



OFFICIAL JOURNAL OF THE AUSTRALIAN AERO CLUB
OFFICIAL JOURNAL OF THE WIRELESS INSTITUTES OF N.S.W. AND VICTORIA

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THE WIRELESS AMATEUR

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Wireless Institutes are being reformed in all States of Australia. Their membership is made up of keen men of all ages and all walks in life, who desire to use their spare time in understanding and experimenting with apparatus for wireless communication. Examination of this membership would show that it includes engineers, barristers, lawyers, scientific men, bank clerks, salesmen, telegraphists, students and a number of young men who prefer to use their spare time in developing a mechanical and scientific hobby instead of attending picture shows, roaming city streets or playing with pea rifles.

It is now indisputably recognised that Australians possess intelligence, initiative and energy second to none in degree or quality, and whatever they undertake they do well and, frequently excel in. Such national qualities must be fostered and encouraged both by public opinion and Government consideration. These qualities were shown among the large number of amateur wireless experimenters during the fourteen years preceding the war, and a special instance of Australian initiative was exhibited by the formation of the Wireless Institute of New South

Wales, which was the first Institute formed in the British Empire.

The interest previously developed and the knowledge acquired are still very much alive in this country, and are being demonstrated by the enthusiastic meetings held in several States for the reforming of Wireless Institutes.

One vital question is being asked by hundreds of would-be experimenters: "Shall we be permitted to experiment freely after peace is signed?" This question has taken definite shape in the form of letters written by the N.S.W. Institute to the Acting Minister of the Navy, who is responsible for administering the Wireless Telegraphy Act. A reply has been received which indicates that the experimenter will be severely limited, but which does not state clearly what amount of freedom, if any, will be given. This, of course, is not satisfactory, and the Institutes will not be content with anything short of the freedom for which our forces have been fighting on Gallipoli and in France.

The members of these Institutes are all loyal Australians, who do not wish to do anything contrary to the law of the

land or injurious to the common good, but they also have the Australian spirit of independence which demands the right of self-development and self-expansion in all reasonable directions.

They wish to understand and experiment with this most fascinating, instructive and useful branch of electrical science, which abounds with unsolved problems and possibilities for invention.

Some might ask why the Government should have anything to say in the matter and the answer would be that the ether might be likened to the main roads or city streets or, even more so, to the aerial navigation routes. The use of the King's Highways and the aerial routes must be subject to regulations for the convenience and protection of all users, and so must the use of the common ether for wireless communication. That is the reason why the Government should have its say in the matter, *but it is the only reason*. No other reason can be justified, and the wireless enthusiast asks for the same right to work in the ether as the motorist has on the road, the yachtsman on the sea, and the aerial navigator in the air.

This journal is aware that other arguments have been advanced against the private user of wireless, but it considers that none of those have any more force than they have against the use of aeroplanes, carrier pigeons, firearms or private yachts.

The value, both to individuals and to the Nation, of encouraging this experimental work is unlimited. In the first place it holds a special fascination for the young man who is old enough to appreciate the wonderful laws of electricity, to build most of his apparatus and to work along the lines of scientific experiment.

Available in Australia are thousands of such, who are compelled to work for bread and butter in the first job, but who, if provided with a suitable opportunity, would attain proficiency in a skilled or professional occupation. For such as these wireless experimenting provides a healthy occupation for spare time which will lead them to study physics, mechanics and electricity, and thus become more valuable and prosperous citizens. No other form of training or experiment offers such educative advan-

tages at a small cost and in pleasant circumstances.

Then there are the large numbers who have already enjoyed educational advantages and professional training; these experimenters bring trained minds to the investigation of a subject which has unlimited possibilities, and which takes them far beyond the limits of ordinary physical science.

Apart from the educational and practical value, this experimental work will lift many out of unskilled into skilled occupation, and there is no reason to doubt that some will produce new ideas and valuable inventions.

Every member of a Wireless Institute should do his utmost to gain freedom from unnecessary restrictions, and he may be assured of the support of this journal in anything which is sound and reasonable. Our watchword is "Progress," and our aim is to urge freedom, progress and a fair chance for all in each of those wonderful things about which we write.

The future progress of Australia and New Zealand is inseparably bound with the advance of freedom, together with the extension of aviation, wireless communication and the mercantile marine.

For the benefit of our readers we have arranged to publish the opinions of several prominent men in the world of wireless upon this subject:—

Senatoré G. Marconi, G.C.V.O., LL.D., D.Sc.:—

"It should be borne in mind that in many or, perhaps, in all branches of radiotelegraphy finality has by no means been reached, and I consider that the existence of a body of independent and often enthusiastic amateurs constitutes a valuable asset towards the further development of wireless telegraphy. It is wise also to remember that had it not been for amateurs wireless telegraphy as a great world-factor might not have existed at all. In the United States, for example, a great deal of the development and progress of wireless telegraphy is due to the efforts of amateurs.

"I think, therefore, that the suppression of the work of those amateurs who are interested in wireless telegraphy would be against the public interest."

* * * *

Dr. J. A. Fleming, M.A., F.R.S., Professor of Electrical Engineering in the University of London:—

"Now that the war is happily ended we ought as soon as possible to be freed from certain shackles of bureaucratic control and from any restrictions which were essential for national safety during the progress of the struggle. One of these is the permission, under license, to conduct research in radiotelegraphy and telephony. At the outbreak of the war all private and University radio stations were dismantled and non-official research stopped. The question then arises—how soon will these restrictions be removed? It is a matter of common knowledge that a large part of the important inventions in connection with wireless telegraphy have been the result of amateur work and private research, and not the outcome of official brains or the handiwork of military or naval men. In fact we may say that wireless telegraphy itself in its inception was an amateur product."

* * * *

Professor W. H. Eccles, D.Sc., A.R.C.S., M.I.E.E., Professor of Applied Physics and Electrical Engineering at the City and Guilds of London Technical College (successor to Prof. Silvanus Thompson), Hon. Sec., Physical Society, Hon. Sec., British Association Committee for Radiotelegraphic Investigation:—

"The waves of experimental sending stations may disturb service stations while they are in the act of receiving their messages, and thus a few inconsiderate experimenters may greatly reduce the value of the most perfectly organised public service. The obvious and hasty solution of the difficulty is to limit experimental stations to a small number by law and control experiments and experimenters by the rules and regulations of a Government Department. But this simple solution would probably have as its main result the hindering of research—which is the father of invention—and the slowing down of progress in this country. This is certainly not to the national interest."

* * * *

Professor M. I. Pupin, Professor of Electromechanics, Columbia University, New York, inventor of the electrolytic wireless detector, and inventor of the celebrated Pupin loading coils in telephony, Director Phoenix Research Laboratory in Physics, Past President Institute of Radio

Engineers, President New York Academy of Sciences, etc.:—

"I look upon this wireless art as a very promising healthy baby which has a great future before it; a great future, provided this healthy, robust and most promising baby receives the proper training and the proper bringing up. And the question is simply this: Who is to be responsible for the training and the bringing up of this wonderful baby? Its parents or a Government institution? . . . I am convinced that if we are to use an art, particularly the wireless art, for the national defence, the best thing for us to do is to develop that art. If interferences exist on account of the present imperfection of the wireless art, then these interferences should be eliminated, not by legislation but by perfection of the art."

* * * *

Professor A. E. Kennelly, Professor of Electrical Engineering at Harvard University and the Massachusetts Institute of Technology, also late principal assistant to Mr. T. A. Edison, partner with Professor E. J. Houston, of the Thomson, Houston Co., also Past President of the Institute of Radio Engineers, the American Institute of Electrical Engineers, and of the Illuminate Engineering Society:—

"If there is one thing of which this country (America) should be proud it is that she has occupied such a shining position in the world in regard to telephonic communication. I do not mean only *radio* telephonic communication, because that is a very young art, I mean telephonic communication generally. It was this country which first established radiotelephonic communication with France and with Honolulu, and there is no other country in the world with such a record. That has been accomplished because the telephonic art has been fostered and developed in America under free institutions and not under Government control. In those countries where there is Government control of the telegraph and telephone you will find them in a relatively backward state."

* * * *

The Hon. Thomas Ewing, United States Commissioner of Patents:—

"If the Government takes over the wireless business it will largely be the end of the wireless business."

* * * *

The Editor invites correspondence on all phases of this important subject.

THE AUSTRALIAN AERO CLUB
NEW SOUTH WALES SECTION FORMED
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 Especially Written for "Sea, Land and Air"
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Civil aviation in its several branches is being dealt with on broad, practical lines by the New South Wales Section of the Australian Aero Club, the proposed formation of which was announced in the last issue of this journal.

On Friday, May 23, a representative gathering, comprising approximately one hundred returned members of the Australian Flying Corps and Royal Air Force and others immediately interested in aviation, assembled in the Hall of the Royal Society of New South Wales.

In convening the meeting the Honorary Organising Secretary, Mr. Edward J. Hart, expressed his indebtedness to Major J. M. Lean, officer in charge of Base Records, Melbourne, by whose courtesy and assistance he was enabled to communicate with returned officers and "other ranks" at their private residence, and to which fact the extent of the present attendance was largely due.

The following were elected, provisionally, as office-bearers and members of the Committee:—

President, Mr. H. C. Macfie, F.C.P.A., F.C.I.S.; Honorary Secretary and Treasurer, Mr. Edward J. Hart (late A.I.F.); Committee: Mr. (ex-Lieutenant) W. J. Stutt (Chief Instructor at the New South Wales School of Aviation); Captain H. Gilles Watson, D.F.C. (late Australian Flying Corps); Mr. (ex-Lieutenant) S. H. Deamer (late Australian Flying Corps); Lieutenant S. H. Harper (Australian Flying Corps); Mr. (ex-Lieutenant) W. E. Hart (late Australian Flying Corps); Lieutenant-Colonel P. W. Woods, D.S.O. (bar), M.C. (Managing Director Aerial Company Limited), and Mr. Frank Bignold, vice-President of the Australian Journalists' Association.

Congratulatory telegrams were read:—

From Major-General J. Gordon Legge, C.M.G., C.B., Chief of Commonwealth General Staff :

"Chief of General Staff wishes New South Wales Aero Club a successful inauguration.—Legge."

From the Honorary Secretary of the Australian Aero Club, Victorian Section:

"Committee Australian Aero Club congratulate Sydney members on formation their own branch, and wish New South Wales Club every success.—Sleeman."

From Major W. Sheldon, A.F.C., Commanding the Central Flying Schools, Point Cook, Victoria :

"On behalf of officers here who are members of the Australian Aero Club, wish you all success in inaugurating the New South Wales Section.—Sheldon."

From Major Lee Murray, R.A.F., Director of Aerial Transport, Limited, Melbourne :

"Heartiest congratulations on getting to work so quickly. Wish New South Wales Aero Club the very best of luck.—Lee Murray."

The Honorary Secretary read a * letter from the Honorary Secretary of the Australian Aero Club, Melbourne, sanctioning the formation of a New South Wales Section and defining the conditions under which affiliation with Melbourne would be granted.

Two paragraphs in this letter involved a lively discussion, and were finally rejected by the meeting as unacceptable, i.e.:—

- (1) "The New South Wales Section will not handle the financial portion of the Club."
- (2) "The New South Wales Committee has no authority to issue aviators' certificates or to carry out the functions of the Aero Club in the control of sporting events."

* Published in *Sea, Land and Air*, May, 1919, page 116.

On this subject the following resolutions were unanimously carried:—

(1) "That a New South Wales Section of The Australian Aero Club be formed, subject to the following amendments to Mr. Sleeman's letter of 3/5/19, viz:—

(a) That a General Committee be formed, on a *per capita* basis, to control all State Sections of the Australian Aero Club.

(b) That pending the formation of such General Committee, the New South Wales Section be accorded the privileges already enjoyed by the Victorian Section; *i.e.* Independent Control."

(2) "That, in the event of The Australian Aero Club (Melbourne) failing to agree to the above amendments, a further general meeting be called in Sydney for the purpose of considering alternatives."

(3) "That, pending reply from Melbourne, an account be opened in the Commonwealth Bank (Sydney Head Office), in the name of The Aero Club of New South Wales—to be operated on jointly by the President and Secretary."

(4) "That *Sea, Land and Air* be the official journal of the New South Wales Club."

(5) "That the Honorary Secretary of the New South Wales Club be instructed to convey to the Honorary Secretary, Melbourne, the resolutions carried at this meeting, and that, immediately upon receipt of a definite reply, he convene a meeting of the Provisional Committee.

* * * *

So much for the initial difficulties in the matter of forming the New South Wales Section of The Australian Aero Club. We may add, however, that these difficulties no longer exist, the reply from Melbourne having proved entirely satisfactory in every possible way. But to return to the General Meeting of May 23rd.

The Chairman, in outlining the scope of the proposed Club, emphasised the necessity for taking immediate steps to secure employment, not only for members of the A.F.C. who have already returned from service overseas, but for those now on their way to Australia aboard the transport *Kaiser-i-Hind*, due to reach Sydney on June 26. "It is the duty of the New South Wales Section of The Australian Aero Club," asserted Mr. Macfie,



Mr. Edward J. Hart, Honorary Organising Secretary and Treasurer of The Australian Aero Club, New South Wales Section.

"and more particularly of those of us who are already actively associated with commercial aviation in this State, to do all in our power to guarantee absolute preference to the returned flying man." (Applause.)

Another object with which the Club should concern itself as closely as possible, continued the speaker, was the attempted exploitation of Australia by aeronautical bodies overseas. That this sort of thing had been going on for some considerable time, he said, was evident in many directions. One had but to turn to any of the recent issues of *Sea, Land and Air* to realise what, for several months past, had been taking place quietly behind the scenes. The speaker quoted several instances, notably: The correspondence between *The Aerial League of the British Empire, the Sydney Chamber of Commerce and the Editor of *Sea, Land and Air*; the † Report of the Civil Aerial Transport Committee (London) to the Imperial Air Board, regarding the Overseas Dominions; the § proposed visit to

* *Sea, Land and Air*, April, 1919, pages 4 and 5.

† *Sea, Land and Air*, April, 1919, page 3.

§ *Sea, Land and Air*, May, 1919, page 122.

Australia by the late Jules Védrières, provided that a subsidy be granted to him by the people of the cities included in his itinerary; and, finally, the deputation of British aircraft manufacturers which recently waited on Senator Pearce in London with a view to obtaining concessions in respect of the aerial route from England to Australia.

These were matters that came directly within the scope of the proposed Club, and made it clear that unless we adopted a firm and united attitude we were in grave danger of seeing the aeronautical industry of Australia pass into the hands of the invader. (*Prolonged applause.*)

Before calling on Lieutenant-Colonel Woods to indicate the requirements and the probable number of returned flying men which his Company (A.C.L.) could provide jobs for, the Chairman would conclude his remarks with a few words as to the special features of future meetings. These meetings, he said, would be held monthly, perhaps oftener; there would be interesting debates and lectures, and the entertainment of distinguished visitors in the aviation world. His Excellency the State Governor, Sir Walter Davidson, K.C.M.B., would be invited to extend his patronage to the New South Wales Section, and he was pleased to announce, in conclusion, that Mr. Ernest T. Fisk, a prominent member of the Institute of Radio-Engineers, had kindly consented to read, at some future meeting, a paper on Wireless Telegraphy and Telephony in their application to Commercial Aviation.

Lieutenant-Colonel Woods, in a brief address, stated that it was the invariable policy of his Company to grant preference to the returned airman. There would be extensions, of a nature which he was not, at that moment, at liberty to disclose, but with these extensions there would arise an increased demand for skilled pilots and air mechanics. Aerial Company Limited, he said, would see to it that none but returned airmen should find a place on the Company's pay roll. (*Applause.*)

Mr. W. J. Stutt stated that during the term of his association with the State School of Aviation at Richmond (N.S.W.) upwards of one hundred pilots had passed through the training school, and from personal knowledge he could safely de-

clare that Australia can produce, has produced and will produce as keen a body of airmen as could be found in any other part of the world. (*Applause.*)

Not only were they keen, he continued, but for courage, skill and initiative they stood "in a class on their own."

A country which had reared such men as Harry Hawker, Lawrence Hargrave and a dozen others whose names would remain immortal throughout the ages, had nothing to fear from other nations—provided that we continued as we had begun, and set ourselves seriously to the task of building up the aeroplane industry in Australia; building it up, expanding it and retaining it.

Here again the outlook was particularly encouraging, for, with the mountain ash in Victoria, the maple in Queensland and the Huon pine in Tasmania, we were in the happy possession of almost unlimited supplies of home-grown timber suitable for aircraft construction.

The speaker had been assured that in the manufacture of propellers the Queensland maple had largely replaced the American walnut in British aircraft factories, and that a considerable export business from Australia was lying at the hand of the first local manufacturer who possessed sufficient enterprise to establish the industry.

Similarly, said Mr. Stutt, the Broken Hill steel works at Port Waratah (Newcastle) were in a position to produce and manufacture every essential part of the aero-engine and other metal parts of the most modern type of aeroplane.

Mr. P. J. Humphries, who delivered an interesting address on the subject of aero-engine construction, stated that during the war he held the position of Production Engineer in the Beardmore and Clerget aircraft factories. A large section of the work in these factories, said he, was done by woman-labour; often by mere girls. They did it very well indeed, and what an English or Scotch lassie could attain proficiency in after barely two months' training, could, he, the speaker, was confident, be done equally well by our own men in Australia.

* * * *

A further meeting of the Provisional Committee was held at 1 p.m. on Friday, May 30, in the office of the Chairman (Mr. H. C. Macfie) at 14 Martin Place, Sydney.

The Honorary Secretary read Mr. Sleeman's reply to the letter which had been sent in compliance with the resolution previously referred to.

Mr. Sleeman's reply sets forth his personal views: "Before these are made official," he writes, "they will have to be confirmed by the Committee; but I have every reason to believe that they will confirm the opinions given below.

"The Committee of the Aero Club existing in Melbourne at the present time should be regarded by the N.S.W. Section as the Central Committee. This Committee is temporary only, and was elected towards the end of last year. At that time there were only about a dozen members of the Aero Club in Australia. My idea is that now that the N.S.W. Section is formed, Sections should be formed in the other States, including Victoria. These Sections should each elect their own officials and committee, and the members of the Central Committee should be elected from the Committees of the State Sections.

"I consider, however, that the Secretary of the Central Committee should be located in Melbourne, this being the seat of the Federal Government; the Defence Headquarters are here too, also the Central Flying School. Immediately we get the other State Sections into operation we can proceed with the election of the Central Committee. In the meantime I would suggest that the present Committee in Melbourne act as the Central Committee temporarily.

"The Melbourne Committee has no desire to control your finance in any way, and this was only included in my earlier letter as you mentioned to me when recently in Melbourne that you did not desire to handle the money of the Club.

"With regard to the control of sporting fixtures by the N.S.W. Section, as your title will now be "Australian Aero Club, New South Wales Section," *the whole of the power vested in The Australian Aero Club by The Royal Aero Club of the United Kingdom may be carried out by your Section.*

"As regards the issue of pilots' certificates to candidates in your territory, I would suggest that your Section appoint its own observers, but forward to the

Secretary of the Central Committee the candidates' applications, certificates of flight, together with an intimation that the fee for pilot's certificate has been received by you. The pilot's certificate could then be issued by the Secretary of the Central Committee and sent direct to the candidate.

"If pilots' certificates are issued by each State Section, the numbering and recording of these certificates would be extremely difficult. I think you will agree with me that it is advisable that the certificates themselves should be issued by the Secretary of the Central Committee for the above reasons.

"I would suggest," concludes Mr. Sleeman, "that you place the suggestions in this letter before your Committee, and find out if they are agreeable to them. If so, I will definitely place them before the Melbourne Committee at the next meeting."

The following resolutions were now unanimously carried by the Provisional Committee:—

Moved by Mr. F. Bignold, seconded by Mr. W. J. Stutt: "That the conditions detailed in Mr. Sleeman's letter of May 27th be accepted, and that the Honorary Secretary request him (Mr. Sleeman) to notify the Melbourne Committee of this decision."

Moved by Mr. W. J. Stutt, seconded by Mr. W. E. Hart: "That the Honorary Secretary (Mr. E. J. Hart) be congratulated upon the able and successful manner in which he has conducted the preliminary negotiations for the formation of the New South Wales Section of The Australian Aero Club."

The inaugural meeting will be held in the Hall of the Royal Society of New South Wales, on Thursday, June 5th, at 8 p.m.

Thirty-eight new members were elected by the Provisional Committee. Application for membership should be addressed as under:—

Mr. Edward J. Hart, Hon. Secretary and Treasurer, The Australian Aero Club, N.S.W. Section, Box 2516, G.P.O., Sydney.

THE PROBLEM OF BRITISH SHIPPING

By SYDNEY BROOKS

'At the outbreak of war the British mercantile marine was the largest, the most up-to-date, and the most efficient of all the merchant navies of the world.' I take this sentence from the recent report of the Departmental Committee on Shipping and Shipbuilding Industries after the War as a just and succinct account of our shipping position as it was four years ago. It will bear some elaboration. Indeed, it must be elaborated if its real significance is to be understood. To say that our merchant marine in 1914 was 'the largest' on the seas gives but a vague idea of the immensity of the lead it then held. Nearly one half of the world's steam tonnage was British-owned. Germany was our nearest and most formidable rival, but the German mercantile marine was less than a fourth the size of ours; and apart from Germany there was not a single country with even a tenth of the number of steam vessels under the British flag. The entire ocean-going tonnage of such countries as the United States, France, Norway, and Japan, even when added together, was hardly more than a third of our own. It was a case of the United Kingdom first, Germany a poor second, and the rest nowhere.

But numbers were very far from being the only advantage we possessed. The general character of the British mercantile marine, no less than its size, put it in a class by itself. If one takes the dividing line between ocean-going and other vessels at 1600 tons gross, then 90 per cent. of the tonnage of the United Kingdom was made up of vessels of the larger type. No other merchant marine could boast so high a percentage of big ships and fast ships. We had nearly 10,000 vessels capable of maintaining at sea a speed of 12 knots and over. Such a figure was nowhere else even approached. Germany, although her oversea trade has been carried on pre-eminently by liners, had barely more than a fifth of the number of our own 12-knot-and-over vessels, and

the proportion that these ships bore to her total tonnage was only 23 per cent., while in our case it was 35 per cent. To numbers and to size, therefore, the British merchant navy added the further advantage of speed.

But what told even more heavily in its favour and enormously buttressed its commanding position was its modernity, its up-to-dateness, its high average of ships of recent construction, the velocity at which it maintained a constant process of renewal and replacement. The charge, often brought against British manufacturers, that they are slow to scrap obsolete works and machinery, could never be brought against the British shipping industry. The British merchant marine was always the youngest on the seas. As vessels grew old and fell below the standards of British efficiency, they were transferred to foreign flags, and their places taken by newly-built ships. Our owners thus found a ready market for out-of-date vessels whose sale facilitated the purchase of new and improved ships. The foreigner therefore was twice our friend. He took over the vessels that were no longer serviceable to us, and he furnished no small part of the means and the stimulus needed to replace them by new construction. A considerable proportion of the increase of foreign merchant navies, in short, represented their purchases of the ships for which British owners had no further use and which they were heartily glad to dispose of at a price. In the twelve months immediately preceding the war, for instance, we sold abroad some 750,000 tons of shipping. That was over half the total tonnage owned either by Holland or by Italy, and well over a third of all the tonnage on the Norwegian or the French or the Japanese or the American register. Alone among the maritime peoples of the world we had both this surplus to dispose of and sufficient shipbuilding facilities to

more than make it good. This fluidity, this continuous reconstruction of the British mercantile marine, kept it unique among the merchant navies of the world. It meant that at any given moment about half of the British mercantile marine was under ten, and about three-quarters of it under fifteen years of age; and when to this attribute of perpetual youth is added the unequalled experience, seamanship and sense of tradition that permeated the whole body of over 200,000 officers and men, it may be judged whether the estimate which I quoted from the committee's report in the first sentence of this article was in any way exaggerated.

This vast armada carried before the war over half of the total sea-borne trade of the world. Of the Inter-Imperial trade—the trade, that is to say, between the United Kingdom and the British Oversea Possessions and also between the Oversea Possessions themselves—its share was 92 per cent. Of the trade between the United Kingdom and foreign countries and between the Oversea Possessions and foreign countries, 63 per cent. was borne in British vessels; and they also carried 30 per cent. of the trade between the non-British regions of the earth. Nothing could be more eloquent than these figures of the unique position held by Great Britain as the industrial centre of a world-wide Empire, drawing its foodstuffs and raw materials from every quarter of the globe, and forced by its insular situation to project its activities far beyond Europe into the most distant markets. Not only did 54 per cent. of all commerce by sea either begin or end within the British Empire, but 40 per cent. of it originated in or was destined for the ports of the United Kingdom alone. With the sea as our only frontiers, with an Empire that had strewn the ocean routes with coaling stations and ports of call, and with a commercial policy that ensured for the shipping industry low costs of construction and operation and that made free and frequent access to all markets a first necessity, we rose by what might almost have seemed a natural process to be easily the chief carriers of the world.

A factor that played an all-important part in the development of our shipping was the export trade in coal. Although coal represented only some 10 per cent.

of our exports in value, in weight it accounted for fully three-fourths of the outward cargoes leaving British ports. But in the main it is the bulk and not the value of a cargo that determines the freight at which it shall be carried. A shipowner is much more concerned with the weight of a cargo and the space it will occupy, and with the prospects of filling his hold for both the outward and the homeward voyages than with anything else. Coal, therefore, entered very largely into his calculations. The export of so bulky an article worked in with and balanced and made possible the big imports of food and raw material. Our shipowners have thus been able to load their vessels both ways, and any curtailment in our foreign markets for coal which diminished the outward cargoes offering would react at once upon the freights charged on our imports of foodstuffs and raw material and on our exports of manufactures. We have heard a good deal of key industries. Coal in the commercial economy of the United Kingdom has been a key export. It has been the most powerful of the magnets that have attracted to these shores the commodities essential to our life and industry. Before the war, again, coal served to mark the dividing line between our European and our extra-European trade. In 1913 we shipped to Europe and the Mediterranean 65 million tons of it, and to countries outside Europe only 10 million tons. Thus 86 per cent. of our exports of coal went to near destinations and not more than 14 per cent. to parts beyond Europe. One must, indeed, asserts the writer in *The Nineteenth Century*, think of coal as the balance-wheel of our European and Mediterranean trades. Of all the commodities carried in outward ships it was by far the bulkiest, and in return for its export we received all the produce and the goods that the Continent and Russia and the northern parts of Africa had to offer.

In the year before the war 44 per cent. of our imports, when measured by values, came from, and 41 per cent. of our exports went to Europe and the Mediterranean; but when measured by weight, our imports from these sources and our exports to them considerably exceeded our trade with extra-European countries. Out of every five

tons of cargo landed in the United Kingdom three came from Europe and the Mediterranean; and out of every ten tons of cargo shipped from the United Kingdom at least seven went to these comparatively near markets. Our European and Mediterranean trade, while only about two-thirds as valuable as our extra-European trade, was in bulk nearly twice as heavy. It engaged somewhat less than 20 per cent. of the total British tonnage, mainly in the form of small vessels. The average size of the ships trafficking in the European trades proper was under 1000 tons, and in the Mediterranean trades about 2700 tons; while the extra-European commerce employed about twice as many steamers, averaging some 4400 tons apiece, and nearly five times as much tonnage. It was in these great ocean trades with the Americas, with West and South Africa, with Australasia, and with all the countries east of Suez from Persia to Japan, that the predominance of British shipping was most conspicuously manifested. Our tonnage on these routes was almost equally divided between the American trades on the one hand and the Eastern, Australian and African trades on the other. And in addition to all this we carried, as I have said, in ships that for years on end might never touch at a British port, nearly a third of the commerce that passed between foreign countries.

On no sea, however, was competition lacking. In the European and Mediterranean trades we had to meet the rivalry of the Germans, the Dutch and the Scandinavians, and in the ocean trades the Germans and the Dutch were ubiquitously aggressive. The twelve years previous to the outbreak of the war had seen a very great increase of Germany's oversea trade and a corresponding development of her merchant marine. Her imports by sea in 1913 were very little less in bulk than the imports into the United Kingdom, and half the volume of the goods imported; and 60 per cent. of the goods exported at German ports, were carried in German bottoms. Nearly half of Germany's shipping was engaged in the Baltic, European and Mediterranean trades, about a third in the American trade, and somewhere between an eighth and a ninth on the Middle and Far Eastern routes.

Ten closely associated and powerfully organised lines, with 3,200,000 gross tonnage, owned 60 per cent. of Germany's shipping and controlled most of the remainder. The German marine was essentially a liner fleet, in which the passenger element was all-important, and its main strength, despite its world-wide activities, was concentrated in the Atlantic trades. This concentration followed from its control of a very large proportion of the emigrant traffic to the United States. Up to the time of the American Civil War about half of the emigrants to that country came from the United Kingdom. But in the decade preceding the present war not more than one-tenth of the million or million-and-a-quarter people who annually sailed from Europe to settle in the United States hailed from the British Isles. Since the beginning of this century Italy, Austria-Hungary and Russia have been the main sources of supply. In 1914 the three countries in question contributed over 800,000 emigrants to the United States, or two-thirds of the total. There has thus been going on a shifting of the centres of migration which favoured Germany and placed British shipping at a geographical disadvantage. This development was important, first, because the fast Atlantic services could not exist without the passenger business, of which the emigrant traffic has been the foundation; and secondly, because it affected the steerage traffic not only to the United States but to Canada, the Argentine and Brazil.

Roughly speaking, 2,000,000 emigrants every year were crossing the Atlantic before the war to make their homes either in North or South America; and in this branch of the carrying trade the Germans had built up in the past two decades a decisive pre-eminence. They had done so partly by a legitimate exploitation of their geographical position and partly by a none too scrupulous abuse of the Control system. Control stations were first established by the German authorities in 1894, after an outbreak of cholera in Russia, and with a view to preventing the spread of the disease into Germany. But they have since been converted into a powerful weapon for deflecting the flow of Russian and South-Eastern emigration to the German shipping companies. The

emigrants have been forced to book by the German lines on pain of being refused transit across German territory; the Control stations have become in reality shipping agencies, with the full knowledge and connivance of the German Government; and with this great asset in their keeping the German shipping companies have been able to divide their competitors, to force unfavourable agreements upon them, and to make a serious and sustained bid for the supremacy of the Atlantic. In 1913 they carried half of all the third-class passengers who left Europe, including the United Kingdom, for the United States and Canada. Their hold over this vast volume of traffic has been cumulative in its effects. It formed the basis of the prosperity of the Atlantic trades, and this prosperity reacted on the whole body of German shipping and enabled the German lines to start cargo services for political reasons and to open up new business in other trades by systematic rate-cutting with a security and effectiveness that otherwise would have been unobtainable.

Some further advantages which the German shipping firms enjoyed over their British competitors sprang from the closer and more intelligent alliance between the Government and industry which has long obtained in Germany. Their export trade, for instance, was assisted by a preferential system of through rates accorded on the German State railways to goods despatched from inland towns in Germany to oversea destinations; and there is clear evidence that these rates operated in favour of the German steamship lines as well as of the German exporter. With the development of the railway system between Germany and the Mediterranean, with the large quantities of rough cargo, such as cement, ironwork, coal and chemicals which the Germans had always ready for export, with their great energy, organising ability, attention to detail, willingness to pick up the crumbs when they could not have the loaf, the excellence of their commercial travellers and agents, and the ready backing of the banks and the Government, the German shipping companies had drawn away from Great Britain much of the Continental transshipment traffic that used to come here, had annexed a good deal of

the short sea business with Russia and Scandinavia, were pushing ahead in the European and Mediterranean trades, and had established themselves as serious competitors not only on the Atlantic, but in Central and South America, in East Africa, throughout the Levant, in Australasia and China—everywhere in short where political or economic interests made it desirable that they should get a footing and where subsidies, rate-cutting, and a ready disregard of Conference agreements with the shipping lines in other countries enabled a bustling and untrammelled newcomer to force his way into a rival's market. That much of Germany's success in shipping was legitimate and deserved is indisputable. But that much also was the outcome of the abuse of the Control system, and developed from the position which she had thus secured in the Atlantic trades, is likewise not open to doubt.

Apart from Germany, our chief rivals in the European and Mediterranean trades were the Scandinavian shipowners, who operated on a much lower schedule both of wages and expenses. In the Atlantic passenger business all the smaller European countries had a share, usually a subsidised share. In the Mexican, Central American and West Indian trades the Dutch, the Danes and the French were active. In the South American trades we met with a certain amount of competition from Dutch and Italian lines, and the former, in particular, showed that they meant to take full advantage of the opening of the Panama Canal; while in the Far East, and even in the Indian coasting trade, the Japanese lines, heavily subsidised by their Government, were proving formidable rivals. But with it all the British mercantile marine remained easily supreme. Over one half of the world's sea-borne trade was carried in British ships; our shipbuilding resources were unrivalled; all the lands of the earth were laid under tribute that the people of the United Kingdom might have the means to maintain life and the material to manufacture goods; our merchant navy was not only the prop of our existence, not only played the same part in British commerce as coal plays in British industry, not only sustained the whole edifice of our world-wide trading—it was also the greatest of

international utilities, the most remarkable of all our contributions to the commerce of the universe, and by far the most imposing monument ever reared by the genius of British enterprise.

It is a commonplace to remark that without the mercantile marine we could not have waged the war, much less won it. Everyone can now see that tonnage has been the basis of the whole Allied effort. But we were almost criminally late in recognising this simple, quintessential fact and in shaping our policy accordingly. The war had been going on certainly for two years—in my own opinion, for two and a half years—before the nation and its rulers had begun to realise that we are not a Continental but an insular Power, drawing our life from the sea. So little was this foreseen or suspected at the beginning of the war that we took men from the shipyards by thousands and tens of thousands into the Army and the munition factories, and practically shut down on the building of merchant vessels. Then gradually and protestingly we awoke to the reality of the U-boat depredations. We found that just at a time when our factories were demanding more and more material from abroad, and our Armies were requiring unprecedented quantities of imported foodstuffs, and our Allies were asking for the loan of ships and yet more ships, and half of our total tonnage had to be diverted from commercial to military uses, the German submarines were making inroads on our depleted shipping with a success that, if it could be maintained, would eventually end in paralysing our fighting arm. There were weeks, there were months, in 1917, when the enemy's campaign seemed so likely to triumph that one could almost name the date when Great Britain's part in the war would be over. Sir L. Chiozza Money stated in the House of Commons on the 14th of November that had our losses in the months of April 1917 been maintained we should have been 'in deadly danger' in six months and 'ruined' in nine months. I wonder how many people realise that *in the first nine months of 1917 we lost almost a sixth of the entire mercantile marine with which we began the war*, and that our output of vessels for the whole year was about 240,000 tons less than

our losses during a single quarter. Our strength at sea was being steadily sapped, even though the Fleet remained intact and supreme.

Such a paradoxical conjuncture of affairs would have seemed unimaginable before the war. But then before the war we really did not know the meaning of Sea-Power. We thought it meant Dreadnoughts, cruisers, destroyers, submarines and so on. We did not realise that it also meant liners, trawlers, tankers, tramps, and the ordinary merchant vessel. We did not grasp that while the Fleets represented the striking and protecting half of Sea-Power, the carrying and supplying half consisted of the merchant marine, and that both were equally vital to the success of our military effort. We had never therefore envisaged a situation in which, while 'the command of the seas' was in our hands, our communications, our vital arteries, could be severed one by one through the sinking of mere trading ships. Undoubtedly, as Lord Inchcape has observed, when men begin to ponder the lessons of the war, there will be a great readjustment in the strategical conceptions of the functions and relative importance of the Navy and the merchant marine in time of war. We have learned to rate at something like its proper value the belligerent utility of a service that has transported to five different fronts and kept fully provisioned and equipped all these millions of fighting men, besides supplying Great Britain with her essential foodstuffs and raw materials and placing over two million tons of shipping at the disposal of her Allies. But at the beginning of the war, and for long afterwards, the one idea of the Admiralty was to turn out more naval vessels. It insisted on having the first call on all the shipbuilding facilities in the kingdom. It frowned on the construction of merchant vessels as on the whole a waste of national energy. Our margin of tonnage appeared to be so ample, the sweep and scale and commitments of the war were so little foreseen, that to use the yards for any but purely naval purposes seemed like a base concession to the 'Business as usual' slogan.

Therefore the Government proceeded to cut down right and left the commercial shipbuilding programme which the Brit-

ish yards had on hand. In 1914, which was almost a normal year, we launched over 1,600,000 tons of new vessels. In 1915 construction fell to 688,000 tons. In 1916 it fell again to 544,000, the lowest point it had touched (with the exception of one year) in half a century. By then we had begun to see the error of our ways. In 1917 we made a big effort and brought the output of ships up to nearly 1,200,000 tons. That effort has been carried on, though with many fluctuations, throughout the present year, and the construction for the twelve months ending December 31, 1918, came very near the 1,600,000 mark. If in the fifth year of the war we have been able to launch 1,500,000 tons of new shipping, it is obvious that we could have done as much in the first, second, third and fourth years. Sheer bad judgment alone has lost to us nearly 3,000,000 tons of urgently needed shipping that we could and should have built but did not. That mistake has hampered us in the prosecution of the war and threatens to revenge itself handsomely upon us when the period of demobilisation is over. We chose to enlarge and reinforce a Navy that was already supreme, but it is greatly to be doubted whether all our additions were necessary and valuable contributions towards keeping the seas clear. Certainly when the intensified submarine campaign began in 1917, after more than two and a half years of war, the Admiralty was taken by surprise and had neither the mines nor the light craft to grapple with it.

The present situation is that our merchant marine is 3,500,000 tons smaller than it was in 1914. We have lost in the past fifty months some 8,000,000 tons by the action of the enemy and another 1,000,000 by marine risks. Against this partly by captures from the enemy, partly by purchase abroad, and partly by new construction at home we have added some 5,500,000 tons to the British register, leaving a net deficit of 3,500,000. That is to say, a fifth of our pre-war mercantile marine in tonnage and considerably more than a fifth in carrying power and efficiency has been wiped out. We emerge from the War with a merchant fleet 20 per cent. smaller than we possessed four years ago. Nor is that all. Before the war the British mercantile marine was increasing

every year at the rate of about 2½ per cent. Instead of being one-fifth smaller than in 1914 it would by now but for the war have been a tenth larger. Instead of a loss of 3,500,000 tons we should have registered a gain of practically 2,000,000 tons.

If foreign nations had lost in equal proportion, our relative position to-day would not, of course, be altered. But that is what they have not done. They have on the contrary been adding to their merchant marine while ours has been diminishing. In the four years preceding the war the average output of British yards was 61 per cent. of the total world construction. But since the war foreign yards have built about 1,300,000 tons more than British yards; and the foreign output is at this moment increasing nearly twice as fast as the British output. *We do not own to-day, as we did in 1914, practically half of the world's shipping. It is doubtful whether we own much more than a third.*

Our losses, however, are not to be reckoned in numbers alone. There has been inevitably a still greater falling-off in material efficiency. Repairs and overhauls have had to be foregone and the return to normal conditions will be the signal for the laying-up of many vessels for long neglected surveys and renovations. Again, the building of ships in British yards for foreigners and the sale of British vessels to foreign flags have been suspended during the war; and these restrictions have meant, first, that foreign countries have been forced to develop ship-building facilities of their own, and, secondly, that many vessels have been kept on the British register which normally would have been sold abroad. Moreover, the ships built during the war have rarely reached the pre-war standard of quality. They have not been a high class of vessel; more important still, they have not been designed for the needs of particular trades; for the purposes of an international and competitive commerce a considerable proportion of them will probably be found to be quite ineffective. Again, as I have said, at least half of our merchant tonnage—perhaps more than half since the business of transporting the American Army fell mainly on us—has been diverted to war uses. The wear

and tear on all the ships thus requisitioned has been immense; many of them have had to be converted to their new purposes by the sacrifice of internal fittings and appointments; and several months must elapse before the necessary repairs and alterations can be effected and the vessels are once more able to play their part in the Empire's carrying trade.

These, however, are not the only, are not even the worst, injuries that the war has inflicted on the British mercantile marine. Old ships can be reconstructed and new ones built; but lost markets and a disrupted organisation are handicaps more difficult to overcome. And there can be no question that, temporarily at any rate, many routes where the Red Ensign used to predominate now hardly see it at all, and that in the Far East, in South America, and in the Mediterranean trades we have been or are being supplanted by competitors whom formerly we could ignore. We have cut our foreign commerce to ribbons, have restricted imports and exports unsparingly, and have concentrated the great bulk of our shipping on the short, and especially on the Atlantic, routes that we might the better leave our energies free for the war. That we could do this without dislocating the mechanism of our overseas trade and without throwing wide the door to the shipowners of other lands was not, of course, to be expected. Regular sailings from British ports, especially to the Far East, have been whittled down to almost nothing, and practically all the trade routes between foreign countries have been abandoned by us.

Our competitors, naturally enough, have been quick to seize their started some five-and-twenty steamship services on routes once securely in our possession. On all sides the evidence accumulates that we are being ousted from the Far Eastern trades by Japan, out of the West Indian and Central and South American trades by the United States, and out of the European and Mediterranean trades by the Dutch and Scandinavians. The shipowners in these fortunate lands have amassed from the war immense wealth with which to enlarge their fleets of tramps and liners, and especially of tramps. No excess profits tax has eaten into their construction funds. No limita-

tion of freights or Blue Book rates have kept down their gross earnings. No discriminatory duties, such as are levied to-day on British shipowners, have been imposed on their rivals; and they have been equally immune from the stupid attempts to stir up popular prejudice against the shipping industry which have discredited our own House of Commons. They have been able, in short, to go ahead and to seize with both hands a well-nigh incredible opportunity; and they have now secured a hold difficult to shake and almost impossible to loosen on trades that we used to regard almost as British monopolies. Moreover, we shall have to meet their competition just when running charges, cost of production, and taxation are all abnormally high.

There will probably for a long while to come be a good deal of wrangling over the causes of the decline in merchant construction during the war. But the main reason would seem to be that among the duties developing on our shipyards that of building commercial vessels was officially adjudged to be the third and least. It came after the repairing and refitting of damaged vessels, and of these during the past sixteen months over 10,000 have been on the shipways, apart altogether from Allied and neutral vessels which have been overhauled and returned to service to the amount of nearly 5,000,000 tons. It came, too, after the construction of men-of-war and purely naval craft. Between January and September of this year nearly 20,000,000 tons of merchant shipping passed through the repairing office, besides all the Admiralty work for the British, American and Allied fleets. When the war broke out we had about 250,000 men engaged in shipbuilding, marine engineering and repairs. To-day there are some 381,000, but only about a third of these have been devoted to building merchant ships. It is not that our yards are turning out less than before the war. They are on the contrary turning out more. But their output, which before the war was mainly mercantile, has since the war been mainly naval. If all naval construction were to cease to-morrow, it is probable that we could in a little while work up to an annual production of 3,000,000 tons of merchant shipping. It is partly because this class of work has

been deliberately shelved by officialdom as of minor importance, partly because the problem of labour has never been tackled in the shipyards as it was in the munition factories, partly because we were in point of fact attempting too much and had to leave some vital part unguarded, and partly because the Government made the mistake of building National Shipyards instead of extending private facilities to the uttermost—it is through the interplay of all these forces that merchant shipbuilding during the war has cut a comparatively poor figure.

What, however, most concerns us is the future. During the war the shipping industry has not had a square deal either from the Government or from the public. It was loaded quite unfairly with the responsibility for the increase in food prices, but as a matter of fact freights have not diminished but have in many cases been greatly enhanced since the Government took over the industry. Shipowners were held up to public odium as the embodiment of the profiteering spirit when they were simply in the grip of circumstances that neither they nor anyone else could control. The incomparable services of the shipping industry from the beginning of the war, the splendour of the position it had won before it, the thousand and one factors that make the recapture of its old ascendancy a matter of the most vital moment to all British commerce, have gone too largely unrecognised. Instead, it has been blackened in Parliament and badgered by the Government; advantage has been taken of an ignorant and artificial prejudice to fasten upon it taxation from which all other industries are exempt; the rates of hire imposed upon it by the State have been so niggardly that the tramp-owner, who is the backbone of the mercantile marine, has little inducement to maintain or renew his investment in shipping property, and there is grave danger that many firms may go out of the business just when the nation will be most needing all the tonnage it can get; no other commercial interest has suffered such direct and, for the time being, irreplaceable losses from the action of the enemy; of no men have we better cause to be proud than of the officers and sailors of the merchant service, who have shirked no risk and have responded to

every call, and 15,000 of whom have perished miserably in the doing of their duty; and yet to no industry has public opinion been more grudging and on none has the bungling hand of Government control lain more heavily.

But there are signs at last of a generous reaction, and Mr. Runciman was right when he declared on November 14, 1918, that those who two or three years ago joined thoughtlessly in the hue and cry against the shipping industry had now 'entirely altered their views.' Mr. Bonar Law has recently announced that the nationalisation of British shipping is not contemplated by the Government. The sale of the Government-owned standard ships has begun, but as the prices are stiff and the suitability of the vessels for commercial purposes is more than doubtful only one transaction, so far as is known, has actually been completed. The shipyards, too, are being thrown open again to private orders, and that is a very real and helpful step towards the rebuilding of our merchant marine. Standard ships are all very well when numbers alone are aimed at. But the distinction and strength of the British mercantile marine has lain precisely in its wealth of specially designed vessels, adapted to the needs of particular trades. It is in this class of ship that the war has brought about a disquieting and almost disastrous shortage, and the gap can only be filled by allowing shipowners to place orders at the earliest possible moment for vessels of their own design. This is now being tentatively done, and that it should be done at all is an encouraging token that the Government intends to release its grip on the shipping industry. The intention is so salutary that both the country and the shipping community have borne with remarkable fortitude Sir L. Chiozza Money's resignation. The late Parliamentary Secretary to the Ministry of Shipping announced on November 18, 1918, that he could not tolerate a policy of freedom for the shipping industry. He wanted 'the people' to own for ever these costly futilities, the National Shipyards, and to operate for all time the ships that had been built during the war on Government account.

As to that it is enough to say that *the British mercantile marine and its world-wide and incomparable organisation are the creation of private enterprise alone, and that no industry would so certainly come to grief in bureaucratic hands* because none demands from its directors such incessant flexibility and alertness and such a ready capacity for instantaneous decisions—the very qualities in which Government operation always and everywhere and by a law of Nature is most deficient. The mere possibility that Government control might continue after the war and that the State itself might enter the business of shipbuilding and ship-owning has paralysed the industry and frightened capital away. Even now that possibility has not been wholly dispersed. We know that nationalisation is not meditated. But we do not yet know, though we may reasonably hope, that the National Shipyards will be sold and that the fantastic idea of turning them into competitors with the private yards has been abandoned.

Freedom from the control of the bureaucracy is the pre-requisite of any real recovery of our merchant marine. But that does not mean that the Government should withhold the assistance that it alone can render to this the most crucial of all key industries. In what should that assistance consist? First, as it seems to me, any change in the fiscal policy of this country that tended to increase the costs of construction or to interfere with the free flow of commerce, would fall with a crushing and peculiar weight upon the shipping industry. Secondly, it is of the first importance that British shipowners should be able to take early advantage of the high freights that are likely to rule for some time, but not perhaps for very long, after the signing of peace. They can only do so if privately-owned vessels are released at once, if ships required for Government work are chartered at market rates, if the process of demobilisation is left as much as possible in the care of Government-owned vessels, and if these vessels, as their services cease to be required, are sold by private auction to

British shipowners. Thirdly, schemes should be immediately devised for enabling yards engaged on Admiralty work to resume merchant construction, and for this purpose the skilled workers in the shipbuilding and marine engineering industries should be among the very first to be released from the Army and Navy, and the yards and shops should be recognised as having a strong claim to priority in the matter of steel and other raw material. Fourthly, I think the financial discrimination which has been employed against the shipping industry because an insensate agitation had made it momentarily 'unpopular,' should be rectified without delay. Fifthly, the Government ought to regard it as an indispensable part of the peace settlement that all enemy shipping should be unconditionally surrendered to the Allies, should be employed in carrying out the work of demobilisation, and should afterwards be sold by public auction among the different Allied countries in some rough proportion to their losses. The Council of the Chamber of Shipping has so emphatically insisted on this provision and Mr. H. M. Cleminson, speaking in its name, has so clearly established its wisdom and justice, and the demand is so widely supported by the seamen in the service and by public opinion, that one sees no loophole for 'statesmanlike' half-heartedness.

Apart from this, what the shipping industry most needs is, as I have said, freedom. It wants no ban on construction for foreign account or on sales to foreign owners. It wants to be set free to attend to its own affairs in its own way, to enjoy the backing and co-operation, but not the control, of the State, and to ward off, as the greatest evil that could befall the British mercantile marine, any return to the exclusiveness and the retaliatory spirit and practices of the old Navigation Laws. Given these conditions and given also the intelligent goodwill of Labour—that great interrogation mark on the page of industry we are now turning—British shipowners seem confident that in ten years' time they will win back all they have been forced to yield.

PASSING COOGEE BAY

Especially Written for "Sea, Land and Air" by E. J. HILL

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From the end of 1914 until last Christmas the usual procession of oversea liners up and down the coast practically ceased. Now and then one slipped by at night, but to-day they have resumed their old run, with the result that there is a constant stream of the regular Australian lines of big merchantmen passing up and down the ocean off Coogee, augmented by vessels such as those of the Union Castle Co., Atlantic Transport, and dozens of lines never before seen in Australian waters.
—*Eastern Suburbs Contributor.*

When the big ships speed on their home-ward track,

 Passing Coogee Bay,

On moonlight nights or through tempest's wrack,

 They seem to me to say:—

“We're off to the golden cities, lad,

 In the lands you used to know,

When the hours ran swift as hand clasped waist,

 And soft eyes were aglow.”

They bring me back tales of those throngs and marts,

 Passing Coogee Bay,

When the only call that we made was Hearts

 Whenever we sat to play.

They're threshing along as they used to do;

They're bound on a scheduled run,
And I watch them go (but I have to stay),

 Their voyage but just begun.

When the decklights blaze and the sidelights gleam,

 Passing Coogee Bay,

'Gainst the purple dark 'neath the Cross' beam

 They flash with every ray:—

“We're bound for the ports of indulgence, lad,

 Of the wine and the kisses gay,

Where soft smiles beckon and eyes beseech—

 Did ever you say them 'Nay?'"

When the masthead dives and the sternlight dips,

 Passing Coogee Bay,

I dream of the lure of those long lost lips,

 Lips daring me to stay.

They whispered nothings that meant so much

To one with a listening ear;
Their clinging sweetness is with me yet
After many a year.

When the starboard's green is a blurring haze

 Passing Coogee Bay,

It carries me back to the rollicking days
When I went my own way,

With never a thought of future years,

 But only thought of the hour,

When pleasure handled the telegraph

 And rang for increased power.

The years have been lonesome without your lights

 Passing Coogee Bay,

But the times have changed, and the world's to rights

 Now Peace has come to stay.

So ever you'll plough the long sea lanes
With the cities at the end—

Those harbours that opened their arms to me,

 An ever welcome friend.

When the port's red glare lies a ruddy streak,

 Passing Coogee Bay,

I know the old packet within the week
Will signal swift to say

She's lifting the line of the Barrier Reef,
Bound for the Sticky Seas

Where the islands cluster like gems of joy—

 My tropic Hebrides.

But now I am tied to the land, old mates,
Tied to Coogee Bay,

And only in dreams do the kindly Fates
Help me to steal away

To visit those cities where youth and joy
Ever walked hand in hand,

When the big ships warped to the waiting quay,

 Day kills my Faerie Land.

WIRELESS INSTITUTES

VICTORIA.—A meeting of the Wireless Institute of Victoria was held in Melbourne on May 6, at the Marconi School of Wireless, Little Collins Street; Mr. H. Firth presiding.

Correspondence and minutes of previous meeting (April 1) were read and confirmed.

Before calling on the convener (Mr. W. King-Witt) to read the proposed rules and regulations, the Chairman dealt at some length with the possibilities and scope of the Institute and the advantages to be derived from membership.

The rules formulated by the New South Wales Section, and accepted by that body at its *meeting of March 14, 1919, had been closely followed by the Victoria Section, rules 1, 2, 3, 4 being now adopted without amendment.

Rule 5, relating to age on entry, was amended to include three distinct grades, *i.e.*, Members, Associate Members and Student Members. Associate members must have attained their sixteenth year, while those below that age and possessing suitable qualifications, would be admitted as Student Members.

Rule 6 (Subscriptions) was amended to read: "Members residing within 15 miles of Melbourne, fees £1 10s. per annum; Associate Members, 15s.; Student Members, 10s. 6d."

Rule 8 was amended to read: "That Council and general meetings be held on the first Tuesday in each month."

Free membership was granted to the Honorary Secretary.

Sea, Land and Air was appointed official journal of the Victorian Section, and the following office-bearers and provisional committee duly elected:—President, Mr. V. Nightingall; Honorary Secretary, Mr. W. H. Conry; Treasurer, Mr. T. P. Court; Assistant Secretary, Mr. W. King-Witt.

Provisional Committee:—Messrs. Bannister, Tatham, Ruck, Dawson, Bryne and Dobbyn.

NEW SOUTH WALES.—The fifth annual meeting of the Wireless Institute of New South Wales was held on May 23rd, at the Marconi School of Wireless, Sydney, Mr. E. T. Fisk presiding.

Correspondence and minutes of previous meeting having been read and confirmed, a vote of thanks, proposed by Mr. Basil Cooke and seconded by Mr. C. Maclurcan, was tendered to the retiring officers, and especially to Mr. Spencer Nolan, for the free use of his premises during the "early struggles" of the Institute.

As Patron of the Institute, the name of Senatoré G. Marconi, G.C.V.O., LL.D., D.Sc., was proposed by Mr. Malcolm Perry, and it was resolved that Mr. Fisk be deputed to invite this distinguished scientist to extend his patronage to the Institute.

The following were elected as office-bearers and members of the Council for the ensuing year:—President, Mr. E. T. Fisk, M.Inst., R.E.; Vice-Presidents, Messrs. C. P. Bartholomew, F. B. Cooke, C. D. Mac-lurcan and W. H. Hannam, jun.; Council, Messrs. Stowe, Curtis, Pike, Spring, Brooks and Hamilton; Hon. Treasurer, Mr. W. P. Renshaw; Hon. Secretary, Mr. Malcolm Perry.

Mr. W. P. Renshaw gave notice of motion: "That the Council be empowered to alter Rule I. to read as follows: "The name of the Institute shall be The Wireless Institute of Australia, New South Wales Section, or such other name as the Council considers desirable."

Mr. Fisk addressed the meeting as hereunder:—

"Instead of dealing with a technical subject to-night I think the occasion is one which justifies discussion of the broader aspects of the future of experimental wireless work.

"No one can deny that this comparatively new method of communication, the present position of which is largely due to Senatoré Marconi's untiring energy and devoted faith in the years of development and difficulty, is one of the most remarkable and promising achievements in the history of mankind.

* See Report, *Sea, Land and Air*, April, 1919, pages 46-47.

"The land wire and cable telegraph and telephone have contributed enormously to the advance of civilisation, and have added to the comfort and safety of social life and stability in commercial affairs.

"As the motor car is supplementing railways, so is wireless supplementing wires and cables. Not only supplementing, but, in some cases, supplanting and extending into realms which the older methods have not entered. There is no doubt that the next few years will see wireless coming to the fore and approaching that complete realisation which all who understood have anticipated for many years.

"Communication between the remotest parts of the earth by wireless telegraph is already a proved possibility, and it is only a short step to similar achievements in wireless telephony.

"I feel confident in forecasting that the time is not far distant when we in Australia shall speak directly by wireless telephone with our friends and relatives in England, and eventually we shall be able to sit in our office chair and speak into the ordinary telephone which, through exchanges and relay apparatus, will operate a great wireless station powerful enough to carry the voice waves to a similar station in England, which again, through relays and exchanges, will pass it into the ordinary telephone instrument in our friends' office in London.

"Besides these great undertakings which will call for huge investments and special organisations, there are the less spectacular but equally valuable possibilities of communication with ships at sea, with aircraft, with moving trains, and with isolated places inland.

"Wireless and aviation will prove to be the greatest blessings ever conferred on this wonderful land of Australia. Our unexplored and inaccessible regions will be brought as close as Sydney is to Melbourne. The terrible isolation of the land of "Never Never" will be entirely destroyed. Our commercial centres, which at present are separated by appreciable distances, will be brought closer together.

"Eventually we might realise the prophecy, made years ago by an English scientist, that each individual will carry a portable instrument by which he will

be able to talk with any friend irrespective of distance.

"All these possibilities and many others exist in the development of wireless communication, but their full advantage will only be realised so long as the deadening hand of the Government monopoly is kept away. Never yet has such a policy led to the advancement of arts and sciences.

"The ether belongs to everyone, and everyone has a natural right to use it, so long as certain necessary regulations for the common good are observed. Some form of control is essential, just as there is a necessary control over the use of highroads and as there inevitably will be over the use of air routes. To wisely and fairly frame and administer the necessary controlling regulations will fully occupy the time and attention of a Government Department, and that department will grow to a position of great importance if the public use of wireless extends rapidly.

"It would be a mistaken policy to convert that control into a monopoly of use.

"There are so many directions in which experimental work is needed that every encouragement should be given both to experiment and development. I see no reason why much valuable work cannot be done in this country if everyone interested in wireless is encouraged to use and understand it, and no reason why much useful application and invention should not be made in Australia. Even those who may never attempt serious investigation, and inventions must be encouraged to use this great gift of science. It was not given solely as a weapon of offence or defence, that is purely a secondary use of wireless. It exists for all who are prepared to use it rightly.

"Those without inclination toward pure research and invention are entitled to the practical use of wireless in their own affairs, or to experiment with it for its great educative value, again always subject to the necessary "rules of the road."

"The war appears to have temporarily distorted some of our ideas in democratic countries. We have been rightfully subjected to Naval and military control during the past five years, and all individual interests have necessarily been made secondary to military needs, but there exists a tendency to carry military control into the affairs of peace. Such is the case

with wireless, and a battle royal has been waged in America, where the happy result is that the amateur or individual user of wireless has gained his freedom.

"I feel certain that if this matter is rightly understood by those in authority the members of this Institute will get all they require.

"Now, in the matter of experimenting, I do not propose to offer advice, because most of you know both the possibilities and the problems, but I will say that there is no more fascinating or educative study than that of wireless communication. It takes us into most of the main branches of engineering and science with interest and instruction at every step. Young men who start with apparatus, of which they scarcely understand the fundamental principles, will be led by its very fascination to study those principles and to progress step by step until they are able to tackle the subject in a thorough manner.

"They will learn the use of tools, the fundamental principles of electricity and, if their interest continues, they will be certain to tackle voluntarily both physics and mathematics. All this they can do at home at comparatively small expense, while, as members of an amateur Insti-

tute, they will attend once or twice monthly to receive lectures from those more advanced.

"Others, ahead of that elementary stage, will enjoy an intellectual pastime which has no equal. They can observe, devise, and experiment with practical applications of scientific principles always with interesting phenomena and results at every step.

"There is a delightful field in the electronic valve alone. In this instrument we have not only one of the marvels of wireless developments, but we have a practical application of the electronic theory which takes us into the most advanced field of electrical science, and even beyond the confines of the material universe.

"Recent utterances of some of our great leaders show that this thing we call wireless has taken the minds of men into an infinite realm of scientific speculation from which the possibilities of benefit to human knowledge and civilisation are unlimited.

"I sincerely trust that our Government will treat this thing in the same broad manner as they are treating its wonderful contemporary, aviation, so that Australia and its people will not be shut out of this wonderful field of knowledge."

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THE CITY OF SYDNEY, A.D. 1971

Especially Written for "Sea, Land and Air" by W. F. BAYAL

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(Continued from May Issue.)

PART III.

The electric car was at the door. The city engineer drove it himself. We glided imperceptibly away along Druitt-street, and crossed the long bridge spanning the goods yards below. On our right Pyrmont Bridge was gently sloping down to Pyrmont, and at its centre three cranes with giant jibs were rapidly elevating the contents of two trains to the surface of the bridge. I noticed that the muddle of old decayed timber wharves had gone, and that the shore was faced with a solid concrete quay-wall, serried rows of great buildings towering behind it. The trains below us were being marshalled and shunted by smokeless engines.

"Electric?" I asked my companion.

"Electric, of course—oh, I forgot, they had steam in your time. No steam engines permitted in Sydney now, although there are plenty of the old plants still in the bush—or what used to be known as the bush. Power for Sydney comes from the Balmain coal mine; the generators are a mile beneath the surface. People would not tolerate smoking chimneys here today. Sydney, as you remember it, Mr. Chatterton, must have been rather a dirty and congested city?"

"It was," I admitted with emphasis, surveying the beautiful surroundings of the goods yard, "nothing but the nor'easters saved it from plague. They even used to throw sand on the streets to save the invaluable horses, or the precious surface, or something else. And, of course, all the houses were full of poisonous dust, and reeked of hot air.

"And even in those bad old days," I continued, the people flocked to Sydney, and loved it for its slipshod ease, and for its Sunday on the beaches, or the harbour. *No one who had lived in Sydney could be

easily persuaded to live in any other Australian city."

"It leads the fashion now, at any rate, even in clothing," said Gryme. "I believe Tasmania has discarded the old English dress at last."

"Pot hats, starched collars, tight black coats and trousers, and black boots made of stiff leather; I remember them all too well; as a matter of fact, I have a wardrobe full of them at home now."

"You don't say so? Really very interesting to look at. You should present them to the Museum, to take their places along with the bead and quill aprons, and the South Sea canoes. What savages our ancestors were!"

We had been travelling through Pyrmont, a Pyrmont I could not recognise at all; streets like Macleay-street, with squares, gardens and fountains interspersed. We ran out into George-street again. Before me was the old Central Railway Station, looking faded and worn, and in front, quite eclipsing it, ran the level Broadway and its viaduct, straight as a ruler, vanishing to the distant Portobello.

Although the railway system was now used only for goods traffic, one noticed a considerable congestion of people about here. Heavily laden motor lorries of great length were moving into the station at what I considered risky speeds. A shriek arose on my left. Somewhere in George-street a man had been knocked down by one of these monsters. In a few seconds the usual crowd had condensed around the spot. The city engineer halted our car on the outskirts, and glanced at the clock on the dashboard. "Six twenty-two," he said; "we will see how long they are."

Two policemen appeared, running along the footway. They halted at a pillar-box, and jerked it open. One extracted a

*We accept no responsibility for statements attributed by the author to Mr. Chatterton half a century hence.—Ed.

wireless telephone, the other a large Chinese umbrella. This he opened hurriedly, exposing on its outer surface a large red cross painted on a white ground. He hoisted it and marched straight into the crowd, which hastily melted away on all sides; meanwhile the second man had finished his telephone talk, and rejoined his brother officer.

"Here she comes," said Gryme, pointing north. A speck in the air widened, as I watched it, into a miniature aeroplane, which, in a brief moment, was over our heads. It paused, and the red crosses on its planes grew larger and larger. The machine now dropped vertically and without shock, on its spring feet, alighting close beside the policeman and the injured man sprawled out on the ground.

A girl in a white suit, with a red cross on the breast, leaped from each end of the plane; a stretcher was laid out, opened, and laid beside the patient. The fair stretcher-bearers now lifted him on, and slid the stretcher gently back on to its supports. This done they jumped to their seats; one shouted "Wahroonga!" to the policeman, and bent over her wheel. Two horizontal propellers began revolving swiftly, then invisibly, and the ambulance rose slowly, and vertically, from the ground.

"Three minutes seventeen seconds," murmured the City Engineer at my side. At a height of about twenty feet, the plane suddenly shot forward, and upward, in a long slant, and in a few seconds was a mere speck alongside the towers of the City Hall. The crowd thinned out, and the policeman shut his parasol back into the pillar-box.

"That chap will be in bed in Wahroonga Hospital before we get back to the office," remarked Gryme. "I was going to take you round Moore Park, where we have all sorts of engineering going on, but somehow, time has slipped away, and I must get back,—but any other day—I shall be very glad."

"Certainly, of course, and many thanks; if you will drop me at your office, I will take a walk on my own."

We sped down George-street and up Brickfield Hill. Anthony Horderns, I noticed, had six or seven storeys added to

its height, and a number of small aeroplanes were rocking gently on the flat roof—shoppers, no doubt.

Gryme explained that since Broadway carried so much of the traffic, it was not considered worth while to improve the grades of parallel streets, but the footways had been widened from twelve to sixteen feet. "Taking out the cumbersome tram, and the slow horse, nearly doubled the capacity of the streets for motor traffic," he added.

I left him at the Victoria Building and strolled northward. Many of the old houses still remained here, dwarfed by their lofty neighbours. Farmers, I saw, was seventeen storeys high, and connected by fine lofty bridges, with buildings on the opposite sides of George and Market Streets. These bridges, I perceived, were quite common in the narrow, old streets, and they lent a peculiar charm to the vista.

As of old, I ascended to the roof of Farmer's for lunch, and found myself in quite the same agreeable atmosphere of genial kindly life as before. Half way through the meal, a dark and aquiline featured young man came up and took the vacant chair at my table. He was of pleasing demeanour, dressed in blue, and I imagined him to be some sort of commercial traveller.

"Very warm weather again," he said heartily.

I had not noticed any discomfort in my new, and altogether delightful clothes, which allowed cool airs to circulate next the skin, but excluded any strong draughts; in fact, this seemed the coolest January I had ever known. But I assented, to make conversation.

"Good for growing buildings, though."

"Growing?" I was perplexed.

"I see," continued he, "you are from the country. I mistook you for a Senator at first, in your white suit."

"I am—or, at least, I was, a civil engineer," I replied, "and I was wondering what you meant by 'growing' buildings. The term is new to me."

The young man eyed me dubiously. "You say you are a civil engineer, and I am only a first-class labourer, yet you don't know."



THE CITY OF SYDNEY, A.D. 1971.

"That chap will be in bed at Wahroonga Hospital before we get back to the office."

(See preceding page.)

"Pardon me," I hastily apologised, "I have only just arrived here from the—from a very distant country, and I find I have much to learn."

"I am," said the young man, "now working on a little eight-storey job in Wynyard Square; if you care to come along with me at two o'clock, you can see the whole process. I thought it was known all over the world, ages ago."

"I shall be delighted," I replied. "But excuse me, I am surprised that you are doing labouring work."

"I am afraid I hardly understand," he said, knitting his fine brows, "everyone in the Building Department has to be a labourer from the age of 20 to 25. Next year I shall be fifth engineer. But I don't think I shall go for promotion, my hobby is scientific farming; I have taken my B.Sc., and hope to get into Murrumbidgee soon."

"H'm—how many of the labourers in your department are B.Sc.'s.?" I asked, amazed at this revelation of a new order of things, a society in which everyone had to start at the bottom before reaching the top; an army in which the officer was of the same clay as the private. Some hint of this was in the air, I reflected, during the war, when the old caste business got broken up.

"About ten per cent. I should say," he replied. "Of course, there are lots of men who prefer to stay at the easy labouring all their lives, until they retire on pension. They are happy to live, without learning anything, and I believe they really lead the most contented and care-free existences of all; but I am built differently and go on struggling with new things because I like to. Have you finished? Then we had better go now, as time is short."

We dropped down in the long lift to George Street again and made for Wynyard Square. Before us, the King Street Viaduct, a single-span concrete arch of striking design and great beauty, claimed our vision; a green and gold pavilion glided across it as we looked. Below, on the right, was the entrance to old King Street, a basement street illuminated by electric lights, and extending into other underground streets. On the left of the archway of the Viaduct, a flight of steps led up into the new King Street, which was, I noted, graded from Phillip Street

to York Street in one straight line. Although these cross streets had not been widened, and this was the busiest part of the day, I saw no congestion anywhere, and walking was a pleasure.

My companion turned from King Street into York Street, another old relic of a street which had not changed its appearance entirely, and we gained Wynward Square through a second archway—Wynyard Square, perhaps, but it was roofed with green glass at a height of a hundred and fifty feet, and was unrecognisable to me. Fairy palm trees and other exuberant tropical verdure reached up some fifty feet into the air and, of course, more fountains, with enormous cascades of water, were dispersed among the trees and flowers.

We stopped at a hoarding obstructing the footpath in the old familiar way, and entered within. My guide turned to me. "I have to be busy now, but here comes Mr. Toope, third engineer, he will take charge of you."

Mr. Toope, it appeared, would be pleased to show the visitor anything, especially if he happened to be a foreign engineer.

"I never allow people to come looking about when we are up in the air," he continued; "it is not safe, but you have come at the right time. As you see, we are only a couple of feet above the foundation."

A large vat, sunk in the centre of the area, claimed my attention first. It contained liquid cement, and was kept continuously stirred by an agitator revolving in the centre. A three-inch centrifugal pump, mounted at the end of the vat, was humming quietly to itself, its jointed delivery pipes extended to the four corners of the building into the top of a nickelled kerb, about two feet deep, which ran round the top of the walls. The kerb was *rising*, slowly but perceptibly, before my eyes, revealing beneath it a smooth, finished concrete wall, about nine inches thick.

"I am sure you understand it without any explanation," said Mr. Toope.

"I believe I do, but I would not have thought it possible," I replied. "How many inches per hour do your walls grow up?"

"About forty, this hot weather, but we seldom drop below thirty; say fifteen to twenty feet a day. The concrete sets in a few minutes, but goes on hardening for months after that."

"Then, at that rate, you will finish this building"—it was about a hundred feet square—"in a few days?"

"The walls will be up in six days, the floors need longer, about nine days; say three weeks in all. Those finishing trades take a long time; about as long to decorate it as we do to build it."

"Do you mean to say this structure will be completed in six weeks? A hundred, by a hundred, by a hundred and fifty, is a million and a half cubic feet, remember."

"Certainly. Of course, we can get materials, zinc shuttering, and so on, by just telephoning head office. Come along in six weeks and see for yourself."

"Thanks, I will; but I am quite bewildered." A motor lorry backed through the hoarding and tipped four or five tons of yellow marbles into the central vat. "How much does all this cost?"

"This is only a small job, and so it is expensive, quite a penny per cubic foot. The big jobs are done for less," said Mr. Toope reflectively.

"But wages, and strikes!" I asked in amazement.

"Wages—yes, I will show you the pay-sheet in a minute; strikes, we have only one a week, on an average."

"Then what becomes of your six weeks to complete?" I asked, triumphing.

"I see you don't understand," he smiled, "a strike is when anyone on the pay sheet telephones a complaint to the Union. But he goes on working, of course."

"And people who will not work, or who work very slowly?" I enquired with interest, recalling the go-slow policy of the past, when many men sought to do as little as possible.

"There are not many of that kind about now," he replied; but I remember twenty years ago people of that class were quite common—born tired, you know; their fathers and mothers worked to death, poor things. Now there is only one hospital for feeble-minded derelicts in all

New South Wales, at Berrima. Sometimes, after a few years there, with good diet, they recover, and come back to real life."

Derelict! nasty word, I thought. Was I one of them? I decided that as I had built a railway, five breakwaters, and half a naval base, all on my own, I could not be classed as a derelict. I must think this out.

A lorry delivering another load of yellow marbles roused me from my *rêverie*, and I found Mr. Toope offering me a sheet of blue paper, partly printed, partly filled in by pen, and somehow oddly familiar.

"Our pay sheet," he said. I hesitated. "Pardon me, but is this not a breach of confidence? To disclose official documents, I mean."

"Every elector can inspect any official paper at any hour," he chanted, evidently quoting from some regulation—"all secrecy is prohibited, unless specially authorised."

STATE DEPARTMENT OF BUILDINGS.

Site No. 123,598. 3rd Week of January, 1971

Name and Rank.	£	M.	T.	W.	Th.	F.
Toope, 3rd Engineer	10	6	6	6	6	6
Lissner, 4th Engineer . . .	9	6	6	6	6	6
Wiles, 5th Engineer	7	6	6	6	6	6
Lennard, 1st Laborer . . .	6	6	6	6	6	6
McFadyen, Laborer	5	6	6	6	6	6
Riches, Laborer	5	6	6	6	6	6
Windell, Laborer	5	6	6	6	6	6
Exd.	Passed	Paid				

"Ten pounds a month?" I exclaimed. "That seems rather poor pay to me, for your services, Mr. Toope? But I suppose the cost of living has got so low now. I notice a penny goes as far as twopence or threepence did fifty"—I checked myself—"a few years ago."

"Ten pounds a month would be poor pay," laughed Mr. Toope. "That sheet means ten pounds a week. A week is five days, and a day is six hours, so the rate is six-and-sixpence an hour. I never heard of any place in the world where wages were better than that for third engineers?"

I agreed, hastily. There was another subject on which I wanted information.

"But if you get ten pounds a week, what does a chief engineer get?" I asked, expecting some enormous salary, undreamt of in the old days of crude and restricted efficiency.

"The maximum salary permitted to any officer in the Commonwealth is £30 per week," he replied, "but, of course, that is only after long service and special ability has been shown. Yet the money is less valuable than the job. I should not care about the worry and strain of one of those positions myself."

"Just so," I understood. A lorry again tipped its load of yellow marbles into the vat. "One other question, please, before I go. What are those things like marbles made of?"

"Slag," he replied. "You can see a slagger at work to-day, demolishing some old historic landmarks—Petty's Hotel, and a church or two—if you go a little way along that street. The Society of Antiquaries tried hard to have them left standing, but the Board of Health was too strong for them. So long! Don't mention it—a pleasure!"

My friend from Farmers, Mr. Lennard, of course, clad only in a bathing suit, was sitting in front of some wheel valves, regulating the flow of concrete; not, I reflected, a very arduous job for six hours a day. He signified to me, however, that he could not let go, the kerb had to be kept strictly level as it rose. So I drifted around, admiring the clean, noiseless plant, and the absence of dust and dirt, and finally made out for Petty's Hotel.

The slaggers, I found, were simple telescopic steel towers fitted to a motor lorry. From the top of each tower a swinging, jointed arm, with a reach of about twenty feet, was worked by a man in the top. A jet of green, hot flame issued from a pipe at the end of the arm, and whatever part of the old wall it touched immediately melted away and ran down the face of the building. Another man, with the aid of a lazy-tongs crane, carrying a fountain-head, intercepted the stream of lava, which then flowed along a jointed pipe, terminating in a large trough of running water placed on the ground. A little conveyor was lifting the yellow marbles out of the other end of the trough, and dropping them into a lorry. There were six or seven of these slaggers at work, and Petty's Hotel was melting downwards, before my straining eyes, at the rate of an inch a minute.

A sudden congestion in my head and neck warned me that, after all, I was something of an invalid yet, and must not allow myself too much excitement. I walked slowly down Church Hill, looking for a telephone booth, and finding none. But there was a policeman yawning at the corner of George-street.

"Telephone? Yes—every street corner," he replied shortly, indicating a little bronze shutter in the wall of the building behind him. "Put a penny in the slot."

The bronze door flew open; in the recess was fixed a wireless telephone. I rang up Stacey, and got him instantaneously, or so it appeared.

"Yes," he replied to my query, "don't run about so much in the sun. Take a trip to Manly this afternoon, on the ferry—not the ariel—and keep down at the Corso end; you will not feel strange there, it has been asleep for half a century, they say. See you later on, I suppose." He had rung off.

Either Stacey was very abrupt, or modern life went more quickly. But, of course, I would take his advice. So I followed his prescription, and in about ten minutes was at the same old Manly I remembered with some tenderness. Not quite the same, however, for the trees had grown and the Corso was in deep shade.

I sauntered along and encountered the projecting end of an old Gothic building. After seeing so much real modern architecture, its appearance was suggestive of intelligent savages operating with primitive tools. I was startled to see on the notice-board within the fence, painted in large gold letters:—

DPRTMT OF MUTUAL POLICY.
MANLY CIRCLE.

This was interesting enough to encourage a closer inspection. I passed through the gates and entered an open vestibule. An alert office boy demanded my business. I hesitated and, as usual now, temporised.

"I am a stranger—from abroad—I should like to be allowed to look around, if I may?"

"Certainly, of course, but there is nothing to see here to-day," he genially replied, throwing open a door leading into

the empty body of the hall. "You should come some Saturday afternoon, when the Referendum is on."

I thought there was a great deal to see, and passed in. The old-fashioned pew-like seats were there still, but all else had changed.

At the end of the hall was a small platform on which stood a large chair and a heavy table. The most prominent object on the table was a huge sand-glass a foot high, the sort which rings a gong when it turns over. On either side of the platform, but quite detached from it, was a small rostrum, reached by steps from the hall.

On the oaken front of the left-hand rostrum, was carved, in enormous letters, the word NO, while that on the right hand displayed an equally prominent YES.

At a doorway in the side-wall I noticed a pair of turnstiles, above which were large counting dials, displaying numbers; these, too, were marked as negative and positive dials.

A soft footfall behind caused me to turn, and perceived approaching me an oldish man, dressed in a long, black gown. On his arm was worked, in broad, gold lace, a single circle. His hair was white, and he spoke with a most melodious courtesy.

"I hear you are from abroad, and interested in our ceremonies; no doubt you are anxious to compare them with your own? You are from—?"

"Susquehanna," I flashed at a venture; it would never do to get entangled in explanations of things half a century defunct.

"Indeed! I am afraid I know nothing of that State. But I shall be very happy to explain anything to you; we claim to have the best machinery in the world for developing the will of the people."

He paused, and waved his hand in an explanatory gesture.

"This is the hall in which our our meetings are held. Anyone may speak for either side of the question under consideration, but speeches are strictly limited to five minutes' duration. Some of the older members complain that rhetoric is decaying, because the younger people prefer magazine articles to speeches. I

notice very often here now, that a question is voted and settled without a speech being allowed on either side."

"I must say," I replied, "I am of the same mind; I never heard a speech in my life that was not a caricature, and a total waste of everybody's time. But who, if you please, frames the questions?"

"Any elector can initiate a question, but he must get it adopted by some circle before it goes to the Director of Politics. That officer is compelled to circulate it within seven days to all the centres for assent or dissent. The Director must submit the question in such form that a direct "No" or "Yes" can be answered. If the question involves something not certainly known, it can be sent for a month for scrutiny by the Board of Experts, and if they are unable to assist, it can be submitted, for a year, to the Board of Pure Science. If they cannot advise, then the matter is not within human knowledge."

"Does this all work?"

"Oh, yes!—on the whole. We get rather poor attendances here—the attraction of the beaches, I suppose—but some of the inland circles attract up to eighty or ninety per cent. of the electors.

"Here,"—he opened a door leading into a long passage, with a dozen or more turnstiles leading from it, each with its large counting dial overhead—"is where the machinery for conducting all our Federal, State, Shire, Ward, and other elections, is installed."

"But personation and double voting?"

"I hardly grasp your meaning, perhaps, but all voters, of course, bring their certificates of birth with them, with the adhesive photograph attached. All persons between the ages of twenty-five and fifty are allowed to vote. The clerk stamps the date of the election on the back of the certificate, hands it to the voter, who has then only to pass through the turnstile which has his favourite candidate's name above it. A turnstile can register nearly three thousand votes an hour."

"Expeditious, certainly," I murmured, recalling the ancient muddle of wooden booths, perspiring gangs of scrutineers, and the disputes and fights of the bad old days. "But, excuse me, is this very exact determination of the will of the people so valuable?"

The old man flushed. "Do not scoff at such matters! In the communion of minds lies our one hope of happiness and contentment. Perhaps," he continued more sweetly, "before you go, you will read over our Maxims, possibly they will be new to Sus—sus—thank you, Susquehanna!"

I walked across to the handsome scroll which he had indicated, and read, carved, in mediæval lettering:—

THE FOUR MAXIMS.

1. The Mind of the People is All-Powerful.
2. Refrain from Secrecy, it is the Root of all Evil.
3. Put yourself in ^{His}_{Her} Place.
4. Honour thy Children, for they are the Fathers to be.

(A further instalment will appear in our next issue.—Ed.)

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A STAFF OFFICER

Especially Written for "Sea, Land and Air" by "R.F.O."

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Author's Note.—This is the story of an officer in the Australian Flying Corps. It is a true story in every detail excepting that, for obvious reasons, the name has been changed.

Winter was rapidly approaching, and the work of the squadron had been getting more unpleasant every night. Instead of the bright, warm nights—when it was a pleasure to fly—cold, wind and rain were making things more unpleasant and arduous than ever. The time had now come when the pilots could be divided into two sections—the expert night flyers, who always came back with a report of their work done, and the duds, who seldom carried out their job and generally reported that the weather was too bad or the night too dark to see. Lieutenant Simone was one of the latter.

He was not a coward. His imagination was too lively, and he lacked that tenacious and enduring character so essential to success when fighting against big odds. He would start out on a bombing stunt fully determined to see the job through, with no fear born by the thought of personal harm to come, and he would do good work if the weather were fine. But if clouds obscured the sky, and a light drizzle of rain made the whole universe a black, impenetrable nothing, he would begin to lose heart as he climbed into the void, and start to think of the difficulties he was up against, exaggerating them beyond all reason. This imagination was a horrible thing. Being more or less an experienced pilot, the flying of the machine was merely a matter of instinct, and required little thought. So all his mind was devoted to the seeming impossibility of success, and the wretched question would persist, "What is the use of it all? Why continue with this cold and unpleasant job when I know that I will never find the target? If I get it over quickly, then I'll soon be back to warm quarters and comfort again; but if I carry on, it means about three hours' miserable flying without any result, and perhaps a fatal forced landing in the dark."

By the time he reached the lines his mind was made up. He would fly a few miles into Hunland, drop his bombs indiscriminately, and return home. His observer, a young officer just drafted from the gunners, accepted his pilot's word as final, and very soon the commanding officer began to regard these two as hopeless. Continued reports of unsuccessful work from a pilot soon attracts the attention of a squadron commander, who naturally wants only good men in his command, and for the honour of the squadron wishes to send Headquarters a report each morning which will outshine those of his contemporaries.

So one morning, after the usual report handed in by Simone of "Visibility so bad that I could not find the target, so dropped two 112-lb. bombs in the vicinity of Menin railway station; did not observe the result," he called the pilot and observer into his office and pointed out their position. It was a case of either doing better work or having an adverse report sent to Headquarters, which would mean transfer to another arm of the Service.

Simone went away very much ashamed, and fully determined to do something, the next time he went out on a job, that would alter the major's opinion.

The next night was cold but clear, yet unfortunately Simone was not detailed for duty. He cursed heartily, as this would have been a good chance to make good. But seeing his name down for the stunt next night, a bombing raid on Gontrode aerodrome, he cheered up, for the weather promised to hold fine, and this target was the most difficult the squadron had yet to deal with. It was a long distance over the lines, was noted for its defence, and so gave pilots an opportunity of displaying their skill. He made up his mind that his report the next morning would contain

deeds of valour that would outshine anything that had so far been done in the squadron.

Early in the afternoon a bank of clouds appeared on the horizon, and by evening the whole sky was overcast, although fortunately there was no sign of rain. As the evening developed, however, a nasty ground mist crept up, which promised very bad visibility for the night's work. Although a little chilled by the weather, Simone was still as stout as ever in his determination to retrieve his character. At 8.30 he was sitting in the machine ready to leave the ground, and when his turn came to start he took off and commenced to gain height before reaching the lines. Almost at once his old enemy, Imagination, got to work, and he fought hard against it, trying to concentrate his mind on the work and the immediate necessity of flying.

By the time he reached Ypres he was at a height of about 5,000 feet, so switched off his lights and proceeded to cross the lines in the direction of the Hun aerodrome. Then came the great test. Once over the German lines he lost sight of the lighthouses which are placed at various intervals on our side to guide the night-flying squadrons, and was flying into black space. He could only distinguish the ground as being a little darker than the remainder of his surroundings.

His plan was to fly by compass for a certain time, when he calculated that he would be in the vicinity of Gontrode aerodrome, and then to descend to within a few hundred feet of the ground and look for his target. He had allowed for wind and was quite confident that he would finish up somewhere near his objective. But he had not reckoned on outside diversions.

About a quarter of an hour after crossing the lines he noticed two tiny points of light moving across his line of flight, and was puzzling his brains to make out what they were, when suddenly it occurred to him that here was a Hun machine proceeding on a bombing raid over our lines. What a chance to make good! He was invisible to the Hun, and if he could catch him up his observer would have a splendid chance of getting a shot at him and perhaps shooting him down. This would be a great feather in their cap, as it was rather an unheard of thing at the time to shoot a Hun machine down on a very dark night.

So he altered his course, and after several minutes' flying was successful in getting to within a few hundred yards of his unsuspecting enemy. The observer was all excitement, with his gun ready loaded and covering his opponent long before they got within firing distance. When within about 150 yards of the machine the observer, a novice at aerial fighting, could hold himself no longer, and fired a burst of about 30 rounds. The Hun flew on for about 10 seconds, then commenced to manoeuvre about in an endeavour to find out the cause of the disturbance. Simone stuck to him, however, and the observer succeeded in firing several more bursts with apparently no effect. Suddenly the Hun remembered his lights and hastily switched them off, when Simone could no longer see him and knew it was hopeless to try and continue the fight. By this time, too, attention from the ground had been directed to the scrap overhead, and one or two long beams of searchlight came feeling into the sky searching for the trouble. So Simone considered it best to carry on with his job, and setting his machine on a compass course which he considered would allow for this little deviation from the original route, settled down once more to steady flying. They both felt very disappointed that the Hun had not fallen a victim to their prowess.

When the time calculated for his arrival over the target had expired, he descended to about 500 feet, but found that he was over open country, with no signs of aerodromes or villages. So he commenced flying about in wide circles, but found nothing except a few scattered villages and some unimportant roads. Doubt came to him, and with doubt grew that dreadful imagination. Suppose he was so badly lost that he would be unable to find his way back and would be forced to land on enemy territory! He imagined years of internment in Germany at the best, but more likely a forced landing on rough ground and the resulting fatal crash. A slight panic seized him, and the old idea returned: "I'll drop these bombs and get back home before my petrol runs out." He fought against it for a few minutes, but at last, seeing a group of buildings below which appeared something like a stores depot, he dropped the bombs on these and blew them off the face of the earth.

Almost immediately several searchlight beams shot up into the sky, and the anti-aircraft guns in the vicinity commenced to fire. Disregarding these, however, he decided to steer a compass course of south-west, which he hoped would bring him somewhere in the vicinity of his aerodrome, and he would then be able to locate his position by well-known landmarks. So settling down to this course and climbing much faster now that he was relieved of the weight of the bombs, he peered into the darkness to try and find some clue to his whereabouts. But he was unable to distinguish anything clearly, and was afraid to go down too close to the ground in case of engine trouble. Still hoping desperately that something would turn up, he flew on for about forty minutes, then decided to alter his course slightly north and begin to make wide circles in the hope of finding his aerodrome. This proved to be fatal, and he was soon so hopelessly lost that he did not know whether he was over Hunland or his own side.

"Bridges," he said to his observer, "I'm afraid I'm just about lost. Have you any idea where we are?"

"Not the foggiest. Seems to me we haven't come to within 20 miles of our lines yet. Fly due west for a while longer and I'll see if I can find anything."

About ten minutes after this his observer turned round and pointed to a tiny row of lights which had suddenly appeared below them, and almost immediately a green light lit up in the air above the smaller white ones.

"Aerodrome," said Bridges.

Simone, with the hope of again reaching the ground in safety, throttled down his engine and glided down towards the friendly lights, which were put out about a minute later. He kept on, however, and when within about 1,000 feet of the ground Bridges turned round with a worried look and said:

"There's only red Verve's light in the bus. Will I fire it? The bird in front fired a green one."

"Fire anything you've got, so long as they light those flares again," said Simone, who was in a hurry to get down and did not stop to think.

The red light flared out, lighting up the ground and revealing to our disturbed friends a large aerodrome, a group of han-

gars in one corner, and on the ground, just being taxied into one of the sheds, a huge Gotha bombing machine with the black crosses showing out in sharp contrast on the top planes. The firing of the red light seemed to be a signal for four big searchlights to open up into the sky, whilst a perfect hail of machine-gun bullets came streaming up towards the intruder. Realising that he had located a Hun aerodrome, and that he was in a pretty dangerous position, Simone yelled out to Bridges:

"Let 'em have that machine gun, my lad," and opened his engine full out. Whilst Bridges peppered away at the men and the machine on the ground, the pilot devoted all his attention to dodging the searchlights and getting as far away from the aerodrome in as short a time as possible. Once a bullet chipped a piece out of the cockpit about six inches from where Simone was resting his arm, and now and again a sharp shock would be felt as a bullet hit some part of the machine. Fate was kind, however, and in about five minutes they were safe from any danger from that source.

"What aerodrome was that?" asked Bridges.

"Search me. All I am certain of now is that we are over the Hun lines, so here goes for due west."

And due west they went for a time, but soon he started changing the course again, and an hour later neither knew whether they were in Spain or England.

They had been about three and a half hours in the air now, and only had another half-hour's petrol left, so things began to look desperate. Simone was just trying to make up his mind whether he would chance a landing in a favourable-looking field or keep on flying in the chance of striking a friendly aerodrome, when suddenly the engine started to splutter. With a sinking feeling inside, he looked at the instrument board and saw that he had no pressure in the main tank. He seized the pressure-pump and pumped vigorously for a few minutes without much result, so abandoned this and attempted to turn on the emergency petrol tank. His fingers, however, were so cold and numbed that before he succeeded in doing this the engine gave a last despairing cough and stopped dead.

Having plenty of height, he tried to start the engine again with the self-starter, but the engine was tired and refused to

go. All this time he was rapidly losing height, so at last gave up the engine in disgust and looked for somewhere to land—a rather hopeless task, as the ground was an almost indistinguishable blur. As he got lower, however, he was able to make out what looked to be a fairly decent field just to his right. So he made for this, and feeling the machine down very gently, just scraped over a hedge and, after a horrible period of uncertainty, bumped on to the ground and stopped dead in about 50 yards.

They were so cold and shaken up that they could hardly get out of the machine, and when they eventually crawled down to the ground, found that they had stopped about ten yards from a ditch. A lucky escape, as they would have crashed badly had they hit it.

"Thank heaven we stopped," said Simone. "We would have gone west in that ditch. You're lucky to have such a good pilot to look after you."

"You've looked after me fine to-night, thanks. The main thing is, are we in Hunland?"

"I haven't the slightest idea. Come and have a scout round."

They walked to the end of the field and found it was bordered there by what looked to be a main road. There were no houses or signs of inhabitants about, and they had just decided to investigate the other boundaries when the steady tramp of marching men came to their ears.

"Let's hide behind the hedge and see who they are," suggested Bridges.

So they crept behind the shelter of the thick hedge and waited. It seemed to be an interminable time before the party came into view, and then they could just distinguish a small body of men clad in a greyish-coloured uniform and wearing little round caps on their heads. As they passed they heard scraps of conversation in a deep guttural tongue which was entirely foreign to either of them.

"Huns," breathed Simone into his companion's ear, feeling anything but happy.

They waited until the troops were well out of hearing, then crept back to their machine and put their heads together to formulate some plan of escape.

"We'll have to burn the machine," said Simone.

"Suppose so. But for heaven's sake don't burn it until we are ready to get away. Otherwise they'll be all around us."

"Right I think the best thing to do is to burn the machine, then get away in a westerly direction as hard as we can go, and chance our luck."

"We may be able to get some peasant's clothing and get rid of this uniform too."

They piled their maps and charts inside the machine, then Simone turned the petrol tap on and allowed a few gallons to flow over the ground and on the machine. He then laid a petrol fuse with a few strips of cloth, and standing well away from the machine, set fire to the fuse and the two started to run as fast as they were able. The petrol caught fire with a roar, and soon the whole machine was a blazing mass. The peace of the night was disturbed as the ammunition left in the machine exploded intermittently with sharp reports. The whole countryside was lit up by the glare, and the fugitives continued their headlong flight for about two miles, when, weary with the night's excitement and the unusual physical exertion, they sat down in the shelter of a hedge and rested awhile.

"It's getting fairly light now. We can't get about like this in the daytime," said Bridges. "I vote we stay here under cover and see what happens in the morning. We may then be able to find out where the lines are."

They sat there for three hours, cold and miserable, with the cheerless prospect ahead of capture and years of awful internment. As the dawn brightened, Bridges ventured to peep out and survey their surroundings. He discovered a small farm house about three fields away, but saw no signs of military activities, so concluded they must be a long way behind the lines.

At about 9 o'clock, while they were trying to make up their very despondent minds, there was a rustle in the hedge and a small mongrel dog came sniffing about.

"Don't breathe," whispered Simone.

The wretched dog, nosing about and coming closer, was followed by a peasant youth who was greatly interested in its movements, no doubt thinking it had unearthed some animal and wishing to be in at the death. Suddenly the mongrel discovered the two men, and sitting back, started to growl. The peasant ran up and

uttered an exclamation of surprise at seeing the two men.

"Bon jour," he said.

"Bon jour, monsieur," they replied.

"You are aviators?" asked the peasant, noticing their flying kit. "Where have you come from?"

"We don't know," Simone replied.

"What's the name of this place?"

"Vignes-à-Merle."

"Where does this road lead to?"

"To Paris."

"Paris!" yelled Simone. "Good Lord, Bridges, this road goes to Paris! We must be on our own side of the lines. How far is Paris from here?" turning to the Frenchman.

"Ten kilomètres."

"And we've burned the machine! I can see a nice little strafe when we get home. I wonder how we mistook those troops for Huns last night?"

"I suppose they were Huns—but prisoners," said Bridges, feeling very fed up.

"However, it's done now, so how about home and a little rest?"

After much trouble they succeeded in communicating with the aerodrome, where everyone thought they had "gone West," and later in the afternoon a tender picked them up and took them back home.

There they were subjected to various humorous questions and remarks, but escaped to the C.O.'s office, where they gave him a detailed account of the night's work. He spoke kindly but forcefully, and they departed feeling like anything but night-fliers.

Five days later Simone was recalled to England, and on reporting was posted to a position on the Air Board, with rank of temporary captain whilst so employed. He is now to be seen at the Trocadero at about 4.30, his red tabs and brass hat attracting a large amount of attention from susceptible females, who wonder who the latest hero is.

Thus do we get our staff officers.

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HOME AGAIN

MOSQUITO FLEETS RETURN TO SYDNEY PHANTOMS OF THE MIST

Especially Written for "Sea, Land and Air"

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*"Perhaps it is because they tell a story,
And lift a deep storm-measure as they come—
A song of old-time love and battles gory,
When men dared Hell and sailed through sunset's glory,
With pealing trumpet tuned to rolling drum;
To hunt, and loot, and sink the jewelled quarry
In seas too deep to plumb."* —WILL LAWSON.

An opaque, mist-shrouded sea and sky and land. North and South Heads were more guessed than seen on either side of a lighter splash in the general greyness denoting the entrance to the harbour. The rain poured down, flattening the water save for the long, oily swell which rolled in between the Heads from the ocean. It was a cheerless, depressing morning, but the craft swarming the harbour, gay with women's costumes and multi-coloured bunting, carried warm hearts, as did the great waiting crowds ashore—waiting patiently for the long-looked for return of the first portion of Australia's mosquito fleet in the rain and the mist.

The Fleet is always on time. It had been announced that H.M.A.S. *Melbourne* and the six accompanying destroyers, H.M.A.S.'s *Swan* (61), *Torrens* (57), *Huon* (50), *Warrego* (70), *Parramatta* (55), and *Yarra* (79) would enter the Heads at 10 o'clock, and punctually to the minute the *Melbourne*, half hidden under the cloud of her own smoke, materialised out of the mists, followed in line ahead by the T.B.D.'s. Just as the vessels swung round into the harbour the rain ceased for a few moments and the fog lifted, giving those on board the welcoming craft a chance to even pick out the faces of officers and men thronging the decks of the home-coming boats.

There were no teeming thousands of cheering citizens on South Head and all along both sides of the water front as there were on the day when the Australian Fleet first entered the harbour in pre-war days, but little knots of people could be discerned here and there on the many promon-

ories enthusiastically waving flags and handkerchiefs or scarves.

The Silent Navy.

And, there was a curious silence over both the arriving and the welcoming vessels. Steam sirens certainly rent the air with shrieking blasts, but the crowds on the ferry steamers, the yachts and the launches raised no cheer, nor was even the sound of a voice to be heard from the men on the decks of the war boats. This portion of the silent navy which belongs to Australia upheld the tradition of the Navy as a whole and moved down the harbour as silently as it had left it. And on the craft of every description conveying the fleet down the harbour there was also silence. One felt oneself speaking in a whisper almost, and rightly so, for there are occasions—and this was one—when cheers were out of place,

A Warm Welcome.

But if there was a silence that could be felt there was a welcome warm enough all the same.

At 9.30 His Excellency the Governor-General, Sir Ronald Munro-Ferguson, Commodore J. C. Glossop, Senator Russell (Acting Minister for Defence), and Captain Duncan, A.D.C., embarked on the naval cutter *Franklin*, flying the Governor-General's flag and the Commodore's pennant, and when abreast of the *Melbourne* His Excellency signalled "Welcome to the *Melbourne* and the squadron," which message was acknowledged by Captain Watson, D.S.O., of that vessel. Then the little *Franklin* swung round and led the fleet down the harbour to its moorings in Farm Cove.

"Der Tag" Reversed.

Shortly before the fleet was due to enter the Heads the dazzle-painted *Willochra*, the vessel that is taking German internees from New Zealand back to the Vaterland, was proceeding outward, her rail lined with the faces of these undesirable aliens also silent, but probably from a very different cause to the silence of the Australians. It must have been a bitter pill for these erst-while, arrogant swashbucklers who had boasted what they would do in Australia when Germany became the world's overlord, to have to watch the triumphant home-coming of the Australian Fleet and to know that their own fleet had surrendered without having fired a shot. Whether something was wrong in the engine-room or her skipper received orders is not known except to her skipper, but just as the last of the destroyers in line ahead passed Rose Bay, the *Willochra* swung round and fell into line behind as if she were a prize of war being brought into the port.

An Altered "Melbourne."

The *Melbourne*, with band playing, went alongside Garden Island, and the *Huon* joined her there, while the remainder of the destroyers moored in Farm Cove, where the *Encounter* rooted at her moorings like an old hen surrounded by her chickens. No sooner had the vessels made fast than each was visited by launches packed with people searching for relations or friends on board. There was a regular flotilla round the *Melbourne*, including a big ferry steamer, chartered by and crowded with boys of the Church of England Grammar School.

Those who remember the *Melbourne* as she was before she left for "Somewhere at Sea," noticed many differences in her on her return to Sydney. For instance, over her fore'ard gun there is a long platform very like the sounding board provided above the Bench in our Police Courts. This, it was explained, was the taking-off place for seaplanes. The *Melbourne's* foremast, too, has been adapted as a tripod, supporting a fire-control station from which all the guns of the ship can be fired, and a spotting top, more generally referred to as the "Topping Spot," from which can be judged the effect of shell fire on enemy ships. Also, on every available vacant spot are hung or slung big cork rafts, a very

necessary addition to any warship's deck fittings when a mine or torpedo may cause a vessel striking either to sink in a few minutes. The *Melbourne* also carries a fine bell which did not ring the changes when she was last here. It is mounted on a special stand and bears the following inscription:—

Presented to H.M.A.S. *Melbourne* by the chairman and court of directors of the Royal Mail Steam Packet Coy., in commemoration of the invaluable service rendered to the S.S. *Taff* at St. Lucia, April, 1916.

The bell was presented to the ship by the Company for salving the *Taff* when she went ashore on the Island of St. Lucia, in the West Indies.

In at the Death.

Since the *Melbourne*, in company with the *Sydney*, convoyed the transports bearing the first contingent of the A.I.F., she spent two years in patrol work in the West Indies and protecting trade routes. Subsequently she and the *Sydney* joined the Grand Fleet in the North Sea, and the *Melbourne* was present at the surrender of the High Seas Fleet, being attached to the second cruiser squadron, and after the surrender led the German light cruiser squadron to Scapa Flow.

After the *Warrego*, *Yarra* and *Parramatta* had made their dash at night, with all lights out, into Rabaul harbour in the hope of torpedoing Von Spee's ships, which Admiral Sturdee eventually disposed of off the Falkland Islands, they spent many dreary months in patrol work off the East Indies and in the China Sea, and then proceeded to the Mediterranean, via Cocos Island, where they were joined by the *Torrens*, *Swan* and *Huon*. At Port Said the destroyers were supplied with the Allies' recognition lights for the Mediterranean and depth charges.

The Star Turn.

For some time they were employed in convoy work and had several brushes with submarines, and after refitting at Malta proceeded to Taranto, where they were received by the Commander-in-Chief, as they were the first destroyers to be despatched to protect the Otranto barrage. This was what might be described as their star turn. For six months they carried out the whole of the patrol work in the Adriatic. Their duty was to protect the British drifters,

which had all kinds of machinery for sinking submarines. Three of the destroyers would do a four days' patrol and then would return to their base at Brindisi and be relieved by the others. The Italians christened them "The Morning Sacrifice," as there were only three destroyers at a time against the whole Austrian fleet if that fleet had ever come out *en masse* against them. Guarding the Austrian fleet was too much for even six Australian destroyers, and so Sir Eric Geddes, after expressing admiration for their services, reinforced them with forty-four more destroyers! Our six destroyers have had an experience hardly equalled by any other six vessels of the Imperial Navy. They have seen duty in the Pacific Ocean, the China Seas, the Indian Ocean, the Mediterranean, Adriatic and Black Sea, surely a record to be proud of.

In the Black Sea.

Memories of that deathless campaign at Gallipoli were brought to mind by the *Torrens* lying peacefully at her moorings in Farm Cove. The Sea of Marmora, The Narrows, that sea road to Constantinople which we hoped to open from Gallipoli's heights have been opened at last, and the *Torrens* was a participator in the opening ceremony. After the signing of the armistice she left Mudros, touched at Salonika, and then proceeded to the Sea of Marmora and did patrol work in the Dardanelles. The *Torrens* was one of the first Allied vessels to pass through the Straits. After a stay of several days at Ishmid, in the Sea of Marmora, the *Torrens* proceeded to Constantinople, and thence to Novorossick, in the Black Sea, and from there touched at many ports in the Black Sea to show the flag. At Batoum the transport *Karoola*, previously an Australian interstate liner, was met with, and at Sebastopol the *Torrens* found the remains of the Russian Navy after the Bolsheviks had worked their sweet will on it. Most of the vessels had been sunk, blown to bits or run on the beach. On the way back to Malta the *Torrens* passed the *River Clyde*, still lying ashore at Cape Helles. Whilst at Ishmid those aboard the *Torrens* had a good view of the *Goeben*, for so long almost as much of a mystery as our own Hush ships. She was slightly down at the stern as the result of having struck a mine during the raid in which the

German cruiser *Breslau* was sunk, but otherwise appeared to be about the most serviceable of the vessels spared by the Bolsheviks.

The "Parramatta's" Part.

The *Parramatta* claims to have sunk a submarine between Port Said and Malta. She was sighted about two miles off showing her periscope. She submerged, but came up again when the *Parramatta* was almost on top of her. The Hun was unable to dive quickly enough, and the destroyer settled her with a depth charge. Whilst in the Adriatic the *Parramatta* carried a huge observation balloon, which was operated by a winch amidships and rose to a height of 1,000 feet. It carried two observers and was most useful in detecting submarines or approaching raiders.

Despite the weather a huge crowd had congregated on and around Man-o'-War steps, waiting to see the officers arrive to pay their formal round of visits in return of the visit paid by the Governor-General and Commodore Glossop to the *Melbourne*, and also to see the Lower Deck land, and welcome it in good old Australian fashion.

Drake's Drum.

Hardly had the *Melbourne* warped into Garden Island than Sir Ronald Munro Ferguson, with Commodore Glossop and Senator Russell, were on board her, being received by Captain Watson, D.S.O. The order was given "All hands aft" and the men doubled along to the quarter-deck and formed hollow square. Addressing them, His Excellency said:—

"We are right glad to welcome you home, after several years' continuous service in the Grand Fleet on the other side of the world. It is thanks to that Fleet, to its fighting power, its strangling blockade, to its discipline and spirit, that the Allies have been able to fight in all quarters of the world; that we have been able to maintain communication with all parts of the British Empire; that Australia, within her peaceful borders, has uninterruptedly pursued the even tenor of her way in comfort and prosperity. If we insular British—for we seem to be able to be insular even when we live in a continent—occasionally fail to connect all this with the unsleeping sentry-go of the great ships in the North Sea, yet one day of that intense suspense which followed the first inadequate report of the Jutland

battle brings home to the public in the remotest part of the Empire our utter dependence on sea power, and it only needs one such incident as the splendidly audacious landing on the mole of Zeebrugge, and the sinking in the enemy's fairway of the old cruisers—when Drake's drums seemed to sound once more down Channel—or that fine combat in which the *Broke* and the *Swift* responded once more to the Nelson touch, to re-ignite in every heart the old conviction that the sea is the British element, and that the destiny of the Empire is confided to the Navy.

“Nor can we on an occasion of welcome to our naval men forget those other seamen who man the ships of transport and commerce and mine-sweepers, and unflinchingly faced continued perils from mine and torpedo. No finer tribute could be paid to them than the fact that, in spite of the millions of tons of shipping sunk, no vessel ever failed to secure a full complement of men for any voyage.

“It is with a consciousness of duty done, on the lonely seas, that you return to your homes, and right glad am I to be here to give you a welcome and to express the pride we all feel in our navy, and in the seamen, who can, under these happier circumstances, say, in the words of Nelson at the close of Trafalgar Day, ‘Thank God, I have done my duty.’”

Fearless, Silent, Ever Effective.

Officers and men subsequently landed, and were conveyed by special trams through the gaily decorated streets to the Town Hall, where all were entertained to luncheon by the Lord Mayor, Alderman Richards, in the presence of a notable company representative of Parliamentary, naval, military and civil life in Sydney. The Lord Mayor presided, having on his right hand Captain R. J. M. Watson, D.S.O., of the *Melbourne*, and the other officers present from the returned warships were:—Commander Maxwell Scott, D.S.O., Lieut. Hickson, Lieut. M'Farlane, Paymaster Lieutenant-Commander Langdon, Surgeon-Lieut. Smith, Surgeon-Lieut. Wall, Engineer-Lieut. Mearns, Chief Gunner F. G. Ince, Mr. Tonkin (Gunner T.), and Mr. M'Leod (Warrant Shipwright). From the destroyers: Commander W. Burrows, Lieutenant-Commanders Webb, Creer, Mortimer, and Foster, Lieut. Hill, Lieut. Bailey, Engineer Lieut.-Commander

Bloomfield, Engineer Lieut. Bridge, Mr. Hannan (gunner), and Paymaster Midshipmen Hesford and Cravino.

In proposing the toast of “The Australian Navy” the Lord Mayor emphasised the great part played in the war by the Navy. It had made history. The gallant officers present had done honour to Australia and its people—had once more shown that indomitable spirit characteristic of the British race. As a unit of the Great Navy, they had been effective in their service. They had identified themselves with a fearless, silent, but ever-effective Navy, one of the greatest the world had ever known. It was this Navy that had made possible the enjoyment of the peace that was now ours.

The Lord Mayor proceeded to recount the glorious episode associated with the Australian Navy—the destruction of the *Emden*, and amid great applause said the Navy of Britain had for years past been, and would for ever be, the ruler of the sea.

Jack the Giant-killer.

Mr. Holman, the N.S.W. Premier, said that while he heartily subscribed to the sentiments expressed by the Lord Mayor, he hoped he would not be misunderstood when he stated that, never since the beginning of the war, had he felt the same romantic interest in the exploits of the navy as in the doings of our soldiers. There was, in the bosom of all of us, a deep interest in the struggle of the weak against the strong, and in the military struggle in which we took part the enemy, undoubtedly, was a giant, compared with us—and we were Jack the Giant-killer. In regard to the Navy the matter was never in doubt. We knew that our warships would be supreme—that the tactics of the enemy would be to hide in his fortified ports—and so it proved. For four and a half years the manhood of the British Navy was never wholly involved in a conflict in which the issues of life and death were involved. But during that four and a half years what complete readiness and sleepless vigilance were necessary, what a sacrifice of personal comfort and social recreation was made by the gallant officers and men, who were the lifeblood of the great navy, whose endeavours had always been for peace, and whose splendid work in these years had ultimately contributed in so marked a degree to the great victory of the Allies. For us, the thing had been a plain story, leading to

one inevitable end. The men of the Navy went forth to conquer. It took them over four years, but they conquered, and now they were returning home, after four years of gigantic and strenuous effort.

When, during the war, continued the Premier, we read that "all was quiet in the North Sea," we had an immediate mental picture of 200,000 gallant and devoted sailors out there on the waste of waters, exercising unremitting vigilance, so that we might sleep undisturbed in our beds. It was for the proof of duty well done, of hardships borne uncomplainingly, and gallant deeds performed without advertisement that they delighted to honour the men of the Australian Navy.

In replying to the toast Captain Watson said that Naval officers were not trained to make speeches. When one attempted to do so, and noticed reporters at work, the whole room seemed in a few minutes to be filled with nothing but reporters busily taking down what he said for the purpose of using it in evidence against him later on.

Still, he certainly felt equal to saying that the fleet would appreciate the sincerity

of what had been said by the Lord Mayor and the Premier. The Australian fleet in various parts of the world—in East Africa, in the West Indies, in the tropics, and in the North Sea—had been in almost every operation undertaken by the Navy. It had kept up the great traditions of the British Navy, of which all were so proud. The ships which arrived that morning were merely a first instalment. In 1918 there were 17 ships of war belonging to the Australian Fleet at sea. There were yet to return the *Australia*—which had probably saved the country's coasts in the early days of the war—the *Brisbane*, the *Sydney*, the submarines, and, he thought, six new destroyers which had been presented to the Commonwealth by the Admiralty. The cruise out had been very refreshing. After being in the war zone and imagining the existence of periscopes in every direction, it had been a relief to feel justified in "going below."

"I thank you for this welcome," concluded Captain Watson. "I was in Sydney 10 years ago, and everyone in the Navy who has been here knows your generous hospitality."

COAL LADEN

Especially Written for "Sea, Land and Air" by CLAUDE R. BERESFORD
(All Rights Reserved)

Four days from Newcastle town
She comes up the bay,
Rusted strakes a dirty brown,
Whitened by the spray.
As the failing daylight fades,
Laden deep with coal;
Bilge-pumps pouring white cascades,
She swings past the shoal.

Whistling for the fairway clear
While the echoes mock:
Past the quay and crowded pier,
Till she makes the dock.
Hear the bollard-heads complain
Where the docklights shine,
As the winches heave and strain
On the dripping line.

As the fenders crush and roll
See a lusty horde,
Lumpers come to shovel coal;
Clambering aboard.
Phantom figures 'gainst the night
Lift the hatches clear.
By the flare-up's crazy light
Sings the hoisting gear.

Swiftly baskets rise and fall
'Mid the strident din,
As the busy tramways haul
To the gaping bin.
So that wheels may smoothly run
Commerce to her goal,
Colliers work from sun to sun
Ferrying the coal.

WOMAN'S SHARE IN VICTORY

HER WORK IN AUSTRALIA.

PART III.

Especially Written for "Sea, Land and Air" by MISS KAE McDOWELL.
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So much has been written of the superb war-time-work of women in other lands that it was with a feeling almost of hesitation that I set about marshalling some of the facts of Australia's share. There was, however, no need for it, but every reason for admiration. In spite of the blunting influence of distance upon sensibilities no matter how keenly attuned, the women of the Antipodes have shown an endurance and an ability equal to every demand. Without the spur engendered by danger's proximity, and the actual sight of suffering, they girded themselves for usefulness. No task set has been too hard; no hours too long; no details too tedious.

It was through no shortcomings of theirs that Australian women were not to be found up in the battle areas with the W.A.A.C.'s with an identity disc around their neck. Neither was it through shirking that they were not working, trousered and badged, in shipbuilding yards, foundries and engine rooms, and wielding paint brushes, hammers, or oiled rags. Local conditions, resulting on the Government's policy, rendered such impossible. Had the conscription proposals been carried this would, of course, have been different, and uniformed women would doubtless have been found in a varied assortment of, to them, new occupations.

Many individuals and organisations did "all they knew" to get away to the front. The Defence Department was flooded by urgent appeals, and besieged by importunate ones eager for the excitement of service abroad. But it remained obdurate. For nurses alone was an official niche reserved with the A.I.F. Their work demanded often supreme heroism, and to-day the homage of the world lies at their feet.

The subject to be dealt with here is, however, relating to home-brewed war work. For reasons of efficiency in this service the women united into one huge

sisterhood, and then divided themselves, as the need arose, into three sections. These were known as the Australian Comforts Fund, the Red Cross, and the Voluntary Workers.

In the circumstances the last named is perhaps a little misleading to outsiders because the work of all three bodies is voluntary. The achievements of these sections and their share in the great anthem of Victory we are now singing, is of thrilling interest.

The New South Wales section of the Australian Comforts Fund is known as the War Chest. The movement began in August, 1914, when a small body of Sydney citizens decided that it was necessary to establish a fund "to give assistance in any emergency arising out of the war."

Its first call was from the camps at Randwick and Kensington, where men had rushed into training at the first appeal, and where the resources of the Government, unprepared for so sudden and unforeseen a demand, were quickly exhausted. Its most recent call has been at the Quarantine Station at North Head, where 'flu restrictions have rendered necessary a free canteen costing £1,000 a month. "We cannot have our boys wanting for anything in sight of home," said the War Chest. "Why worry! The War Chest is here!" is written on a big sign on the Quarantine gate.

Ten days after the inauguration of the Fund, woman's particular sphere in the work was outlined. Mrs. E. A. Antil (now C.B.E.), was placed in charge of the New South Wales Depot.

Already business was booming. Of this first day Mrs. Antil writes that, with the help of three assistants, "I set to work to grapple with the unexpectedly large influx of contributions of all descriptions, the result of the first press notice. The little room lent by Mr. Walker, the hon. secretary, soon was piled high with parcels, bundles and boxes containing a

varied assortment of clothing—very soon we overflowed into one of the larger rooms adjoining, but soon that too was quite insufficient for our needs.”

Women volunteered for work in hundreds and thousands. When work, no matter of what kind, was needed, it was sufficient that a notification be given to the Press. The result could be guaranteed. One of their first enterprises was the supply of the extra kit bags. Up till then no provision had been made for the troops proceeding to the other side of the world to take anything but what could be stowed into the regulation kit. The Government, however, conceded that if sufficient extra bags were available, through private enterprise, for full issues for every transport, they would be allowed. The War Chest organised sewing parties all over the State, and the contract was filled without difficulty.

The first appeal for socks resulted in a supply of 146,000 pairs; the second 200,000 pairs. In all the War Chest Fund has distributed 600,000 pairs of socks and thousands of shirts, mufflers, balaclavas, undergarments and mittens.

In addition to organising branches in practically every town and village of the State, cake, flower and postcard shops were opened in the city, and depots of infinite variety. Then there was the War Chest Club in London—a gigantic affair, the magnitude of which may be suggested by the fact that its revenue was about £1,000 per week. In alluding to its splendid work Lady Poore says: “I don’t think the people over here (England) yet realise that the bulk of Australia’s splendid soldiers, admired and acclaimed as they are by all, are homeless in England, and that they don’t want to be petted, but treated as friends. To me, an ardent admirer of Australia and its people, the sight of all these men at the Club gave infinite pleasure. . . . but I had a pain in my heart as I looked at them, for I remembered how far from home they were, how dismal a London January must be to these children of the sun, and how little we could do to help them.” Corporal James Watt, writing of it at the beginning of this year, said: “But the real ‘little Australia’ for the Commonwealth soldiers is the War Chest Club, and when our faces are turned towards Horseferry-road, our hearts are at

peace, for there is our temporary nest—there is our Home.”

After a eulogy on the “wonderful lady volunteers who, from earliest morning till latest night waited on the war-weary who were home on leave, this soldier continued his pæan of praise in favour of the thousands of clean soft beds “with pillows and white sheets,” the boot parlour, the hot baths (luxury of luxuries). If you want a drink of malted milk, or Bovril on a cold day—“Certainly Here you are. Tobacco? Cigarettes? Nicknacks? The young lady at the counter will not only provide you with these at a reasonable price, but will also put you in a good temper for the rest of the day. As it is not wise to carry too much money about with you, there is a Bank of Deposit and issue here under the direction of the A.I.F. Headquarters. Your kit, of course, was safely stowed away on your arrival.

Evening Amusement.

And now supposing the evening to be drawing in, we will go upstairs to the lounge, and there we find huge easy club chairs, in which we may (we invariably do) fall asleep. We open our eyes with a start. The room is darkened, and on the sheet before us a cinema tale unfolds itself to a well-played pianoforte accompaniment. Londoners pay four and five shillings for a much inferior show to that which is seen almost nightly at our Club.”

Over three million meals were served at the Club during the two and a half years of its existence. Three hundred and fourteen thousand boots were cleaned, 97,493 free hot baths provided, and barbers attended on 190,000 customers. There were numerous other comforts.

Writing in March on War Chest work at Quarantine, Major Larcombe is most impressive. He was aboard the *Ceramic* during that critical period of discontent among the troops, who, on account of ‘flu on board, had been quarantined at every port. The War Chest workers carried serenity and a smile into many a rebellious heart.

The Red Cross.

The work accomplished by Australian women under the benign guidance of the Red Cross would take many pages to relate. This organisation is the most humane, as well as the largest women’s

movement in the world. It is universal. Beneath its glowing flag wonders have been performed on the battlefield. Misery has been made to smile.

Unremitting work and worry has been the lot of the workers. Women in its responsible positions have been faced with problems such as had never before fallen to the lot of their sex. Their competence, here as elsewhere, under conditions of leaping expansion, will always stand as a monument to feminine ability in emergency.

At the commencement of hostilities the Red Cross signified to most people little more than bandages, shirts, and first-aid classes. But soon from this modest seedling of effort arose that gigantic and lusty tree we now know, the continued fruitfulness of which has worked for the healing of the Nations.

Its activities, outside hospital work, embrace many hives of industry.

An idea of what this State has done may be had from the fact that last year £74,000 of goods were shipped overseas, and £28,861 worth was supplied to invalid sailors and soldiers in military hospitals and convalescent homes in New South Wales. During last year Red Cross women made and delivered 120,000 hospital bags, 42,000 balaclavas, and 42,000 each of mittens, mufflers, housewives and bed socks. Seventy-two thousand tins of condensed milks were sent monthly to Australian prisoners of war, together with 21,600 tins of butter, 324,000 corned beef, 43,200 golden syrup, 432,000 jam, 3 tons of biscuits, 50 cases of tinned rabbits, and 20 cases of meat extract.

Seventy-five Voluntary Aid Detachments are registered with the Military, all being actively employed in the various



Sydney Girls Shovelling Sand at Matraville, N.S.W.

industrial activities or in staffing the hospitals.

Among the Red Cross industries the Spinning Depot in Primrose Buildings was, perhaps, the prettiest sight. There is a fascination about the whirling, humming wheels, and the heaps of foaming wool which are being turned from bulk to skein. Two thousand spinners have been instructed from this depot which, during the meagre days of knitting wool, kept actual sock famine at bay.

No factory was ever busier than the great sewing room at the Sydney Town Hall where, year in and year out, pyjamas, shirts, slings, operating gowns and all accessories necessary to hospitals were turned out with automatic precision.

Then there was the jam depot, the pickle depot (part of which has recently been converted into a hostel for 'flu workers) the fruit and vegetable depot, and many another.

Special mention should be made of the Red Cross kitchen. The Anzac Buffet is supplied from there. Lunch is given free to returning Queenslanders, at an expenditure of elevenpence per head. Formerly when this was catered for it cost from 2/6 to 3/- per head. About 2,000 men in hospitals and convalescent homes are supplied daily with morning and afternoon tea.

A visit to the kitchen is worth while. The long, many-windowed building in York Street was erected by the Defence Department—a proof in itself of the importance of the work. At the door the warm and fragrant odour of many good things in the cooking greets you, and with it the sound of eggs being whisked; the rattle of spoons; the closing of oven doors. And through it all filters the tinkle of women's laughter, and the rustle of the starched white frocks.

If people tell you that war-time activities have rendered women less domestic

send them, for their answer, to the "kitchen," or to any of the industries carried on beneath that gracious and glowing emblem of the Red Cross.

The Voluntary Workers.

The sphere aimed at by the Voluntary Workers opened up new ground. Under its banner Australian women accomplished feats which a pre-war mind would have been considered amazing. They have dug and delved, shovelled and picked. They have pushed heavy loads and helped in building construction. They have cultivated vegetables, ploughed, harvested, scrubbed, and laundered. And all this for the sake of their country; for the men who were away fighting and the dependents whom they left behind.

The building of soldier's homes would have been considered exclusively men's work a few years ago. Now it is undertaken in the true spirit of comradeship.

At Matraville, a few miles from Sydney, a soldiers' garden suburb is being built by voluntary effort. During the pioneering stage it was found necessary, for the success of the plans, to remove a large sand hill. Many a man on looking at it decided "this is no place for me." Many a girl did likewise, but many stayed and presently the hill was shifted. The women and men worked together, the former shovelling in half-hour shifts with quarter-hour spells. At least that is what the more experienced did. At first many "worked themselves to a standstill" in a feverish desire to get through.

It stands to reason that a large number of these women and girls who have for several years been leading busy commercial lives will not return to the narrow idleness of pre-war days. Their advance into the regular commercial walks of life is assured, and it remains for us to try and throw some light upon the problems their entrance gives rise to.

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PROFESSOR DAVID ENTERTAINED BY THE MILLIONS CLUB OF N.S.W.

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The recent return from active service of Lieutenant-Colonel (Professor) T. W. Edgeworth David, D.S.O., C.M.G., F.R.S., B.A. (Oxon.), was celebrated on May 15 by a Welcome Home luncheon tendered by The Millions Club of New South Wales.

Thanks largely to the practical energy of its secretary, Mr. George FitzPatrick, no less than to the essentially business-like constitution of its committee, the "Millions'" luncheons are always well worth attending; the menu is carefully selected, the service excellent; one meets the man of letters, the scientist, the progressive leaders of commerce and industry, and one takes away the recollection of a luncheon-hour pleasantly and profitably spent.

The function in honour of Professor David, held at Farmer's luncheon hall, was no exception to the general rule. Among the two hundred citizens assembled to welcome the guest of the day we noticed His Grace Archbishop Wright, Major-General Henderson, Director General of New Zealand Medical Services; Brigadier-General C. F. Cox, C.B., C.M.G. ("Fighting Charlie"); Brigadier-General Alex. Jobson; Sir Albert Gould; Mr. Justice Heydon; Mr. G. H. Knibbs, Federal Statistician; Professor Peden, Dr. Richard Arthur, Dr. Alfred Burne, Dr. Piggott, and Captain Frank Hurley, official photographer to the A.I.F.

The President of The Millions Club, Mr. Arthur Rickard, spoke of their guest's distinguished services to his country and to the Empire. Professor David, said he, may be described as the Grand Old Man of the (Sydney) University, where his magnetic influence on the hundreds of young men and women whose training he had so successfully undertaken, must inevitably produce a far-reaching effect on the future of this city. The Professor, continued the speaker—with apologies for relapsing into the use of their guest's non-military title—

was of such calibre that at the darkest and worst period of the war, despite his years and despite a constitution probably weakened by his Antarctic Expedition, had volunteered for active service, and it was very gratifying to The Millions Club to have him back safe and sound in their midst.

Archbishop Wright, in a brief address of welcome, said that Professor David had stood and would stand for the *beau idéal* of chivalry. In countless ways he had manifested his lofty sense of patriotism. His was a courageous, a magnificently useful life.

Brigadier-General Cox, supporting the welcome, added: "We should be very proud indeed that we have had a man like Professor David in the Army"; while Major-General Henderson, referring to his own 35 years' service in the Imperial Army, stated that he had always been impressed by the sportsmanship of Australian soldiers and by that patriotism which seemed to be their common heritage; a spirit so splendidly exemplified by their present guest in his determination, natural handicaps notwithstanding, to "right a great wrong."

The toast of Professor David's health having been enthusiastically honoured, the hero of the hour now rose to reply. Possessing a remarkable facility of expression, a charming simplicity of manner, an extremely incisive wit and the all-too-rare gift of sympathy, it may well be said that Professor David's narration of his outstanding impressions of the war was one of the most brilliant and fluent examples of oratory that Sydney has heard for many a day.

Commencing with the lighter side of modern warfare, the speaker gradually drew his hearers to the heartbreaking spectacle of pillage, brutality, and the ruthless deportation of innocent boys and girls from the territory occupied by the invading Hun.

"The Diggers have expressed to me," began the Professor, "their deep gratitude to The Millions Club for its patriotic work in the distribution of comforts, and in securing for their friends and families exact and precise information as to just when the returning boys can be met.

"I would venture to say that these men are worthy of every kindness that you can show them. The glory of the Anzacs shall never pass away. Wherever they have been located they have done their duty and done it thoroughly. Now it is up to us to do our duty by these returning men, and to see that they are not debased by mistaken kindness." (*Applause.*)

Dropping into a lighter vein the speaker said: "Your genial and ever youthful secretary has told me that you may possibly care to hear just a yarn or two about the Diggers on the Western Front.

"Those Diggers whom I had the honour of travelling with to France and Flanders were miners and mining engineers. Originally 1200 strong, their numbers were raised to 2000. The Australian Mining Corps was equipped in Sydney, and, while on that subject, special mention should be made of the kindness of Mr. Fraser (Chief Railway Commissioner), and Mr. O. W. Brain (Government Chief Electrical Engineer). Sir Samuel Hordern, with customary liberality, had asked what sum of money would be required for the purchase of various kinds of drills; adding, 'here's an open cheque; go ahead and buy what you want.'"

"It is not generally known," the speaker continued, "that the first tunnelling operations after we left these shores were done in Alexandria. On arriving at the wharf a party of about a hundred land-sick miners broke through the ship's sentries and rushed ashore to see the sights. These explorers had not gone far before they fell in with certain friendly men, at whose invitation they consented to take a free ride through the town in *char-à-bancs*. The camouflaged friends proved to be Military Police, and the drive ended at the Main Guard, better known as the "clink" or "boob," where our intrepid explorers were safely locked up for the night.

"Early next morning down at the ship we received an agonised *S.O.S* announce-

ing that the Miners were tunnelling under the "boob"; the walls were tottering to their fall and help must be sent immediately! A junior officer, sent down to interview the tunnellers, brought them back to the ship as good as gold!" This early practice, added Professor David, proved invaluable when they found themselves up against the real thing on the other side.

France was duly reached, and on arrival at Marseilles they were pleased to receive further kind messages; their services were urgently needed at the Front.

And so, in turn, to Hazebrouck, Ploegsteert, Givenchy and Loos, to Hill 60 in the Ypres Salient. "Steady graft followed (not in the sinister sense), struggling against the Boche, who had got a start on us in tunnelling.

"You may be interested," said the Professor, reflectively, "in hearing how I got my first wound. I was working at the bottom of a ninety-foot shaft near Hill 70. Into this shaft the miners were lowering sandbags full of chalk. Each of these sacks weighed about half a hundredweight, and to the officer in charge of the lowering operations I commented on the danger of the proceedings. 'Can't afford to be fussy,' said he, 'we're racing the Boche; but if it's any consolation to you I might mention that they're new bags!'

"All at once I had a most frightful shock, and felt that my head was almost broken open. With my blood reddening the white chalk I looked up to the mouth of the shaft, where stood a sturdy Northumbrian miner. 'Beg pardon, sir,' he inquired, laconically, 'but did a loomp o' chalk coom down your way?' I could hardly find words strong enough to express my affirmative.

"My second wound was at Vimy. Poets have figured Truth at the bottom of a well. At Vimy my wound was lowered in a bucket, after dropping about eighty feet. And I assure you, gentlemen, that the bottom of the well was no longer a figure of speech, but a stern reality.

"On April 9 (1917) we blew a lot of mines and captured Vimy Ridge. In these operations the Australian Mining Corps used apparatus made at the Randwick workshops.

"Our second stunt was what the French called 'the second earthquake of Mes-

sines.' Nineteen vast mines, of a depth of 100 feet, were laid, and charged with 40 tons of ammonal. About one million pounds of this high-explosive were set off simultaneously. It is credibly reported that two hours after the explosion the panic-stricken Boches were still running towards Berlin, through the streets of Lille. But," added the speaker, turning with a quiet smile to General Cox, "those were the days of limited objectives, and our boys were not allowed to follow up."

Describing the capture of Cambrai, Professor David instanced what he described as "the extraordinary business instinct of the German." "The town," said he, "still contained many of the original French inhabitants, and, when the fall of Cambrai appeared inevitable, the cute Boche had huge quantities of *tricouleur* flags made in Germany and—sold them to the French."

Changing his tone the speaker now described "one of the most sublime moments of the war." This was on October 28, 1918, when the 47th Division, under General Birdwood, made its formal entry into Lille.

"It was my good fortune," said the speaker, "to be a witness of this stirring ceremony, and I saw and felt what cannot be described in words. One saw the

imprint of the foul work of those departing hounds of hell; one saw the inhabitants suffering pangs of hunger, privation and all sorts of penalties inflicted by the late army of occupation. Those which had suffered most acutely were the parents of the deportees. On a single night—and midnight at that—no less than fifty thousand of their young people—boys and girls of from 15 to 25 years of age—were carried away from Lille to occupied territories in France and into Germany. Many have been returned, but the act itself is one of criminal brutality. The people of Lille had about them all the marks that comes from the purging of the finer feelings. It was touching to see the intensity of feeling. Mothers brought their children to General Birdwood, that he may place his rescuing hand upon their little heads.

"The great climax came in the Grande Place when the venerable Mayor of Lille presented the old historic flag, and the Australian General, in return, presented the flag of the Fifth Army, which had liberated that hitherto unhappy town.

"That was something that lifted one out of this world, and one hoped that the comradeship and goodfellowship born of this sympathy between the two great nations, Britain and France, would never pass away."



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LLOYD'S AND AIRCRAFT

INSURING THE SHIPPING OF THE SKIES

By Our London Correspondent

Aviation risks, hitherto "written" by a syndicate of members of Lloyd's, are in future to be the concern of a combination of Lloyd's and a group of the biggest insurance companies. The result will be that any person desiring to take out a policy for a machine, or for a life, or for any sort of aviation risk, will find every facility.

Almost ever since flying began underwriters have been found willing to quote, and a great deal of business has been done. But with the heavier risks now in view, the great extension of flying, the dawning era of commercial aviation, and the increasing cost of machines, it has been found desirable to place the whole matter upon a broader basis.

The combination have appointed an underwriter, a well-known aeronautical authority who has for some years studied the question of aviation insurance. He will have his headquarters not, of course, at Lloyd's shipping office, but in a separate establishment. It will be his business to construct the system by which the machine owner, or user, or passenger can arrange terms with the companies.

A vast amount of data is already in existence enabling this matter to be put upon a sound basis immediately; and at this moment any conceivable aeronautical project could be instantly assessed as regards the risk, and a quotation given.

Hitherto it has been the custom to insure each flight. But in future the basis will almost certainly be the time spent in the air. A mileage basis is unsatisfactory, since it is governed by a most uncertain factor, that of the wind.

A quotation for a machine, as an example, might be one-eighth of £1 per cent.; that is, 2s. 6d. premium on every £100 per hour of flight. Or, as regards a passenger, so much per £100 on any flight within the limits of the United Kingdom. These figures, it should be said, are purely supposititious.

Probably, whatever the figure may be arrived at in the light of experience, much of which is yet to be gained, the process

will be simple enough. A passenger will book his journey, and the booking clerk will say, "Will you take out an insurance, sir (or madame)?" He (or she) will reply in the affirmative; and a rubber stamp on the back of the ticket, and an entry in the ledger (or whatever it may be) will do the rest. Or possibly a separate ticket will be given. But if for a mere flight from Sydney to Broken Hill, or from Melbourne to Suva, the addition were 10s. or more for an insurance of £500, the suggestion of danger implied in the price might cause the nervous to prefer the railway or the steamer. The figure given here is, of course, purely imaginary.

As a matter of fact, every risk will be quoted on its merits. In shipping, as everyone knows, some companies get better rates than others; so will it be with aircraft. And, as in shipping, aeroplanes and airships will not be entirely covered by the insurance; a proportion of the risk must be borne by the owner; otherwise there would be a premium upon connivance at total loss for the sake of the value of the policy; "new for old," as it is called in the "trade" and in Arabian romance.

An immediate effect of the systematising of aircraft insurance is expected to be a slight reduction of the cost; but clearly the work at present will be largely experimental; for past experience has, after all, been comparatively limited, and with types of machine smaller, cheaper, and less reliable than those of the present day. Moreover, it is expected that a vast amount of pleasure flying will very shortly be in progress. One effect of the operations of this great combination will be to prevent the "market" becoming excessively sensitive, and this will react beneficially throughout the industry.

An Aircraft Index and a Pilots' Register will be kept; but whether we are to have a "Captains' Room" and a "crier" remains to be seen.



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LETTERS TO THE EDITOR.

To the Editor, *Sea, Land and Air*.

Dear Sir,—

I have to advise you that in the event of an aerial transport service being established in Australia this Company will cover passengers under its Life policies without any extra premium.

Yours faithfully,

WM. BLOOMFIELD,

Secretary,

The Mutual Life and Citizens'
Assurance Co., Ltd.

Sydney, 27th May, 1919.

To the Editor, *Sea, Land and Air*.

Dear Sir,—

As a subscriber from No. 1, Vol. I., I read with much interest Lieutenant Oakes' fine *account of the Melbourne-Sydney Aero trip; but I would like to mention that at Euroa, which is just half-way from Melbourne to Albury, there is a splendid landing-place, viz., the racecourse, about three-quarters of a mile from the station, on the Sydney Road. It comprises about 84 acres, with only about half a dozen trees; an ideal spot for a stop.

There are a couple of motor garages with competent men, and plenty of petrol, etc., obtainable.

Yours truly,

CHARLES H. PATERSON,

Secretary,

Euroa Waterworks Trust.

Euroa, Victoria, 22nd May, 1919.

To the Editor, *Sea, Land and Air*.

Dear Sir,—

I am directed by the Committee of The Wireless Institute of Victoria to officially appoint the journal, *Sea, Land and Air* as the official organ of the Institute.

Faithfully yours,

W. H. CONRY,

Honorary Secretary.

Melbourne, 14th May, 1919.

* *Sea, Land and Air*, May issue, pages 77-82.

To the Editor, *Sea, Land and Air*.

Dear Sir,—

Happening to re-look at the "Glossary of Aeronautical Terms," by a Flight Commander, in your January issue, I wish to point out several corrections, mostly technical.

AILERONS BALANCED.—This is wrong: it balances the ailerons but does not make them balanced ailerons. A balanced aileron has a part of surface ahead of the pivot point—or hinge.

BIPLANE.—Strictly speaking, the wings could be in tandem, and not as stated.

COCKPIT is the part of the fuselage enclosing the pilot's seat and not the seat itself.

FUSELAGE.—Also the main body of a twin or 4-engine pusher or tractor machine.

KEEL SURFACE.—Description should be followed by—"above or below the line of thrust or centre of thrust" (for reasons of stability).

PITCH OF A PROPELLER.—Description should be followed by words "in one revolution."

RIB COMPRESSION.—These can also, and do, lie between rear spars and trailing edges.

RIBS.—Re "often called former ribs." These former ribs serve only to give shape, and do not take any appreciable stresses as do the ribs and main ribs.

BALANCED RUDDER.—Need not be as stated; it can be pivoted at its leading edge with a pre-hinged surface.

TAIL.—Accurately speaking, what is described as the empennage, the tail being the tail-plane.

TAIL PLANE AND TAIL PLANE LIFTING.—These descriptions are misleading, as any section plane, flat, streamline or cambered, moving through the air at stated speeds exerts some lift from angles of incidence of -5° to $+18^{\circ}$, to give extreme cases. The so-called non-lifting tail is the cause of the fallacy above corrected.

TRIPLANE.—Remarks re *Biplane* apply equally.

Although four months have elapsed since publication of your January issue I trust you will publish these corrections, as the terms are always in use.

Yours faithfully,

KENNETH WALLACE CRABBE (late A.F.C.).

"Gordon," Byron Street,

St. Kilda, Victoria, 13th May, 1919.

[While ever willing to admit an error and to publish a correction, we believe, however, that in this instance "amendment" or "amplification" would have been more appropriate than the word "correction."—ED.]

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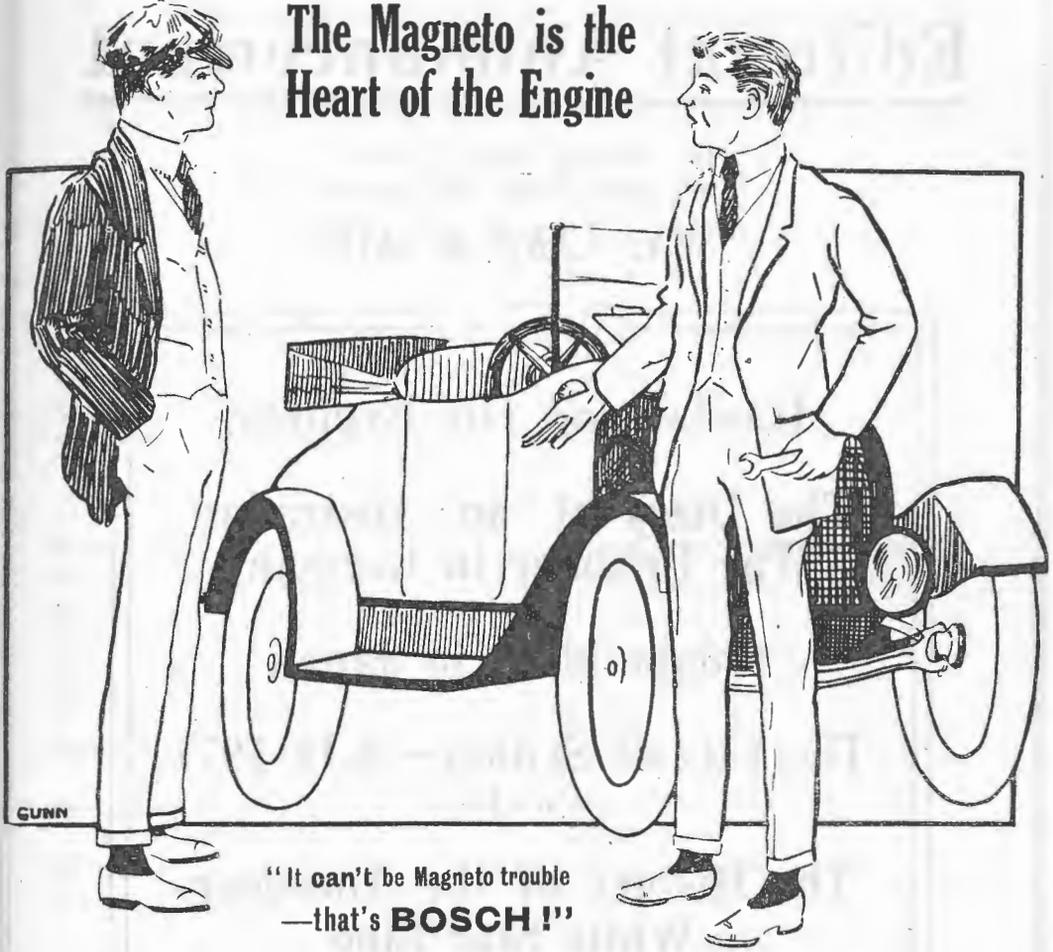
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WRITE FOR CATALOGUE OF LATEST WIRELESS PUBLICATIONS.

THE FIREMAN

BY A. P. HERBERT.

I.

The next case was George Berry, fireman, of S.S. *Miranda*. He ought never to have been called George, being a weedy, scraggy person with hunted eyes. Today he was unshaven, naturally, and he had dirty trousers which once must have been blue, but were now dark and blotchy with grease and did not match his under-sized coat. The clerk of the court read out the charge against him "for that etc., etc., on the 14th, etc., he did leave his duty in the stokehold against the lawful orders, etc."

From the Bench Sir Henry Roberts looked at him wearily. As stipendiary in this town—a large shipping centre on the West Coast—he had a number of such cases before him. He knew something of conditions in the Merchant Service, how little real power a master had, and how much trouble was needed to bring such cases into court. So when they did get there he was very stern and severe with them. Especially since the war—most certainly. With so many poor devils in the trenches, mud, shells, and all that, a fellow having a comparatively soft time at sea could surely be expected to do his job without fusses. And without finking. That was all there was in this case. "Enemy submarines 'ad been reported in the vicinity"—that was the evidence. So this fellow came on deck. Left one man to keep the furnaces going "just when we wanted all the steam we could get." He didn't deny the fact. The only words he said at all, half defiance, half apology, were: "It's all very well on deck, sir. It's all very well on deck——"

There was something else he had been going to say, but he stopped there, shrugged his shoulders, hopelessly. That's how he ought to feel. Sir Henry wasted no time with this case. It had been a long day and he was tired. He wanted to get home. But he could not let the man go without really bringing home to him the rottenness—that was the word—of what he had done.

"The only way," he told him, "in which I can express my disgust at your action is to pass on you the maximum penalty within my power, and I wish it were more. A man like you ought to be in the Army—in the trenches. The only reason you are not is that you are a seaman, and are needed for a seaman's—a stoker's—er, fireman's work" (he was not quite clear about all these terms). . . . "Some of us have sons and brothers fighting out there bravely for us. And when I think of them"—here the voice began to tremble a little with genuine emotion, for had he not himself a son at the Front?—"and when I see men like you before me, I—I"—(how was this sentence to end?)—"I wish very much that I could impose a heavier penalty."

They took George Berry away and Sir Henry went home. In the car he thought of the case again and muttered angrily, "Miserable cur, when I think of poor Billy—shell-holes—no dugouts. My God!"

II.

They were three days out from Liverpool, and they were beginning to breathe more easily. The *Stout Heart* had left Liverpool with a convoy of twelve merchant ships and four or five destroyers, though none of the passengers knew that. For all down the Irish Channel there had been heavy weather, thick weather, too, so that the convoy had been badly scattered. So far as the passengers knew there had never been more than seven of the ships together at the same time, never more than two tiny destroyers, diving and rolling about at what seemed an immense distance. Everyone had been a little nervous from the beginning, for lately there had been many sinkings, and the additional uncertainty produced by the storm had not helped to soothe anyone's nerves. . . . On the second morning Sir Henry, waking early, had wandered on deck in the cold dawn; all round in the thin unfriendly light was the endless, heaving, inimical water. There was a cold

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wind which flapped his pyjama trousers against his legs, and he disliked it all very much. And there was nothing in sight—no other ships—no destroyers. Disgraceful! Gross mismanagement somewhere! No ship ought to be *allowed* to lose her convoy! . . . All that morning the passengers had felt very small and lonely till they caught the convoy about noon. Then at dawn on the next day there had been a dull boom and a long vibrating concussion that shook their cabins and sent them scampering into trousers. They had streamed up on deck, very hurried in the passages and on the stairs, very careless-looking as they stepped into the open. It was a depth-charge—and after it there were five others. Afterwards they heard that one of the ships had straggled in the night, had been caught by herself in the first twilight, and sunk in the heavy sea without launching a boat—without launching a boat. . . . It might have been the *Stout Heart*!

So they slept little that night.

Oddly, though, in spite of the roughness and the endless rolling, no one had been sea-sick. All their thoughts had been too busy with submarines for that. But by this evening, it was said, they would be out of a mysterious area called "the danger zone." The sun had been seen early in the morning; the wind was falling and though the ship still rolled heavily in a long swell, the waves had no white about them. So they were happier, and three of them were absent from dinner—they had time to be sea-sick now.

There were about forty of them, mostly Anglo-Indians, returning from furlough. Sir Henry, though not yet an Anglo-Indian (he was on his way to a new appointment in Burma) was among the three biggest men of the party. He sat next to Macdonald, the chief engineer, and that officer was urging him for the third time to visit the engine-room and "see the old wheels go round." So far Sir Henry had excused himself because "the smell of the oil might make him sea-sick." When he said that he felt secretly dishonest—he was never sea-sick. "But they are rather bores—these technical fellows. . . ." Yet the invitation was a high compliment, and now he had agreed to go. In the morning the sun was well out and the sea well down at last. Macdonald, a

dark, good-humoured person, with twinkling eyes, piloted him proudly to the top of the iron stair. Up there, poised over the roaring muddle of engines, it was horribly hot; they went down one flight and stood as it were in the tree tops, just bits of wheels on each side, odd mechanisms and gauges. Macdonald stopped and shouted in his ear. Sir Henry heard nothing, but nodded wisely. As they moved on to the next flight he looked up and was glad to see a streak of sky showing through an opening; nothing between them and the deck yet. Then they went lower and they were in the heart of it (hellish hot now), and they walked all round on a narrow slippery iron path (suppose you slipped!). . . . At every turn there were more explanations; fragments of words reached Sir Henry—"pressures—steam—channel—water-gauge—main-engine—pipes—cock—" All very slow and Scottish and precise. This had been tedious higher up; it was becoming worse than that. Sir Henry was beginning to imagine. These three days had discovered his imagination; and he did not like it. Suppose a torpedo—just now while this old boy talked about pressures. When he looked up now there were wheels and huge lumps of metal whizzing above him, all round him. Let's get on with it. He became impatient with the explanations, and began to bawl "Yes, I see," half-way through them, but this made no difference. They proceeded slowly, pitilessly, to their appointed end—maddening. That heat. . . . Then they went down again; on the top step Sir Henry turned and looked back, he hardly knew why. Then he found he was taking note of the way up—along that narrow bit round the red arrangement with the glass and then another twist and there was the stair—all very awkward, if you were in a hurry—if—(don't be a fool, man).

At the end of the next descent they were on the very engine-room floor where, astonishingly, it was almost cool because of the ventilating shaft. Sir Henry felt better. But here the explanations threatened to become interminable; there were so many odd appliances and gauges and sign-boards with white discs and things that looked like gas-meters—very useful things, no doubt, but incomprehensible. But he did not want to comprehend them;

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certainly he did not want to stand in this clattering inferno while an old ass—he was an old ass now—explained them all. He hardly pretended to listen now; he was looking at the big things, those enormous piston affairs, thumping up and down a foot away from him. Suppose a torpedo—just now. Those things would fly out, no doubt, and mangle him—fling him down there perhaps, in pieces, down among those little wriggly things, where the great rods kept sweeping past—just above the pool of oil. Or perhaps all that monstrous mass of glistening metal above him, metal revolving, metal rotating, metal wriggling or sliding or jerking or pushing, all roaring and all greasy, would come crashing down and tear him and keep him there. Then the water would come in, in great spouts. Or creeping, maybe—rising slowly, as it did in the shockers. “Then the steam goes through yon pipes,” shouted Macdonald. He jumped, and they went on to the ice-machine. It was near the bottom of the stair, and he saw this happily. The engines were talking now, shouting, thumping in his head. “I want to go up on deck—I want to go up on deck.” But now they were at the staircase, in the cool air from the shaft. There was a dirty man squatting on the floor, darning some trousers, placid. After all, what a fool he was to be upset.

“Well, many thanks, chief. It’s been most interesting. I musn’t keep you any more”; and he put a foot on the wished-for-step. Then, “Eh, sir, but you must see my fires,” said the chief, “and the stokehold.”

Sir Henry groaned in his heart, but followed. They stooped through a hole in the bulkhead, and then they were in a really terrible place—a long, dark passage where you had to stoop low, where your elbows nearly touched the side. Behind this wall on the right were the boilers or the furnaces, something sultry and hostile; no doubt, if you touched that wall your flesh would sizzle.

The boilers might explode at any minute. Or a torpedo. How would you be then in that rat-hole with the water surging in—and the steam—the steam—yes, that was worse. That always happened; “scalded stokers,” he had read it somewhere; cold water or the hot pipes—

boilers bursting. Why did they burst? Scalded to death in the dark—a bad thought. On then—there is a light ahead—a flamy light. This was the stokehold, a place of grime and coal-dust, and fierce light from the furnace doors, with two men shovelling, half naked, in front of them. These were firemen, “not trimmers,” you understand—more explanations. Sir Henry did not listen. He was thinking it was cooler here; he was looking upwards an immeasurable distance to where a faint daylight showed through a grating at the top, where the spidery black ladders went. Firemen! That was what that fellow in the dock had been. He must have been in a place like this—sweating, afraid. That depth-charge the other morning—how did it sound down here?

Then back through the terrible passage, crouching. What was it that fellow had said? “It’s all very well on deck—it’s all very well on deck.” It wasn’t—but it was better than down here. “I want to go up—I want to go up,” said the engines. Once more the little speech of thanks, rather hurried now, and then up—up and away—away from that roaring conspiracy of wheels and pipes and furnaces and grinding steel—up on deck—up in the cool, clean air. That was better. Ah-h! Sir Henry sat down and wiped his face.

III.

Sir Henry thought about that morning a good deal. And he was not pleased. He was surprised and disgusted at himself; disgusted, because he was a proud, conscientious person. He would not have believed that he could be so afraid. And he could not help thinking of George Berry and similar cases. What sentence had he given him? He couldn’t quite remember, but he knew it had been severe. And who was he to pass sentence on a fireman if half an hour in the firemen’s regions had upset him so much? Of course, it wasn’t his *duty* to be down there—that made all the difference. But suppose it *was* his duty. . . suppose it was his *moral* duty now, to himself, to his conscience, to go down there again and stay there, justify himself, satisfy himself he was worthy to sit in judgment on the George Berrys. That was it. He would go. He would be a stoker or trimmer or

(Concluded on page 190.)

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whatever it was. He was a tough athletic fellow. And now, after all, they were out of the danger zone—though you never could tell—and it would be calmer soon, after Finisterre.

Chief Engineer Macdonald agreed very readily. He was short-handed in the stokehold, and he liked Sir Henry's spirit. So they dressed him up and Sir Henry took his trick—eight hours—eight awful, aching hours. He learned quickly and he was strong, but it was a day or two before he could really do a man's work. And by that time he was cursing himself for a fool. But he would not surrender. The other passengers applauded his spirit, though they knew nothing of his secret reasons, and laughed at him behind his back. It would be too silly to give in after three days.

And really he had achieved his aim. He had beaten his terror; was getting used to it. He was too busy down there, too exhausted, to imagine things about torpedoes and escaping steam all the time. Only sometimes when the whistle hooted dully above, his heart gave a jump, and he looked furtively at his mate to see if he had noticed anything.

When there was more than one hoot, some signal or other, he counted them with a sort of secret panic. For six hoots (wasn't it?) meant a submarine. When they stopped at four he breathed again.

He thought then always "It's all very well on deck"; that was a kind of religious axiom now. For even without being frightened he found a fireman's life sufficiently vile—the aching exhaustion, the pains in his back and arms, and the coal-dust, the coal-dust in his eyes and lungs and the pores of his fine skin, the heat and racket, and the hungry roar of the wild furnaces when the doors were opened. He hated it all, but he would not give in.

They passed Gibraltar without further alarms. And now it was very hot, even on deck. Down in the stokehold. . . But he had only done four days.

One day beyond Gibraltar. Sir Henry had the morning watch. He had started shovelling at eight o'clock in the morning, and he was about done. . . Also, he believed, something had been going on

in the night. He had heard clattering feet on deck above the cabin. There had been much hooting. . . The Captain had not come down to dinner last night. Well, they seemed to be all right at present—shovel away, shovel and sweat.

Then the whistle sounded, muffled but urgent—One—Two—Three—Four—Five—My God! *Six!* A submarine—a torpedo—steam! He looked at the other man. The other man was shovelling harder than ever—all he had said was "Struth!" Sir Henry was still shovelling, shaking all over, but shovelling and thinking—madly. "Damned fool—what the hell am I doing here?—can't go up now—can't go up on deck—all very well on deck—all very well—quite calm to-day, launch a boat easily—soon picked up. Down here—torpedo—steam—drowned among the coal—caught on the ladder, perhaps—hell!—can't go up now—taken the job on. What will the Government say? Never know, perhaps. After all—Government servant—valuable life—no right to throw it away. Not my own life—steam—steam. My God! . . ." Sir Henry looked at the other man. The other man had his back to him—he was still shovelling. Sir Henry put his foot on the ladder and looked up. . . Far away he saw the daylight. Sir Henry went on deck.

—*Land and Water.*

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1. Questions to be numbered and written on one side of paper only, and not to exceed four in number.

2. All questions must be accompanied by the full name and address of sender, which is for reference and not for publication. Answers will be published under any initials or nom-de-plume selected by the questioner.

W. E. Dawes, Tutmut.—(1) To the best of our knowledge the Victoria Cross was awarded to only one member of the Australian Flying Corps during the present war, *viz.*, Captain Frank Hubert McNamara (No. 1 Squadron). This officer is a native of Caulfield, Victoria, and is now on the instructional staff of the Central Flying School, Point Cook. His decoration was won in 1917. (2) The Victoria Cross was awarded to the following officers of the Royal Flying Corps and Royal Air Force: *Captain Albert Ball, D.S.O. (2 Bars), M.C., 1917; Major William G. Barker, D.S.O. M.C., 1918; Lieut.-Col. William Avery Bishop, D.S.O. (Bar) M.C., D.F.C., 1917; Lieut. Gilbert S. M. Insall, 1915; Lieut. Alan Jerrard, 1918; *Capt. John A. Liddell, 1915; *Major James Byford McCudden, D.S.O., M.C., M.M., 1918; Lieut. Alan Arnett McLeod, 1918; *Second Lieut. W. B. Rhodes-Moorhouse, 1915; Capt. A. W. Beuchamp-Proctor 1918; *Capt. William Leefe Robinson, 1916; Capt. Ferdinand M. F. West, M.C., 1918. It should be noted that the R.A.F. and R.F.C. included many officers from the overseas Dominions. (3) The Distinguished Flying Cross (1918-D.F.C.) was designed for bestowal upon officers in the Royal Air Force for acts of gallantry when flying in active operations against the enemy. The Air Force Cross (1918-A.F.C.), recently awarded to Hawker, was insti-

* Denotes killed in action or died in enemy hands.

tuted for bestowal upon officers in the Royal Air Force for acts of courage or devotion to duty when flying, although not in active operations against the enemy. The Distinguished Flying Medal (1918-D.F.M.) and the Meritorious Service Medal (M.S.M.) for warrant and non-commissioned officers and men for equivalent services as for D.F.C. and A.F.C.

C. W. Martin, Dubbo.—The Suez Canal was opened in 1869. Total length, 99 miles; width, 121 ft. 5 in. (37 metres). In 1875 the British Government purchased from the Khedive of Egypt 176,602 shares at a cost of £4,000,000. On March 31st, 1915, these identical shares were valued at £29,993,000. The cost of constructing the canal (including enlargements) was £24,000,000.

CAPTAIN WATSON INDISPOSED

It is with regret that we announce the illness of Captain James H. Watson, J.P., F.R.A.H.S., whose contributions "Ships That Have Passed" and "The History of the Orient Line" have won him numerous friends among readers of this journal.

On retiring from active association with Messrs. Beard, Watson, Ltd., of which firm he was one of the early founders, Captain Watson turned his attention to collating a reference library on all matters concerning the mercantile marine, and probably no historian in the Commonwealth possesses a wider or more accurate knowledge of the subject.

"I have been ordered into dock," he writes, "to have my boilers overhauled." Captain Watson adds that the first of his new series of articles dealing with the Aberdeen White Star Line (which we had hoped to publish in this issue) will be available "as soon as the port officials have granted *pratique*," which we may interpret as "as soon as his medical adviser permits."

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