on their flush surfaces, huge internal horizontal and vertical wate sliding doors linking the vehicle holds and equally immense h vehicle ramps and sideports all operate smoothly and quietly a touch of a hydraulic control lever. One gets the impression practically every square foot of decks and bulkheads is mechaniz one form or another. This, the world's largest application, inv over 24,000 square feet of hydraulically operated equipment.

Diagram showing general features and loading tech que of the roll-on roll-off ship.



Manchester Association of Engineers. Transactions, 1887 – 1976/77 [volumes not numbered], MAE, Manchester, Lancashire, England. A UK regional professional engineering learned society publishing

a technical research journal covering all aspects of engineering with only occasional ship / marine papers. Refs: MAE http://www.mae.uk.com [accessed 23-03-2017] members only. The Collection is not a member.

Example pages: [under construction].

The Marine Engineer: A monthly journal of marine engineering, shipbuilding, and steam navigation, vI [v1] April 1879 – vXLIII [v28] 1905. Edited by William George Neal. Published by The Marine Engineer, London, England. Continues variously as ***The Marine Engineer and Naval Architect: a practical journal for all concerned in the design construction and maintenance of mechanically propelled ships, diesel and other oil engines, auxiliaries & refrigeration, marine engineering works, welding & mechanical repairs, cargo handling appliances***, vXLVI [v29]=Aug 1906-July 1907 – ca.vXLIII [v43]=1920/21, continues as ***The Marine Engineer and Motor Ship Builder***, incorporating ***The Naval Architect*** [not the RINA magazine of same name] years tbc, then ***The Marine Engineer***, years tbc but including v8=1945 – v73=1948, then as ***The Marine Engineer and Naval Architect***, v72=1949 – v?=1972 continues incorporated in ***Shipbuilding and Marine Engineering International***. A trade and industry technical magazine with UK and international news. Includes some excellent fold-out technical drawings of marine engines and ship general arrangements. A very useful magazine, given its very early start, reporting on current developments mostly in the UK with some international coverage. Contents include: editorial articles; some summaries of papers published in other journals especially from Transactions of the Institution of Naval Architects (INA)); letters to the editor; book reviews; patent summaries; obituaries; launches and trial trips; etc. Later subtitle amended to include "… illustrated journal …", "… electrical engineering", "… and allied trades and industries". Later editors included Reginald William James. Refs: Marine Engineer and Naval Architect, vXX[v20]=1898/99 https://archive.org/details/marineengineera09unkngoog , ebook online free download, several volumes available.

Example pages: **The Marine Engineer**, vol.II[2] no.?, 1880 Aug 1, pp.98-103 [only pp.98, 100-101, 103, scanned]. *The Russian yacht*. By E. E. Goulaeff. Description of a radically novel-shaped coal-fired sea-going yacht, "The Livadia", built by John Elder & Co, Govan, near Glasgow for the Czar of Russia. Length 235ft, breadth 153ft (!!!), draught 6ft 6 ins. Which means the yacht is almost circular in shape!!! The huge breadth was attempt to provide maximum stability for the comfort of royal passengers but also as a trial for a proposed novel class of warships. Further reading ref: Russian Yacht Lavidia. http://military.wikia.com/wiki/Russian_yacht_Livadia_(1880)

THE RUSSIAN YACHT.

The *Fairfield* Yacht for the Czar, and vessels of her type considered as means of International Communication.

Paper read before the Fairfield Association of Engineers and Shipbuilders.

By E. E. Goulaeff, Captain of the Corps of Naval Architects, R.I.N., A.d.C., F.R.S.N.A., M.I.N.A.

Gentlemen,—In a few days you will see one of the most remarkable pieces of naval architecture glide gently into the waters of the Clyde. Already hundreds of people have visited the Fairfield Yard, coming nearly from all parts of the globe to see this wonderful ship, intended to serve as the sea-going yacht for the Emperor of Russia, and the interest in her seems to be growing with the growth of the ship.

So novel is this vessel, both in her principal features and in all her details, that her construction shows wonderful combination of ideas and foresight, proving the extraordinary amount of inventive genius in the mind of her designer.

Being asked by your chairman to read a paper at this Institution, I could not refuse this offer, as I considered it a great pleasure and honour to be able to speak before the Fairfield Association of the "Fairfield child." But, in doing so, I must apologise at starting for my bad English, trusting you will excuse me, as my poor knowledge of your language comes only through my not being a Scotchman.

It seemed to me more suitable, on this occasion, to describe to you the ship herself in as few words as possible, giving only her principal features, and the main objects which were in view in designing her, and to dwell largely upon the probable development of this class of ships, when adapted for great peaceful and beneficial purposes.

This vessel is 235 ft. long, 153 ft. broad, and has a draught of 6 ft. 6 in. She might have been a little longer, but on closer investigation it was found that the addition of some 25 ft. or 50 ft. to her length would not have reduced the resistance in water. Augmentation of skin friction, not being sufficiently compensated by the improved lines would have required increased power to drive the larger vessel with the given speed. She might have been a little narrower to suit the taste of most people, yet the beam of 153 ft. cannot be regarded as being too great if we bear in mind the main object of her design, namely, the desire to secure the greatest steadiness.

Her small draught is perhaps the most peculiar of her features. Experimental analyses, agreeing with actual results derived from the trial trips of extremely broad vessels existing in the Black Sea, prove that at certain speeds a very much broader vessel requires only half as much power compared with another vessel of similar form whose draught is double. This is represented on one of the diagrams. The upper curve shows the resistance of the circular vessel, 120 ft. long, 120 ft. broad, and drawing 13 ft. of the same displacement as the yacht, whilst the lower curve represents the resistance of the yacht drawing 6 ft. 6 in. Hence the importance for the vessels of that class to have the smallest possible draught, and hence the anticipation that great speeds are not incompatible with this form. The late Mr. W. Froude, who conducted at the request of Admiral Popoff, some experiments with the models of vessels of his design, was the first to demonstrate by exact data the influence of draught on the reduction of resistance. No doubt, such reduction of the total resistance, with the reduction of draught and the increase of other dimensions, is owing to a great diminution of the wave making; indeed, the diagram proves that the advantage of the shallow ship increases with the increase of speed, and, as you all know, at great speeds, according to Froude, the most important portion of the total resistance is the wave making. Such considerations and reasonings, agreeing, as I have stated, with actual trials of existing vessels—one broader and shallower than another—determined the small draught which has been given to the yacht.

Thus we see that, under the circumstances, the principal proportions of the yacht could scarcely be altered in any way to the advantage of the ship.

Having specified the extreme dimensions, I will draw your attention now to the form of this vessel.

The form of underwater portion was made a subject of very careful study. Besides the great experience of the designer of the ship, Admiral Popoff—experience which he derived by spending the greater portion of his lifetime, either on the ocean, or in constructing novel ships, and trying them at sea—Dr. Tideman, member of the Academy of Amsterdam, was invited to assist in the determination of questions connected with the resistance of the yacht.

In the case of this shallow draughted vessel, the fine lines must be the vertical sections, whereas the fine lines of the ordinary steamer are the water lines or horizontal sections. Such change has been brought about by passing from long, narrow, and deep forms of ordinary vessels to the proportions of short, broad, and shallow ones; and, as has been demonstrated by experiments with paraffin models, the sharpening of buttock lines is more essential in this case than sharpening of water lines. In other words if the motion of an ordinary vessel may be compared with that of a wedge propelled vertically, the motion of the yacht ought to be compared with the same wedge propelled through the water horizontally. On looking at the stern of the actual vessel you will observe that the whole motion of the water between the stern tubes will be affected solely in the direction of the vertical sections, or the buttock lines. The diagrams give the principal sections and plans of the yacht. You will see that a large superstructure has been built upon the main body of the turbot-shape of the dimensions and of the form I have just mentioned. This superstructure is of the shape of an ordinary vessel, and because being of usual form, will no doubt gratify the eye of those who are not sufficiently educated to admire the uncovered sides of the lower turbot portion of the ship, which, however, are the very parts that have the greatest share in limiting the rolling at sea. Waves, from whatever point of the compass, developed either by the motion of the ship at very high speed, or by the capricious will of Nature, will ascend up the rounded sloping sides of the vessel, but finding there perfect freedom for their play, will have soon to subside, as the sloping deck is of a shape that does not admit of green seas remaining long upon it, unless in the form of a very thin sheet of water, quickly disappearing altogether. No additional buoyancy, therefore, is created alternatively at either side of the ship, and hence the rolling becomes a motion which, in the big waves, might follow the steepness of the swell, and, in small waves, actually reduces itself to nothing. Very often when on board a circular ironclad steaming in a gale, watching the behaviour of the boisterous seas about the rounded deck of the vessel, I was lost in admiration of the fruitless attempts made by the picturesque phosphorescent waves—illuminated brightly, on a dark night, from underneath by the deck-lights—to produce any influence on the majestic steadiness of the ship. At that time, my deficiency in painting prevented me from the reproduction on canvas of my impressions. Here, before you, gentlemen, feeling my deficiency in English, I am again prevented from giving to you a better description of the phenomenon; but to complete what I said regarding the behaviour of the seas about these vessels in heavy weather, I believe I cannot do better than to refer some of you, desirous of fuller information on that point, to the splendid articles which appeared in the *Times* newspaper from the pen of the eminent writer Mr. Reed, late Chief Constructor of the Navy, who described several passages made by himself on board of these typical vessels, and whose system of widening and shortening ships had much to do with the origin of the idea of circular vessels in the mind of Admiral Popoff. The parts beyond the superstructure already referred to, represent to you the extent of the palace carried by the yacht.

The turbot-like lower part of the vessel contains machinery, coals, and stores of all kinds. The steel superstructure rising over it contains accommodation for the crew forward, and for the officers aft, whilst the palace beyond it includes only the imperial apartments and the cabins for the suite.

This turbot-like portion of the vessel is built of steel, with a double bottom, whose height is no less than 3 ft. 6 in. in the centre. This double bottom is divided into forty water-tight compartments, and extends throughout the flat portion of the bottom. At the sides it is superseded by the cells formed by running two vertical bulkheads, right round the ship, and subdividing the distance between them and the outside skin into forty other compartments. These side cells, formed of continuous bulkheads, and covered by the plating of the rounded deck, present a very rigid, continuous annular structure, which has its lower points tied together by the radial girders, forming the bracket framing of the bottom, and by the heavy beams of the rounded deck, also radial, at the top. Thus the turbot-like portion of the vessel is made amply strong enough to withstand those forces which might be experienced in the roughest seas, and the local strains, such as those produced by the powerful machinery with which the ship is provided—particular attention being paid to the structure of the stern, in order to distribute the strains on the brackets supporting the propelling shafts of the side screws.

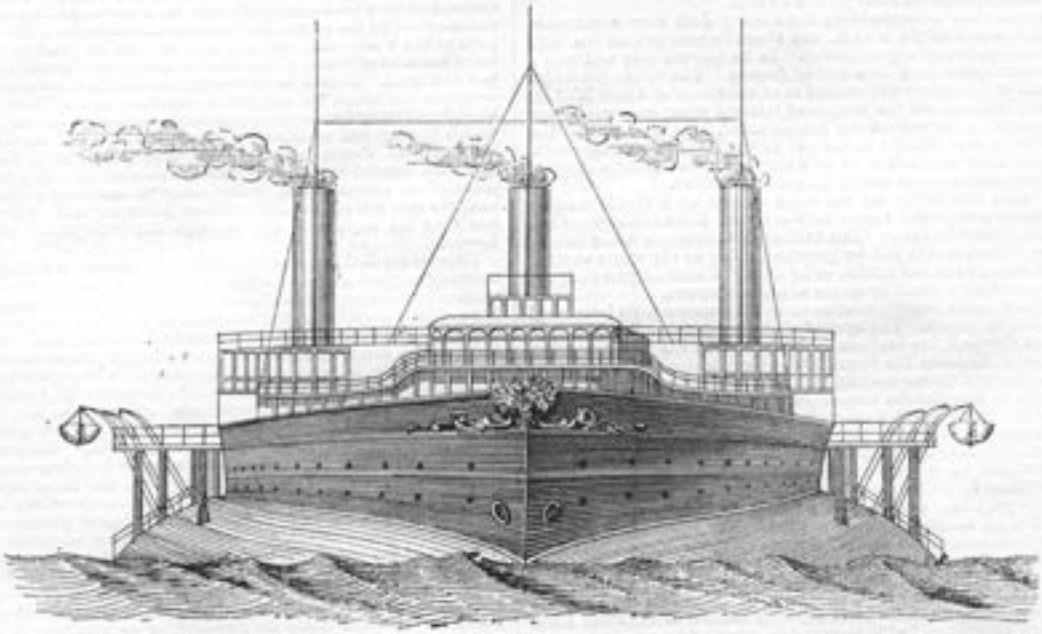
I need not go into the strength of the superstructure that rises above the turbot portion of the vessel, as it has been mainly designed to form a support for the palace and deck-houses beyond, in order

voyages is yet to be solved, not because we are wanting in the knowledge of the principles, the application of which would reduce suffering from sea-sickness to a minimum, but because until the present time, there has been no opportunity for constructing a steamer on those principles specially intended for the combination of speed with extreme steadiness in a seaway.

The circular ironclads forming part of the Black Sea fleet were intended for purposes of coast defence, which confined them to a small speed of locomotion so as to be able to use the greater part of their displacement for the purpose of carrying their enormous guns and armour, which they do actually carry upon their extremely small hull. Quite indirectly, after the completion of those vessels and at the time of their extensive trials at sea, their wonderful steadiness in the heaviest seas was demonstrated, owing to their beam, absence of freeboard and rounded-up deck. Thanks to the voyage of the High Admirable of the Russian Navy, the Grand Duke Constantine, across the Black Sea to Batoum and back along the Caucasian shore, exactly a year ago, many of the distinguished gentlemen who had the honour of attending His Imperial Highness on that occasion, had the opportunity to witness for themselves the splendid behaviour of these extremely broad vessels at sea, and they ceased

strictly-defined problem of carrying heavy pieces of artillery and thick armour on a steady platform, capable of moving with moderate speed, is changed into a wider problem—to attain the greatest steadiness on the sea-way with great speed, not less than that of the yacht which was wrecked. Therefore the problem which was to be fulfilled in the new vessel is exactly the same as that upon the successful solution of which depends the wider range of the development of the means of international communication of the whole world.

In less than one year Mr. Pearce, the head of the most eminent shipbuilding and engineering firm in Scotland, and, as you all know, one of the most enterprising men of the day, after having gone through all the calculations of the vessel, and having satisfied himself as to the principles embodied in her design, has built the new yacht, and now she is so far advanced that she will be launched next week. Carrying the palace high above the sea admits of having such an amount of light and air in it as could not be attained in sea-going steamers of ordinary form; such a palace built on the ordinary form of vessel would, in a too dangerous degree, have reduced the stability. Three sides and the double bottom will prevent the ship from sinking should she be seriously damaged by collision or stranding. Three sides with a distance between them



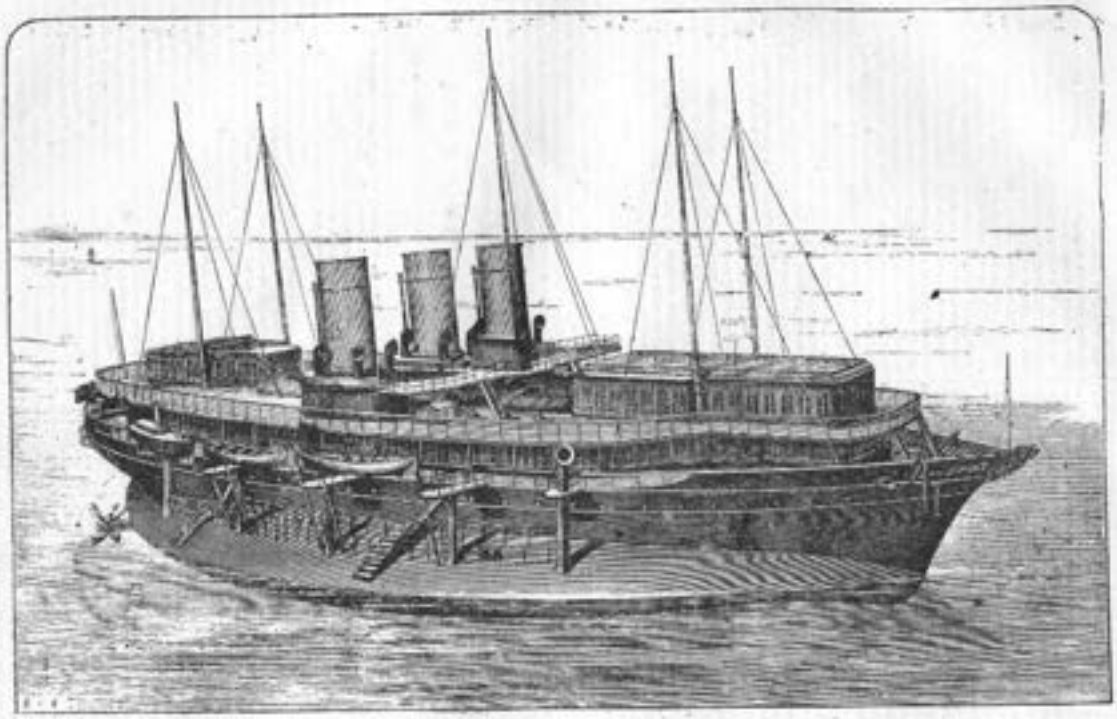
to believe any longer in those curious articles in some newspapers which were sufficient only to prove how very little the writers were acquainted with naval architecture and seamanship. During that voyage, the steamer *Pyotr Veliki*, of ordinary proportions, had the full angle of rolling (on both sides) 72 deg., whilst the full arc through which the circular vessel rolled did not exceed 6 deg., or 12 times less. The *Pyotr Veliki's* oscillations per minute was 20 against only 9 oscillations in the same space of time of the circular vessel. These eloquent figures speak for themselves. They were obtained by careful observations made simultaneously on board of each of these two vessels, which were specially placed in exactly the same condition in reference to the waves and the wind.

Two years ago the Imperial yacht *Livadia* was wrecked. There was, therefore, a necessity for building another vessel to fulfil the purposes of the sea-going yacht. On this occasion H.M. the Emperor, on the recommendation of the Grand Duke Constantine, accepted the design of a new yacht prepared by Admiral Popoff. In recommending these plans H.I.H. desired to demonstrate by this vessel the capabilities and qualities of the very broad and shallow ships, when the

of not less than 6 ft., and extending all round the ship are incompatible with the narrowness of the present ordinary vessels. Three independent engines will insure the possibility of navigating the ship to the place of her destination with one or even two engines broken down—an advantage of which not one of the existing steamers can boast. After losing the rudder, the yacht is not left helpless—she can be handled as well by steering her by the side screws.

All investigations and experiments with models of the yacht tended to assure us as to the certainty of anticipated results in regard to the speed of this vessel; whilst the passage through the Bay of Biscay in the equinoctial autumn weather is awaited with greatest interest, not only by us, but by all who are watching the progress of the development of steam navigation, as on this voyage the yacht will be the very first vessel of such unusual proportions that will have been brought to face the waves of the Atlantic.

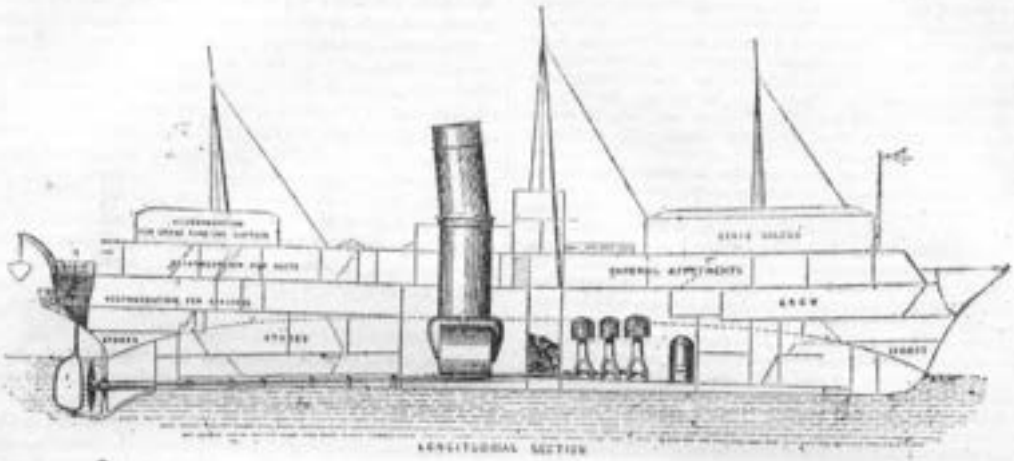
It is true, the *Livadia*—which is the name of the yacht I am speaking of—cannot be considered strictly as being intended for oceanic navigation. Her length as well as breadth is too small for



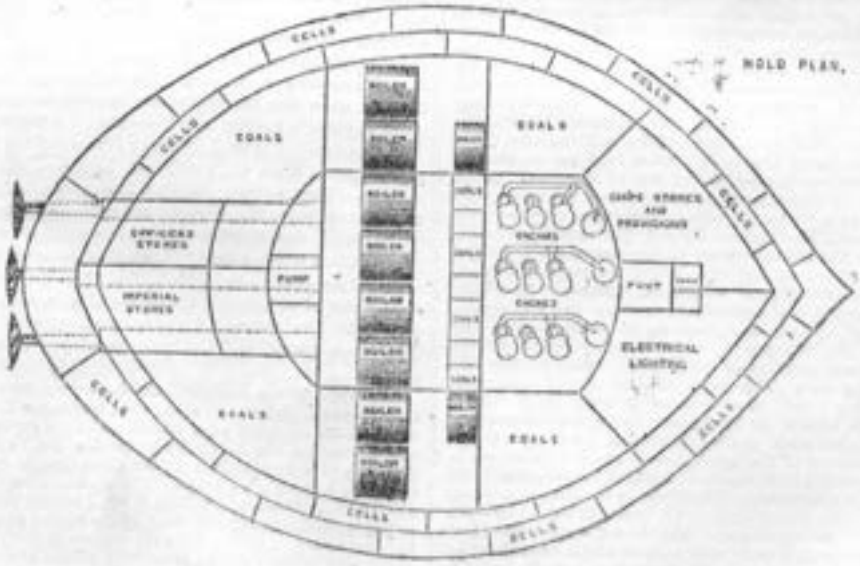
THE LIVADIA.

though the vessel sent up a heavy swell, no one was washed away. Apparently the calculations of the builders have been exactly verified, for without her engines and other fittings, the *Livadia* at present draws no more than 5 ft. of water. It may be mentioned that the breadths of her keelless bottom greatly increased the friction that had to be overcome, and made the launch a task of more than common anxiety. Fortunately, no difficulty was experienced and no accident occurred. After the launch the Grand Duke and the Duchess of Hamilton and some others of the visitors made the tour of the yard and examined the *Livadia's* engines and boilers. At the luncheon, at which Mr. Pearce, representing the firm, presided, a very numerous company was present, including the Grand Duke, Prince Lobanoff, the Duchess of Hamilton, Admiral Popoff, the Earl of Eglinton, Sir A. Campbell and Lady Campbell, Captain Goulaieff, General Gorloff, Admiral Sir Houston Stewart, and many others. After the toasts of "The Queen," "The Czar of Russia," and "The Imperial Family of Russia," the Grand Duke, responding for the toast of his health, expressed his satisfaction at visiting Glasgow, the centre of the intelligence of the country. Admiral Popoff proposed the health of the chairman, who in reply, gave the toast "Success to the *Livadia*." He said that he had derived his idea of the vessel from Admiral Popoff, and though at first the plans were regarded as experimental, he now felt confident of success. The design probably would be more valuable for men-of-war than for merchant vessels, but the latter, too, would be able to take many hints from the peculiarities of the the new ship. Singular as her shape was, her speed would be about 14 knots an hour. After the launch the Grand Duke paid a short visit to Hamilton Palace, and then returned to London.

THE LIVADIA.—Longitudinal Section.



MOLD PLAN.



International Marine Engineering, vI[v1]= ca.1895 – vXXIV[v24]=1919. Continues as ***Marine Engineering***, vXXV[v25]=1920, monthly, Aldrich Publishing Co., then Simmons-Boardman Publishing, New York, USA. Continues as ***Marine Engineering and Shipping Age***, vXXVI[v26]=1921 – tbc but including vXXXII[v32]=1927. A US-based trade and industry technical magazine with an international coverage but mostly with a US connection. Contains a mix of editorial articles and substantial articles typically 4-8 pages. Primarily about marine engineering but coverage expanded to include other shipping and shipbuilding topics. Includes many good quality photos and illustrations. Refs: none.

Example pages: International Marine Engineering, vol.xx[20] no.1, 1915 Jan, pp.1-3 [pp.1 only scanned]. "*Government shipbuilding statistics"*. [By the editor]. US government statistics. One of several short news items. Followed by a mix of technical papers, new ships and machinery announcements, and maritime news, and such like. Mostly about the US industry but with some news from other countries. **International Marine Engineering**, vol.xx[20] no.8, 1915 Aug, pp.344-347 [pp.344-345 only scanned]. "*The Red Star Liner Belgenland: triple screw passenger steamer of 33,000 tons displacement launched by Harland & Wolff, Belfast*". Detailed description of the new large UK-built ship with photos and general arrangement. Registered in the port of Antwerp, Belgium probably for service between Europe and America.

International Marine Engineering

Published Monthly by ALDRICH PUBLISHING CO.

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Government Shipbuilding Statistics In the annual report of the Commissioner of Navigation, recently published, in which shipbuilding statistics are given for the fiscal year ended June 30, 1914, and also for the construction during the current fiscal year, it is pointed out that a diminished output from the shipyards on the seaboard is to be expected. This diminution, however, is not due entirely to the effects of the war, although in Germany the construction of merchant vessels has ceased, and in Great Britain much of the merchant work has been delayed, or temporarily suspended, in order that naval construction may be pushed to completion. With the shipyards in foreign countries suffering heavily from loss of merchant construction, there are excellent prospects, however, of an increase in merchant work in the shipyards of neutral countries. If the rapid increase in freight rates in the transatlantic trade is a reliable indication of the increased demand which will soon be felt for over-seas tonnage, neutral shipyards should certainly benefit from it. The total amount of tonnage built in the United States during the fiscal year covered by the Commissioner's report was 316,250 gross tons, as compared with 346,155 gross tons from the previous year. An analysis of the year's construction shows that 46 of the 1,151 vessels built aggregated 59 percent of the total tonnage built and bears out the tendency which has been noticed in recent years towards the construction of larger vessels both for freight and passenger service.

Shipbuilding Prospects Although the decrease in the volume of tonnage turned out by the shipyards in the United States in 1914 was not wholly unexpected, there has been, nevertheless, at the end of the year an encouraging turn for the better. Within the last few weeks orders have been placed for the construction of seven new steamships, bids have either been asked or already been submitted for ten other steamships and, it is reported, inquiries are now out which indicate the placing of contracts for as many as twenty additional steamships in the near future. The vessels already ordered include two oil-tank steamships of about 14,900 tons deadweight capacity for the Standard Oil Company. This order has been placed with the Newport News Shipbuilding & Dry Dock Company, and the new tank ships will be the largest ever built in the United States. The Newport News company also has an order for a freight steamer of over 3,000 gross tons for the Porto Rico Steamship Company. Orders have been placed with the Maryland Steel Company for a freight steamship of over 3,000 tons for the A. H. Bull Steamship Company, a freight and passenger steamship of over 3,000 tons for the Munson Steamship Company, and a tank steamer of 8,000 tons deadweight capacity for the Anglo-Saxon Petroleum Company of London. This latter company has also placed a contract for a duplicate of the tank ship with the Harlan & Hollingsworth Corporation. The awards of contracts for the new naval destroyers, which were made after the shipbuilding report, published elsewhere in this issue, was compiled, gave the Fore River Shipbuilding Corporation two vessels, the Bath Iron Works two vessels, and the William Cramp & Sons Ship & Engine Building Company and the Mare Island Navy Yard one vessel each. It is also probable that the naval programme for the coming year will be fully in keeping with the policy of the present Administration as exemplified in the last naval appropriations. On the whole there is every indication that the tide in shipbuilding in the United States has turned and further improvement may be expected.

Coaling Ships at Sea A development which is of much importance to the naval powers of the world is the recent progress which has been made in refueling warships at sea. In the paper on this subject, read before the Society of Naval Architects and Marine Engineers, attention is directed to the fact that of the hundred coal-burning cruisers of the British fleet said to be patroling the North Sea, probably fifteen are frequently, if not continually, absent from patrol service replenishing their coal bunkers in English harbors or English roadsteads. It is obvious that every vessel withdrawn from patrol service in a blockade to refill its coal bunkers materially decreases the efficiency of the blockading fleet. Although the efficiency of the present British patrol may be as high as 85 percent, such a blockade could be maintained at nearly 100 percent efficiency if it were possible to coal the ships from colliers while at sea. Extensive experiments with apparatus for performing this service have been carried out by both the British and German Admiralties, but in no instance has the success attained been greater than in the case of the American naval colliers, which have been equipped with the marine cableway developed by Mr. Spencer Miller. This apparatus is the outcome of study and experiments covering a period of twenty-one years. It is

The Red Star Liner Belgenland

Triple Screw Passenger Steamer of 33,000 Tons Displacement Launched by Harland & Wolff, Belfast

An interesting commentary on the present European war occurred, appropriately enough, on the last day of the year 1914 in the launch of a large new passenger steamer by Messrs. Harland & Wolff, Ltd., of Belfast. The name of this boat is the *Belgenland* and her port of registry is Antwerp, which indicates that some hope is entertained for the restoration of Antwerp to its former position in the commerce between Europe and America.

The *Belgenland* is a triple screw passenger steamer about 700 feet long and 78 feet beam, with a gross tonnage of approximately 27,000 tons and 33,000 tons displacement. She has been constructed on the latest and most approved principle, the double bottom extending right fore and aft and the watertight bulkheads carried up to the awning deck. There are seven steel decks besides the orlop deck and the bridge deck. Accommodation is provided for 660 first class, 350 second class and over 2,000 third class passengers, the first class accommodation including a number of cabines-de-luxe on the bridge deck. In addition to the usual first class dining saloon and reception room, reading and writing room, lounge and smoke room, will be a children's saloon, room for maids and valets, gymnasium and children's playroom, greenhouse, verandah, swimming bath and electric baths. The second class accommodation, which is also of a superior nature, will include a gymnasium.

Auxiliary Machinery

The appliances for working the ship and cargo will be of the latest type, the steering gear being of Harland & Wolff design, and the steam winches, windlass and capstan are very powerful, efficient and up to date. There will be a large refrigerating machinery plant. There is a large and very complete electrical installation consisting of four main steam-driven engines and dynamos having a combined output of 1,200 kilowatts and one 75 kilowatt auxiliary Diesel oil engine set. This latter is situated well above the waterline so that in case of emergency it can supply lighting throughout the ship, wireless telegraphy, boat winches, and also operate the electrically controlled watertight doors should the four main sets for any reason be put out of action.

In addition to the lighting, which will consist of about 4,500 25-candlepower lamps, the cabins are electrically heated and there is a complete system of warm air ventilation and suction fans, the control for all of which is grouped together at a central point, enabling the air to be kept fresh and the temperature normal at all seasons. Among other electrical apparatus, there are passenger elevators for convenience in getting from one deck to another, and also electrically operated hoists in connection with the stores. The boat winches are also electrically operated and there are in addition a number of service machines in the galleys, bakeries, etc.

The propelling machinery of the *Belgenland* consists of two sets of reciprocating engines driving the wing propellers, and one low-pressure turbine driving the center propeller. The reciprocating engines are of the inverted, direct-acting, four-crank, triple expansion type, balanced on the Yarrow, Schlick & Tweedy system, having four inverted direct-acting cylinders, 35½ inches, 56 inches, 64 inches, and 64 inches diameter by 5-foot stroke, designed for a working pressure of 215 pounds per square inch. The turbine is of the Parsons reaction type and designed to operate in the ahead direction only, by exhaust steam from the reciprocating engines.

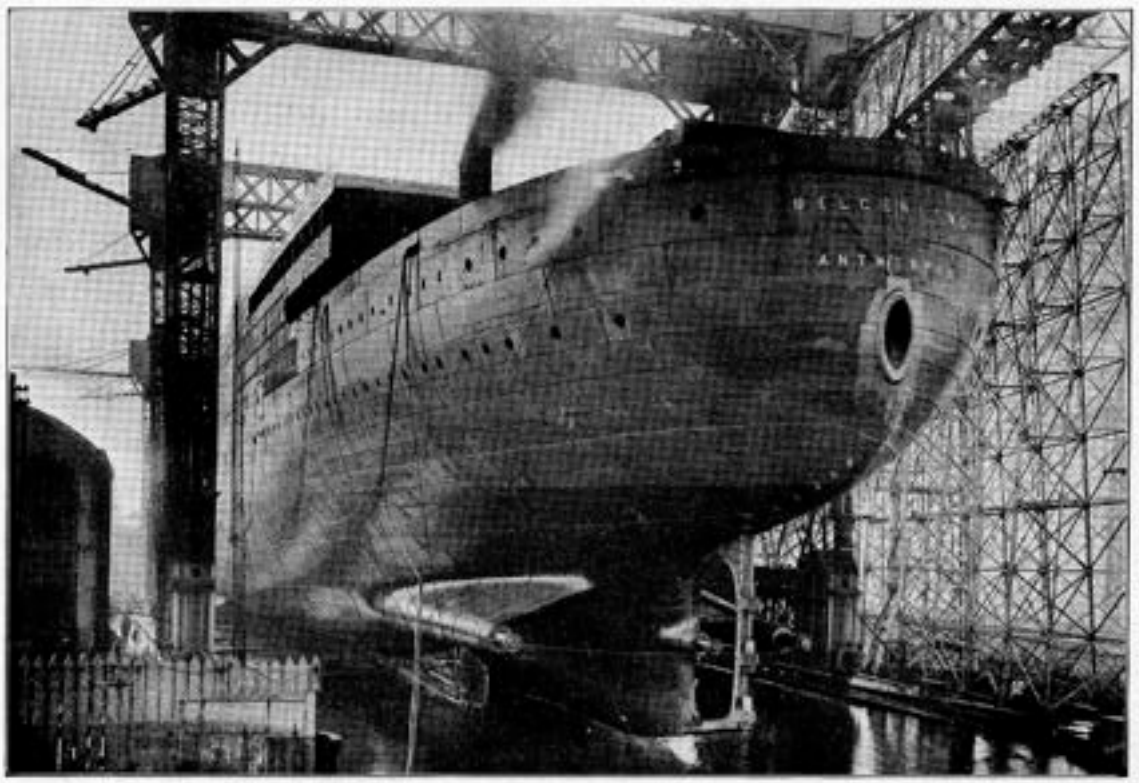
Details of Main Engines

The design generally is that adopted by Harland & Wolff, Ltd., and in construction the machinery embodies the builders' chief features and high class character. All the cylinders are independent castings of high grade cast iron with liners fitted to all of them, the bottoms of the cylinders being double, and strongly ribbed and arranged with loose boxes for carrying the metallic packing which is fitted for the piston rods and valve spindles. The cylinders and casing covers are of cast iron, box section, arranged to take escape valves, lubrication, etc. The columns supporting the cylinders are of cast iron, rectangular in section and firmly bolted to sole plates and all cylinders, the tops being securely connected together with tie bars. Loose guide plates are fitted to both front and back (the former being for the ahead motion) and both arranged for water circulation through them in order to carry away the heat which will be produced. The sole plate is of strong cast iron, box section, having nine half round recesses for shaft bushes arranged to take the crankshaft, which is built in four pieces with the angles arranged to suit the balancing of the engines.

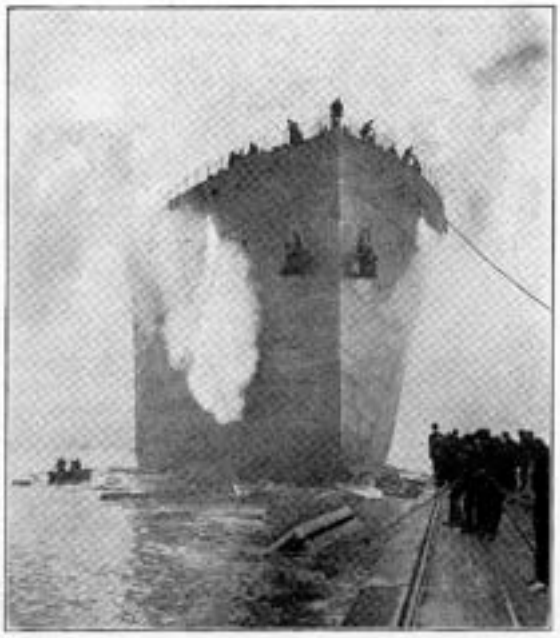
The high-pressure pistons are of cast iron, the intermediate-pressure and low-pressure of cast steel of conical shape, the weights of which have all been arranged to suit the balancing of the engine. The piston packing is of the Ramsbottom type for high-pressure and intermediate-pressure, and Lockwood & Carlisle for low-pressure, the junk rings being made specially deep for guidance, as no tail rods are fitted; all the cylinders are fitted with piston valves of hard, sound cast iron. The high-pressure and intermediate-pressure cylinders are arranged for steam to enter between the valves, the top piston in each case being larger in diameter than the bottom one to balance the weight of the valve and gear, while, in order to carry the weight of the low-pressure valve (which takes steam on the outside) and gear, balance cylinders are fitted.

The reversing is effected by two of Brown's steam and hydraulic type engines, each with a hand pump for pumping into the hydraulic cylinder when reversing by hand is required. The engines are arranged at the side of the high-pressure front columns with a hand pump in a convenient position. Attached to the sole plate of each engine is a turning engine, which turns the engine and shafting through worm wheel gearing, which latter can also be worked by hand. The governors are of Aspinall's type driven by lever from the high-pressure main engine crosshead and operate a small steam and hydraulic engine for working the throttle valve, means being provided for disconnecting the couplings and operating the engine by hand lever. An emergency governor is also fitted in connection with the main reversing engine, the reversing links being thrown into mid position when this emergency governor comes into action.

The low-pressure turbine, which is direct coupled to its line of shafting, has been designed as a compromise be-



Stern View of the Steamship *Belgenland* on the Building Ways at the Harland & Wolff Yard, Belfast. Length, 700 Feet; Beam, 78 Feet; Gross Tonnage, 27,000; Displacement, 33,000; Motive Power, Combination Reciprocating Engines and Low Pressure Parsons Turbine



The *Belgenland* Just After Launching

tween the propeller and turbine efficiencies and the weight, which is, of course, the usual procedure in marine practice. The turbine cylinder, bearing blocks and bushes are of cast iron, the latter being lined with white metal and arranged for forced lubrication. The rotor drum is of steel, hollow forged, the wheels of cast steel and the spindles of forged steel. The turbine is arranged with a dummy of such diameter that the steam thrust approximately balances the thrust of the propeller, but a thrust block is also provided at the forward end of the forward bearing block, having phosphor bronze rings fitted into steel carrying blocks. The blading is of brass of Parsons standard section.

Between the reciprocating engines and the low-pressure turbine change valves are fitted, so arranged that when maneuvering the exhaust steam from the reciprocating engines passes direct to the condensers without going through the turbine. The valves are of the balanced piston type fitted with Ramsbottom rings and worked by direct acting steam and hydraulic engines operated from the starting platform. Electric power has been utilized for the lifting of the heavier parts of the machinery, and also for the turning of the turbine rotor and its line of shafting. A governor of the Proell type is fitted to the turbine and is arranged to operate the change valve engines, so that steam is shut off the turbine should the speed of the rotor become excessive.

The thrust of each propeller is transmitted by means of

learned engineering society. Subtitle varies including Ship and Offshore in the 1990s. Contents mostly short editorial articles about UK and international marine engineering and related topics with photos and illustrations. Lots of adverts. And some news of the society. Free to members of the Institution. Also publishies an annual supplement "***Directory of marine diesel engines***" [link to example in Trade Directories] which summaries the world's engines. Refs: MER at IMarEST http://www.imarest.org/resources/professional-magazines/marine-engineers-review members only. MTSC does not subscribe.

Example pages

MER Marine Engineers Review: Ship and Offshore. 1992 May, pp.1 all by the editor "Contents"; pp.12 "Fire casualties: the burning question?" ; pp.13 "Reasons for repair at Astilleros?"; pp.33-36 [only pp.33 scanned] "Making cranes more operation-friendly" due to the increase in "gearless" vessels where derricks and cranes onboard do not have gears.

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May 1992

CONTENTS

NEXT MONTH

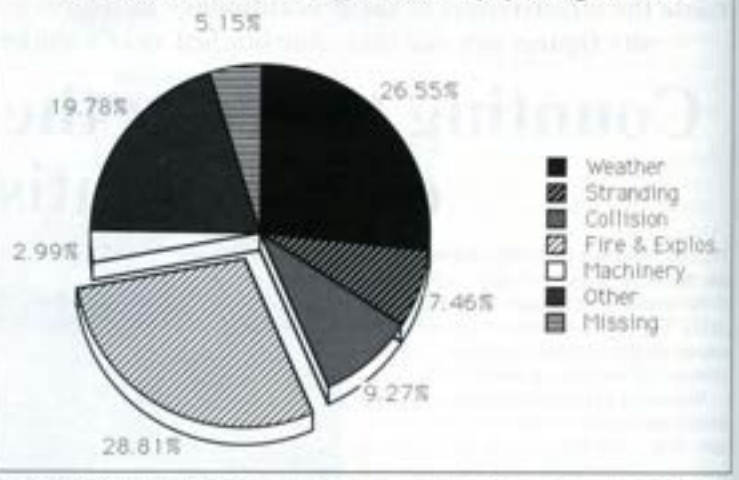
- **Multi-engine machinery configurations — engines and gearboxes**
- **Cruise ships**

FRONT COVER:

Shipboard fires are discussed at length in the Ship Safety feature this month. There is little more striking nor startling than an illustration of a tanker on fire, as the picture shows.

Fire casualties: the burning questions

Fig 1: Distribution between types of casualty by tonnage for 1991



Fire prevention regulations at sea are nothing new. There is evidence that pirates of the early eighteenth century were asked to 'swear on a hatchet for want of a bible' that any man who shall, 'snap his arms (flintlock guns, or smoke tobacco in the hold without a cap to his pipe, or carry a lighted candle without a lanthorn shall receive forty stripes lacking one on the bare back'.

Not quite in the same tenor as today's rules but the importance of minimising the threat of fire at sea is clearly evident.

Statistics

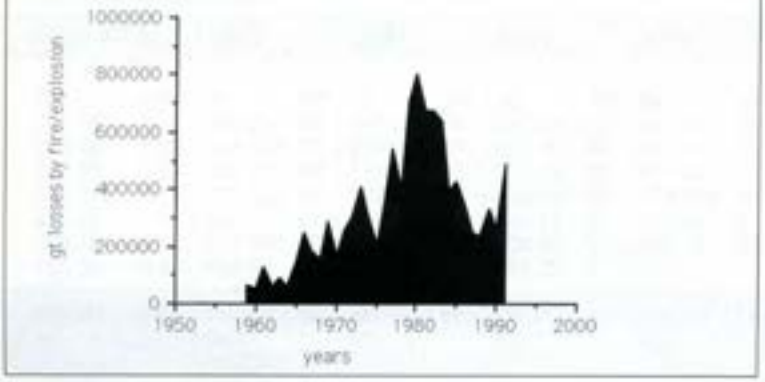
Last year of the 182 vessels lost 38 of the casualties were attributed to fire and explosion. As Fig 1 shows this type of casualty constitutes the largest single category accounting for almost 29% of all tonnage lost.

Looking at statistics dating back to 1959 it must be remembered that the world total gross tonnage was steadily increasing throughout this period. However it is possible to see that the figures do not show any progressive decline, more of a general pattern of fluctuation. Keith Harvey from the Salvage Association, who has made a special study of shipboard fires, says, 'there is no cause for complacency indicated by these results'. In fact when he examined the ratio between the percentage of the world total tonnage lost annually and the percentage of the same world total tonnage lost annually as a result of fire/explosion Harvey found that the figures showed a continuing similarity in that ratio. 'It is particularly noticeable that the ratio in 1966 was 30% and that it was the same in 1988, which indicates that no real improvement has been achieved over the period reviewed.'

A depressing thought, but casualty statistics concerning ship fire and explosions can be somewhat misleading. Sometimes the primary cause of casualties is a collision, contact or grounding and fire and explosion may occur subsequently resulting in the destruction of a vessel.

This happened in the case of the 6187gt ro-ro ferry *Moby Prince* which collided with the 98 545 gt tanker *Agip Abruzzo* in thick fog off Italy. A fire ensued in which 141 people lost their lives with both vessels Constructive Total Losses.

Fig 2: Total gt losses by fire and explosion from 1959 to 1988



Sources of fire

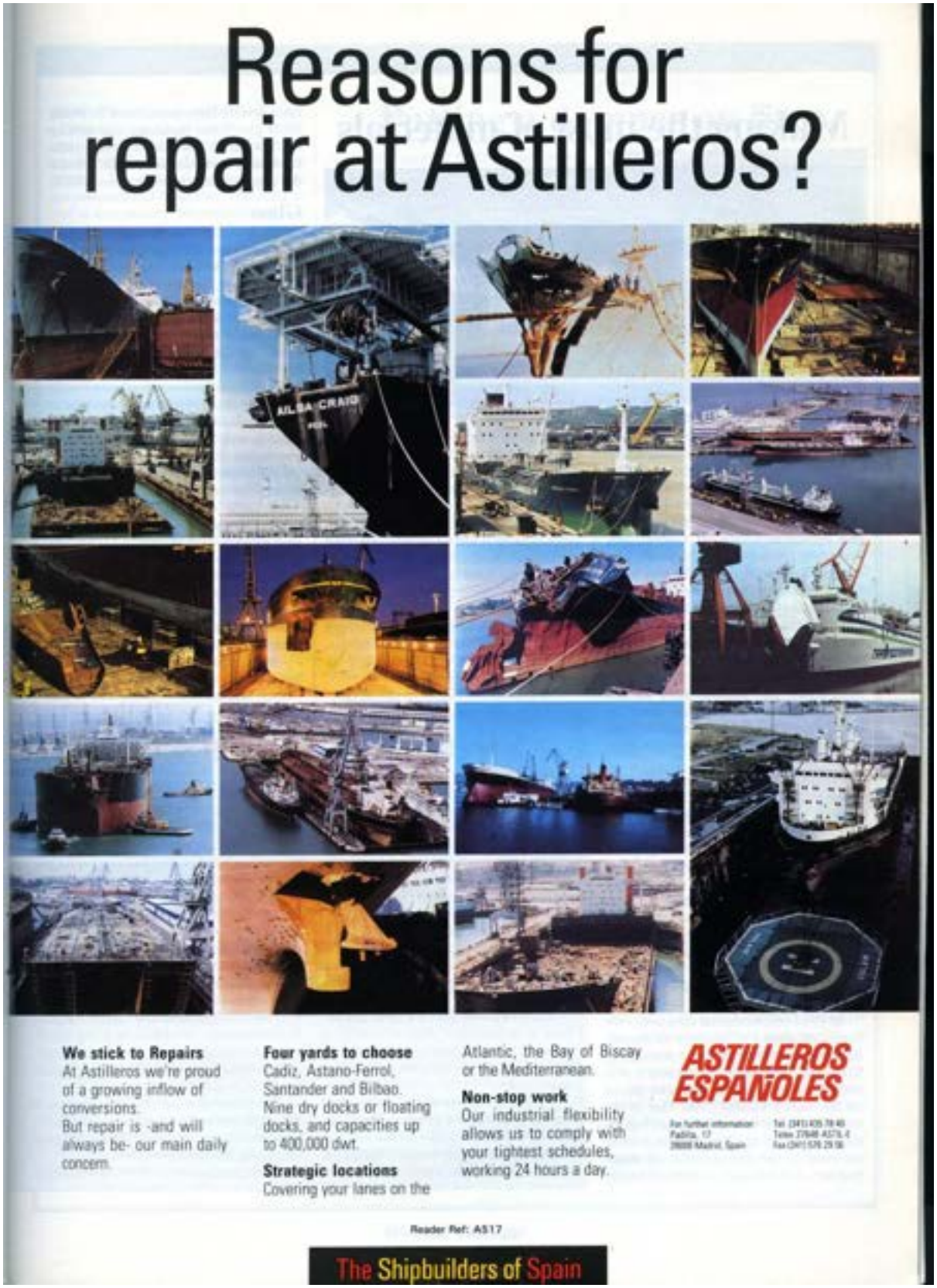
The sources of shipboard fires also make interesting reading. It is commonly quoted that about 60% of fires on board start in the engine room. Harvey produced figures that showed machinery spaces ranking high on the list of likely places for an outbreak to occur with cargo spaces and accommodation placed second and third. Fig 2 shows that in recent years there has been some ironing out of the differences between the categories but the basic order has not changed.

Harvey says that it is not surprising that more outbreaks occur in machinery spaces due to the large amounts and varieties of combustible materials squeezed into small spaces. However he also adds that such areas should also be the best protected in terms of fire and explosion risk.

No single cause

Looking at the statistics there is no simple explanation to shipboard fires. Harvey says that no single outstanding cause can account for them.

Despite major improvements in fireproof construction materials and fire fighting techniques fires continue to occur — and looking at last year's figures even appear to be on the increase. Harvey suggests that a real improvement is noticed where the vessel is well manned and maintained. In this situation, 'fires that do occur are dealt with expeditiously'.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Making cranes more operation-friendly

The evolution of cargo ships into specialist types for different trades has impacted on deck crane makers. The rise of containerisation for general cargo shipments on all major trade routes generated new breeds of large 'gearless' vessels which replaced the traditional 'geared' (derricked or craned) ships. Container handling is now commonly performed by shore-based gantry cranes rather than shipboard gear in the volume trades.

The rise of the ro-ro ship — based on horizontal cargo access via bow and/or stern rather than vertical handling through hatches — also squeezed the market for deck crane suppliers, along with increasing numbers of self-unloading bulk cargo carriers on dedicated deepsea routes which exploit continuous belt-discharging systems instead of grab cranes.

There remain, however, wide commercial opportunities and technical challenges for shipboard cargo crane designers. Deck cranes of various types and capacities are required for multi-purpose cargo ships, geared bulk carriers and containerships, reefer vessels, specialist heavy lift tonnage and certain forest products carriers.

The optimum cargo gear specification for a given ship depends on several, often conflicting, factors aimed at maximum handling efficiency and flexibility. Optimised solutions, sometimes determined by computer programs, can increase a ship's earning capability by up to 30%.

Investment is naturally geared for the smallest possible number of cranes. But if reducing the number means that very long jibs are necessary to access all parts of all the ship's hatches, the saving in cost may be partly offset by slower working speeds resulting, for example, from longer luffing times and unwieldy pendulum lengths.

The number and capacity of the crane shipset should also be matched as closely as possible to the ability of the shoreside organisation to deliver cargo to and from the ship. Medium-sized containerships with capacities of 750 TEU to 1000 TEU often serve ports in areas where investment in shoreside gantry cranes may not be viable.

Faced with the increase in 'gearless' vessels, and the need to achieve optimum cargo handling efficiency and flexibility, crane designers are meeting the challenges with solutions offering significant increases in cost-effectiveness

In the past the likely choice of shipboard cargo handling gear was a gantry crane offering advantages in productivity and spotting accuracy. The merits of lower cost and lower weight slewing cranes, however, became more appreciated thanks to developments in performance and accuracy.

Microcomputers are exploited in cargo spotting systems which enable even relatively unskilled operators to cope with pendulum effects and centrifugal forces. The systems also help in keeping containers or other cargo units constantly aligned with a given axis regardless of slewing motion and other external forces.

Such electronic aids have substantially improved productivity, some owners reporting a doubling of the hourly container handling rate. Other benefits cited include reduced operator fatigue, higher safety and lower cargo/ship damage.

Among the key design criteria in specifying cranes for dedicated geared containerships is a safe working load of 36-40t. A two-wire configuration with the widest possible jib head is preferred for easier spotting and increased stability. Highly accurate and responsive controls are also considered vital.

Another important factor is the need to allow the maximum possible container stowage on deck. Thus the crane may be expected to occupy no more than one container slot (2.4m width). A small minimum luffing radius (less than 2.4m) is also valued in order that the containers stowed closest to the crane can be handled.

All these desirable features and trends have been addressed by the major shipboard crane designers. A leading status is enjoyed by Hägglunds Marine whose market penetration is deepened by a growing licensee network embracing European and Asian manufacturers working to the Swedish group's designs.

Apart from the wire-luffing cranes originating from Hägglunds' own works, a range of hydraulic ram-luffing models is produced to the designs of the Norwegian subsidiary Hägglunds MTT. The ram-luffing model has certain limitations but on the plus side are its relatively light weight and low centre of gravity, and its ability to stow very compactly thanks to telescopic or folding jibs.

New developments by Hägglunds, reflected in recent orders, include the lightweight Type LS-1 crane, a refinement of the popular Type L-1 model. The new series covers a capacity range from 5t to 8t, while the L-1 models cover from 8t to 30t.

The LS-1 cranes were booked for the *Ivory* series of 450 000ft³ reefer vessels from the Shikoku yard in Japan (the shipset comprising three units plus a GL-type ➪

heritage. It publishes The Mariner's Mirror, the world's leading [research] journal of naval and maritime history including occasionally shipbuilding, shiprepairing, shipbreaking, and marine engine-building. Refs: Mariner's Mirror http://snr.org.uk/ subscribers only, MTSC does not subscribe.

Example pages: [under construction, not yet available].

The Mid-Tyne Link: A magazine conducted by the staffs of Swan, Hunter, & Wigham Richardson, Limited, The Wallsend Slipway & Engineering Company, Ltd, The North Eastern Marine Engineering Company, Ltd, later revised title ***The Mid-Tyne Link: A Quarterly Magazine devoted to Shipbuilding and Engineering Industries on Tyneside***, vI[v1] n1=Jul 1904– vII[v2] n8=Spring 1906, Edited by A. G. Hood. The companies, Newcastle-on-Tyne, England. An illustrated technical magazine dedicated to shipbuilding, marine engineering and related industries in Wallsend and neighbourhood, i.e. the Mid-Tyne area. Perhaps unusual in that it sought contributions from both company directors and workmen alike. Continues as ***The Shipbuilder***, 1906.

Example pages:

The Mid-Tyne Link, vol.1 no.1, 1904 Jul, pp.1 *Contents*. [showing a variety of technical and social articles];

The Mid-Tyne Link, vol.1 no.1, 1904 Jul, pp.29-34 [only p29 scanned]. *The new Cunard Flyers: a retrospect and a comparison.* By Albert A. Hood. Confirmation of hugely important orders for two new ships to be built for Cunard to compete on the Transatlantic "Blue Riband" high-speed passenger routes. Later they will be named *Lusitania* and *Mauritania.*

The Mid-Tyne Link, vol.1 no.1, 1904 Jul, pp.40-48 [only p40-41 scanned]. *Voyage of R.M.S "Carpathia".* By Philip R. Maughan*.* Later famed for being the only ship able respond and to come to aid of the *Titantic* after she had collided with the iceberg.

The Mid-Tyne Link, vol.1 n2, 1904 Oct, pp.63. *A successful apprentice*. Wallsend Slipyard employee Mr Arthur Watson excels by winning a scholarship to Greenwich College, London.

The Mid-Tyne Link.

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CONTENTS.

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1904.

The New Cunard Flyers.

A RETROSPECT AND A COMPARISON.

By ALBERT G. HOOK.

The Exchange Telegraph Company was recently officially informed by the Directors of the Cunard Steamship Company that they had placed the orders for the two fast steamships they are building under their arrangement with the British Government, one with Messrs. Swan, Hunter, & Wigham Richardson, Limited, of Wallsend and Walker, and the other with Messrs. John Brown & Co., Limited, of Clydebank and Sheffield. Ever since it became publicly known, nearly two years ago, that the Cunard Company had entered into an agreement with the Government whereby the Company would build two new Atlantic greyhounds to wrest the blue ribbon of the Atlantic from the Germans, speculation has been rife as to what firms of shipbuilders would have the honour of constructing these magnificent vessels. The Clyde, the Tyne and Barrow were all anxious to secure the contracts; but from the outset it was believed that the Tyneside company stood a good chance of being awarded one of the contracts. The official intimation that this anticipation has been realised came as welcome news to the people of Wallsend and neighbourhood, for shipbuilding on the Tyne during the past few months has been none too brisk. The building of the liner will occupy about two and a half years, and the total work involved will probably be greater than that entailed in the construction of a first-class battleship.

The placing of the orders for these leviathans marks an epoch in the history of naval construction, and more particularly of the navigation of the Atlantic, and therefore a brief retrospect at this stage may not be without interest. It was in 1492 that Columbus made the first voyage across the unknown and perilous Western Ocean in his flagship, the *Santa Maria*, of 100 tons burden, accompanied by the *Pinta* and *Nina*, two frail craft about twice the size of a modern Yarmouth fishing-boat. Three hundred and twenty-seven years elapsed before the first steam-

Maiden Voyage of R.M.S. "Carpathia."

By Philip A. Maughan.

It was a fine April morning when the guests for the trial trip were embarking at the Wallsend Shipyard, and when all who were to take passage coastwise to Liverpool were hastening aboard. The good ship *Carpathia* was released from her moorings amid the hearty cheers of the workmen, who up to the last moment had been giving the finishing touches. There was good reason for this spontaneous outburst, for it raised the feeling of the crowd of spectators that another triumph had been completed at the Wallsend Shipyard.

Soon the vessel was making progress down the river, looking spic and span from truck to waterline, the object of the attention of an admiring crowd on both sides of the river. Ere long she had crossed the bar and was riding proudly in her native element. The various trials and adjustments, familiar to all who "go down to the sea in ships" from the builders' yards, having been performed, the run over the measured mile was accomplished several times, everything going smoothly and steadily in spite of a heavy seaway, and the mean speed recorded considerably exceeding the guaranteed speed. After the luncheon, to the usual loyal toasts were honoured, and "Success to the *Carpathia* and her Owners" was toasted with enthusiasm. Then followed a graceful speech by Mr. M. H. Maxwell (a director of the Cunard Co.), in which he invited the company to drink with him to the health of the Ship and Engine Builders.

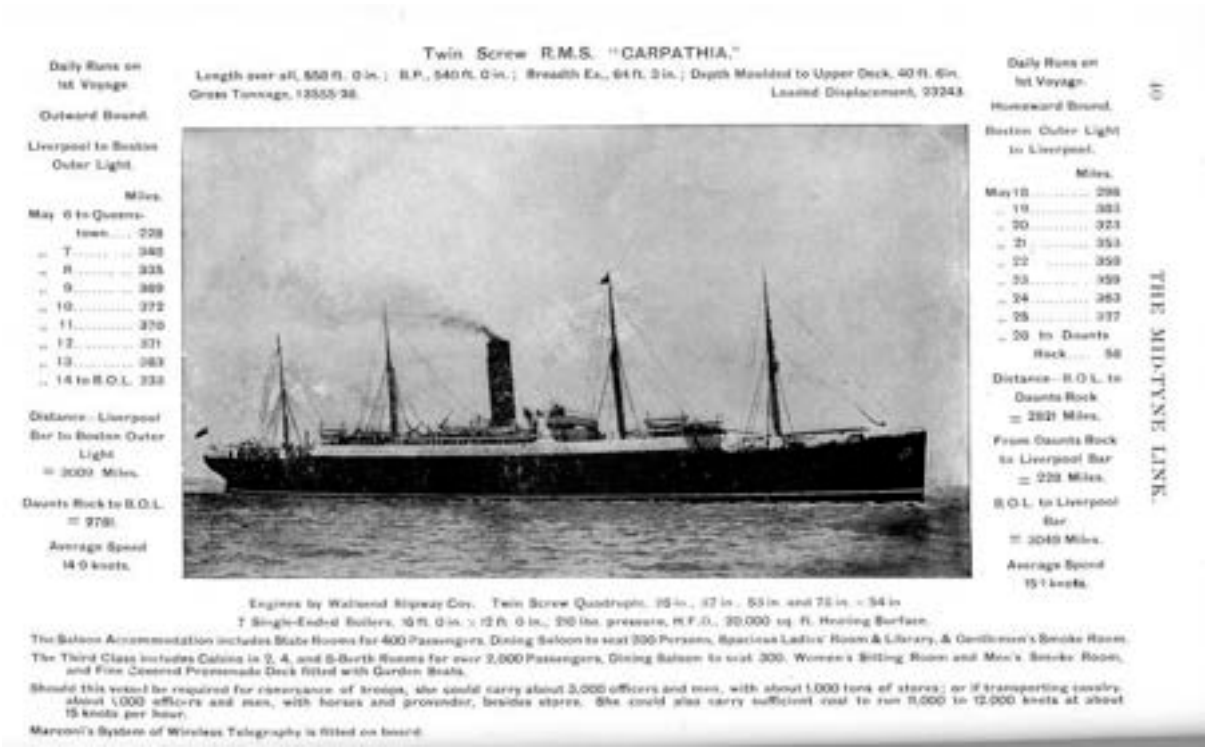
"Liverpool North about" was the next order, and the crowd of visitors who had come off for the preliminary trials and workmen engaged on the trial had to take leave of the *Carpathia*. By this time a high sea was running; but the trial trippers, with commendable promptitude, commenced the descent of the ship's side, displaying as much dignity and grace as they could command. Having reached the level of the tug as near as they could gauge it, the strong nerved ones made a bold jump for the paddle-box, while the more cautious clung tenaciously to the Jacob's ladder until strong arms hauled them on to the tug. The scene was brimful of excitement and amusement for those who, like the writer, were remaining on board. The tug, with much pitching and rolling, made straight for the river, with the cheering crowd on board waving hats and handkerchiefs; the big liner turned North about, and we soon lost sight

A Successful Apprentice.

We desire to offer our hearty congratulations to Mr. Arthur Watson, of the Wallsend Shipyard Drawing Office, who has recently gained the Bronze Medal for Naval Architecture, and, as the result of a competitive examination in Naval Architecture at Greenwich College, has been awarded a three years' scholarship, valued at £50 per annum, in addition to free studentship during his course of study at the College. Mr. Watson entered the employment of Swan, Hunter, & Wigham Richardson, Limited, in 1898. In accordance with the privilege recently conferred by the Company on their apprentices, the first year of his apprenticeship was spent in the Shipyard, and the remainder of the time in the various departments of the Drawing Office. During the whole of the period he has been employed at Wallsend, Mr. Watson has attended evening classes in mathematics, naval architecture, mechanics, &c., at the Rutherford College, Newcastle, with the satisfactory result already recorded.

On his leaving Wallsend on the 24th September to take up a course of study at the Greenwich College, both the Company and the Drawing Office Staff took advantage of the opportunity to show in a practical manner the esteem with which they regarded Mr. Watson. The presentation was made by Mr. E. W. DeBurett, who, in briefly sketching the recipient's career, spoke in eulogistic terms of the energetic way in which his duties had been performed, and expressed the belief that the special course of study now about to be taken at Greenwich College would lead to Mr. Watson securing an Admiralty appointment. The Company had been pleased to give him a present of ten pounds in recognition of his sterling character and ability, a gift which they had asked him (the speaker) to supplement by handing to Mr. Watson a copy of Macrow's Pocket-Book; whilst on behalf of his fellow-workers in the Drawing Office, Mr. DeBurett asked his acceptance of a complete set of drawing instruments.

Mr. T. Wilkinson followed, expressing the regret they felt at losing the services of one who had so distinguished himself, and prophesying for him a brilliant future. Mr. H. S. Clarke, Mr. T. H. Watson and Mr. T. Knox (a fellow-apprentice) having also voiced their good wishes for Mr. Arthur Watson's future prosperity and success, he, in a few modest and feeling words, acknowledged their gifts and congratulations.



The Motor Ship**,** v1=1920 – to date, monthly, Temple Press, London, England and then various other publishers. Launched as a technical magazine, from ***The Motor Ship and Motor Boat***, to champion the cause of the then-novel large diesel engine powered deep-sea ocean-going merchant ships, known as 'motor ships'. Previously, marine engineering magazines had concentrated on steam powered ships. A secondary role was to promote the British shipbuilding industry, then in a world-leading position, but coming under pressure from other nations including Germany. In later years the magazine covered all merchant ship types, ship design, naval architecture, shipbuilding, marine engineering, ship machinery, and ship propulsion, & related topics. Contains superb quality photos, illustrations, and ship general arrangement plans.

This is a different magazine from *The Motor Ship and Motor Boat*. Refs: Motor Ship http://www.motorship.com subscribers only, MTSC does not subscribe. The Motor Ship on Wikipedia https://en.wikipedia.org/wiki/The_Motorship

Example pages

The Motor Ship, vol.XIV[14] no.161, 1933 July, pp.125-127 [only pp.125 scanned]. Cross-Channel ships: comparison between the 22-knot motor vessel "Prince Baudouin" and the new 21-knot steamer "Cote d'Argent". Two new ships for the cross-channel Dover-Ostend and Dover-Calais.

Many of The Motor Ship's articles at this period are about non-British vessels. British owners tended to continue to specify coal-fired steamers because of the huge British coal industry and lack of oil. Whereas other countries were more willing to adopt oil-fired diesel engine with its inherent greater efficiencies.

The Motor Ship and Motor Boat: **encouraging and recording the progress in the construction and use of power craft; The authority on motor craft for pleasure and commercial purposes,** vI[v1]=1894 tbc – vXXXII[v32]=1919 continues as **The Motor Boat: For all interested in large and small pleasure motor craft and commercial motor vessels for coastal services and inland waterways**, vXXXIII[v33]=2 Jul 1920 – tbc including vXXXIII[v33]=1921, monthly, Temple Press, London, England. A UK-based trade and industry technical magazine. Includes excellent articles, illustrations and ship general arrangement plans. *The Motor Ship and Motor Boat a*fter April 1920, the two publications – *The Motor Ship* and *The Motor Boat* - existed alongside each other serving their own markets; the former still exists as *Motor Boat & Yachting*. These are different magazines from ***The Motor Ship***.

Example pages

Motor Ship and Motor Boat, vol.XX [20] no.521, 20 Aug 1914 pp.1-4 [only p1-2 scanned]. *72 h. p. paraffin motor with self-starter: special points in the Wolseley design*. Describing a new intermediate-powered engine for use in commercial vessels.

Motor Ship and Motor Boat, vol.XX [20] no.521, 13 Aug 1914 pp.131. *Submarines in warfare: British and German craft compared*. Describing diesel engine oil-powered naval submarines.

Motor Ship and Motor Boat, vol.XXI [21] no.528, 20 Aug 1914 pp.149. *Motor boats in war service*. Explaining the importance of civilian small craft which were being requisitioned by The Admiralty for naval service.

Motor Ship and Motor Boat, vol.XXI [21] no.529, 27 Aug 1914 pp.165. *The influence of war on the oil supply: a satisfactory outlook for the future*. Concerning the liquid fuel oil supply for Royal Navy and German naval vessels with the outbreak of war. Contains few hard facts and no statistics – the fog of war! Also suggesting no problems for the UK generally if the war was prolonged [oil was because coal was by far the most important fuel for industrial and domestic use and was mined in the UK!].

THE MOTOR SHIP AND MOTOR BOAT

The Authority on Motor Craft for Pleasure and Commercial Purposes.

VOL. XX. NO. 521 2ND JULY, 1914.

——72 h.p. Paraffin Motor with Self-starter.——

Special Points in the Wolseley Design.

One of the main difficulties that the marine motor manufacturer has to combat is that of meeting the requirements of each customer in respect to power, whilst at the same time maintaining, so far as possible, a minimum number of standard models in order to reduce the general works cost of construction and avoid the necessity of a large number of engine details. In this matter the internal-combustion engine stands on quite a different basis from the steam engine, since, with the latter, standardization matters but little and affects the cost of construction to a comparatively small extent, whereas, with the oil engine, the importance of standardization can scarcely be over-estimated. The result of this is that some firms have gone so far as to build one model only, and although this applies very seldom to the marine motor industry (the Kermath is the only one we can call to mind at the moment), nevertheless, many manufacturers have only about half-a-dozen models, which they obviously have to choose with much discrimination, and with the exercise of considerable knowledge regarding marine requirements.

The 72 h.p. four-cylinder paraffin motor of the Wolseley firm which we inspected recently appears to be a good choice to meet the demand of those requiring an intermediate-powered paraffin motor particularly for commercial work. No doubt, if deciding upon a particular power to standardize, one is apt to

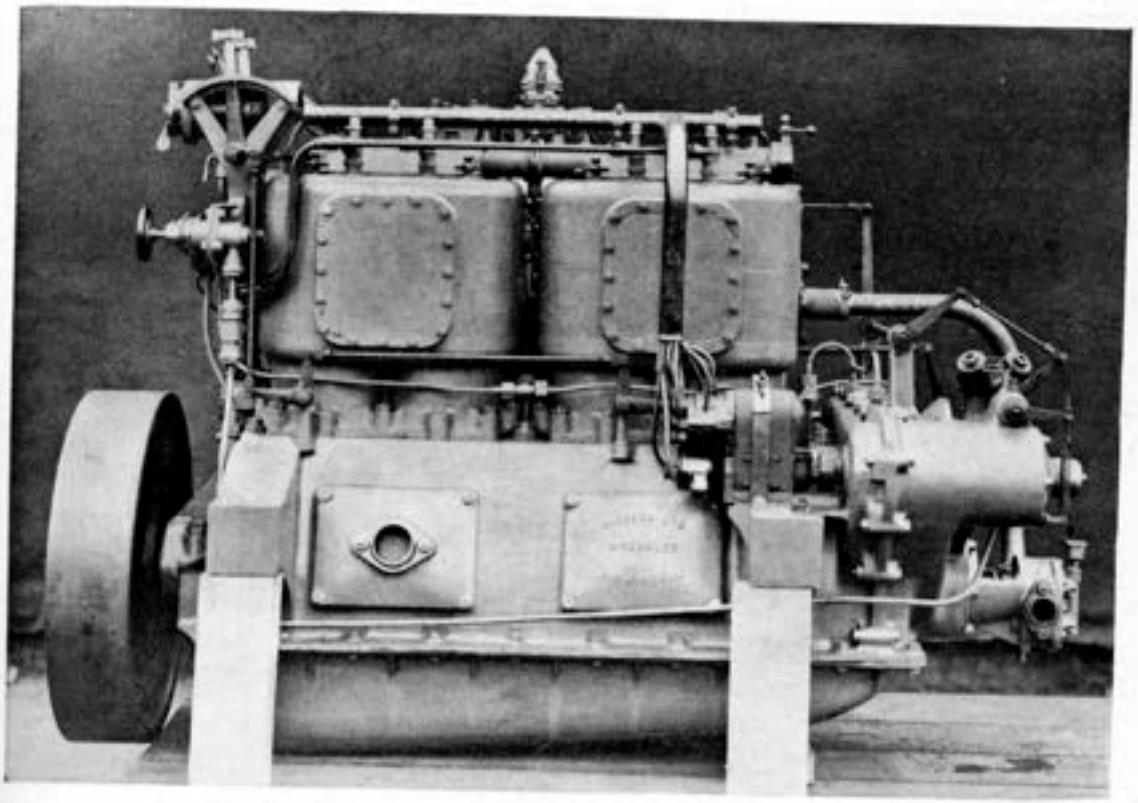
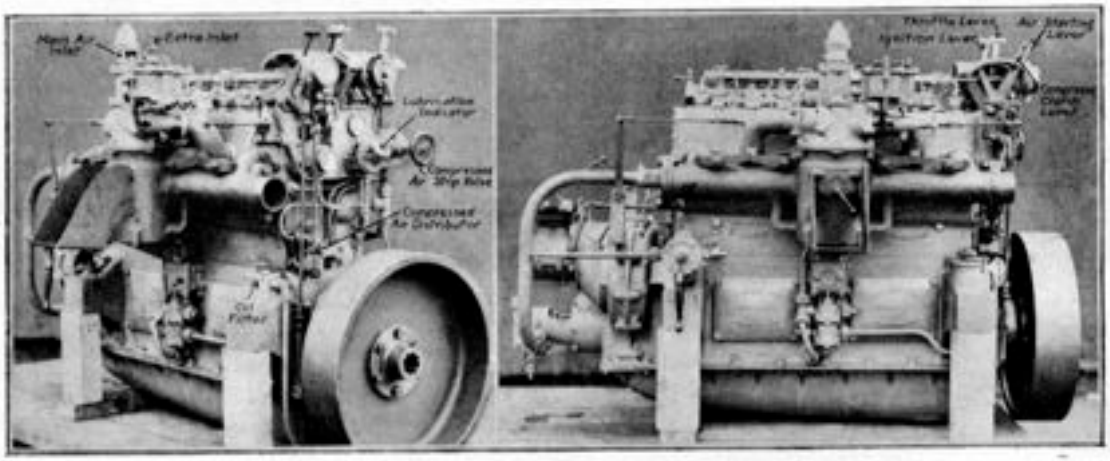


Fig. 1.—Jacket side of 72 h.p. paraffin motor.



Figs. 2 and 3.—Showing controls and vaporizer side of engine.

lose a possibility of some orders from a client desiring, say, a motor 10 per cent. in excess of the actual output. Perhaps this matter is not so very important, since, in any particular case, the difference in speed of a boat for the extra power is too minute to cause an order to be placed in another direction if a prospective owner is taken with any particular engine. The chief difficulty, in our mind, lies in the fact that, if calling for quotations, it is somewhat difficult to obtain accurate comparative costs, since few of the firms have exactly the same models.

The motor under description represents the largest size of cylinder made by the Wolseley firm, the dimensions being 6½ ins. bore by 7 ins. stroke; but the same cylinders are employed for six and eight-cylinder engines, the latter giving an output of nearly 150 b.h.p. on paraffin—sufficient to meet most present requirements for paraffin motors. The four-cylinder engine develops 72 b.h.p. at about 900 r.p.m., and can be run at a speed very considerably in excess of this. It may, perhaps, be more accurately described as a petrol-paraffin engine than most of this type, owing to the fact, as mentioned in detail later, that entirely special and separate arrangements are made for carburation when running on petrol, which, it is claimed, not only render it a superior engine in operating on petrol, but also reduces the possible danger of using petrol on a paraffin engine.

The cylinders are of the inverted "L" type, with side-by-side valves, and are cast in pairs and bolted

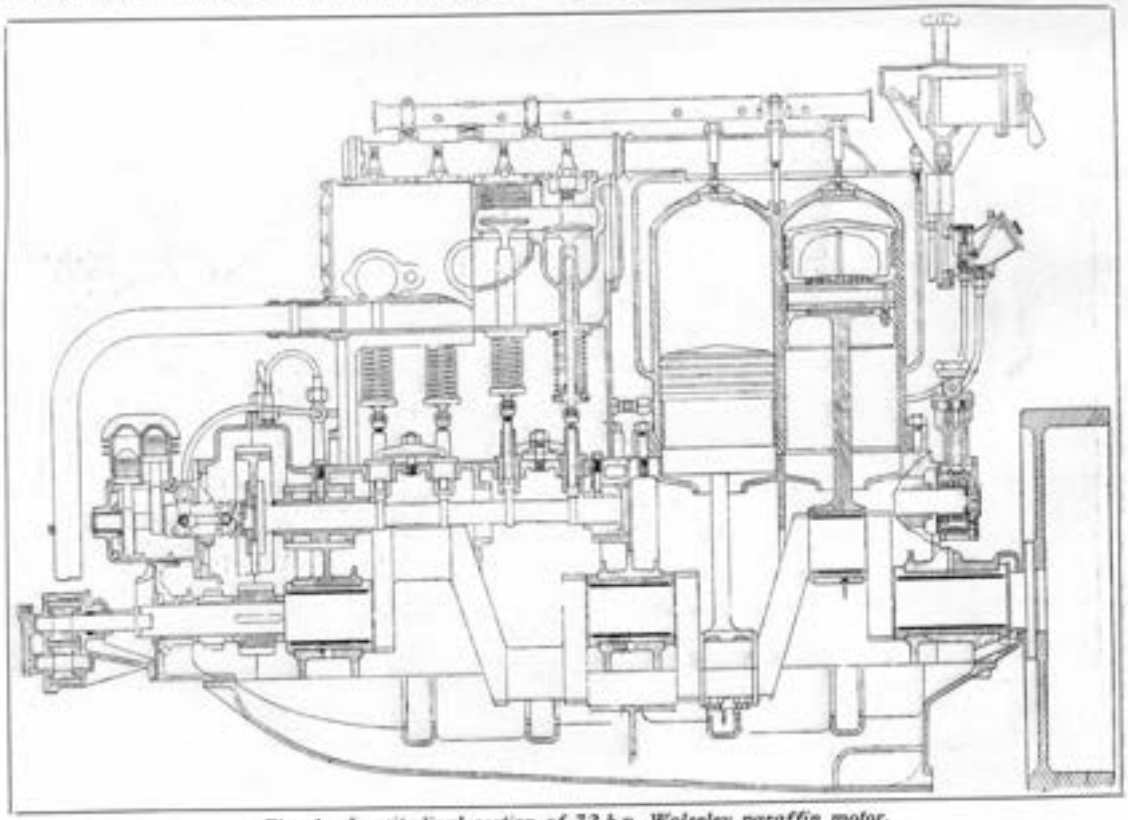


Fig. 4.—Longitudinal section of 72 h.p. Wolseley paraffin motor.

THE MOTOR SHIP AND MOTOR BOAT

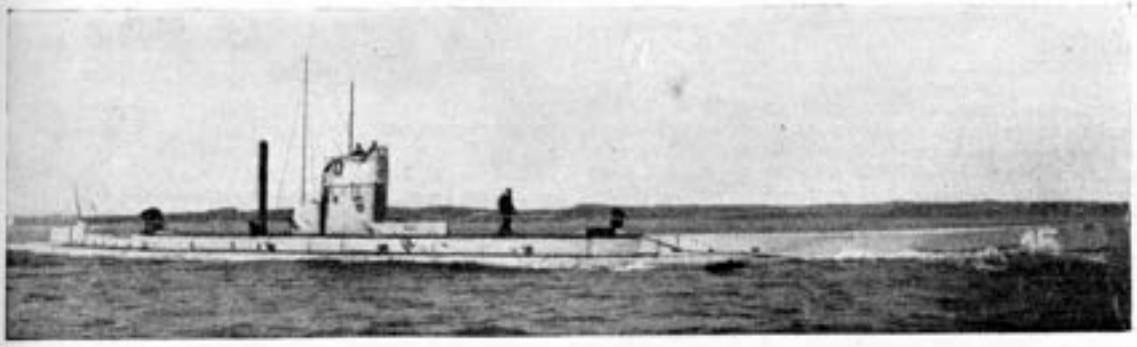
The Authority on Motor Craft for Pleasure and Commercial Purposes.

VOL. XXI. NO. 527 13TH AUGUST, 1914.

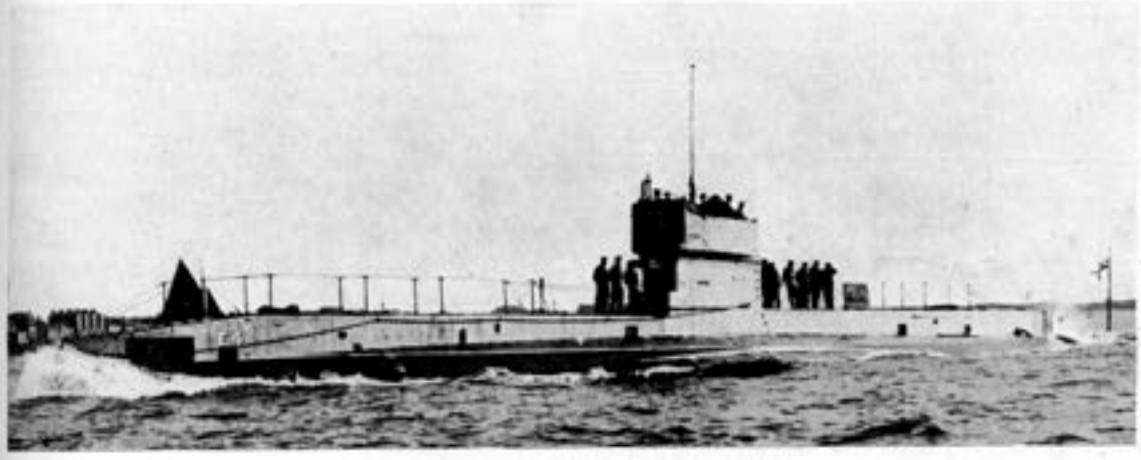
SUBMARINES IN WARFARE.

British and German Craft Compared.

Most people are aware that there is a vast difference between the modern battleships which are termed "Dreadnoughts" and those of the pre-"Dreadnought" period, but it is not always remembered that there is an almost equal difference (in some respects it is even greater) between the present-day submarines and those which were constructed as early as 1902. The modern submarine has developed with the evolution of the marine motor, and without the Diesel engine the present-day type of craft would be quite impossible, although it is probable that steam would have been used, notwithstanding that it presents many difficulties and few of the advantages of the oil engine. The earliest British submarines, built 12 years ago, were very small craft, having a length of only about 60 ft., and they were equipped with what was, in those days, quite a remarkable engine, viz., a 160 h.p. motor running on petrol. None of this class, of which five were built, is now in service, as, of course, they would be quite obsolete. They had a speed on the surface of 8¼ knots only, whilst submerged they could scarcely attain 7 knots. It is worth pointing out



German submarine "U15." This boat was sunk by a British warship last Sunday.



One of the latest British submarines, "E4."

THE MOTOR SHIP AND MOTOR BOAT

The Authority on Motor Craft for Pleasure and Commercial Purposes.

VOL. XXI. NO. 528. 20TH AUGUST, 1914.

Motor Boats in War Service.

At first sight it might appear that the uses to which motor craft could be put in times of war are very limited. This is because we are very apt to lose sight of the fact that success in warfare is as much due to the efficiency of the non-combating forces as to those actually engaged in fighting. It is hardly to be anticipated that many of the motor boats that have been given up for Admiralty service to be used in whatever manner the authorities may think fit, will be actually engaged in warfare, offensive or defensive. Of course, there is always the possibility that it may be so, and moreover the work undertaken may be quite as dangerous as if it involved actually passing through the enemy's lines.

There are now a number of definite purposes for which motor boats have been enrolled, and these come under two or three heads, the chief, perhaps, being the Royal Naval Motor Boat Reserve, whilst the others include the formation of a part of the special constabulary for patrolling the River Thames and other rivers, and also giving aid to the Customs and other officials. The Royal Naval Motor Boat Reserve Force is entirely voluntary, as is that composing the special constabulary. The Admiralty have also hired and purchased a number of private motor boats outright to use them for their own purposes and under their entire control, the previous purchaser having, of course, no further lien on the boat, although in some cases he has provided the qualified drivers necessary.

A type of vessel suitable for Admiralty service. She is fitted with a 15 h.p. Thornycraft motor. An exactly similar craft, the "Catania," is already in service.

One of the chief uses to which the motor boat has at present been put is that of acting as tender to other vessels, including warships in one or two instances. It can readily be realized that outside various ports around the south and east coast there are numerous Admiralty craft, which have to be kept in direct personal touch with the shore—a service for which the motor boat is admirably adapted.

It is not improbable that in some cases where motor boats are acting as tenders to battleships, they will have to follow the battleship, and in case of necessity the motor boat will be hoisted on board, and the man in charge will naturally have to accompany it. Under these circumstances the Motor Boat Naval Reservist is more likely to see actual warfare than is probable under other conditions.

The opportunities for motor boats in harbour work and at the mouths of rivers, such as the Thames, the Tyne, the Clyde, the Severn, etc., are obvious. Already a number have been told off for this service, and in some cases the motor boat has to make prolonged sea passages, even from the south coast up to the Tyne, in order to reach her destination.

It is not likely at the present time that boats will be used for scouting purposes, and perhaps the necessity may not arise during the course of the present war. But the fulfilment of far more dangerous work than this may be required, as, for instance, sweeping for mines, which could well be carried out by motor craft. This, however, would not be so dangerous as might appear, since in most cases these mines are too deep to be touched by the hulls of motor craft.

Another important form of work for which the motor boat is now being employed is in connection with the Customs officers, whose duties have, of course, been increased tenfold during the last fortnight or three weeks. Several of the motor boats have actually been taken over for this purpose, and are running day and night without a break in the docks and on the lower Thames. The pressure of work in this direction is not likely to be diminished until the war is entirely over.

The special constabulary of the police force that has been organized is on a voluntary scale, the necessary service being somewhere in the neighbourhood of about four hours a day. Motor boats are being employed for patrolling the Thames between Teddington and Deptford, one of the chief objects being to prevent any attempt to blow up the bridges at night, as it has been suggested that there was some such plot on hand. The river section has been organized under Lord Montagu.

As far as one can judge, the response to the appeal for motor craft has been overwhelming, and it is probable that the majority of boats suitable for the purpose have already been offered, and large numbers of them are already in service. In almost every case the service is voluntary, and it is accompanied by some danger and much discomfort. It is, however, fulfilling a most important purpose, and with that marine motorists are content.

THE MOTOR SHIP AND MOTOR BOAT

The Authority on Motor Craft for Pleasure and Commercial Purposes.

VOL. XXI. NO. 529. 27TH AUGUST, 1914.

—The Influence of the War on the Oil Supply.—

A Satisfactory Outlook for the Future.

It is a well-known fact that the British Navy uses an enormous quantity of liquid fuel for various war craft, although, perhaps, the general public is not aware to what extent a large number of the most powerful vessels are dependent upon oil for firing the boilers. There are 250 vessels, and perhaps more, in the British Navy burning liquid fuel alone, and probably about 90 in which both oil and coal are employed. Naturally, a considerable proportion of these vessels come under the head of submarines, for which a comparatively small quantity is sufficient to meet the needs.

All indications at the present moment point to the fact that the amount of fuel consumed by the various warships will not be excessive, since the distances to be covered are relatively small; it is, therefore, hardly likely the plea will have to be put forward that oil supplies will be short owing to the requirements of the Navy. This, of course, cuts both ways, and will put Germany at a smaller disadvantage as compared with this country than would otherwise have been the case, for practically all her oil supplies are now cut off. Nevertheless, it is satisfactory to owners of commercial craft plying around this country, whose very existence depends upon a continuous maintenance of sufficient supply of oil at reasonable prices.

No Shortage.

Indeed, there is very little reason to anticipate any shortage of liquid fuel for general purposes in this country, even if the war be prolonged. Tank boats are arriving here almost with their accustomed regularity, although supplies from Russia and Roumania are likely to be small. On the other hand, there will be no stoppage of shipment from Mexico, California, the Persian Gulf, and the Far East, and as the Panama Canal is now practically open for all shipping, this should have a very beneficial influence upon transport of liquid fuel from the western coast of America, including, of course, California and Mexico.

There is, too, another point particularly favourable to this country, in that it is now impossible to send tank ships to Germany, so that even if the oil originally intended for that country is not diverted to Great Britain, it implies that there may be an over-production at the oil fields, and a consequent diminution of price. This has more than a passing interest, from the point of view of the motor ship, since several of the large German tank vessels sailing mainly between America and Hamburg, such as the "Wotan," the "Hagen," the "Loki," are either in Hamburg or New York at the present time, and, of course, totally unable to trade. These three vessels alone represent a carrying capacity of 25,000 tons of oil.

Against this probable over-production of oil fuel at the fields, it has to be remembered that the British Admiralty has recently taken over a number of tank vessels employed by the oil-carrying firms, to use in connection with the fleet, so as to supply them with oil at sea. In spite of this, however, there does not seem to be the faintest reason to anticipate that there will be less than the normal supply of oil fuel coming into this country for commercial use, and any increased cost in the freightage should be counterbalanced by a reduction of the actual price of liquid fuel in the oil districts, due to the high relative production mentioned previously.

Petrol and Paraffin.

Whilst what has been said refers more especially to the heavier oils, the same influence is to be felt in connection with paraffin and petrol, so that owners of craft with engines running on one of these fuels need feel no doubt as to their future supplies. Paraffin is hardly likely to rise in price in any case, and the various petrol-distributing companies have repeatedly affirmed that they are delivering the spirit to the retailers at a price which should enable them to sell it at the figure which obtained before the war. Where higher prices are being charged one can only feel that it is the retailer who is making individual profits, although, of course, in certain cases there may be reasons for the action, which would exonerate him from blame.

It is somewhat difficult to say exactly how the consumption of petrol stands, or will stand, during the war, but it seems that it should be very considerably diminished, for, in spite of the large quantity being used in connection with transport and other matters brought about by the war, it is an undoubted fact that the ordinary consumption has been very much reduced, owing to the diminished employment of motorcars by private owners.

It is not easy to give an absolutely accurate survey of the whole problem, owing to the impossibility of gauging exactly all the details that influence the question of the supply and demand of liquid fuel during war time, but on the whole, so far as can be judged with a fair knowledge of the conditions now existing, it is perfectly reasonable to take an optimistic view of the matter from the standpoint of the ordinary user of liquid fuel (whether heavy or light) for the propulsion of motor craft of every type.

It is hardly necessary to point out the importance of this non-interference with the oil industry, since the stability of existing conditions will do much to prevent any shrinkage of the trade in marine motors in this country, besides giving a feeling of confidence to owners of motor craft.

The Motor Ship Reference Book. Ca.1940 - tbc? The Motor Ship & Temple Press Ltd, UK. Annual (every year?) review of new ship design, construction, building and marine diesel engines. Excellent photos, ship general arrangement plans.

Example pages: [under construction, not yet available].

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