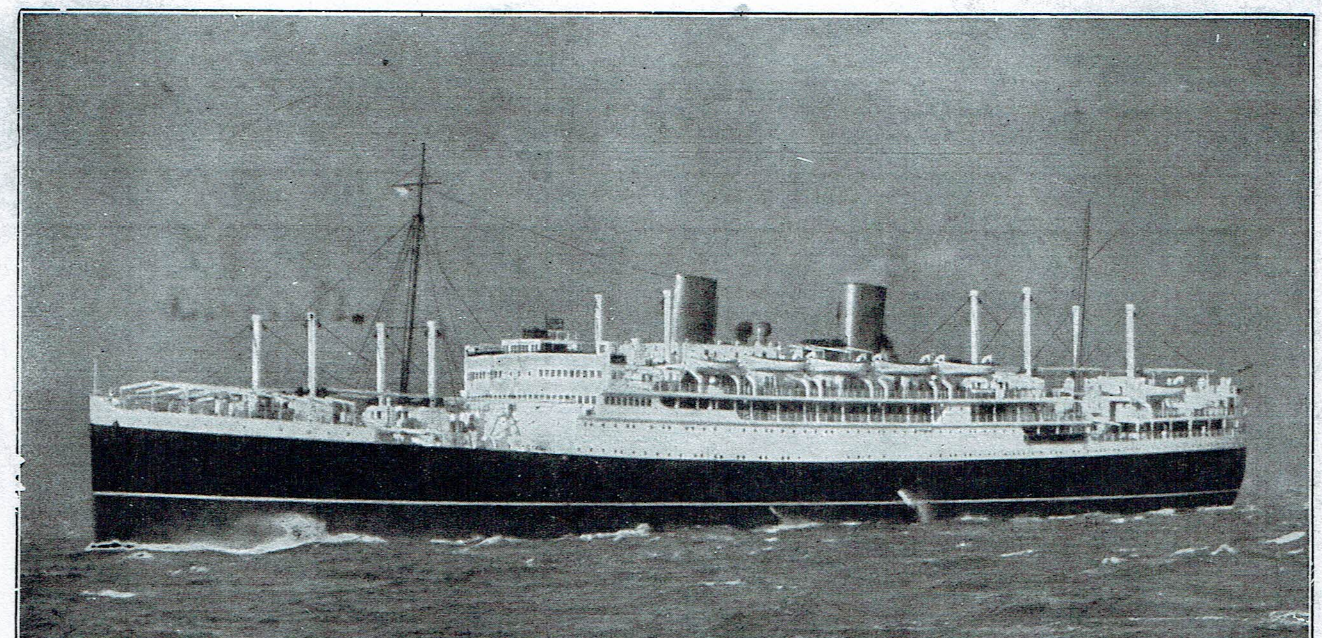
ON DECK

Official Journal of the N.Z. Company of Master Mariners

VOL. 1, NO. 2. WELLINGTON, N.Z., NOVEMBER, 1937. QUARTERLY.



The New Zealand Shipping Company's Motor Vessel "Rangitata."

ON DECK.

Official Journal of the N.Z Company of Master Mariners.

Registered at the G.P.O., Wellington, N.Z., for transmission through the Post as a Newspaper.

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Our Second Voyage.

In launching this, the second number of "On Deck," we are fortified by the belief that our first venture on the seas of journalism had a fairly successful maiden voyage. Failing a full cargo of contributions, it necessarily had to carry some ballast, and it appears not to have encountered any strong squalls of criticism. The loading of this second venture has presented some difficulties, and if the little ship is not in good trim the blame must be with those of the owners who have failed to produce the goods for this present voyage.

Dropping metaphor, it can be said that "On Deck" is the official journal of the N.Z. Company of Master Mariners and, if it is to live and grow, it needs the widest support of members. One of the objects of the Company is to watch over and safeguard the interests of Master Mariners in all matters pertaining to their profession and to give expression to the reasoned views and opinions of practical men on vital matters connected with the sea. Some members of the Company have given us their views and opinions and we and they will welcome those of other members. The columns of "On Deck" are open to all who have something worth while and interesting to tell—and there must be many such in the membership of the N.Z. Company of Master Mariners. We appeal to all to rally in support of this journal. One needs not be a Conrad or a Masefield to tell a plain tale of the sea or to contribute to our columns something of general interest to the profession.

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R T. Roberts, Wellington.
J. U. R. Richmond, Principal Nautical Academy, Auckland.
J. Ritchie, Master, U.S.S. Co.
H. Ruegg, c/o U.S.S. Co.
F. Rowlands, Master, Canopus, Westport Coal Company.
R. Scolloy, Otago Harbour Board.
R. E. Smith, Retired, Auckland.
A. B. Sizer, U.S.S. Co., Westport.
W. Scott, Master Stevedore, Lyttelton.
W. W. Stuart, Examiner of Masters and Mates, Marine Department.
J. Spence, Retired, Wellington.
A. Shelton, Master Stevedore, Port Chalmers.
C. Sundstrom, Dunedin.
H. H. Sargeant, Harbourmaster, Auckland.
E. Sutherland, Harbour Board, Lyttelton.
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H. L. Upton, Master, M.V. Durham.
S. B. Ward, c/o U.S.S. Co.
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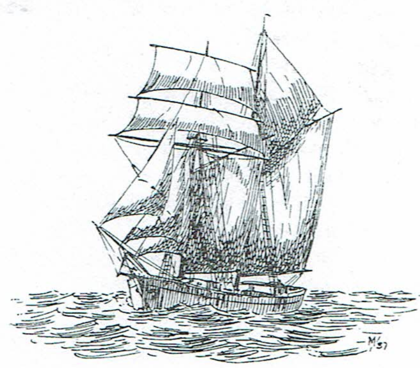
W. Whiteford, Nautical Adviser to N.Z. Govt., Marine Department.
G. Wilkinson, Eastbourne Ferry Co., Wellington.
W. R. Webling, c/o G.S.S. Matai.
A. Watchlin, Shipowner, Auckland.

The following new members recently joined the N.Z Company of Master Mariners through the Auckland Section:—

L. Anderson, U.S.S. Co., Auckland.
S. Atkins, Master, Aux. Sch. Huia.
S. Angus, U.S.S. Co., Wellington.
J. Bell, Master, Mona's Isle, Auckland.
W. A. Beswick, Pilot, Auckland, H.B.
D. Burgess, Master, W. C. Daldy, Auckland.
W. D. Cameron, U.S.S. Co, Wellington
R. M. Cliffe, Auckland.
A. Davies, Surveyor of Ships, Auckland.
J Forbes, Master, Pilot Launch, Auckland.
G. George, Shipowner, Auckland.
L. Goddard, Master Stevedore, Auckland.
H. Hogan, Pilot, Auckland H.B.
A. Jinman, Master Stevedore, Auckland,
H. Kasper, Retired Shipowner, Auckland.
G. Kelsey, Pilot, Auckland H.B.
A. V. Knight, D.S.C., U.S.S. Co., Wellington.
L McDonald, U.S.S. Co., Wellington.
D. McKenzie, U.S.S. Co., Wellington.
M. Pierotti, Marine Super., N.S.S. Co., Auckland.
D. Probert, Master, Te Awhina, Auckland.
L. G. Ramsay, U.S.S. Co., Wellington
W. Raynes, Northern S.S. Co., Auckland.
L Robertson, Surveyor of Ships, Auckland.
F. Shirley, Master, Northern S.S. Co., Auckland.
F. Warren, U.S.S. Co., Auckland.
W. Webster, Master, M.V. Port Waikato Auckland
W. Wright, U.S.S. Co., Auckland.
Rev. H. H. Vickery, Chaplain to Seamen, Auckland.



The Wellington Section

The annual function of the Wellington Section of the N.Z. Company of Master Mariners in Wellington this year took the form of a dinner held at the Hotel St. George on Saturday, 7th August.

Captain S. Holm presided over a gathering of forty-three, including the guests, among whom were His Excellency the Governor-General, Lord Galway (our Patron), the Hon. W. Lee Martin, Minister of Agriculture, Mr. L. B. Campbell, Secretary of the Marine Department, and Captain R. D. Oliver, R.N.

Apologies were received from the Rt. Hon. M. J. Savage, Prime Minister, and Hon. P. Fraser, Minister of Marine; also, from our President, the Hon. Sir Charles Statham, M.L.C., who was out of town.

The toast of "The King" being honoured, the toast of "Our Patron" was proposed by the chairman and responded to by His Excellency, who told us of his visit to a dinner given by the Honourable Company of Master Mariners just prior to his leaving the Old Country.

The toast of "Parliament" was proposed by Captain W. H. Hartman and responded to by Hon. W. Lee Martin. "The Navy" was toasted by Captain Dalgleish and Captain R. D. Oliver, R.N., replied.

Dr. E. Kidson proposed the toast of "The Merchant Service," and Captain Coll. McDonald and Captain J. Mawson replied. Captain Knowles toasted the visitors, and Mr. L. B. Campbell and Mr. Leigh Hunt responded.

The toast of "Absent Members" was honoured in bumper glasses after Captain Burgess had mildly scolded them in his droll Scotch manner.

Opportunity was taken during the evening to bid farewell to Captains W. H. Hartman and W. J. Keane, both of whom were leaving Wellington.

Shanties, songs, and stories interspersed the more serious side of the programme. The musical side of the programme was capably carried out by Captains Boardman, Sawyers, and Peterson.

The annual business meeting was held on August 9. The following members were elected as the Wellington committee: Captains A. D. Holden, S. Holm, W. H. Jessup J. Mawson, and D. R. Paterson. Captain Coll. McDonald was elected vice-president of the Company. Captain McDonald is our senior member and all members will be in accord with the appointment.

Our energetic Secretary, Captain W. J. Keane, was transferred to Auckland by the Marine Department, and his departure left a very hard task of filling the vacancy. However, Captain Knowles is his successor and we feel sure will carry out the duties successfully.

Captain W. H. Hartman, who had been ashore at Wellington as marine superintendent of the Shaw, Savill & Albion Company, has taken command of the Mataroa. Captain Hartman was a member of the Company's executive last year, and we will miss his genial company in the Capital City.

The list of officers of the New Zealand Company of Master Mariners for 1937-1938 is as follows:—Patron, His Excellency the Governor-General, Lord Galway; vice-patron, Captain Coll. McDonald; president, Hon. Sir Charles Statham, M.L.C.; chairman, Captain S. Holm; executive members, Wellington, Captains Jessup, Holden, Holm, Mawson, Patterson; Dunedin, Captain J. McLean; Lyttelton, Captain W. Scott; Auckland, Captain J. W. R. Richmond; Secretary, Captain G. Knowles. Associate members, Col. N. S. Falla, chairman, Union Steam Ship Company Ltd.;; Dr. E. Kidson, Director of Meteorological Services, and Mr. S. D. Waters.

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The Auckland Section

A meeting of the Auckland Section of the New Zealand Company of Master Mariners was held on October 20th. The members present were: Captains H. H. Sargeant, G. E. Fox, A. Davies, A. N. Jenkyns, A. Jinman, W. A. Gray, A. S. Dalgliesh, F. Warren, D. Probert, M, Holm, H. Falconer, and W. J. Keane. Apologies were received from Captains B. Burk, J. W. R. Richmond, D. McCrone and M. Pierotti.

Captain Fox, who presided in the absence of Captain C. G. Plunkett, said the Auckland Section had been more or less dormant for a long time. In extending a welcome to Captain Keane, who had been transferred from Wellington and taken over the secretarial duties of the Auckland section, he assured him that the support of all Auckland members would be behind his efforts to make the section the comparatively strong one it should be.

Captain Keane said his experience in Wellington had convinced him that in order to give effect to the excellent aims and objects of the Company it must be made as near 100 per cent. representative of all those who held master's certificates as possible.

To the strong nucleus of responsible master mariners in shore employment must be added the full strength of the younger men holding masters' certificates at sea. The seafaring profession suffered more from lack of organisation than any other. There were many problems which could well engage the immediate and serious consideration of the Company.

Captain Keane said he was not alone in holding the opinion that if it were not for the existence of Cook Strait, New Zealand would not have a mercantile marine at all. While in the past it had been the popular opinion that shipowners had only to cast a net into the sea to get it full of banknotes, it was becoming increasingly evident that the coastal sea carriage of goods was becoming slowly but surely eliminated by the unfair competition of land transport. From a defence point of view the existence of a strong coastal mercantile marine with a personnel having a complete knowledge of the coastline was essential to a sea-girt country like New Zealand.

The following committee were elected for the ensuing year:—Chairman, Captain G. E. Fox; committee, Captains H. H. Sargeant, F. Warren, M. Holm, A. W. Jenkyns, A. Davies; hon. secretary, Captain W. J. Keane.

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Safety of Life at Sea

By W. J. KEANE, Extra Master.

II.

CONSTRUCTION AND LOAD LINE.

In the previous chapter construction was dealt with only insofar as it is governed by watertight subdivision.

As well as satisfying the requirements regarding subdivision, transverse bulkheads play an important part in the strength of the ship structure. It is usual to consider this ship structure as a girder and, therefore, the transverse bulkhead can be said to form part of the web connecting the upper and lower flanges of such a girder and at the same time affording transverse strength and resistance to the racking forces induced by the ship in service. Transverse strength may, however, be considered to be of secondary importance when compared with longitudinal strength, as it is the hogging and sagging stresses induced by the ship floating amongst waves which form the chief obstacle to be overcome in the design of the safe and economical ship.

It is interesting to note here the fact that, in the past, the shipowner has been given substantial encouragement to embody features in his ships which greatly add to their efficiency from a safety point of view, both as regards strength and protection of the deck openings.

One important factor in this respect was to exempt from measurement for tonnage the spaces between the inner and outer bottoms or, in other words, to encourage the fitting of double bottoms in ships. Another was the encouragement given to build shelter-deck ships by exempting from tonnage the space enclosed by the shelter deck. As the freeboard of this type of ship is several feet greater than that of the full scantling ship, the importance of this from a safety point of view is quite evident.

The criterion of the strength of the ship girder is of course analogous with that of any girder, viz., the safe working load. This safe working load is indicated by a maximum draught which in turn is indicated by the load line.

In the assignment of a load line the important factors considered are: the strength of the ship and the percentage of reserve buoyancy considered necessary for the ship to meet all contingencies in service. The provision of reserve buoyancy ensures the ability of the ship to float with considerable added weight in the shape of loose water and also ensures a sufficient height of platform above the sea for the crew in working the vessel, as well as the protection of the vulnerable parts of the ship such as hatches, machinery openings, etc.

Space does not admit a discussion in detail of the historical aspect of the marking of load lines on ships and the evolution of the science of their assignment—a science which must be considered to be synonymous with safety of life at sea. It is interesting to observe, however, that the chief consideration in the formulation of the earliest load-line rules would appear to be the provision of sufficient height of platform above the sea and of sufficient reserve buoyancy to withstand the added weight of water lodging in the comparatively low well decks of those early vessels.

In the early days the position of the load line did not appear to be regulated by any scientific consideration, but rather by by individual opinion, governed no doubt by the scruples of the individual concerned.

There is no doubt, however, that the question of the position of the load-line was one of the major considerations of the earliest committees of Lloyds Register, and it may be safe to presume that such consideration was the birth of the investigation into the safety of the ship structure from a strength point of view. These early committees can no doubt claim with undeniable justification to be the pioneers in connecting up the many important factors to be considered in the assignment of load lines, the principal one amongst these factors being the strength of the ship structure. The first complete set of freeboard tables issued by the British Board of Trade in 1866 were based on the experience and recommendations of the early committee of Lloyds Register.

There have been two important revisions of the 1866 load line rules and tables, one by the Board of Trade in 1906 and the other by the International Load Line Convention of 1929. The most eloquent testimony of the accuracy and practicability of the work of the pioneers responsible for the recommendations which formed the basis of the 1866 rules is the fact that the subsequent revisions have made little alteration in the actual freeboards required.

The alterations have in both cases been to reduce freeboards, such reduction being made possible by the advances in shipbuilding and the more efficient protection of the openings in the weather decks. When these factors are taken into consideration it may be justifiably asserted that no other rules in connection with ships or shipbuilding have stood the test of time and experience in such a remarkable manner. The International Load Line

Convention of 1929 in a similar, but, perhaps, more marked degree than the International Safety Convention, put the building and operation of mercantile ships on an international basis, tending therefore to bring marine transport to the high level on which we find it to-day as regards safety when compared with land transport.

The 1929 rules lay down the standard of strength of the ship structure as a basis for the assignment of load lines and the strength requirements of the various classification societies conform to these standards.

These rules specify the longitudinal and transverse strength of a ship based on materials of a known quality. The measure of longitudinal strength is known as as the longitudinal modulus expressed by the notation I—Y where I is the moment of inertia of the midship section of the ship, considered as a girder about the neutral axis and Y the distance from the neutral axis to the top of the strength deck beam at side. The measure of transverse strength is known as the frame modulus I—Y and is that of the midship frame below the lowest tier of beams.

It will be noted that in the case of longitudinal strength the whole midship structure is taken into consideration and in that of the transverse strength the lower part of the frame only. The information made available to the shipowner and shipbuilder by the classification societies covers in a complete manner the whole range of the sizes of the various component parts, not only of the ship structure, but of the propelling units and equipment of the ship, and is accepted by all the maritime nations as a basis for the assignment of the loadlines of ships. Assuming, therefore, that the ship conforms to the standard of strength required, the computation of freeboard is made much in the same manner as that for the requirements of watertight subdivision. Basic freeboards are tabulated for various lengths of flush-decked ships of standard proportions. Length, depth, sheer, round of beam, and co-efficient of fineness are the principal variable considered when comparing the actual ship with the standard ship for the purpose of assignment of freeboard. A correction is also made for superstructures on the main or freeboard deck when these conform to certain standards.

Under the 1929 Rules particular attention has been given to the strength and security of the appliances for closing the openings, such as hatches, ventilators, etc., in the weather deck. There has been a great advance in the improvement of hatch coverings in some aspects, and it would appear that the steel hatch cover is the ideal as far as safety is concerned. It must be admitted, however, that it is with regard to hatch coverings that safety and economic considerations come to some degree into conflict. It must be admitted that the wooden hatch cover is still favoured to a great extent and will no doubt continue to be so, by a large majority of owners, especially in the ships of moderate size, where lack of space for stowing steel hatches precludes their use.

In spite of the known vulnerability of the wooden hatch cover it is surprising that there has been no generally accepted advance in the method of securing these covers. If more attention was given to the locking arrangements of this type of cover the present danger due to haphazard methods of securing them would be largely non-existent. This to a great extent is the responsibility of the operating personnel

Prior to the 1929 Convention the assignment of freeboards was the same irrespective of the particular trade in which the ship was employed, that is, as regards the nature of cargo carried. The Convention was called upon to make two important modifications, both of which gave rise to considerable discussion amongst the representative delegates. These modifications were in respect to tanker freeboards and freeboards for vessels carrying timber deck loads. Up to that time American owners had had most experience in the successful operation of the class of vessel known as the oil tanker and in the light of their experience desired to load their vessels to a lesser freeboard than proposed by the rules as then drawn up. The proposals were at first strenuously opposed by the British delegates, but after further consideration, which concluded an analysis of the incidence of losses amongst American oil-tankers which had been operated at the deeper load lines, a considerable reduction in freeboard for oil-tankers was agreed upon, though the full reduction required by the American interests was not conceded. Among the important considerations taken into account in allowing reduced freeboards in tankers were: The efficient protection of deck openings, the longitudinal strength due to necessary subdivision, and the facility for quickly lightening the vessel in an emergency. Open bulwarks and fore and aft gangways for the crew to move about the ship are compulsory requirements for the reduced freeboards

Similarly, the question of timber deck cargoes with attendant reduction of freeboard was raised by the Scandinavian countries, who practically enjoyed a monopoly in the Baltic timber trade to Great Britain. The opposition of the Board of Trade to these proposals could not hold out against the arguments supporting the safe operation of the ships in question. It was argued that a well stowed deckload fulfilled the same purpose as a superstructure, adding reserve buoyancy to the ship, protecting the weather deck openings and excluding water from the well decks of these vessels. Consequently, a reduction of freeboard was allowed in the case of vessels carrying full deckloads of timber subject to the following conditions:—(1) The strength of the vessel was such as to withstand the deeper and special loading. (2) Adequate measures were provided for securing the deck load, and maintaining the stability of the vessel (3) The well decks to be filled with timber, closely stowed, to a **minimum** height of 7ft.

It would appear that these considerable reductions in freeboards were a sacrifice of some measure of safety in the ships engaged in these particular trades, but when the conditions to be observed in order to have these freeboards assigned are examined, it will be found that they more than offset any danger due to deeper loading. As far as the crew are concerned the fact that they do not have to move about the well decks in bad weather is an important factor affecting their individual safety as well as their comfort, while the efficient protection of the weather deck openings in both cases makes them comparatively safer ships in spite of the deeper loading.

In concluding this part of the article dealing with Construction as regards the safety of life at sea it must be readily admitted that we appear to have reached the stage in ship design and construction at which the safety factor and the economic factor are in close harmony. The retention of this state of affairs appears to lie largely in the hands of those immediately responsible for the building and operation of our mercantile marine. Brief reference must be made to the wonderful advance in the efficiency of ship propulsion in any article dealing with safety of life at sea. When it is considered that the economical speed of cargo ships has risen from 9 knots to from 14 to 18 knots, it will be apparent that the dangers of any particular voyage have been reduced in much the same ratio. It can be claimed, therefore, that in the development of the merchant ship to the high state of efficiency in which we find it to-day, safety of life has at all times been given the due regard its importance demands.

It may perhaps be mentioned here that safety of life at sea has been popularly measured by the provision of lifeboats, life belts, and all other equipment designed for use in case of extreme emergency. The more correct measure is perhaps the research and formulation of rules for the design and building of ships in such a manner that, combined with the higher efficiency which is to-day demanded from the operating personnel, the necessity for such life-saving appliances is reduced to the barest minimum.

(To be continued.)

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Looking Back

By A.H.D.

"Stand-by to take a cast of the deep sea lead." How vividly that order comes back to me when I stand in our present chart-room and gaze at all our array of modern scientific instruments; not the least important of which is our echo sounding recorder which the second officer has just started and which is recording the depth of water under us and making a graph of the sea bed at the same time. One glance every now and then is sufficient to ascertain the exact depth of water under the ship—a wonderful safeguard in these days of high speed when the visibility is low.

I look round at the young men of to-day and think of the youngsters of my day and wonder whether we really are so far ahead now as some would have us believe. I have seen one of our bell-hops taking his little lady love to the pictures and by the legend over the ticket window, noticed he was spending as much for a couple of hours entertainment after three weeks at sea as I had to spend in a week after three years at sea. In my boyhood days, our wants were so few on account of the fewer distractions we had in comparison with the pleasures surrounding the youth of to-day.

In my early days in sail, we left port in a ship equipped with a few hundred square feet of canvas, a wheel and compass, a shark hook and a deep sea lead. To-day, our ship steers automatically with the latest gyro-compass, has echo-sounding apparatus and a radio direction finder. When I think of all this rapid progress, I often wonder where it is all leading to. After all, the ultimate aim of all mankind is happiness. Are we any happier to-day than we were 30 or 40 years ago? With all our advancement in labour saving appliances and the doing away with all physical endeavour, it is conceivable that the boy of my day was often happier than the present day youth. In those days we were often physically tired and ate and slept with more enjoyment than my own sons could to-day. Then, it took so little to give us pleasure when to-day it takes so much.

I look around me at the obscured horizon and wonder at the change that has been wrought in my life at sea. I think of those fine seamen in those early days who officered our ships—always first in any danger and always to be relied upon in any emergency. What of the officer of to-day? A totally different man—more erudite and with a much higher technical training, but a very fine stamp. I find the present day officer alert and intelligent and many a night have I lain in my bunk, and hearing the steady tread of the watch-keeping officer over my head, turned over and slept in perfect confidence that the ship was in safe hands and that I would be called immediately if the conditions changed or the officer was in doubt about anything.

I was brought back to earth again by the voice of the second officer at my side reporting, "The 100 fathom line showing now, sir, which makes us 20 miles off the heads and the Mascot aerodrome beacon bearing 9 degrees on the port bow." A moment's calculation and I reply, "Reduce speed to 100 revs"—and thus we make Sydney on schedule.

When I compare this with my earlier days in sail, making the same port with the same conditions of low visibility, I have to admit that the present day advancement has made it easier for us all and certainly has made the arrival safer which, after all, is the principal consideration. When I look back to the late 90's, making Sydney in a sailing ship with the low visibility which we are experiencing to-day in my modern ship, it is then I appreciate the vast strides that have been made in the direction of safety at sea. Then it was "stand by to take a cast of the deep sea lead." This lead, which weighed 28lbs, had to be carried from the poop-deck aft to the forecastle head forward outside all the rigging with the long deep sea line attached to it. This in itself took some little time and several men were stationed at intervals along the ship's side with coils of the line in their hands. As the sounding could be taken only when the ship was stopped, the way had to be taken off the vessel by backing the main-yards and putting the sails aback to check the way. When at last all was ready, the Bosn'n, who usually held the heavy lead, would throw it to windward and as the line uncoiled out of his hand would call out, "Watch there. Watch!" and this cry would travel down the deck as each man felt his coil leave his hand till the heavy lead reached the bottom. As the line was marked at intervals all the way down, the depth was ascertained. Then came the task of hauling the lead up again. A small snatch-block was fastened in the mizzen rigging, the line lead through, and the rest was done by our hauling—a nice wet job it was too, with the cold water running down our arms. The main yards were then squared and the ship proceeded in towards the land till another cast was considered desirable and the same performance had to be done all over again, and none of us got any drier in the process. By backing and casting at frequent intervals, we eventually located the 100 fathom line.

Yes, come to think of it, we are very much better off to-day and the ship, passengers and crew are certainly very much safer. Ah! yes, I think after all that the modern days are better, and I, for one, do not want to go back to the "good old days.'

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War Training for the Merchant Navy

For the first time on record the Admiralty is to provide facilities for officers of the Merchant Navy, other than those in the Royal Naval Reserve, to undergo war defence training in peace.

This highly-important decision was announced in an Admiralty statement recently issued.

The machinery for providing such training has already been organised and will shortly be in full operation. Instructional centres are to be opened in the following ports: London, Liverpool, Southampton, Glasgow, Cardiff, Hull, and South Shields. At these centres Merchant Navy officers—other than Royal Naval Reserve officers, who are already trained in their war-time duties—who volunteer will undergo a course of instruction on how to protect and defend merchant ships in war.

Lectures and demonstrations will be given on: General principles of trade protection, convoy work, signalling, anti-submarine measures, protection against mines, anti-gas measures, and working of guns, including anti-aircraft weapons, and fire control. All masters and navigating officers of British nationality, whether serving in ships or unemployed, are eligible for this course. Chief engineers may attend the lectures on convoy and anti-gas measures. As the full course has been divided into 10 three-hour sessions, it could be completed in a week, or five working days. But to meet the convenience of Merchant Navy officers who are unable to do this the sessions may be taken at any port where instructional facilities exist, and, with certain restrictions, in any sequence. Officers attending the courses will, when necessary, receive an allowance for meals and be refunded their travelling expenses within limits duly to be announced. It is hoped later to extend the scheme by opening instructional centres at Falmouth and Belfast, and also to arrange for officers of ships at other ports to be given instruction by existing staffs. Full details of the organisation of the date when the course is to commence will be published in pamphlet form and distributed in the requisite quarters. Until this has been done no application for the course can be made.

This far-reaching scheme has been formulated by the Admiralty in collaboration with the representative bodies of shipowners and Merchant Navy officers, who have given assurances of their support. It should fill an obvious gap in the national defence system, since many officers now serving in the Merchant Navy were not a sea during the last war, and up to now—unless they were members of the Royal Naval Reserve—they have had no facilities for learning the duties which they might have to perofrm in war.

The new scheme has been prepared in conjunction with steps that are being taken to supply defensive equipment for merchant ships in war. There has already been accumulated an immense reserve of effective guns for this purpose.

It is pointed out by the naval authorities that the war knowledge required by masters and other officers of merchant ships falls mainly under two headings (1) Knowledge of the general principles on which the Royal Navy bases its system of trade defence, and of the part merchant ships must play in this system so as to reduce the probability of attack to a minimum. An important aspect of this is the knowledge required for sailing in convoy. (2) A knowledge of the defensive equipment with which merchant ships will be provided in war, and of every thing connected with the use of this equipment.

Only by such knowledge can it be ensured that a ship, when attacked by an enemy not strong enough to effect an immediate capture, will give such a good account of herself as will enable her to beat off or escape from her enemy—whether submarine, aircraft, or improvised surface warship lightly armed—or to gain time to allow help to reach her. Further, it is only by the correct handling of defensive equipment that the mine menace can be reduced to a minimum.

During the Great War thousands of Merchant Navy officers and ratings received intensive training in gunnery, signalling, convoy, and mine-protection measures. But never until now have our merchant seamen had the opportunity of learning in peace time how to defend their ships in war.

Life At Sea

(From "The Economist," September 18.)

The social conscience of the community has been profoundly stirred by the question of slums in our midst, and the Ministry of Health and the local authorities are energetically working for their eradication. So far, however, little public attention has been given to the kindred subject of living conditions at sea. The quarters provided for the crews of many British merchant ships engaged in foreign trade are, by general admission, unsatisfactory; and the Board of Trade instructions are now out of date in many important respects when judged by modern standards. It is a disturbing fact that, while Britain, with her 17-18 millions of gross steamer and motor-ship tonnage, still leads the world in the size of her fleet, in the past she has fallen behind other nations in enacting and enforcing legislation for the welfare of her maritime population.

A change for the better is, however, indicated by the new Board of Trade Instructions which were published on September 6th. In brief, they are intended to bring the legal minima of crew accommodation into line with the standards provided by the most progressive shipowners and shipbuilders at home and abroad. Hospitals are to be provided in all merchant ships above 2,500 tons. Loftier quarters, single tier bunks, improved facilities for eating, sleeping, washing and bathing, and better ventilation are other requirements now laid down.

Many modern ships already conform with the majority of these requirements and a number even exceed them. It was from the Shipping Federation at the request of the Board of Trade that the original proposals for these changes came in 1930. Nevertheless, so long as the law on the subject was obsolete, serious deficiencies in accommodation were possible. A number of ships to-day are sadly below the new requirements—partly because of the low standards of war-time building, and partly because of the difficulties of making improvements during the recent depression—and so long as they put to sea there will be "sea-going slums" despite the new orders. Bad habit in ship design cannot be eradicated by official fiat, though some improvements can be made.

It is true that seamen's conditions have been steadily improved since Samuel Plimsoll began his memorable crusade against "coffin ships," in the latter half of the nineteenth century. In the newer and larger vessels, indeed, the raising of standards of accommodation has been appreciable. And the new regulations come at the end of more than a decade's activity by shipowners, seamen and sanitary authorities. Even so, there are still important problems to be solved.

Under Section 10 of the Public Health Act a ship has the status of a house, and, accordingly, must be maintained in a sanitary condition. The sailor, however, lacks the sanctuary of a park and playing field in his hours of leisure. He is tied to his home at sea more closely than the dweller in the worst slum; and he lives at his job; for the mariner's house is his forecastle. For the landsman, the Ministry of Health prescribes minimum housing standards, and the Home Office has powers for the regulation of industrial conditions. Both authorities have medical departments to assist them in carrying out their duties, but for the sailor there is no analogous competent corps of medical men, apart from the port sanitary authorities, whose work is important in maintaining the best possible level of health, since they cannot make regular inspections under working conditions at sea.

For many years past, there has been a striking consensus of expert opinion on the shortcomings of living accommodation in many sea-going vessels—though it must be remembered that the port sanitary authorities, who make these comparisons, visit British ships in the worst conditions, when the crew has left at the voyage's end and quarters are dirty and deserted. As long ago as 1902, Dr. Collingridge, Medical Officer of Health of the Port and later of the City of London, wrote that the sanitary state of British ships was fifty years behind that of the rest of the country. Eight years later, Dr. H. Jones, late Medical Officer of Health of Newport, declared that Norway was far ahead of Britain in improving the hygiene and space for the crew. In the following year the Congress of the Royal Sanitary Institute passed the following resolution:—

> That having regard to the unsatisfactory accommodation provided for the crew of many new vessels built in this country, the Council of the Royal Sanitary Institute be asked to approach the President of the Board of Trade with the view of securing a thorough revision of the requirements of the Board of Trade under the Merchant Shipping Acts, in respect to the living quarters for officers and men of all new vessels built under their supervision.

Almost identical resolutions were passed by the Association of Port Sanitary Authorities in 1922 and 1935. And five years after the Shipping Federation recommendations of 1930, it was still asserted that the quarters in a British vessel then under construction closely resembled those provided for the crews of British ships 20 to 30 years earlier.

The uneven progress of improvement in these respects, hampered by the severe effects of depression on shipping and shipbuilding, is seen by comparing conditions in many present-day British ships with those of Norway and Sweden, whose seamen's quarters have usually been planned and furnished with a constructive imagination. In these vessels the dominant motives are comfort and cleanliness. They possess desirable facilities like washbasins, shower baths, mess-rooms, hospitals and a system of separate berths; and have clearly inspired the new Instructions of the Board. In Britain's case these amenities have often been confined to ships of large tonnage, or to smaller vessels belonging to progressive owners.

An intimate relationship between unhealthy environment at sea and the high rate of tuberculosis among seamen has been suggested by such pioneers in marine hygiene as Dr. Dearden, Dr. Howard Jones and Fleet-Surgeon Home. It is alleged that figures of the occupational incidence of tuberculosis in Cardiff for the eleven years 1924 to 1934 show that while the mean annual case rate per 1,000 of all males investigated during the period was 2.60, among sailors the rate was as high as 12.55. The death-rate per 1,000 from the same scourge in England and Wales, in 1934, was only 0.76; at Cardiff, however, between 1923 and 1934, it was 1.15; at Manchester, 1.13; at Middlesbrough, 1.24, and at South Shields, 1.75. These towns and cities are, of course, large centres of population, and not merely ports for foreign-going shipping; but the experience of Cardiff suggests that the unfavourable incidence of mortality among seamen has perhaps helped to swell the total figures. During the period mentioned, the rate for the whole of Cardiff was 1.15 but in the Municipal Ward of Adamstown, where the majority of the sea-faring population live, it was no less than 3.49.

These figures are not sufficiently detailed or comprehensive to support a general or convincing indictment of sea-going accommodation on health grounds. Their use in this way is controversial, but they do at least suggest that seafaring is a dangerous trade in more ways than are generally realised. It is hard to avoid the conclusion in fact, that the conditions under which some crews live may be a predisposing influence to higher disease and mortality rates. The general improvement of these conditions has been delayed in spite of efforts on the part of both owners and men. But the new instructions will generalise the best current practice. As in certain of the more progressive foreign countries an endeavour will be made, under the new regulations, to check possible abuses at their source by laying down high standards to surveyors which must be satisfied before ships are passed for service. Moreover, not only will it be necessary, as in the past, to comply with the regulations before the deduction of crew space from tonnage for the purpose of dues can be certified, but also plans of new ships must be submitted direct to the Board of Trade. Although the latest reforms are still merely instructions for the guidance of surveyors there is now a double check on their enforcement. Yet improvement might possibly be expedited by the passage of a simple amending Act, empowering the Board, with the advice and approval of the Ministry of Health, to lay down binding regulations, from time to time, for the construction and maintenance of seamen's quarters.

Meanwhile, a first step has been taken towards this highly desirable objective. It is a greatly improved code which has now been ratified by the Board of Trade. Its application will require the provision of more ample living accommodation in all newly-built ships, and the progressive adaptation whenever circumstances permit, of facilities in existing ships to the new standard. The moment is particularly opportune for this overdue reform, since the industry has at long last shaken off its depression—which blocked the reforms advocated seven years ago—and is busily carrying out an extensive building programme. To seize the chance thus presented will be both good morals and good business. And at a time when many measures of far more questionable economic merit are being urged on the community in the name of preparedness for war, it is worth while re-emphasising the traditional role of our mercantile marine as a carrier of supplies and a nursery of our naval forces. In the long run, the sea-going services, no less than the army, must offer attractive conditions of employment if they are to obtain ample numbers of the right type of recruit.

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Public Speaking

By "CANOPUS."

Much has been written in nautical magazines concerning the practical side of the seafaring profession, but rarely is mention made of the potential influence of the members of our calling in the broad field of public life. Frequent contact with all sections of the community is an essential feature in the career of a successful mariner but, for the most part, training for leadership in the community is entirely neglected.

To be quite blunt, I consider that master-mariners do not talk enough. The old excuse, "I belong to the Silent Service," is threadbare. Our profession, in common with most others, is progressing rapidly. New ideas, new knowledge and new experiences are continually coming our way and the public whom we serve are worthy of more information from our lips concerning the advances being made. It should be realised that "he who is silent is soon forgotten." Let our voices be heard more frequently in well-reasoned public addresses and in well-thought-out talks so that the prestige of our profession may be maintained in this rapidly changing world

Probably never before in history has the spoken word been so dynamic and potent for social changes as it is at the present time. New inventions have created new audiences of awe-inspiring magnitude for the speaker who is able to hold his public. The radio, "the greatest invention since printing," has fostered the art of public speaking to such an extent that the competent artist is in great demand for work before the microphone and for appearances before more intimate gatherings. Sooner than expected the opportunity of addressing a public audience may come your way.

It has been said that many a man has created more prestige for himself by delivering a five minutes talk, than by labouring for five years at his calling. If the opportunity of speaking in public does come your way my advice to you is to face the ordeal and add yet another experience to a varied career. This modest article may be of assistance to you in your attempt.

How would you react to a request from a self-possessed and urbane chairman to rise and address a meeting? Would vague organic disturbances grip the vitals and change your spine into some unsubstantial thing, or would positive self-feeling give you complete self-possession in front of the audience?

If the former is the case, then it is indeed comforting to know that most mortals are prone to panic when suddenly thrust into the focus of public attention. This human trait of nervousness afflicted most of the great orators of history and some were never able to conquer it entirely. Gladstone, the orator supreme of his time, says "Every great orator from Demosthenes down to Burke suffered from nervousness on the eve of an important speech and although I cannot claim their gift of golden speech, I can claim more than a fair share of their defect of nerves. Disraeli also, was always extremely irritable on the day prior to making an important statement, while the great Lincoln suffered acute emotional stress before addressing the public. I find personally that nervousness attacks me immediately before my name is called, but I know that others are affected in varying ways. Weakness in this respect must be noted and strong efforts at sublimation practised, for while self-consciousness is no hindrance before a speech, disaster may result if "nerves" are allowed to take possession of one during the actual performance. The remedy for nervousness is to practice public speaking on every conceivable occasion. Practise on your friends, speak at every meeting and if necessary, emulate Demosthenes by making speeches to the sea, but above all, become accustomed to hearing your own voice.

During my fifteen years' association with classes on public speaking I have frequently been asked to recommend a suitable text book on the art, something in the nature of a "Lecky's Wrinkles." It has been my experience that those who slavishly follow a "system" rarely become proficient until they scrap it entirely and trust to their own ability. The most excellent "systems" have a malicious habit of failing one at a critical moment during a public address. These are fundamental principles, however, which apply to all addresses whether they be to small intimate audiences, or to a vast unseen multitude which is reached through a cold and lifeless microphone. These elementary rules relating to preparation, gesture, delivery, etc., will serve the practical student well and I will endeavour to give them in this and in subsequent articles.

In opening an address do not be hesitant. Have the first sentence so well memorised that, in spite of yourself, it comes out. Then—Go on, Go on. The sound of the voice will inspire confidence and further points will follow as surely as night follows day. Remember that in speaking, as in everything else, success is the product of two factors, the presence of latent talents and the effective use of those talents.

Three centuries ago Milton stated that liberty should be given any man with new ideas to disseminate so that public opinion might be fostered along the lines of sound progress. In such a country as this where the political genius of the people lies in self-government and where liberty is maintained by the effective expression of public opinion, the art of public speaking assumes vital significance in the defence of right and truth.

In the oral expression of new ideas there is much virtue to be gained by obedience to the elementary rules of grammar. A profound knowledge of Nessfield is unnecessary for logical speech, but the fundamental rules must be learned before success on the public platform can be assured. I have heard men in our profession, many of them in responsible posts, misuse grammar in a lamentable fashion. They fail to realise that three or four hours study of a third form grammar book would soon eliminate the more obvious faults.

Ideas novel enough to be presented to the public do not arise "ex vacuo" but are the result of experience, reading and sound contacts. To be a first class speaker a man must read omnivorously. Biography, travel, sociology, psychology, economics, novels, periodicals and newspapers should all be explored in a wide and never-ending search for information. If time is limited perodicals such as "The Reader's Digfest," "The Listener and "Cavalcade" will serve a good purpose and enable a professional man to keep up with the times but in general a wide range of ground should be covered. Keep a list of all books read. Write outstanding quotations in a book specially kept for the purpose and soon a minature "Golden Treasury" will be solid evidence of a catholic taste in literature, for general reading widens the outlook, gives fresh ideas and enables the vocabulary to be extended. In extending vocabulary always give preference to words of Anglo-Saxon rather than of classical origin. That is to say, never use words such as "conflagration" when the more simple "fire" will suffice. The English language has a wide range of simple words useful for nearly every purpose and it pays to use them. Oliver Wendell Holmes once said "You will never appreciate the potentialities of the English language until you have heard a southern mule driver search the soul of a mule" and I feel sure that men accustomed to handling ships in in all types of weather and who sometimes have occasion to feel the same emotional strain as the southern mule driver, should possess great reserves of powerful language. If such is the case, perseverance in the study of language, with a view to speaking in public, will have its own reward, but of that more anon.

Kakariki-Caradale Collision Judgment

An important judgment of considerable interest to Master Mariners was that given by Mr. Justice Dixon in the Admiralty jurisdiction of the High Court at Melbourne on July 26, in respect of the claim of the Union Steam Ship Company of New Zealand against the steamship Caradale in respect of the collision, which resulted in and sinking of the Kakariki in Hobson's Bay on the night of January 29, 1937. At the nautical inquiry the Kakariki was found to blame, but the judgment in the High Court reversed that decision and found that the Caradale solely to blame.

In his written judgment, Mr Justice Dixon said:—The course from the West Channel pile light up to the Gellibrand Light is commonly taken to be N22 degrees E true and the distance 20 miles. The bearing from the Gellibrand Pile Light to the Hovell Light which marks the South Channel is nearly due South true, about S. 2 degrees W. The variation in Port Phillip Bay between true North and magnetic is 8 degrees 10'E. There can be no doubt that the wreck marks within a very short distance indeed the place where the collision occurred, and it is natural to ask how it comes about that ships which ought to have been proceeding on such respective courses met at the point lying S 13 degrees 36'W from the Gellibrand Light. That light lies S.14 W degrees or a little less from the Williamstown Buoy.

On the part of the Caradale, her presence in the vicinity is explained on the ground that in waters approaching the river, which is a narrow channel, it is a well recognised usage for out-going vessels to keep to the starboard or West, and for incoming vessels to keep to the port or east so that the latter may enter the river on their right hand or proper side without interference near the mouth from the former. Her master says that accordingly on rounding the Williamstown Buoy he steadied his vessel on a course of S.¼E magnetic which is a little more than S.5° W. true, a course which would have taken him within a cable and a half of the Gellibrand Light, whence he would set his course to the Hovell Light. But according to him, after a few minutes, as he had sighted on rounding the buoy the lights of the Kakariki, then about three miles down the Bay, he took his ship further west and steadied on a course three quarters South of a point over, viz. S.½W. This course, he says, brought him close to the light and into the area where, owing, as he maintained, to the movements of the Kakariki, the ships came into collision.

On the part of the Kakariki it is said there is no uniformity in the way in which vessels approach the waters at the mouth of the river. The narrow channel admittedly ends in fact at the flashing buoy at Williamstown. They are open waters south of that point and it is said that even if it be true that nearing the mouth of the river vessels commonly keep or are expected to keep to their respective starboard sides, yet this cannot extend south of the Gellibrand Light which is about 5,575 feet from the Williamstown flashing buoy. To account for the Kakariki being in the neighbourhood of the point where the collision actually took place, it is enough for her master to point to the course which, he claims he was making. Her course of N. 22 degrees E. true, if set from two cables off, that is east of, the West Channel Pile Light and maintained should, it is said have brought her out two cables off Gellibrand.

If the customary rule which is set up on behalf of the Caradale prevailed and applied so far south, it may be that the Kakariki would be expected to go further to the east, but, unless she did so, her course would be expected to bring her within a cable and a half of the point of collision. It is true that according to a calculation made and caused to be made by the plaintiff's counsel, the exact bearing of the Gellibrand Light from the West Channel Pile Light is N. 21 degrees 11' E., and according to another stated by the defendant's counsel a variation of a degree in a course of twenty miles exactly maintained means a difference of four cables or 2,400 feet in a ship's position after accomplishing that distance. Neither of these calculations was proved in evidence although no doubt the second is the result somewhat overstated of an ordinary trigonometrical ratio. It would mean that if the Kakariki accurately laid and kept a course of N. 22 degrees E. true she would have passed some cables further east of the point of collision. Her master says that seeing the outgoing Caradale and in view of her movements he gave a helm order to port at a point which he has estimated would be about 9 cables or a mile from the Gellibrand Light. This order and perhaps a subsequent order hard-a-port, given at a later stage brought his vessel to the point where it was struck. A very general view of the nature of the case suggests that the collision was brought about by an attempt on the part of one vessel, the Caradale to pass red to red combined with an intention, if not an attempt on the part of the other the Kakariki to pass green to green. But this gives no more than a reason why the casualty occurred; it does not explain by what relative movements of the vessels they were brought into collision or in which of them the fault lay.

As to the alleged custom usage or practice, in spite of the widely differing opinions expressed in the witness-box by expert mariners and pilots, I think that the position is reasonably clear. The topographical features of Hobson's Bay make it natural that an incoming vessel will keep more to the east than a direct course even from the Hovell Light renders necessary. She must enter the river on the eastern side. There is a deep dredged channel from the Port Melbourne channel to the entrance of the river. Some ships going up the river may be of such draught that they use it. It leads up to the Williamstown Buoy, on the north-eastern side of which an incoming ship must pass. Outcoming vessels must keep on the other side of the buoy. Many of them will go down to the Gellibrand Light for the purpose of proceeding to the West Channel; others, those going to the South Channel, find it convenient to set their course to the Hovell Light by reference to the Gellibrand Light and at the same time to keep to the west of incoming ships. As ingoing and outgoing vessels may readily find themselves meeting end-on or nearly end-on and therefore obliged to keep to starboard, it is better to keep over to begin with. As a consequence more often than not outgoing ships are found keeping a little west and incoming ships a little east, with the result that for the most part vessels in those waters pass red to red,

But there is no uniformity, no usage, departure from which is regarded as a clear breach of proper seamanship. The waters up to the Williamstown Buoy are clearly open and the ordinary rules for the prevention of collision at sea apply to them and not Article 25. No one believes that the waters outside the Gellibrand Light are a narrow channel. Apparently some believe that the waters down to the Gellibrand Light constitute a narrow channel. But I do not think that the belief is widespread.

THE CARADALE'S MOVEMENTS.

The Caradale left the wharf at Victoria Dock at 10.17 p.m. At 10.50 her engineer was given "full ahead," before she had actually reached the river mouth marked by the red and green lights. She reached the Williamstown Flashing Buoy, probably at 11 or slightly before. She proceeded thence for 6 to 7 minutes at a speed which I estimate at something over 8 knots, but probably not more than 8 and a half knots. The engine-room was then given the "All Clear" signal and she increased her speed by at least a knot, attaining in the next four minutes something approaching 10 knots. On passing Williamstown Flashing Buoy her course was not definitely set in terms of a compass bearing, but she was brought round to and steadied upon a course which, according to the helmsmen was shown by the compass to be S. ¼ E. magnetic. No doubt in coming round before she steadied she would go somewhat east of a north and south line from the buoy. At all events I think she did adcpt a course bringing her about two cables or a little more to the east of the Gellibrand Pile Light and if she steadied on that course, well east of the north and south line of the buoy, that would be S. ¼ E. magnetic or perhaps 5 degrees W. true. Notwithstanding the evidence that she held this course for a very short time I think it was maintained until she was nearly abreast of the Gellibrand Light.

During this time the Kakariki was visible on the Caradale's starboard, not her port bow. At an early stage she had displayed her red light to the Caradale but she was drawing abreast of the Gellibrand Pile the Caradale was put to starboard some degrees under a point. The purpose was to pass the Kakariki red to red. I am inclined to think that not only had the latter's green and red lights then been in view, but the red light had been lost. Her bearing was something over a point on the Caradale's starboard bow. The alteration in the Caradale's course was again not made in terms of a compass bearing and I thing that she steadied upon it for a very short time. Probably the compass showed the quartermaster S. ½ W. The alteration was, not sufficient to put the Kakariki on the Caradale's port bow. But it was in my opinion, not intended as a steady course, and the Kakariki appeared a long distance away and was expected to starboard. In fact she was about a mile and a half away. This starboard movement of the Caradale took place just before 11.6 p.m. at that time the engine-room was given all clear and the speed was brought up.

Notwithstanding the statements to the contrary I think the Caradale made a still greater movement to starboard before the helm was put hard over in the manner I am about to describe. It is not easy to say how far, but I think that the purpose of passing the Kakariki red to red was pursued. No helm signal was given. The Caradale had no look out on the forecastle head. On the bridge with the helmsman was the master and the third officer who, coming down the river, had been stationed forward. After the all clear signal had been given he went into the chart-room behind the wheel house. He went there in order to look at the course down the bay that had been logged on the previous voyage out. The master said that he had directed him to do so as a young officer for his edification or instructions. The master stood, I think, on the port side of the wheel house. For some reason he did not see what I think probably occurred on the first starboard movement of his own ship, namely, that the Kakariki had gone to port. The helmsman was steering by compass and had not noticed it. The joint speed of the ships was 18 knots or perhaps more, and a short time made a great difference in their positions. When the third officer returned and reported what was logged as the previous course both heard a sound signal from the Kakariki. They looked up and saw that the green light only of the Kakariki was showing and that she had gone to port and not, as was expected, to starboard. In fact the said sound signal was two blasts and if they had been fully attentive and had had no preconceived idea that both ships were about to pass red to red I think they could have had no doubt of its significance. To what degree there was a genuine question whether it was one or two blasts I am unable to say. I am inclined to think that the master was taken by surprise and that whatever question he cried out to the third officer and helmsman amounted to nothing but an ejaculation instinctively placing on the other ship responsibility for some misconduct or fault in the matter.

He put the helm hard a-starboard and by doing so brought the ship to the point of collision. He rang full astern but I think there was enough interval between the giving and the execution of the order for the ship to come round from whatever point her stem was upon, a great many degrees to the west.

For I do not think that the Kakariki's head was at the moment of impact so very far, if at all, west of the point to which it now lies directed and I think that at or after the collision and before the Caradale drew away, her starboard light was visible along a line from point of collision carried through or very close to the

Gellibrand Light. As she struck the Kakariki her fore and aft line was not quite at right angles with that of the latter ship. The greater angle was, I think, that made with the fore part of the Kakariki. That ship had still some although not much, way on, but she may have brought the Caradale's head round to some extent. The visibility of her green light from behind Gellibrand Light does not therefore, necessarily mean that at the moment of impact she had gone round fully to west magnetic.

The reduction of speed in the Caradale in consequence of her engine being put astern is a matter difficult to estimate, but I am inclined to think that she was making 10 knots or thereabouts when they were reversed and that fully a minute did not then elapse before she struck the Kakariki. The impact occurred I believe about 11 minutes past 11.

MOVEMENTS OF THE KAKARIKI.

It is now necessary to state the movements and actions of the Kakariki. Her course had been set from abreast of the West Channel Pile Light which probably she passed at about two cables distance. The time was 5 minutes to 9 or thereabouts. The course was set as N. 12 degrees E. by her standard compass. The compass on her lower or ordinary nagivation bridge where at that time her helmsman steered her, varied from the standard compass on the upper bridge. I believe that the ship was steadied on the course according to the standard compass. But it is uncertain what on the voyage up Port Phillip Bay was the precise deviation of that compass from N. magnetic. On the whole, I think the proper conclusion is that it was between one and two degrees east. Probably little attention was paid to the exact deviation when 10 degrees E. was set; that being regarded as an ample allowance. In Port Phillip Bay N. 14 degrees E. magnetic is the approximate equivalent of N. 22 degrees E. true. She was steered by the lower bridge compass until about half past 10 when the helmsman and the Master went to the upper bridge which was used in taking the ship through the approaches to port. At some time between that hour and 11 o'clock the helmsman ceased to steer by the compass, the light of which he covered or obscured, and steered by some shore light or lights. The third officer was upon the lower bridge where the telegraph was situated. At ten minutes to 11 he gave the time to the engine-room and said that they would reach Gellibrand in another 20 minutes. The engineer then made her engine ready for manoeuvring. The ship maintained the speed of about 8½ knots. It is likely that while steering by a light or lights the helmsman had brought the ship a little to port, but I think that at 11 o'clock she was not more than about half a point off the course represented by N. 12 degrees E. on her standard compass.

It is not of course possible to fix her position at that time with exactness, but my opinion is that at 11 o'clock she was about two miles between S. 13 degrees W. and 15 degrees W. true from the Gellibrand Light and that she was on a course which was between N. 16 degrees E. and N. 22 degrees E. true. I am inclined to think that it was at this time nearer 16 degrees E. than 22 degrees E. If so, she maintained that course until about six minutes past 11 when she altered her course to port. She did so because she saw the Caradale come to starboard. At the same time she gave two blasts. The point where that was done I fix at between 6 and 7 cables from the place of collision. The ships were separated by double that distance and I do not think that these sound signals were heard upon the Caradale. When the Caradale's next movement to starboard was seen the Kakariki was put hard a port. The Caradale's red light had not then come into view. Two blasts were sounded by the Kakariki and, I believe, distinctly sounded. When this was done full astern was rung and she was at once put full astern, the readiness of the engine allowing it to be done with greater quickness. I think her head went round to port, but how many degrees I am unable to say. The two movements to port brought her fore and aft line at the moment of collision at an angle with the Caradale which I have already described and the actual direction of each ship is interdependent with the other. I have already stated my view of the Caradale's direction. The time which elapsed after the order full astern was executed in the engine-room until the collision is difficult to fix but it was enough to reduce the way of the Kakariki very greatly. I estimate that the reduction was from a speed of 8½ knots to a speed of two knots. Probably the time was a minute and a half. As the Caradale came round her red light came into view, and then her green light shut out. But this was, I believe, after the Kakariki had been put hard-a-port.

BEFORE THE COLLISION.

I have regarded the question whether the Kakariki lay upon the port bow of the Caradale while the latter steamed on a course S. ½ E. as of much importance. I am convinced that she did not. Every consideration seems to me to tell against such a relative position of the ships. I believe the evidence that she displayed her green light to the Kakariki. Then the time at which the lights of the Kakariki were picked up by the Caradale was about 11 o'clock. The bearing of the Kakariki could scarcely be less than S ½ E magnetic if she were on the Caradale's port hand. That is less than 3 degrees on her bow. Upon the evidence I think that at about 5 or 6 minutes past 11 the Kakariki was in a position not further east than of a line which can most conveniently be described by adopting the end of the Gellibrand Pier as a reference point and taking therefrom the bearing of S 4deg. W true. She was, I believe, further west, but that line I regard as the eastern limit of her position. It would be impossible for her to move across in the interval and at the same time exhibit to the Caradale any coloured light but her green. The manoeuvre is a most improbable one and all the evidence from the Kakariki is opposed to it. Moreover, when from the William Andrew she was first seen within, that is, west of the line I have stated, her red, not her green light was visible, which means that she must have at that moment been steaming at least five degrees of north true. This would make it necessary for her to have gone round towards the east after having moved over towards the west. When from the Kakariki some of the lights of the Caradale were seen before she had rounded the Williamstown Flashing Buoy and steadied on her course S ¼ E magnetic, I think that the bearing of the lights was not particularly noticed, but that the general impression remaining in the minds of those navigating the Kakariki was that they were ahead. As a result probably of studying charts and going over the facts of the case, they have formed the belief that although, roughly speaking, these lights were ahead, they were slightly on the port side of the Kakariki's fore and aft line.

The Caradale, before she rounded the buoy, was necessarily moving across the natural line of vision. I think it improbable that any impression of where she precisely was when in relation to the fore and aft line of the Kakariki when first sighted was made upon the minds of the witnesses with sufficient distinctness to make their statements on the question of a reliable guide. At the same time I do not under-estimate the importance of the bearings of, say, the flashing buoy, and of the Gellibrand Light from the course of the Kakariki at the time when the Caradale came round the buoy. For, if the relation of those points to the fore and aft line of the Kakariki could be established, it would fix within limits the position of the Kakariki. But the two bearings on any view could not be very far apart, that is, could not include a large angle and it would, therefore, be necessary to obtain them with a good deal of precision. I do not think that before the collision the position of these points at a given stage, particularly the position of the flashing buoy, assumed enough importance to leave an impression upon which any dependence could be placed. I think the Gellibrand Light was probably somewhere about half to three-quarters of a point on the Kakariki's port hand and the flashing buoy somewhat finer. As she came up the Bay the Gellibrand Light, which was picked up ahead and at that distance was apparently almost right ahead had been, I believe, gradually assuming a position on the port bow. When the helmsman began to steer by shore lights it may well be as I have said, that he brought the ship's head over somewhat to the west of the original course. That reason, coupled with the evidence of those navigating the Kakariki as to the Williamstown Lights being ahead, has led me to think that possibly the course at the moment may have been as far over the compass from 22 degrees E true as 16 degrees E. Of course, whether the Caradale saw both her lights that is on the former's starboard bow before going to starboard depends to some extent on the same question and on the same doubt.

I am not prepared to act upon the evidence given by those navigating the Caradale as to her actual movements and the time and distance between them and the relation of the other vessel. I think that they were off their guard at the critical time and fell into excitement and confusion. In reconstructing the events leading up to the casualty, they found the justification of the part played by the Caradale in the belief which they were under that the ships would pass red to red and doubtless this meant assigning the bearing of the Kakariki to the Caradale's port bow. But it does not follow that every part of the account given of the Caradale's navigation should be rejected and as will be seen from my statement above, I have treated much as representing actual occurrences, but the picture as having some distortion.

In stating that at about 11 o'clock the Kakariki was in a position between S 13 degrees and 15 degrees W from the Gellibrand Light and then giving the course only within a limit of 6 degrees I have fixed the margins which, if the extremes are combined, will produce a considerable difference in the position which they leave open to the Kakariki six minutes later. There is, I think, a difference east and west of at least a cable and a half between the position which she would have reached steaming N 16 degrees E and 8½ knots from two miles S.15 degrees W of Gellibrand and that steaming N 22 degrees E from two miles S 13 degrees W. But I do not think the first of these extreme combinations, or anything closely approaching it, occurred. The Kakariki was not, in my opinion, so far west after 11.5 p.m. as it would mean. Again, although I am unable definitely to say that the Kakariki was at 11 o'clock off a course of 22 degrees E I believe that before the Caradale starboarded near the Gellibrand Light she was slightly on the Kakariki's starboard bow. This means that if the Kakariki was on the course of 22 degrees E at 11 o'clock she must have swung off it before that movement of the Caradale. The witnesses from the navigation bridge of the Kakariki put the Caradale on the ship's starboard hand much earlier. But I think they must be mistaken in doing so. If the Caradale had held the green light alone of the Kakariki for some considerable length of time, I cannot think that the Caradale would have starboarded. The explanation is, I believe, that the Kakariki had the green light of the Caradale on her starboard bow when she ported and that with this impression prominently in mind, the length of time it was there is overestimated.

On the other hand, I am inclined to think the starboarding of the Caradale was based on the notion that she held the two side lights of the Kakariki, the loss of the red not having been observed. That it should not be observed may be thought improbable. But without some failure in appreciation on one ship or other of the movements of the second, or of the changes in the relation between them, the collision could not have taken place. It must not be forgotten that the master was at the most important time the only person undertaking the duty of a look out.

In dealing with the times, speeds and positions of the Caradale I have compared the evidence of those aboard that ship not only with the evidence of those aboard the Kakariki, but also with the observations of James and Ricketts and with the deductions which may be made from the times they give, the distance traversed by the William Andrew between different points and her speed and movements. In putting the first starboarding of the Caradale just before 11.6 p.m. I am guided by an inference based upon a number of matters. There is, first, what was seen from the William Andrew and the time at which, or after which, it must have been seen. In particular, I attach importance to Ricketts' statement that "at a stage in the proximity of the breast line of the Gellibrand Light she moved slightly to the westward." But considering the distance from the place of collision, I think his estimate of two to two and a half minutes as the time she held that course, excessive.

In the second place, there are the descriptions given by the witnesses from the Kakariki, and in the third place it seems to be probable that the explanation of the distance at which I am satisfied that the Caradale passed the Gellibrand Light as well as the evidence given by those on her bridge is that the course of S ¼ E was kept much longer than they state and continued until they were drawing abreast of the light. Although I have expressed the view that the Caradale made a still greater movement to starboard before the final order of hard-a-starboard, I do not regard it as of any great importance whether she did so or not. I think, however, that the more probable explanation of the attempt to avoid a collision by putting the helm over to starboard is that her stem was already further over than is admitted, and this fits in better with the other descriptions of the final stages of the collision and her position at the time of impact. But I do not think that she had shut out her green light from the view of the Kakariki. In fact, I think that the mistake was made by the master of the Caradale in putting the helm hard a starboard. He saw that the other ship had gone to port and if he, too, had ported, a collision would not have occurred. His ship had much more time to answer the movement of the helm before the engines were full astern than in the case of the Kakariki and her way was greatly maintained.

CARADALE AT FAULT.

From the facts as I have found them, it follows that the Caradale was at fault. She had the Kakariki on her starboard hand for some time. The courses upon which the two ships were, did, no doubt, intersect, but before the Caradale changed her course it was in fact certain that the Kakariki would not reach the point of intersection until the Caradale had passed that point, and I do not think that at the time of the Caradale's movement to starboard there was danger of collision. It was her starboarding that created the risk and her further starboarding led to the actual collision. It was then that the collision rules began to apply. The Kakariki was still on her starboard; she was, therefore, in a position of a give way ship. If she regained or held both the Kakariki's lights the crossing rule applied and the Caradale took the wrong course. If the ships were green to green, it was improper to starboard to the green light. The final order hard a starboard turned out to be wrong. As something done in the crisis of a collision that it turned out to be wrong would not mean fault or negligence. But I think it arose out of some failure in vigilance occurring on the navigation bridge and out of the confusion and excitement due to a sudden realisation of the danger thus created.

It is not possible to say whether, if a look out had been posted on the forecastle head, he would have given a warning in time or at all. But, in the absence of a look-out there, it cannot, I think, be right for the same man to undertake the navigation of a ship and, at any rate in those waters the duties of a look-out on the bridge. While the third officer was in the chart-house, the master occupied that position and the realisation of the state of danger into which they had got did not, in my opinion, occur until on the third officer's return the Kakariki's blasts called their attention to it.

On the part of the Kakariki there was, of course, no fault in porting when she did so with the Caradale on her starboard bow, however slightly over the Caradale may have been. I think that the Caradale's movement to starboard did not result in placing upon the Kakariki either the obligation of Article 21 or of Article 18. It is, I think, true that for a short space the Caradale again got the Kakariki's two lights. But it appears to me to be improbable that she held them. The Kaka. was herself porting and it is unlikely that the ships ever came end on, and they were certainly not "meeting end on or nearly end on." I think too, that when the Kakariki next ported she was again showing her green light alone to the Caradale.

I find that the Caradale was solely to blame and that the collision was due to her negligence. I, therefore, pronounce the collision in question in this suit to have been occasioned by the fault of the owners, master and crew of the steam ship Caradale or some or one of them and I pronounce for the plaintiff's claim for damages and against the counter-claim and condemn the defendant in damages and in costs.

(It was announced on October 22 that an appeal against the above judgment had been withdrawn by the owners of the Caradale.)

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TRAINING OF BOYS FOR THE SEA

To the Editor. Sir,—Will you please advise me through your columns what our executive is doing regarding a training ship for New Zealand boys. All of us know that thousands of boys in this country wish to follow the sea as a profession and there are very few opportunities for them to start. There was a move made some years ago to start a training ship. Has the movement died down? I consider that the Government should be approached to acquire an auxiliary barque and fit her up to carry boys.

Training in sail is recognised by all foreign countries to be the best training for future officers and seamen and New Zealand being wholly dependent on sea transport for its prosperity should do its part in giving its boys the best training obtainable.

Will you also advise me if membership of the New Zealand Company of Master Mariners is limited or is it open to any persons holding a master's certificate, and if so is a home trade certificate sufficient to gain membership?

Yours faithfully,
"TOM PEPPER."

Radio Direction-Finding

(By W. W.).

The principle of direction-finding by wireless was discussed many years ago, but its practical use for navigation was not seriously applied until somewhere about 1907, when some of the possibilities of the use of wireless, together with a direction-finder, began to be realised as likely to provide an aid by which vessels could get direction and position during fog and weather of poor visibility.

No great progress was made with the combination until about 1914 when the war gave a great stimulus to wireless work in general and advances were made with direction-finding which continued throughout the war, but were not made public until after the war owing to its great military value.

In Great Britain after the war things remained largely at a standstill but Canada and the United States of America went ahead and I think the present state of direction-finding is largely due to the initiative of these countries.

There were two schools of thought on the question, one for the direction-finder to be on shore, and the other for the direction-finder in the ship.

Each school progressed along its own lines, the Navy Department of the U.S.A. established the direction-finder on shore and the lighthouse service established W/T beacons on shore for the use of ships fitted with direction-finders which were then being improved considerably and, in a way, quite common, especially in ships in the Western ocean trade. In 1923-24 there were about 130 British ships with direction-finders; about 33 W/T beacons of which 12 were in the U.S.A., six in Canada, and one in Great Britain which was only an experimental short-wave station; 41 direction-finding stations on the coasts of the U.S.A., eight in Canada, and four in Great Britain.

The introduction of the compulsory fitting of wireless in British ships in 1919 made a great difference to wireless direction-finding as many vessels, not previously fitted with wireless, were able to take advantage of the shore stations and it was soon realised that these stations did not quite fit the bill for navigation when it was noticed in busy approaches, such as New York, that vessels without direction-finders were subject to considerable delay through having to wait for bearings, while vessels fitted with direction-finders could carry on and take bearings at any time from W/T beacons in the same locality. The moral from this was obvious and it was not long before masters, in the Canadian and U.S.A. trades especially, were able to convince the owners of the necessity for a direction-finder in their ships even if only for navigational purposes.

Direction-finding stations are arranged singly, in pairs and in groups of three. When arranged other than singly one is a transmitting station, the remainder being connected to it by land line. When a vessel calls for a bearing the station or stations prepare to take the bearings and when ready so inform the ship. The ship then transmits signals for about a minute after which the transmitting station ashore sends the required bearings. The sites for these stations have to be specially selected and calibrated for arcs of good bearings and, as they have to be manned by trained personnel keeping a 24-hour watch, they are somewhat expensive to maintain. They are, as stated before, still useful for vessels not equipped with a direction-finder and have a definite defence value. As a result of the development of the beacon and direction-finder quite a number of these stations have been closed within recent years.

Shortly after the erection of the Cape Maria Van Diemen beacon in 1924 the establishment of beacons in congested areas slowed up a bit as spark transmission—the type then in use, took up to too wide a wave band and caused too much interference with other beacons and wireless work. These difficulties were easily solved by the adoption of the interrupted continuous wave tansmitter for all new beacons and for the replacement of the spark sets in the majority of existing beacons.

Progress in the establishment of W/T beacons still continues, as they are, without doubt a more valuable aid to navigation than the shore direction-finding stations, provided of course, that the ship has a direction-finder as is the case nowadays with nearly all overseas ships. There is no delay in obtaining bearings, no congestion in the air by vessels singing out for bearings, any number of vessels can obtain a bearing at once, navigators can take the bearings themselves and finally there are methods of navigation which can be used in fog with beacons that cannot be used with direction-finding stations, at least not with the same facility.

The beacon just established at Baring Head is the latest type available and is wholly automatic, being controlled by a clock which starts the W/T generator and a motor code sender. Relays in the different circuits operate an alarm which warns the keepers in the event of any failure. The generators, master oscillator and audio-frequency modulation valves are in duplicate and automatically come into action in the event of a failure, at the same time operating an alarm relay. The aerial is of the T type supported by two steel lattice towers 75 feet high spaced 300 feet apart. A receiver is provided by which the clock is daily compared with the time signals from Z.L.W. and a record is kept of its behaviour in the same manner as a chronometer. The beacon is changed from clear weather to fog programme by a manually operated switch.

The system of signals and operation is somewhat the same as that in Great Britain, 2 minutes signals and 4 minutes silence. The system in the U.S.A. and Canada is one minute signals and two minutes silence which is really the better when the direction-finder operators are expert as a vessel can get three bearings in three minutes, instead of having to wait six.

With the two minutes signals, if three stations were operating within range of each other, every minute of the hour is covered by signals and it will be seen that with four or more stations operating within range of each other, some arrangement is necessary to avoid confusion. The arrangement was made as follows. The greater number of salient points around the coast upon which beacons may eventually be established, if no new invention supplants them beforehand, were selected and arranged in groups of three. Take for example a group consisting of Baring Head, Cape Campbell and the Brothers, another with Cape Palliser, Castlepoint and Napier, and another with Stephens Island, Cape Egmont and Farewell Spit. Here we have four groups all within range of each other at times. Each station is, of course, given different signal letters, each group is well separated from the other by giving it a different wavelength and a different note frequency and timed at to come in at the two or four minutes to avoid waiting as much as possible when working with two groups. Supposing, in addition to the one on Baring Head, beacons were established on Cape Campbell, the Brothers and Cape Palliser and a vessel in a position where Cape Palliser would give a better call than the Brothers. The D.F. would be tuned in to Baring Head which would come in, say at the beginning of the hour and bearings taken, Cape Campbell would come in at the two minutes past and bearings taken, the D.F. would be timed to come in at the four minutes.

The signal group adopted for the beacons consist of the signal letters, a series of a letter, and a long dash of 10 seconds, this group is repeated twice in the two minutes, actually the signals are sent in one in 50 seconds, 10 seconds being allowed to avoid any chance of overlapping the next station which comes in at the end of the two minutes.

In addition to the shore direction station and the beacon and direction-finder methods of getting direction and position, other methods have been tried but only one of them is in established use and another still in the experimental stage.

In about 1927 an experimental short-wave station, known as the Marconi revolving beam, was tried out at Inchkeith and at South Foreland lighthouse. These stations worked on a wavelength of 6 metres and used a frame aerial set in the focus of a reflector, the whole of which revolved every two minutes (in the case of the Foreland) and sent beam signals, i.e. in a definite direction. As it revolved a distinctive signal was sent as it passed each half point and point of the compass. The navigator listened with a special receiver and heard a series of about 5 or more morse letters as the beam slowly intersected his course; the middle letter of the series gave the required bearing according to a special chart showing the bearing values assigned to each letter. The system, which is not now in use for ship navigation, was abandoned in favour of the beacon and direction-finder.

Another type of beacon known as the "Rotating Loop Transmitter" is in use to-day as it does not require a direction-finder, the direction being obtained by a ship s ordinary receiver and a stop watch with an ordinary or a special face dial showing degrees. This type of beacon, as its name implies, consists of a rotating loop transmitter having directional properties. During each revolution, one minute, the signals received by an observer will rise and fall in intensity passing through a maximum and a minimum twice each minute, The positions of minimum intensity which occur at intervals of 30 seconds from one another are very sharp and can be accurately observed. The beacon transmits signals for four minutes every 12 minutes consisting of the preliminary signal and dash. the north starting signal, a long dash of 12 secs., and the east starting signal and a long dash of 42 seconds. Briefly when the observer is in a direction to plainly hear the start of the dash after the north starting signal, he starts his watch and notes the time of the passing of the first and second minima. These times multiplied by three give the bearing and its reciprocal. If the observer is nearly north or south of the beacon he can use the dash after the east starting signal and add 90 degrees to his bearing. The system, in addition to the advantage of not requiring a direction-finder the bearings obtained are free from errors arising from movements of the ships head and from local effects of the ship's structure. The taking of bearings is a somewhat ticklish job as the accuracy depends upon the ability of the observer to gauge the exact movement when the signal reaches its minimum value. As the frame revolves in one minute and covers 6 degrees every second, an error of half a second in the timing would cause an error of 3 degrees in the bearing. The system also has disadvantages of which there are two—a special site has to be selected that is free from local effect, and also as it required a fixed starting point it could not be used in lightships.

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Anomalies of the New Zealand Tides.

(By W. J. Kearne).

During the course of the intensive study necessary to obtain his certificates the Master Mariner is compelled to denote only such time to many of the subjects as will enable him to satisfy the examiner that he understands the popular theoretical explanation of any phenomena connected with them.

Tidal phenomena is no doubt one which is so treated more than any other subject. It is of course necessary to know the direction of the streams induced by the tides and also to be able to state the primary cause of the tides and their regular functioning in a general way and in the great majority of cases the study of the tides undertaken is sufficient only to satisfy such requirements.

There are no doubt many who, like the writer, have been puzzled by the apparent anomalies of the tides which on account of the geographical position and disposition of the coastlines are so strikingly evident in New Zealand waters.

The most concrete example, and one which disturbs the man who is supposed to know, is the difference in the time of high water between Wellington Harbour and Porirua Harbour. And, to a lesser degree, the difference between Auckland Harbour and Manukau Harbour. The man who ought to know can generally silence the man who wants to know by an explanation of the gravitational pull exerted by the moon, but, while putting off the question in this way he is no doubt disturbed in his own mind that even though he has apparently satisfied his questioner he has not satisfied himself.

This has been the experience of the writer and in presenting this suggested explanation he does so in the hope that it will provoke discussion of the theories propounded, as it must unfortunately be admitted that no other profession suffers more from the free exchange of ideas than our own. The line of reasoning undertaken was suggested by reading that excellent treatise by Capt. Ruthven "Moxly's Theory of the Tides" and I cannot do better than quote his opening remarks which are most appropriate to this subject:—

> To few men are vouchsafed such continual opportunities of observing the wonderful and stupendous operations of Nature as the navigator, and to no other class of men are so many of the processes of such practical importance in the exercises of their calling.
>
> Tidal research is essentially the province of the navigator as well as the astronomer, and the prudent mariner is ever careful to obtain all the information possible about the ports he frequents and to know the state of the tide when coming under its influence. The periodical fluctuations in the surface of the ocean, and their induced streams, affect all those that go down to the sea in ships whether in modern leviathans or the homely fishing smack, and neglect of them may lead to disaster."

It is not within the scope of an article such as this to go deeply into the theory of the tides, about which complete agreement does not yet appear to have been reached by those scientists who have in the past investigated the cause and effiect of the tide-producing forces of the universe.

It is, however, necessary to refer briefly to the primary cause of the tides before a satisfactory explanation of any observed local tide phenomenon can be arrived at. The origin of the tides has always been considered to be due to the moon, the effect of which is increased or decreased by the sun and, to a minor degree, by the other planets of the great solar system. To get a clear understanding of the laws governing the tides it is necessary to consider the mechanics of the universe, more especially those governing the earth and the moon. Between these two bodies there is a mutual attraction, or gravitational "pull" acting to bring the two bodies together, and each exerts a "pull" on the other which is in direct proportion to their mass.

The obvious question, then, is what force tends to keep these bodies apart? It is the centrifugal force due to both bodies revolving around a common centre of gravity. The position of this centre of gravity depends upon the relation of the weight of one body to the other, and, owing to our earth being 80 times the weight of the moon, this common centre of gravity is found to be 1000 miles below the surface of the earth.

The interaction of gravitational pull between two bodies also varies inversely to the square of their distance apart, and, owing to the relation which the distance between the earth and the moon bears to their relative masses, the gravitational pull which the moon exerts on the earth is differential and therefore has a different value on each part of the earth's surface.

If we assume, then, the earth to be a perfect tide world, that is, one completely covered with water free to respond to the differential attraction of a body such as the moon, it will be seen that the water on the side of the earth closest to the moon has a greater pull exerted on it than a particle at the centre of the earth, while the water on the opposite side has a less pull in the same relation.

Owing to the cohesion of the land masses of the earth, the "pull" of the moon acts on it as a single body and in the perfect tide world this action would be to pull the earth bodily through its encircling belt of water.

The particles of water on the side nearest the moon would be subject to a stronger pull and the water particles would tend to draw out from the earth until lunar gravitation and terrestial gravitation were balanced.

As water is incompressible, a bulge is therefore formed on the portion of the surface closest to the moon, with a corresponding depression of 90 degrees from its crest. On the opposite side of the earth the difference in lunar gravitation acting on the earth as a whole and on the water particles, tends to separate the two and a second bulge is formed with its corresponding depressions at quadrature or 90 degrees distant.

Assuming, then, our earth as a perfect tide world and the moon fixed in position over the equator, the earth's rotation on its axis once in 24 hours would bring every part of its surface under the differential attraction of the moon during this period. The effect of this would be to cause the bulges to take the form of two waves moving around the earth causing high and low water at all parts twice in 24 hours.

If we introduce another disturbing body, such as the sun, exerting a pull on the earth, we get a bulge which is a combination of the two.

The relative positions of the sun, moon and earth are ever varying, and consequently their speeds of revolution around each other must vary for balance to be maintained. In our perfect tide world, then, progression and amplitude of the tide wave would vary accordingly, and it is due to this variation that we have the various tidal phenomena such as springs and neaps, and other periodical fluctuations in the times and heights of the tides.

Having accepted this theory, which no doubt satisfies the laws of the mechanics of the great solar system, the practical observer looks, then, to connect it up with what he sees happening around him. It is then that the many apparent anomalies of the tide theory present themselves. He reads of the wave causing the tides around the coasts of Great Britain coming in from the Atlantic—directly opposite to that which theory says it should.

If the passage of the moon causes the high waters on the eastern side of a continent, what, then, causes them on the western side, as the moon passes over the land, is another disturbing question which presents itself, as it also the question, why do the high waters not coincide with the meridian passage of the moon?

It is also seen that in the North Atlantic Ocean, which is comparatively restricted and where, in consequence, the tide-raising forces would be restricted accordingly, we get the greatest ranges between high and low water; for example, 50 to 60 feet in the Bay of Fundy on the Western side, and 30 to 40 feet in the Bristol Channel on the Eastern side, while the range of tide in the islands in mid Pacific, where the tide-raising forces should exert their greatest inflence, is a few feet only. These are but a few of many cases where actual observation and theoretical considerations are apparently in direct opposition.

While we accept the moon as being the primary cause of the tides, her effect being increased or decreased by the relative position of the sun and the variation in her own relative position with the earth, it is evident that we must look for some secondary cause of the actual tides we observe on the various parts of our earth.

An investigation of this secondary cause allows a satisfactory explanation of most of the apparent anomalies which appear to exist in the operation of the primary cause of the tides.

Our earth, fortunately for us, is far from being a perfect tide world, owing to the large land masses which form great barriers to the progress of the great primary waves. The only part of our globe which approaches the perfect tide world is that part of the Southern Hemisphere which is completely surrounded by water and over which the tide wave has a comparatively unrestricted passage. It will also be seen that it is only at places in this locality where the high water coincides with the meridian passage of the moon with any degree of regularity or approximation.

The actual effect of the tide-raising forces on this belt of water is to create two vast undulations, the crests of which are 5400 miles apart and which move from East to West, encircling the globe in 24 hours 50 minutes.

It is estimated that the height of this wave does not at any time exceed a few feet, but every particle of the water from the surface to the greater depth is under the influence of this wave.

One has, therefore, only to observe the action of a sea wave breaking on the shore to visualise the tremendous potential energy stored in the great tide wave and which becomes apparent when, owing to the friction of the bottom in shoaling water, approaching land masses, vast bodies of water are given lateral motion in the shape of the flowing of the tidal streams around the various coasts.

If one looks at a map of the world it will be seen that branching off at right angles to the great belt of water forming the Southern Ocean are huge indentations forming the Atlantic, Pacific and Indian Oceans. Between these oceans we have the vast land masses forming the continents and which interfere to a marked degree, and even in places nullify the effect of the primary tide-producing forces.

While it is not possible to make observations of the progress of a tide wave on the surface of the water itself, it is possible to trace its progress by a comparison of the times of high water at the various places which come under its influence.

Such a comparison shows that the primary tide wave of the Southern Ocean causes a secondary or derived wave to proceed up these vast inlets at varying speeds according to the resistance met. The derived wave most easily traced is the one which proceeds up the South Atlantic into the North Atlantic to cause the tides around Great Britain. It is supposed that this wave combines with the lesser or immediate wave caused by the moon over the Atlantic, which is greatest on the western side, and the result of this combination is to cause the remarkable range of tide in the Bay of Fundy, of some 50 to 60 feet. The wave has, therefore, travelled 7,000 miles, and it is estimated that this journey is accomplished in 20 hours, and it will be seen from this that the primary cause of the tide is not due to the immediate passage of the moon over the localities concerned.

A similar derived wave is also produced in the South Pacific and this is the one which mostly concerns us, being responsible as it is for the tides on the coasts of New Zealand.

As the progress of the tide wave is from west to west, it could naturally be expected that the influence of the wave would be first in evidence at the most easterly extremity of the Dominion, that is, at East Cape. But such is not the case. The South American Continent, offering, as it does, a barrier to the progress of the primary tide wave, deflects the derived wave, which appears to make a broad sweep out into the South Pacific Ocean, and before examining the progress of the tide wave on the New Zealand coast it is perhaps necessary to trace its progress on the western side of South America, which is analagous, to a certain degree, with New Zealand.

It is assumed, and it appears to be supported by actual observation, that after passing the southern extremity of the South American continent, the main tide wave causes a derived wave to take a broad sweep away from the coast in a northward direction, and to recurve at about Central America and proceed down the West coast, producing high waters progressively later from north to south.

It can be expected, then, that when passing the southern extremity of New Zealand, the main tide wave causes the derived wave to take a broad sweep out into the Tasman Sea, while the derived wave in the South Pacific reaches New Zealand travelling in an oblique direction and causes high water progressively later from south to north on the east coast. This wave proceeds around the North Cape and then appears to proceed down the west coast, combining, perhaps, with the Tasman Sea wave to cause high waters progressively later from north to south on the west coast. It is assumed that the combination of the wave proceeding from the north down the west coast and the wave proceeding from the south

Tasman Sea takes place between Stephen's Island and Wanganui and produces considerable differences of times and heights when compared with other parts relatively close.

This explanation, which, of course, must be largely assumed, appears to be supported by actual conditions inasmuch as the tide wave can be calculated from actual predictions to occupy approximately 12 hours in encircling New Zealand and high waters are being produced many hours after the theoretical primary cause of the tide has passed over our waters.

As an example, if we note the predicted tides for November 1st., as given in the Nautical Almanac, it will be seen that high water occurs at:—

Bluff, at 11.51 a.m.; Dunedin, at 2.16 p.m.; Lyttelton, at 2.20 p.m.; Wellington, at 2.38 p.m.; Auckland, at 5.30 p.m.; New Plymouth, at 8.12 p.m.; Westport, at 9.14 p.m.; Milford Sound, at 9.38 p.m.

The meridian passage of the moon nearest to these high waters was at 10h. 01m. (November 1st.) or approximately 2 hours before high water at the Bluff and 12 hours earlier than high water at Milford Sound.

If we examine the chart, however, it will be seen that at the south-eastern extremity of Stewart Island the establishment of the port is 11h. 51m., or in other words high water occurs 16 minutes after the meridian passage of the moon.

It will be seen, therefore, that it is only at the southern extremity of New Zealand that high water coincides with the meridian passage of the moon, and it is interesting to note that at the eastern entrance to Cook Strait it is 4 hours later, and at the western side 10 hours later, a state of affairs possible only with the derived wave theory. Perhaps the most simple illustration of this theory is that of a fast steamer proceeding down Wellington Harbour and crossing the mouth of Evans Bay. The steamer herself is the wave-producing force and the primary wave she causes travels with her. A derived wave is, however, thrown off and is given momentum in a certain direction. This wave then travels off obliquely and proceeds up Evans Bay and in calm weather will perhaps reach the head of the bay long after the wave-producing medium has passed on.

Having fixed with a certain definition the progress of the tide-producing wave around the coasts of New Zealand, it now remains to connect up any known or observed tidal phenomena with the theoretical consideration of it. One of the most definite results of the passage of the tide-producing wave are the Cook Strait streams.

It has been shown that the tide wave encircles New Zealand in twelve hours. Cook Strait lies midway between the northern and southern extremities, and therefore the tide wave takes six hours to travel from the eastern entrance to the western entrance under normal conditions. This time corresponds to the half period of the tide wave and consequently when the crest of the wave is at the eastern entrance, the trough of the proceding wave is at the western side. It can be expected, therefore, that the water flows through the Strait from the crest to the trough in six-hourly periods, changing direction generally as the crests and troughs of the wave pass the entrances to the Strait. Under normal conditions, therefore, high water on the eastern side causes a N.W. flowing stream through the Strait, and high water on the west coast causes a S.E. going stream, with the rate of flow varying according to the range of the tide, and the configuration of the land on either side of the Strait and of the sea bottom.

Having expounded a theory which apparently satisfies the conditions as we find them, an explanation of the vagaries of the various tidal streams under the influence of varying meteorological conditions can be attempted.

In the next issue an article on the expected effects of certain meteorological conditions on the Cook Strait will be given.

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DAMAGED CARGO BLUES.

It is much to be regretted,
That your goods are slightly wetted,
But our lack of liability is plain,
For our latest Bill of Lading,
Which is proof against evading,
Bears exceptions for sea water, rust and rain,
Also sweat, contamination
Fire and all depreciation
That we've ever seen or heard of in a ship.
And our due examination,
Which we made at destination,
Shows your cargo much improved by the trip.

Furthermore, the protest shows,
That the master blew his nose,
And the hatches were demolished by the gale,
So we all will stick together
And will prove it's heavy weather,
For we've got the cargo owner by the tail,
So, reserving all defence,
Alibis and false pretence.
We're suggesting that your underwriter man
Is the guy that's out of luck,
For we always pass the buck:
Yes—we always duck the issue if we can.

'Tis a cause for grief sincere,
And we almost weep to hear,
You are claiming for your cargo wet by rain,
And it really is a crime
That you're wasting all your time,
For our Bill of Lading clauses make it plain
That from ullage, rust or seepage,
Water, sweat or just plain leakage,
Act of God, restraint of princes, theft or war,
Loss, damage or detention,
Lock-out, strike or circumvention,
Blockage, interdict or loss twixt ship and shore,
Quarantine or heavy weather,
Fog or rain or both together,
We're protected from all these and many more,
And it's very plain to see,
That our liability
As regards your claim is absolutely nil,
So try your underwriter,
Who is pretty sure to grin and foot the bill.

Baring Head Radio Beacon

The first of the series of radio beacons to be established on the New Zealand coast—that at Baring Head—was officially "opened" in October by the Minister of Marine. The Cape Campbell beacon will be in operation shortly and orders are to be placed for the equipment of similar beacons at Stephens Island, at Moko-hinau and Cuvier Island.

The following notice to mariners in respect of the Baring Head radio beacon has been gazetted.

Position: 045 degrees, 80 yards from Lighthouse. Lat., 41 degrees 24.5 S.; long., 174 degrees 52.3 E. (approx.). Chart No. 1423.

Description: W/T Fog-signal and Beacon.

Details: On and after 14th October the following signal group will be transmitted at the times stated hereunder.

Signal Group.

ZLOA (— — . . . — . . — — — . —) once followed by a succession of A's (. — etc.)	45 secs.
Long dash (————) . .	10 secs.
Repetition of ZLOA and A's	45 secs.
Long dash (————) . .	10 secs.
Silent	250 secs.
Period =	360 secs. (6min.)

During fog or weather of poor visibility, between sunrise and sunset, the signal group will be transmitted every six minutes commencing at the hour.

During clear weather, between sunrise and sunset, two complete transmissions of the signal group will be made commencing at 00 and 30 minutes past each hour.

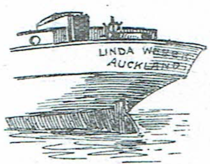
During all weathers, between sunset and sunrise, the signal group will be transmitted every six minutes commencing at the hour.

NOTE.—The special D F Signals sent from ZLW at 0530, 0600, and 0630 as notified in Notice to Mariners No. 30 of 1936 will be discontinued on the above date.

Wave: 297.5 kc/s (1008 m.). Type, A2. Power, 60 m.a. Masts, steel lattice towers, 75 ft. high, situated 011 degrees 45 yards and 050 degrees 152 yards respectively from the lighthouse.

Charts affected: Nos. 1423—695—2054—3629—1212.

Publications: New Zealand Pilot, 1930, page 96; Admiralty List of Wireless Signals, 1937, Vol. 1, page 202; New Zealand Nautical Almanac and Tide-tables, page 158, No. 68a, and pages 167 and 230.



Seamen in British Ships

The periodical returns issued by the Board of Trade respecting the number of seamen engaged in the Merchant Navy furnish a useful guide to the position of the shipping industry of Great Britain. The latest statistics show that on June 15th, 1936, the number of seamen employed in 3,818 British ships of 13,233,165 tons gross was 149,041. On the same date of 1935 the totals were, ships 3,841, tonnage 13,438,983 and crews 152,-793, the corresponding figures at the end of April, 1931, being 4,069, 13,987,265 and 169,211. In addition to the 3,818 British vessels of 100 tons and upwards employed on June 15th, there were 681 others in service at some time or other during 1936, the aggregate of their first voyage crews being 36,755, these totals being 79 and 6,337 higher than those for 1935.

Though the number of ships employed in June of last year was less than in 1935 and 1931, the proportion of British seamen, other than lascars, was higher, the percentages being 68.4, 67.6 and 64.4, while those for foreigners were 3.6, 4.2 and 6.6. With regard to lascars, they represented 28 per cent. in 1936, 28.2 in the preceding year and 29 per cent. in 1931. The number of foreigners serving in British ships dropped from 6,345 to 5,323 last year, a decline which is mainly attributed to the Tramp Shipping Subsidy Act, which insisted that benefiting ships should carry British crews. The census also shows how ships and men are allocated between the foreign and home and coasting trades. The former required the service of 2,205 ships and 130,454 seamen and the latter 1,612 ships and 18,587 hands. It is somewhat disquieting, however, to learn that fewer ships and men were employed in the foreign trade during 1936 than in the previous year, while contrasting 1936 with 1931 the decline is still more striking. The number of vessels engaged shows a drop from 1931 of 4.6 per cent., while gross tonnage fell by 5.3 per cent. and personnel by 13.3 per cent. Alluding to the nationality of sea-going staffs, the Census makes the interesting observation that a high proportion of stewards were English, a large number of engineers Scottish and masters and deck officers Welsh, while the foreign element were chiefly engaged as firemen, trimmers or deck hands.

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Captain N. M. Bonetti, who has been appointed in command of the Union Company's new steamer Kahika, was born at Reefton on June 24, 1900, and commenced his apprenticeship in the company's training ship Aparima, and completed his indentures in the Makura. He joined the Union Company as third officer of the first Kakapo in February, 1919, and was appointed second officer of the Kawatiri in December, 1921. Promoted chief officer of the first Kahika, in April, 1926, he served in various trades until his appointment to the Maori, Wahine and Rangatira, and later transferred to the Makura and Maunganui in the San Francisco trade. He was appointed master of the Kaimai in November, 1936, and later transferred to the Koranui and Ngatoro on the Australian coast.

News and Notes

Captain D. N. McLeish, who has been appointed in command of the Union Company's new steamer Kakapo, was born at Dunedin on February 24, 1894, and served his time in the barquentine, Titania, the barque Invergarry, and the barque Antiope. He joined the service of the Union Company on May 12, 1916, as third officer of the Takapuna, and was appointed second officer of the first Kakapo on September 23, 1918, later serving as second mate and mate of the company's barque Gladbrook. In June, 1923, he was appointed chief officer of the first Kahika, and after being attached to various other cargo vessels was appointed to the Wellington-Lyttelton express service in the Mararoa, Maori, Wahine and Rangatira. He later transferred to the Hauraki in the trans-Pacific cargo service and the Narbada in the Calcutta cargo service, and finally in the Monowai in the inter-colonial passenger service. Captain McLeish was appointed master of the Poolta in December, 1935, since when he has commanded the Karu, Kaimiro and Kauri.

Prices of second-hand shipping tonnage are soaring. The tramp steamer, Newton Elm, which visted New Zealand ports last year has been sold to Greek buyers for about £70,000. This ship, of 8,160 tons deadweight, was built at Sunderland in 1924, and passed special survey No. 2 in 1932.

The Avon Bridge, ex Alma Dawson, ex Bradclyde, ex War Castlé, Standard "B" type steamer, one deck and shelter-deck, 7,920 tons dw., built Northumberland S.B. Company, Limited, Newcastle, 1918, S.S. No. 1, 1934, and owned by the Severn S.S. Company, Limited (Mark Whitwill (Shipping), Limited, managers), Bristol, has been sold to Greek buyers for £53,000. As the Alma Dawson she was acquired in November, 1935, for £22,500 while in December, 1933, as the Bradclyde, she changed hands for about £12,000, with survey passed.

Shipyard Curiosity.—A shipbuilding coincidence, which may also serve as an aid to memory, is disclosed by the fact that each of the yard numbers of the new Cunard White Star liners "add up" to twelve. Thus:

John Brown and Co., Queen Mary, No. 534 say 5, 3, 4 = 12
John Brown and Co., building No. 552, say 5, 5, 2 = 12
Cammell Laird, building No. 1029, say 1, 0, 2, 9 = 12

During the course of legal proceedings in an American Court, a witness was described by counsel as a "saloon mate." We know the bos'un's mate and others of his kind aboard ship, but the saloon mate is a new rating to us. Possibly his job is to ensure that saloon waiters go about their work in a seamanlike manner.

Recording the fact that a stowaway weighing 18-stone was discovered in a liner, Punch observes that presumably he had been making a practice of stowing away for years.

The Chloride Chronicle and Exide News—which is not to be confused with the Phosgene Mercury and Poison Gas Express—says in its trade notes that "the New Zealand Shipping Company has been operating for about nine years." Only about nine years! And yet (a tribute to the courtesy of old seafarers) we cannot recall anyone correcting us when we have told stories of notable sailers of the 'seventies and 'eighties which flew the N.Z.S.C. house-flag.

The Washington correspondent of a London daily, in giving the dimensions of a projected American Transatlantic liner, says: "The Queen Mary has a length of 1975.2 feet." The accuracy of the "decimal two" may enable readers to swallow the extra thousand feet which have been rather less cautiously added for purposes of comparison.

Although the Lords of the Admiralty have frowned on the proposal that seamen's jumpers be fastened with buttons, they are graciously providing for tests to be made at sea to discover whether zip fasteners would be practicable. Presumably on the command, "Zip, below there!" jumpers will be ripped down the front, while other garments remain securely moored. Safety first, please, at sea as well as ashore!

The example of the lady who bequeathed a picture to the Blue Star Line in remembrance of many happy cruises made in their ships will, we hope, be emulated. Of course, it is not unprecedented. The annals of North Country shipping record the gratification with which a long-departed firm of shipowners received from one of their seamen a post-mortem gift of a packet of weevily biscuits in memory of many wonderful meals eaten in their ships. Yet another case comes to mind of the lady who left to a liner company a parcel of pillow slips which she had borrowed at one time or another for use as dirty-linen bags.

The Morning Post has discovered that the Aquitania is the last of the four-funnelled liners, and—we should like to add—like her famous elder sisters, Lusitania and Mauretania, she uses them all. We cannot recall any Cunard steamer ever carrying a dummy funnel. The Queen Mary's three are all "business" ones, and as her sister-ship will only have two, she (No. 552) will doubtless use them both. The four-funnelled White Star liners Olympic and Titanic each had a dummy. Of the present three-funnel ships, the Normandie and Empress of Britain have one dummy apiece, while the Strathaird and Strathnaver have only one out of three functioning. The double-funnel Blue Star liners are "half-and-half."

The most welcome export from the dictator-ridden countries is, surely, the type of unconscious humour so characteristic of people who take themselves very seriously. For instance, a citizeness of Soviet Russia with an unpronounceable name has been decorated by Stalin as the first woman to command an ocean-going vessel of the Red merchant fleet. "In what other country in the world," she asked when making the inevitable broadcast, "would it be possible for a woman to become, as I have done, a captain of distant sailing?" On the other hand, even Soviet denizens of the lower deck might blench at the intimation that the "Old Woman" was aboard.

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A Veteran Master Mariner

Captain Coll McDonald, who is widely known and universally respected, tells the story of his life in the following article. He is one of the most senior members of the New Zealand Company of Master Mariners and is its vice-patron.

I was born on 9th September, 1863, at a place called Torrane, situated on the south-west side of Loch Screedon on the Island of Hull, Argyleshire, Scotland.

My mother descended from the MacLeans of Duart, and my father from the McDonalds of Staffs. They were at the time what was called crofters, and in consequence were poor as far as wealth in cash was concerned. My mother died when I was four years of age, and my father never married again. There were five children—three of them older than myself and one two years younger. All of us had to start the hard battle of life as soon as we were able to do so. As there was no free education at the time we had little or no schooling, except that our father used to teach us in Gaelic and generally from a Gaelic Bible. Apart from this, I myself was never inside a schoolhouse.

I started my own career by leaving my father's home at the age of nine years. I engaged for one year to a farmer whose farm was situated twenty miles from my father's home. The name of my employer was Hugh MacPhail. He afterwards sold out and came to New Zealand, and as far as I know died at Waipahi. My wages were £1 per year and my food, such as it was in those days. After completing my year of service at what they called a herd boy, I left the MacPhails and engaged myself for herding cows to another farmer of the name of MacArthur at a place called Loch Doon, twenty-five miles from my father's home. My wages were £1 per year and my food. On completing my one year of service with MacArthur, I decided, being now eleven years of age, to emigrate across the Sound of Mull to the small town on the mainland called Oban. The yearly fair was on at the time, and a farmer by the name of Culloch engaged me as herd boy for one year. His farm was on a small island two miles from Oban called Kerrara. My wage in this case was £1 10s per year and food. After completing my year of service with MacCulloch, I left and went into the town of Oban, being now twelve years of age. I considered myself a sort of a man, and in consequence made up my mind to give up herding cows. I therefore took service with an engineer in Oban, by name Carmichael, as a handy boy in his workshop. My wages were 5/- per week, finding my own food and lodging. After serving in this shop for six months I left and went back to the Island of Mull again, and took service with a country engineer as an apprentice at a place called Lochdoon Head; in this case my wage was 5/- per week, also food and lodging.

After serving as an understudy with the Lochdoon Engineer for eighteen months I came to the conclusion that I could not learn all that I wanted, and being now fourteen years of age, I left for the large city of Glasgow. Knowing the address of an outside relation of my father, I appealed to him to get me work, and he got me a position as an apprentice with an engineering firm called Clark and Co. My wages with this firm were 5/- per week first year and 7/6 second year, finding my own food and lodging. I put in twelve hours a day, out of which I had two hours for meals, but no half-day on Saturday—6 a.m. to 6 p.m. for six days per week, besides which I had to walk two miles to and from my work, summer and winter. After serving for eighteen months and having neither friends nor money to back me, I decided to give up the engineering business and to go to sea for a trial spin.

I was now about sixteen years of age, and although long and lanky I was strong and healthy. Through the good offices of another Highland lad I got a position as ordinary seaman in a ship called the Princess Alexander which traded all round the ports of Europe. I served for six months in this vessel, leaving her to join a new ship called the Burnley belonging to the Direct Line trading to all West Indies ports, including ports on the coast of British Honduras. I got the position of able seaman in this ship. The name of the master was Whyborn, and it suited him well, for he was a hard and cruel master. While at Balizo in British Honduras I took yellow fever and had a bad time.

Returning to London I left the Direct Line and joined the Anchor Line, signing on in a large ship called the Olympia trading to the Mediterranean and Eastern ports of the United States of America. After making a round voyage I was transferred to the Alexandria, also of the Anchor Line and trading to the East Indies and the Mediterranean. This vessel was under the command of Captain Hansey, who afterwards made a good name for himself in the North Atlantic trade.

After serving in the Anchor Line of Glasgow for two years, and being now nineteen years of age I left and shipped in the immigrant ship Jesse Readman belonging to the well-known firm of Patrick Henderson & Co. of Glasgow. We left the Clyde in August, 1882, with 286 passengers, all of whom were landed at Port Chalmers. Before the Jessie Readman sailed for Home I got Captain Gibson to pay me off.

After a month of knocking about Dunedin I shipped as a sort of second mate and boatswain in a brig called the Wave under Captain Christian. This craft was bound to Kaipara for kauri logs. We had as passengers a farmer from Scotland with his wife, daughter and two sons. It took us four hours to get outside the Heads and four weeks to get to Kaipara where we moored in what was called MacLeod's Creek, landed the passengers and commenced loading. It took about three weeks to load. While trying to sail out over the bar we got out of the channel, striking on the spit. The old ship split fore and aft along the keel. After rolling about in the breakers for some time we drifted back into the harbour and on to a safe beach, where the vessel was condemned. All hands left for Auckland with the exception of a very ugly Russian whom we had among the crew. He went down to the home of the farmer that we had as passengers. After he was working there for some time he married the farmer's only daughter, who was as pretty as he was ugly.

On reaching Auckland we found that conditions were very bad. I could not get a ship, so I took up navvy work knocking down a hill to make a foundation for freezing works at the head of the present Railway pier. At this work I had 5/- per day and had to buy my pick and shovel both costing me five shillings or a day's work, and anyone showing signs of loafing was paid off at once.

After putting in a few months at the navvy work I got a position in one of Mr. MacGregor's vessels now called the Northern Steamship Company. This craft was a wooden steamer trading around the Gulf. Two months later I transferred as second mate to another small steamer, trading on the West Coast between Onehunga and Waitara. Our cargo was chiefly cattle. At Waitara we used to go out on the bar at low tide and clear a channel with shovels so that we could get out loaded at high tide. A few weeks later I was transferred to a new craft called the Gareloch.

After a year's service with MacGregor I left and shipped to England in the Hurunui belonging to the New Zealand Shipping Company with Captain Sinclair in charge. After two months at Home I shipped in the Janet Court to Australia, leaving her at Adelaide. I went to Melbourne by rail and took passage to Dunedin in the old Tarawera (Captain Sinclair). On arrival at Dunedin, I was fortunate enough to get into the service of Union Steamship Company at the beginning of 1885. I joined the old Waihora as quarter-master under Captain MacGee. Three years later I was appointed fourth officer of the Wairarapa under Captain Chatfield.

Having served in the various grades from Fourth Officer to Chief Officer in ten of the Company's best ships, I was appointed master in 1897, twelve years from the date of joining. At various times I was in command of the following steamers belonging to the Union Company:—Poherua, Corinna, Kini, Te Anau, Moana, Talune, Mararoa, Whangape, Monowai, Manuka, Upolo, Moura, Waikare, Wakatipu, Wanaka, Waihora, Ovalau, Warrimoo, Penguin, Tarawera, Aparima, Navua, Flora, and Moeraki. I never had an accident of any kind with any ship placed under my care.

In 1907 I was appointed assistant marine superintendent for the company at head office, Dunedin. I remained in this position until 1910, when I was sent to the British Isles to look after the building of new ships. These vessels were the Maunanui, Niagara, Wahine, Katoa, Kama, Karamu, and Aotea-Roa. The last-named vessel was afterwards taken over by the Navy and was sunk in the North Sea by enemy action.

Returning to Dunedin at the beginning of 1914, I was appointed chief marine superintendent for the company. This position I held until I retired in 1924 due to ill-health which was brought on by the amount of work I had to do during the war in connection with troopships and . . . hospital ships reconditioning them after the war was over.

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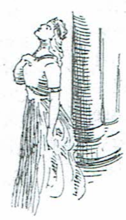
Even were it not otherwise apparent that the shipping industry is experiencing better weather we would have suspected this to be so on reading in one of the Fleet Street dailies that a tramp steamer recently in the news was "loaded up to her hawseholes."

Engines of the Atlantic liner Eastern Prince hissed to a halt, and a young doctor, waiting till the ship reached the pause on her roll, plunged a needle into the spine of a little English girl and drained away the poison that was killing her. She had encephalitic (inflammation of the brain).

A melodrama episode of the sea, without a doubt, and we do like that touch where the engines "hissed" as they came to a halt.



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