

QUESTIONS AND ANSWERS

Under this heading the Editor will be pleased to reply to any questions within the scope of the magazine, provided the following conditions are observed:—

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 All questions must be accompanied by the full name and address of sender, which is for reference and not for publication.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.

"Wireless" (Balmain).—*Question 1: Is an ordinary receiving valve powerful enough to transmit over a distance of 1,000 yards; and will a battery of dry cells be sufficient to supply the plate current?*
 Answer.—Yes.

Question 2: Will the circuit illustrated receive if I short the microphone Y and insert telephone at Z; if not would a separate crystal receiving set do to receive speech?

Answer: Yes; and crystal receiver is also serviceable to receive speech.

Question 3: What plate voltage will be required for both transmitting and receiving?

Answer: This depends on type of valve used. "V 24" receiving 24-30 volts, transmitting 100-300 volts; "Q" receiving 160 volts, transmitting 200-300 volts.

Question 4: Can you supply suitable dimensions for the coils L and R?

Answer: Dimensions depend on wave length it is desired to use. Coil "R" should have 50% to 75% inductance of "L."

H. Banks (Mosman).—*Question: How far should an aerial of two or more wires be separated, and what difference is made by having more or less wires in an aerial?*

Answer: In a multi wire aerial wires should be spaced as widely as conveniently possible, generally two to four feet. An increase in the number of wires increases the capacity but reduces the inductance.

"Incidence" (Victoria).—*Question: I am very interested in aviation and would like to obtain a position in connection with that work, preferably on the engineering side. Will you advise me what opportunities there are of obtaining such a position in Australia?*

Answer: We suggest that you communicate with the Air Board, Melbourne, or with some of the civil aviation companies in Australia.

PERSONALITIES

Captain P. W. Engelback, who is keenly interested in amateur wireless, recently arrived in Sydney from London. Before leaving London Captain Engelback was given authority by the Wireless Society of London to discuss the matter of affiliation with the Wireless Institute of Australia. He will therefore discuss this matter with the Council of the New South Wales Division at an early date.

Mr. George Apperley, of the experimental and research department of Amalgamated Wireless (A'sia.), Ltd., was on April 16 presented by the staff with

several handsome presents on the occasion of his retirement from the Company. Mr. Apperley has joined the Radio Service of the P.M.G.'s Department.

Mr. D. N. Quinn, wireless officer of Amalgamated Wireless (A'sia.), Ltd., left Sydney in the steamer *Wandilla* bound to New York. During the voyage across the Pacific he took ill and on arrival at Colon, Republic of Panama, entered hospital ashore and was operated on for appendicitis. He returned to Sydney last month in good health again, ready for another voyage.

"SEA, LAND and AIR"

THE AUSTRALIAN NATIONAL MONTHLY

— OF —

TOPICAL INTEREST

EDITED BY S. E. TATHAM.

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The Editor will be pleased to receive, for consideration, contributions on Aviation, Wireless, the Navy, Mercantile Marine or other subjects within the scope of *Sea, Land and Air*. All MSS., photographs, drawings, etc., submitted must bear the sender's name on back and be accompanied by postage stamps for return if unsuitable. Although every care will be taken of all contributions received, no responsibility is accepted.

All business communications should be addressed to

THE MANAGER, THE WIRELESS PRESS, 97 CLARENCE STREET, SYDNEY.

All Editorial communications should be addressed to THE EDITOR, *Sea, Land and Air*, 97 CLARENCE STREET, SYDNEY.

Sole European Agents: THE WIRELESS PRESS, LTD., 12 AND 13 HENRIETTA STREET, LONDON, W.C. 2.

Sole Agents for United States of America: WIRELESS PRESS INC., 233 BROADWAY, NEW YORK. Singapore: KELLY & WALSH.

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SEA LAND AND AIR

AUSTRALIA'S
NATIONAL
MONTHLY

VOL. IV.

JUNE 1, 1921

No. 39.

EMPIRE DAY, founded almost twenty years ago in recognition of the power of the British race and the British flag in all parts of the world, has always been observed and celebrated throughout the British Empire each year on May 24, the birthday of the late Queen Victoria. That particular day was selected as a tribute to the expansion of Britain and British influence overseas during her long reign.

Empire Day was first celebrated in Australia in 1905, and has been regularly observed each year since, particularly so among the rising generation of Australia—the school-children.

The foundation of Empire Day stands for "Liberty" and "Peace," and means something very important to us since the World War of 1914-18. Australian interest in Imperial Unity is quite clear, in fact was demonstrated during the great war, when almost half a million Australians voluntarily went to the assistance of the British Empire; the tremendous ovation accorded His Royal Highness, the Prince of Wales, during his visit to the Commonwealth; and the great loyal and patriotic demonstrations held in Sydney recently subsequent to seditious utterances and disloyal meetings among a certain section of the community.

Those events bear out the fact that the loyalty and enthusiasm of Australia has been firmly established beyond dispute.

Our responsibilities, however, do not now cease. There is always a likelihood of agitators who, although living under the

liberty and protection of the Union Jack, are apt to advocate a policy against the Empire, and we must always be prepared to quash such people. The Australians who made the supreme sacrifice for the liberty that we enjoy to-day must not be forgotten.

The British Empire has the reputation of being an Empire of "Peace" and "Justice," and every true Australian must help towards maintaining that reputation, and there is no doubt that it will be maintained from all directions.

We have pleasure in presenting articles dealing with "Empire Day—and what it means" from various view-points by:

Major-General Sir Charles Rosenthal, K.C.B., C.M.G., D.S.O., well known in the Australian Imperial Force, who deals with the Military side of the question;

Commodore J. S. Dumaresq, C.B., C.V.O., R.N., Commodore commanding His Majesty's Australian Fleet, the Naval side, and

W. Scott Fell, Esq., who convened the great loyalist meeting recently in Sydney, the citizen's side.

It's our flag, and our Empire, and as part of such we believe that every true Australian will be a staunch supporter of the British Empire and the British flag at all times.

As Robert Burns wrote:

"Be Britain still to Britain true,
 Among oursel's united,
 For never but by British hands,
 Maun British wrangs be righted."

EMPIRE DAY—AND WHAT IT MEANS

BY

COMMODORE J. S. DUMARESQ, C.B., C.V.O., R.N.

"One life, one flag, one fleet, one throne,
Britons, hold your own."

—Tennyson.

WE are all to-day thinking great thoughts—of our race and Empire, in the past, in the present, and in the future. Let us realise that an Empire is judged at all times, and either justified or damned not by its magnificence or power, but by its civilising influence, and we must all see that no apathy, no wanton spirit of aggrandisement on the part of any one of us brings discredit on our Empire. During the last few years we have been challenged to mortal combat by an Empire that did not realise the higher obligations of Empire, one to whom it meant nothing but the production of selfish power. We bent and braced ourselves to the blast and came through, and there are probably few in Australia for whom some near and dear relation did not lay down his life in order that we may carry on their ideals of Empire.

It may not be that all Navy League Sea Scouts will join the fraternity of the sea. But those, and they are many, to whom the call of the sea is so strong that they cannot resist it, will have a future proportionate to the determination to work at the profession and succeed in it.

I do not promise that great wealth will be acquired by going to sea, but a real man's life will be led, and should those who go to sea find a

sailor's grave, that is a real man's end.

Select your line in life, and without swerving, pursue it steadily. I hope that for many it will be the sea, which is a natural heritage.

Even as men have the instinct to rise in life, so also have Nations to rise in the world. Nations, like men, are not perfect. Some critics of our Empire will say that it has risen by unworthy actions, following selfish motives. This is easily proved to be untrue, but I would point out that in examining past history—though right is always right and wrong is always wrong—past actions must be judged by the light of past days and of past conditions.

Our Empire does not stand for Naval or Military domination, despotic force, aggression, or curtailment of liberty. It stands primarily for peace and Christian civilisation, and by God's grace and our own efforts will continue to do so. We hold in our hearts the knowledge that in the light of his-

tory, read on the grand scale, the world does not know, and never has known, so potent an instrument of civilisation as the British Empire.

In the present stage of the development of the human race, our far-flung sea Empire cannot hold together, that is to say, it cannot exist without maintaining sufficient sea power.



Commodore J. S. Dumaresq, C.B., C.V.O., R.N.,
Commodore Commanding H.M.A. Fleet.

There are three general reasons why sea power is necessary for the existence of Australia and the Empire.

Firstly—to enable Statesmen to guarantee a livelihood to the masses of the agrarian and industrial population of the Empire by arranging for a fair share of access to the world's primary resources, for without these resources and markets the community will not have sufficient work, or wages.

Secondly—to guarantee the safety of the ocean highways and by-ways for sea-borne traffic; for without this guarantee the markets and supplies of resources would be precarious.

Thirdly—to guarantee immunity from invasion and ensure the sanctity of our homes.

The cement which binds together the constituent stones of which this Empire is built is sea power, comprising both an efficient Navy and an efficient Mercantile Marine, rests ultimately on the sea-spirit of the people. The race or nation which lacks the sea instinct cannot hope to have either an efficient Navy or an efficient Mercantile Marine, but Australians have this instinct deep in their blood and it cannot be eradicated, though it requires development and bringing to light.

The Navy League Sea Scouts are each helping to develop in Australia the unquenchable sea spirit of our race which is the basic life-force of this Empire.

(Signed) J. S. DUMARESQ.

May 25, 1921.

THE ORIGIN OF THE UNION FLAG.

The original National Flag of England was the banner of Saint George, to which the banner of Saint Andrew was united in pursuance of a Royal Proclamation, dated April 12, 1606.

Union with Scotland.

On March 17, 1706-7, the Lords of the Committee of the Privy Council ordered the Kings of Arms and the Heralds to consider of the alterations to be made in the Ensigns Armorial, and the conjoining the Cross of St. George and St. Andrew to be used in all Flags, Banners, Standards, and Ensign at sea and on land.

On April 17, 1707, the Queen and Council opened a report from the Lords of the Privy Council, who were attended by the Kings of Arms and Heralds with divers

drafts prepared by them relating to the Ensigns Armorial for the United Kingdom and conjoining the Crosses of St. George and St. Andrew pursuant to the Act for uniting the two kingdoms, was pleased to approve of the following particulars, that the Flags be according to the draft wherein the Crosses of St. George and St. Andrew are conjoined.

Union with Ireland.

On November 5, 1800, the King in Council was pleased to approve the report of the Committee of the Privy Council, that the Union Flag should be altered according to a draft drawing in which the Cross of St. George be conjoined with the Crosses of St. Andrew and St. Patrick, and which is thus described in the Proclamation issued on January 1, 1801.

EMPIRE DAY CELEBRATIONS

BY

MAJOR-GENERAL SIR CHARLES ROSENTHAL, K.C.B., C.M.G., D.S.O.

EMPIRE DAY celebrations for 1921 have passed, and perhaps never since the inauguration of this day in Australia, some seventeen years ago, has there been such a spontaneous recognition of "Empire and all it stands for."

Various reasons may be assigned for the increased enthusiasm of this year. Recently events in our own city and State have stirred the apathetic among our people, and a fuller appreciation of the privileges and responsibilities of European citizenship is being awakened.

Who will deny that such an awakening was urgently needed? Then again, the Empire Day celebrations just passed are the first since the return of all our A.I.F. soldiers. Our troops' return to Australia has been extended over a long period, but now our men are all repatriated, and are taking up civil life again.

Of all our fighting forces, over 250,000 have returned to Australia, and as a result of their experiences abroad have a much fuller and wider conception, as well as appreciation, of the British Empire.

While fighting during the great war just terminated, our Australian soldiers not only learned to think in terms of "Australia," rather than in terms of States, but fighting side by side with troops from Canada, New Zealand, Newfoundland,

South Africa, and other parts of the Empire, as well as with those from England, Scotland, and Ireland, they built up a magnificent brotherhood and a comradeship which will never be forgotten.

Is it, therefore, strange that these men on return to their homes, should genuinely feel they are part and parcel of the Empire, part of its flesh and blood, and part of its strength?

Is it to be wondered at that these same men, through their relatives, are capable of, and indeed are doing, much to educate those who had not the privilege of participation in the great war, and, therefore, had not the attendant advantages which follow in the train of such service.

Our great Flag stands for all that is best in national life. It represents untold sacrifices by our Statesmen, our Army and Navy, and our own people. Our heritage to-day as citizens of the greatest Empire

the world has known, is all the greater because its foundations are laid deep and true.

May we all do our share to further the efforts of those who lead us, and while accepting the privileges of citizenship, see to it that we do not shirk our responsibilities.

(Signed) CHARLES ROSENTHAL.
May 25, 1921.



Major-General Sir Charles Rosenthal,
K.C.B., C.M.G., D.S.O.

EMPIRE DAY

BY

W. SCOTT FELL

ON July 21, 1902, a cablegram appeared in our daily Press which read as follows:

"The Earl of Meath has suggested that an Empire Day holiday be observed."

That was the genesis of the movement which has since operated throughout the remotest parts of our Empire. It would not be inappropriate to attempt in this brief summary an estimate of the nature, worth, and possibilities of this influence — more especially from our Australian stand-point. Australia fell into line in the observance of the birthday of the late Queen Victoria as Empire Day on May 24, 1905. The Earl of Meath was wise in stressing that the school children throughout the Empire should be most prominently concerned in the day's observance. The original intention and ideal may best be cited in his own words:

"I have advocated such a movement as calculated to hasten the time when the whole Empire shall be more closely bound together than at present, by drawing the attention of the next generation to questions of Empire, by giving them the knowledge which shall enable them to perceive the advantages of a closer federation, by stimulating feelings of loyalty towards their common Sovereign; and by filling their minds with an affectionate regard for their fellow subjects in other portions of the Empire."

The voluntary enlistment of more than 400,000 Australians in the recent war must be regarded as ample vindication of the policy outlined as the vast majority of the men of the A.I.F. were the lads who

had absorbed Imperial sentiment in the process of their education under the terms of the foregoing manifesto. It was a visible materialisation of the ideal and a tribute to the wise principle of Statesmanship which directed its educative appeal to the rising generation.

Essentially, in spirit and purpose, Empire is only the word Family writ large.

It stands for the sanctity, privileges, responsibilities and ideals of true home life — the difference being only in points of scale and setting. The perils of Empire are only the pitfalls of family life in microcosm. Family unity and affection is a microcosm of that far-flung allegiance which demonstrated itself in loyal service and ready sacrifice in the day of the Empire's danger. It is vital that we of the outer dominions never suffer this conception to fade. Children may establish their independence and individual interests without any defiance or denial of filial obligations. One

cannot seriously apprehend that the detested exhibition of filial ingratitude will ever express itself in Australia under the guise of blatant republicanism.

It may be retorted that these sentiments are all very fine, but there actually exists a manifest divergence between the real and the ideal. Granting this, and speaking simply as a citizen striving to state the issue in true proportion, it seems to me that even if the present state of affairs appears as a sorry caricature of the ideal



Mr. W. Scott Fell.

the fault is with our attempt at portraiture, not with the portrait. The counterfeit is in itself proof of the existence of the real. Apart from the abstract it might be stated that in the face of the true conception and meaning of Empire, there is much in our own midst which must be regarded as dangerously menacing and disturbing. The ebullitions which from time to time have been diagnosed as disloyalty might perhaps be variously defined, or at least the definitions qualified. Perhaps they amount to a policy of mistake more than to a policy of mischief. If it discomforts us less to think so there is at the same time the accompanying realisation that such mistakes are as disease germs in our educational system—I mean the education of healthy public opinion and sentiment regarding British citizenship. It is folly to under-rate the danger of a communicable disease. Mistakes inevitably tend to mischief, and the patient not aware that he suffers from disease, is doubly dangerous. Unconscious disloyalty is none the less disloyal—but more so. Australian loyalty to the Empire has been proved beyond all words and demonstrations, yet, I maintain there exists in Australia an inconsiderable but not the less dangerous element which is nakedly and unashamedly disloyal to the Throne, the Flag, and the Empire. I hasten to place on record beside this my own opinion, that this same element is extraneous, foreign, and imported to our shores. Many noxious weeds which are a veritable curse to the man on the land were inconspicuously introduced and at first caused scant anxiety. Similarly we may be able to account for disloyalty and complacently flatter ourselves on the overwhelming evidences of

true loyalty, nevertheless our duty is too clear—we must transmit a heritage freed from curse and stain to our children's children. To do this we must eradicate disloyalty on every showing.

In Australia we are fundamentally and finally dependent upon the Motherland. The Empire's first line of defence is the "reason why" of our security and stability. The British Navy explains our inviolate coasts. Our primary production, industrial development, and mercantile activity on sea and land has grown to present proportions by the aid of the Empire's protection, sponsorship and financial reciprocity. This has been something wonderfully different than the relation between patron and dependent; there has been no impoverishment on the one side or mendicancy on the other, this same mutuality springing from the most sacred ties has contributed to the moulding of the mightiest Empire in the annals of history.

The flag of Empire is the symbol of freedom. As a matter of fact in this Commonwealth our charter of self-government conveys a liberty less restricted and giving fuller scope to true democracy than does the legislative constitution of any form of republican government throughout the world. The danger is, at this stage of our development, that under our Magna Charta of Liberty, we abuse our privileges. No individual, party, faction, or sect, has warrant to exploit idiosyncratic schemes and ignore the responsibility of loyal cohesive citizenship to bear the common woe and help the common weal.

(Signed) W. SCOTT FELL.

May 25, 1921.

PERSONALITIES

Mr. E. T. Fisk, Managing Director of Amalgamated Wireless (Australasia) Ltd., left Sydney on May 14, for a business trip to England and the continent of Europe, per the R.M.S. *Orsova*.

On the eve of his departure Mr. Fisk was the guest at a luncheon given in his honour by the departmental managers of the Company.

Captain Gordon C. Wilson has joined the staff of the Australian Aircraft & Engineering Company, of Sydney.

Mr. Frank Bignold was re-elected President of the Sydney Press Club last month.

Captain V. P. Taylor, the well-known Australian aviator is now in San Francisco.

CURIOUS TALES OF ABORIGINAL OCCULTISM

BY

KAE MacDOWELL

THE Australian aboriginal of the far interior is probably one of the most superstitious beings on the face of the earth. He is enwrapped in superstition from the day of his birth, when a black line is often painted over his eyebrow in order to ward off sickness, to the day of his death, when amongst some tribes the whole camp is immediately shifted lest the inhabitants of it inadvertently meet his ghost. Spirits he believes to be everywhere, and his medicine men, wizards and witches keep him constantly posted in the curious and rather terrifying doings of the other world. Every Australian black has several spirits of his own—sometimes as many as four, one being his soul proper (shall we say), one his dream spirit, one his shadow, and one his animal spirit. His dream spirit is the most troublesome.

He also believes in mediums through whom the spirits of the dead speak, on occasion in a shrill whistling voice; and the medicine-man who can produce, from open ones, sometimes for initiates only. At these seances the spirits of the departed are supposed to speak to those they liked best on earth, and there is often very keen rivalry amongst the mediums for the privilege of spokespersonship. Material manifestations are then resorted to, and the medicine-man, who can produce, from apparently nowhere, the largest number of magic stones, is recognised as the most powerful. Sometimes quite a shower of crystal pebbles is made to fall over rivals. These stones, by the way, are very precious, and a bequest of some of them from a dying wizard to a disciple is regarded as a mark of high favour.

Our aboriginals are firm believers also in reincarnation—the spirits of the dead being always on the watch for a couple who appeals to them in a parental light.

Professor Baldwin Spencer tells many quaint tales of exciting encounters between mythical folk and the tribes.

One is of two brothers, of ogre variety, called Oruncha, who are supposed to inhabit certain places where it is decidedly

unwise for natives to wander in after dark. One day the elder brother set out to hunt a kangaroo, but the rain presently came down in torrents, and both pursuer and quarry were soon bogged in the mud. Every time the ogre strove to extricate one leg the other would sink deep into the mire.

Eventually, however, he got out—only to find that the kangaroo had got out before him, and had been killed by a man and his dog at a little distance. Realising that all his trouble had been in vain, the ogre was very angry, but controlling himself, he only said to the man: "Hallo, you've killed my kangaroo." The man's rather inane reply, "Yes, I have," apparently annoyed him still more, so he called over the innocent dog and slew him with his yam-stick.

This roused the black man and a fight ensued, in which he soon found that he had met with more than his match. Every time he planted a well directed blow at his enemy's head the ogre disappeared into the earth—to come up with a taunt at a little distance. Having played with his victim thuswise to his heart's content, the ogre slew him, took out his entrails and ate them, and did the same with the dog.

After that the ogre proceeded to smoke-dry the bodies of the man, kangaroo and dog, and then placed them in a tree till they should be wanted. His brother, when he told him the story, on his return to the camp, went off to get the bodies—desiring to hold a feast. But the man's friends, who had by this time tracked the ogres to their camp, suddenly attacked them, intending to kill, and the ogres had to resort again to their disappearing tricks. It was not until two shrewd blacks hit on the idea of hiding behind a bush and spearing the ogres through their backs that they had any success at all. Then, thinking they had slain them, the tribesmen went on their way rejoicing.

They had not gone far, however, when a growling sound assailed their ears and, on returning, they discovered that the hearts of the ogres had jumped out of their

bodies and were still alive, and were growling because they were very angry.

The training necessary for the qualification of a medicine man or wizard doctor is usually very severe, and varies considerably with the different tribes. Mrs. Parker, who has made a close study of the Eualayi people, found there that the old wizards decide which of the young boys will follow in their footsteps. The initial step is to take a suitable lad and leave him all night in the tribal burying ground—having tied him down and lighted some fires at a short distance around him. One "doctor" gave her a detailed description of his experiences.

First of all, he said, a spirit visited him and, without unbinding, turned him over, then went away. Then a great star fell straight from the sky to his side. From it presently emerged an iguana which would not, of course, hurt him. It merely climbed over him and disappeared.

Next to the student of occultism came straight for his nose. This frightened him badly, because the snake is the enemy of the iguana. He tried to free himself but could not; tried to call out, but found himself dumb; tried to shut his eyes, but was powerless. The snake crawled over him and licked his body—then it too went away. Afterwards a huge figure appeared, bearing in its hand a yam-stick, which it drove into the boy's head, dragging it out again through his back. In the hole thus made it placed a sacred stone about the size and shape of a lemon and looking like a semi-transparent crystal. It is in these stones that the highest class wizards claim to be able to discern the past, present and future. The direct rays from them will, they believe, cause instant death to an enemy.

Next to the student of occultism came the spirits of the dead "who corroborated round him, chanting songs full of sacred lore as regards the art of healing, and giving instructions how, when he needed it, he could call upon their aid."

When day came the wizards returned and released the boy, tying him up again at nightfall in a bower-bird's playground—the belief being that the bower-bird, an inveterate collector of pebbles and bones, is the reincarnation of a very great wizard and would, therefore, teach him something.

For some two months the student was kept at his studies, which, as well as a

pharmacy, embraced conjuring of divers sorts.

Speaking of conjuring, the same writer tells of an old wizard who consented to show her a "manifestation" of his yunblai or familiar, which was a lizard. For her especial benefit he was dressed in a very airy and tailless shirt.

Presently he moved away to a quite clean spot on the far side of the fire; he muttered something in a sing-song voice, and suddenly started beating his head as if in accompaniment to his song, and then there suddenly appeared beside him a lizard. That fragment of a shirt was too transparent to have hidden the lizard; he could not have had it up his sleeves because they were in shreds. It may have been a pet that he charmed in from the bush by his song, but it was not seen to arrive.

This wizard, who was considered one of the greatest in the district, was a grey-beard in 1845, and had two familiars—the second being a snake. When he died they both remained beside him until he was put into his coffin, but after that they were never seen again.

Rumour states that certain blacks in Queensland have a very wonderful magic stone. Only the very privileged are allowed to gaze upon it. In the dark it glows like a star, though by daylight it looks only like a great drop of dew. This stone, the natives aver, has to be very closely guarded, as the devil that lurks within can move it from place to place at pleasure.

One of the most curious stories told by Mrs. Parker is about an old witch-doctor named Bootha who most certainly seemed to have a considerable gift of diagnosis and healing, which she did not acquire until she was over sixty.

It began with the death of her favourite grand-daughter, and in her grief Bootha knocked herself about, especially about the head, in a terrible manner. Then she isolated herself and discarded the clothes she had been accustomed to wear about the station. Later she became quite mad, dancing, corroborating and muttering in a strange language. Occasionally she was rather terrifying, though the other blacks said she was all right and the spirits were looking after her. After a time she clothed herself again, and strange tales began to filter through the house-blacks to the white folk.

After a long illness, old Bootha suddenly recovered and made wonderful cures amongst the sick—consulting the spirits, some of whom were actually in her dogs, for their benefit. From being a healer and rain-maker she became a recognised witch-doctor. Curious to see some of these "cures," Mrs. Parker persuaded the old woman to go up to the station when anyone was ill. For instance, one *matah* was lame and suffering much pain in his knee. After seeing it, Bootha sang a song to her spirit, then said: "Too much water there; you steam him, put him on hot rag; you drink plenty cold water, all like dat go."

A white doctor, passing a few days later with an assurance agent, was then consulted.

"Yes, yes," he said, "hot fomentations to the place affected, poultices, a cooling draught. There's a stoppage of fluid at the knee-joint, which must be dispersed."

A more spectacular example of Bootha's powers was given in regard to a young white girl staying at the station, who was taken ill suddenly and apparently mysteriously. The old woman asked to see her and, thinking it would at any rate amuse the patient, she was allowed in.

She went straight up to the girl and told her she would ask the spirits what was the matter and what would cure her. Then she proceeded to clear for herself a space free from furniture in the centre of the room. On this spot she squatted down, muttering incantations. Presently her natural voice ceased and from beside her came a peculiar whistling voice, which she interrogated. This went on for some

time, the whistling voice coming from various directions. Bootha was having difficulties with the spirits. The first and second she invoked could tell her nothing; the third, whom she said was that of a black girl, Guadgee, who had died a few years previously, proved more obliging.

Guadgee told Bootha that the patient had offended the spirits by bathing in the creek under the shade of a "spirit tree," a place *taboo*. In this spirit tree were swarms of bees invisible to all but magicians. The bees as a punishment had stung the white girl, and their bites would be visible on her back.

Bootha told the girl who enquired where the "spirit tree" was and discovered that the last time she had gone down to the creek she had bathed there. "The bee-bites," she added, "must be those horribly irritating pimples I have across my back."

Having diagnosed the trouble, Bootha proceeded to prescribe a cure. The patient was ordered to drink nothing hot, nor heating, but as much cold water as she liked, especially a long drink before going to bed. Next she rubbed the patient's hands about the wrists, muttering incantations, stated that she would call again the next day and, averring that she was taking away all the spirits, departed.

Incidentally, it might be stated, the patient rapidly recovered.

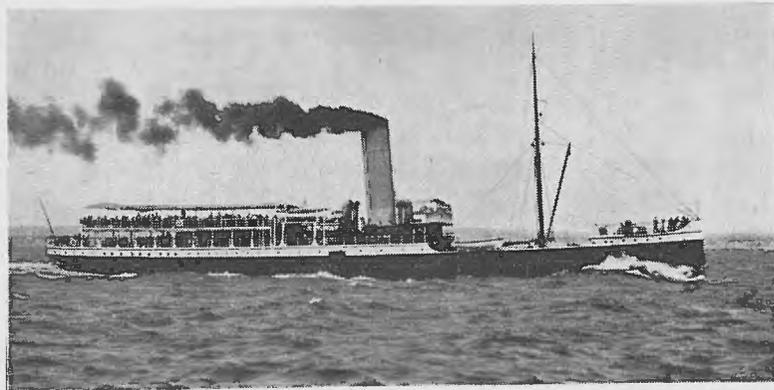
In spite of the fact that there are still some twenty thousand aborigines in Australia—chiefly in the Northern Territory and Queensland—little of their interesting folk lore is generally known, and much of what is known, very unchronicled, is in danger of being lost with the quick march of civilization.



THE LUCK OF THE "COOGEE"

BY

W. G. KENDALL



The "Coogee" as a Ferry Steamer in the Melbourne-Geelong Service.

ALTHOUGH only a small vessel of 762 gross tons, the *Coogee* has had more than her share of bad luck. Built in England in 1887 she was originally known as the *Lancashire Witch*. Later she came to Australia under the name of *Coogee* and the flag of Messrs. Huddart Parker Ltd., she entered the passenger service between Melbourne and Launceston. Her excellent turn of speed, 18 knots, was not long in earning for her the name of the Strait's Greyhound, and her entry into this service occasioned as much comment as the recent entry of the new T.S.S. *Nairana*, into the same service, is calling forth.

For some years the *Coogee* carried on her peaceful mission without any event of much moment occurring to attract attention, but suddenly she sprang into the limelight, unfortunately, under the most distressing circumstances. Her star of ill-luck was just rising.

The *Coogee* left Launceston with a large number of passengers bound for Melbourne at 4.45 p.m. on December 24, 1903. During Christmas Eve all on board were looking forward to meeting their friends and relatives in the Victorian capital and making merry. However, Fate had decreed otherwise. With engines at full speed the *Coogee* was racing across the

Straits, when at 3 o'clock on Christmas morning she ran into a dense fog. The foghorn was kept in operation and although speed was slightly reduced the vessel still travelled at a good pace. Captain Carrington had taken her across the Straits many times and knew the track thoroughly. About 4 o'clock, when the vessel was about 72 miles south-west of Cape Shanck, Captain Carrington on the bridge, there suddenly loomed out of the dense fog the towering masts of an Italian ship bearing directly upon the *Coogee*, under a heavy press of canvas. Every effort was made to avoid the impending collision, but it was too late and in a few minutes the bowsprit of the sailing ship was sweeping all before it. On the *Coogee's* bridge with Captain Carrington was a seaman named Golly at the wheel and the Second Officer. The bowsprit of the sailing vessel quickly swept the fore-castle and sent the foremast crashing down. The relentless ship swept on, carrying away the bridge and killing Captain Carrington and the seaman and injuring the second officer. Fortunately they were the only persons on deck at the time. Not content with this devastation the sailing vessel went on until the funnel, mainmast, boats and davits were levelled. The sailing vessel's yards had been backed, the impact

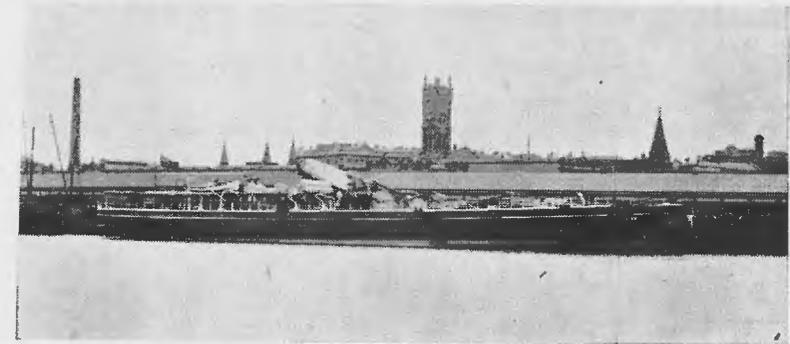
had checked her headway and she was shortly hove to alongside her mangled victim. The vessel proved to be the Italian ship *Fortunato Figaro*, of 2149 tons, outward bound from Melbourne to Newcastle in ballast. The *Coogee's* passengers were transferred to her and as the fog did not clear it was not until 28 hours later that the vessels were seen by the pilot boat outside Port Phillip Heads. Captain Davies was placed in charge of the sailer and she returned to Melbourne.

It was found that the *Coogee*, in spite of the loss of her smokestack, could still use her engines and so she proceeded under easy steam up the bay to her berth in the Yarra. There she presented a most forlorn appearance, with practically the whole of her superstructure wrecked. Examina-

tion, however, showed that the hull was undamaged. This calamity ended the *Coogee's* career as an inter-State vessel and shortly afterwards she was taken to fill an ignominious berth at "Rotten Row" in the lower Yarra, Melbourne.

The *Coogee* spent eighteen days on that bank, but, thanks to the excellent work of her builders, came off only slightly damaged. She was towed to Melbourne for repairs which only occupied about three days. Still Fate seemed to have more in store for her, for ere another day had closed she was once more a wreck as far as her superstructure was concerned.

This time the *Coogee* sailed from Geelong for Melbourne on the return trip on February 24, 1914. She was proceeding up the River Yarra to her berth when the captain saw the steamer *Bombala* swinging in the basin. Thinking there was plenty of room he tried to pass under the *Bombala's* stern. Unfortunately the attempt was unsuccessful. The stern of the How-

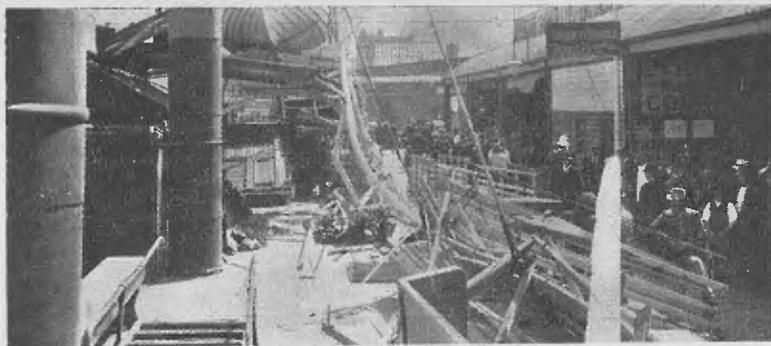


The "Coogee" After the Collision With the Italian Sailing Vessel "Fortunato Figaro" in December, 1903.

tion, however, showed that the hull was undamaged. This calamity ended the *Coogee's* career as an inter-State vessel and shortly afterwards she was taken to fill an ignominious berth at "Rotten Row" in the lower Yarra, Melbourne.

Some year's later she was taken back to her usual berth and refitted. This work being completed she was placed in the ferry service between Melbourne and Geelong, but her star of ill-luck had not set, for after she had run intermittently in this service for a year or two she again met with misfortune. However this time there was no loss of life and the damage done to the vessel was only slight.

She left Melbourne for Geelong with passengers and cargo about 4 p.m. on Feb-



View of the "Coogee's" Main Deck After Collision with the Steamer "Bombala," February 24, 1914.

ard Smith liner struck the port side of the *Coogee's* bridge and the captain had hardly enough time to spring out of the way before that structure was torn from its fastenings. The way on the ferry steamer caused her to pass her full length under the overhanging stern of the *Bombala* and about sixty feet of the port side of her superstructure was wrecked. Passengers were forced to crouch close to the lower deck to save themselves from being crushed by the sagging debris. The vessel steamed to her berth and many heaved a sigh of relief as they stepped ashore. The decks were a mass of tangled wreckage. Chairs, seats and other fittings splintered into matchwood mingled with twisted ironwork on the decks, whilst iron stanchions, now twisted into fantastic shapes, seemed hardly able to support the sagging deck.

The work of repairing the damage was immediately commenced, but it was a long job and it was not until March 24 that she resumed her service. On that day she sailed from Melbourne on a trip to Geelong and when approaching her berth at the Moorabool Street pier she collided with the steamer *Uganda* anchored in the Bay. It was a glancing blow and only minor damage was done. However, these mishaps had left their mark and the ship became known as unlucky. She was shortly afterwards laid up again in "Rotten Row" and remained there until called upon to do her share in the Great War. She mounted a gun and took up patrol work around the coast. She has since been handed back to her owners and is now lying in the Yarra awaiting further service, when it is hoped "the luck of the *Coogee*" will take a turn for the better.



WATERS OF ADVENTURE

BY

FRANK REID.

Since Captain Cook navigated his frail craft through the island-studded waters that lie between the Great Barrier Reef and the North Queensland coast, they have been sailed by many ships.

Lured by the prospects of the subterranean wealth below the surface of the coral seas, pearl-seekers and adventurers of various nationalities came to the far North, and in their frail luggers sailed out in quest of diamonds of the sea. These men, at the helms of the craft forming the pearling fleet needed qualifications which no study of books or examinations could impart. The test of their skill was to bring their boats back to safety in the teeth of a cyclone, often in uncharted waters. A life experience gave them a useful knowledge of the moods of the Barrier waters and the weather, their own and the lives of those in their charge depending on that knowledge. Many of these men were desperate, unscrupulous characters; men ever ready with the knife, and who thought little of spilling blood, stealing a pearling lugger or, single-handed, engaging in battle a dusky crew who had revolted.

There was Wilkinson, a well-known beche-de-mer fisherman, who was working near the Barrier Reef with a crew of blacks, some of whom, aborigines of Cape York, had been at work with him for nine years. He was returning to Thursday Island to lodge a complaint against some Manilamen, who had, the month before, enticed four aboriginal women belonging to his own men on board their ship and sailed off with the females. Wilkinson had thereon sent a written complaint to the magistrate of Thursday Island by a pearling boat which was just returning and, as nothing came of this first step, he resolved to intervene personally, hoping thereby to effect punishment of the culprits.

When his lugger was sailing along with a good wind, and he had just been giving some orders about the setting of the sails and was in the act of lighting his pipe, he suddenly felt a violent blow on his neck, which nearly took away his senses. He imagined himself hit by a falling sail-

yard and, turning round to look, found himself assailed by several blacks and he just had time to evade a tomahawk thrown at him. The moment after, however, he received a terrible wound from a three-pointed fishing-spear, which hit him below the right eye, laying it bare, and tearing the skin of the cheek to pieces. He pulled out the spear, but was, however, too exhausted to offer any resistance when the blacks took hold of him, pulling him to the side of the boat to throw him overboard. He then pleaded, reminding the men how he had always taken care of them, and promising to do everything in his power to restore their women to them.

Instead of the blacks listening to his assurances they tried to lift him up and throw him into the sea. At this moment his clothes gave way and tore, causing him to fall into the hold, where his loaded Winchester rifle was hanging. He instantly fired several shots into the crowd, who, without losing any time, jumped into the water. Now the tables were turned! The blacks implored to be taken on board again, the nearest land being about 30 miles distant. Wilkinson, however, rescued the only black woman who had been on board, and then continued his course without paying heed to the entreaties of the others.

It took the injured man several days to reach Thursday Island. Unbandaged as he was, he had grown so weak that the black woman had to steer the ship and set the sails while he lay helplessly prostrate. Dr. Salter, of Thursday Island, performed a plastic operation on the damaged cheek, covering the wound by a piece of skin derived from the patient's arm. Naturally, the man remained terribly disfigured, besides suffering considerable loss of strength. From that time onwards he gave up working with black crews and secured work on shore.

Another well-known identity in the Barrier Reef waters some years back was Bob Samoa. When I first met him he was about 45 years of age, not very tall or stout, in fact unlike his great burly

countrymen, the Samoans. He was born on the island of Savaii, but ran away from home at an early age. He settled down in Tahiti, but subsequently visited Fiji and for many years lived there. It was here that he met Captain "Bully" Hayes. He spent two years with the South Sea buccaneer. At one island Hayes wished to have some repairs done to his vessel, and employed a German carpenter living ashore. This man, not knowing Hayes, engaged willingly to do the work. Bob Samoa knew the carpenter and warned him. The German was now on his guard, but he decided to do the work. He beached the vessel at spring tide on a bank where she could only be got off at the return of the same tide many days later. Hayes suspected nothing, and the vessel was beached, but after the work was done the carpenter asked the buccaneer for his money. Hayes replied that he would pay what was owing for the repairs as soon as his vessel was afloat. Many days had to elapse before that time, and the constant application of the quiet, patient German had its effect, and Hayes paid the money.

While returning to Tonga, Bob was told by a countryman that a warship was in quest of "Bully" Hayes and himself, and if caught both would be hanged for deeds of violence done at Fiji before leaving. Therefore he and a native climbed over the stern of Hayes's boat one midnight when all the others were asleep, and steered away in a whale-boat for a distant island where they never hoped to see "Bully" again. Hayes got to know of their whereabouts from one of the missionary schooners, and at once ran down, to find the boat pulled up in front of the chief's house, and saw the natives quite at home, shamming sleep. They were placed in irons and both were taken on board Hayes's vessel. Bob was soon restored to favour, but the native was kept in irons for many days.

Eventually he left Hayes and settled down at Cooktown where he secured employment with the pearling fleet. On one occasion, when under the influence of liquor, he sallied forth from his lugger to the port of Somerset. Having secured an old crosscut saw he was now supreme and had the settlement in charge. The entire police force were called out to take the wild Samson in charge, but none would go near him. Bob backed into the sea and

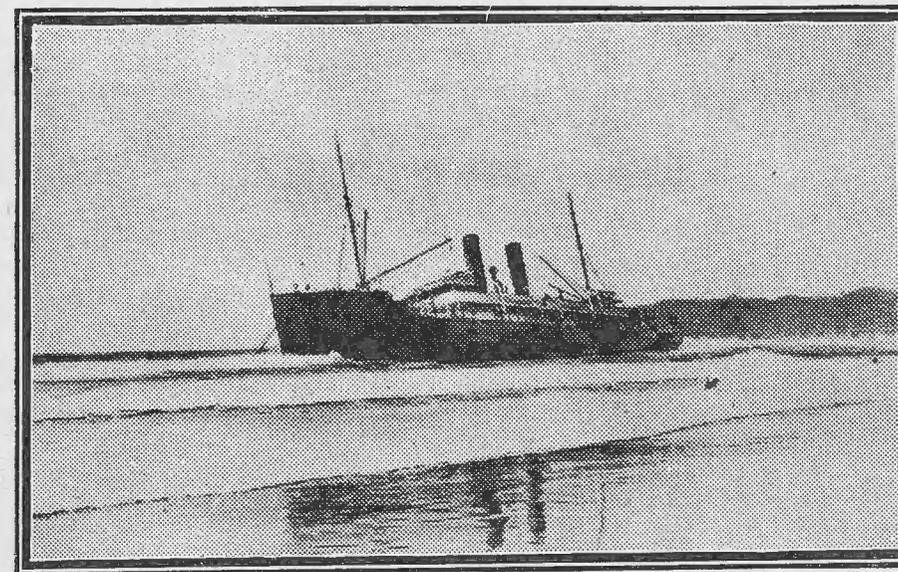
swam to his lugger. Until he was converted by the late James Chalmers, the Samoan was one of the most dangerous characters who ever sailed in the waters within the Great Barrier Reef.

Another well-known character in these waters was "Yorkie," the hero of Banfield's "Confessions of a Beachcomber." Although I was intimately acquainted with "Yorkie" when he had a beche-de-mer camp on Hook Island, I never learned his name. He rarely referred to his past life, but on one occasion he told me how he lost his left arm. Fishing on the Barrier Reef for beche-de-mer his native crew revolted and threw him overboard. Before he reached the water his arm caught in the anchor chain, and he hung suspended for several hours. He endured agonising pain and listened to the aboriginals on deck, who, having secured a cask of rum, were indulging in a drunken orgy. At last he managed to release his arm, and climbing up the anchor chain to the deck, found the blacks asleep. He calmly proceeded to throw each of them overboard, and then, despite his injured arm, he sailed his lugger to Townsville. Arriving in port the limb had to be amputated.

One of the most pathetic stories connected with the waters within the Barrier Reef was the fate of Mrs. Watson on the Horwick Islands several years back. Her husband had a beche-de-mer station on Lizard Island, and during his absence, when she, her baby and two Chinamen alone remained on the island, the place was attacked by blacks. One Chinaman was killed by spears, but Mrs. Watson drove off her assailants by using firearms and with her infant and the surviving Chinaman, put out from Lizard Island in half of an iron tank, surely the least seaworthy craft ever voluntarily launched. The tank drifted on to one of the Horwick Isles where the fugitives died from thirst. Mrs. Watson and the baby passed their last moments in the tank, in which their bodies were found. The Chinaman died a few yards away. The tank can be seen in the Brisbane Museum, and to the memory of the heroic woman a monument was erected at Cooktown.

With the exception of "Bully" Hayes, Nicholas Minister, better known as Nicholas the Greek, who recently died at Thursday Island, was probably the best-known character in Barrier Reef waters. (Continued on next page.)

STRANDED STEAMER "WOLLONGBAR"



(Block courtesy Sydney "Daily Telegraph.")

The North Coast Steam Navigation Company's popular steamer *Wollongbar* was, during a gale, blown ashore at Byron Bay, New South Wales, on Saturday, May 14.

Previous to the mishap the *Wollongbar* was moored alongside the jetty at Byron Bay and had almost finished loading cargo preparatory to sailing for Sydney. Accompanied by heavy seas an easterly gale sprang up and the hawsers holding the steamer carried away and she was swept ashore.

There were no passengers aboard at the time, and the whole of the crew were landed without mishap. The value of the cargo on board was valued at £70,000.

Immediately on receipt of the news the owners of the vessel communicated with the underwriters and salvage gear was despatched without delay, and most of the cargo has been recovered.

The *Wollongbar* is Sydney's fastest coaster and gained this reputation by her remarkable steaming performances on the coast.

Built at Troon, Scotland, in 1911, she is a steel steamer of 2,005 tons and specially designed for the Byron Bay passenger and cargo trade.

At the time of going to press the possibilities of refloating the vessel were good, providing the weather remained calm.

WATERS OF ADVENTURE—(Continued)

Minister fished for pearls and trepang from boyhood and made several fortunes. His adventures would fill a bulky volume. He has been wrecked, marooned, and half-killed by savages. On one occasion he was attacked by his crew, but unknown to the

natives he carried a revolver, and single-handed exterminated the crew. Some years back I met him at Samarai, and he showed me his back and head which was covered with hideous scars. Nicholas always referred to these as mementos of the past.

JAPAN

BY
H. H. JOHNSON.



Buddhists' Temple at Nara, Japan.

Nara is one of the ancient capitals and a big religious centre of Japan.

THE early inhabitants of Japan called it Yamato, but in the seventh century it became known as Japan, or Nippon, both terms being derived from *Jih-Pen*, i.e., "The source of the Sun," the name given by the Chinese to the country which lay to the East of their own, and over which the sun rose.

Japan is an Empire in Asia, consisting of a long chain of islands extending from 51° to 22° Northern latitude, and from 119° to 156° East longitude, with a total length of about 2,400 miles.

At the North the Empire comprises: the Southern half of Sakhalin Island (South of 50° North), which was restored to Japan from Russia by the Treaty of Portsmouth, in 1905, after the Russo-Japanese War, and

Yezo, separated by a narrow Strait (bearing the familiar name of La Perouse) from Sakhalin. Japan proper, including Hondo, the main island, Shikoku and Kinshiu (separated by the Strait of Korea from the continent of Asia), the Loo-Choo Islands, Formosa, or Taiwan, divided from China by the Formosa Channel, and Korea, annexed in 1910 and re-named Chosen. The Bouin Islands, a very small group, 600 miles S.E. of Tokyo, also belong to Japan.

In 1905 Russia, with the consent of China, transferred to Japan the lease (which expires in 1923) of the Kwantung province, which includes Port Arthur, and Darien.

The total area, including all Japanese possessions, is 259,233 square miles. The area, exclusive of Korea, Formosa, the Pes-

cadores, and Japanese Sakhalin, is 148,090 square miles.

Japan is a very mountainous country, the only considerable plain being that of Tokyo. Asama-Yama ("san" or "yama" means mountain) is an active volcano (8,100 ft.), and south of Asama-Yama is the famous peak of Fuji-Yama (12,400 ft.), a beautiful and perfect volcanic dome, dormant since 1708. Aso-Yama, another volcano, still active in places, is remarkable for its crater, which is about twelve miles in diameter. Formosa boasts the highest mountain in the Japanese Empire, Mt. Morrison, or *Niigata* (14,300 ft.).

In such a country earthquakes are naturally frequent. In the Sanriku upheaval of 1896, 27,000 people perished. The first

Owing to frequent severe storms, and the denudation of forest lands, the rivers of Japan are peculiarly subject to floods, and deposit large quantities of gravel and sand in their lower courses. This increases the natural infertility of the soil, caused by the super-position of ash and lava over the earth. The arable land amounts to about 15% of the area of Japan, although agriculture is the chief industry.

Minerals of Japan.

Although Japan is a mountainous country, it is only moderately rich in mineral wealth, the coal produced is of inferior quality and almost exclusively bituminous. Besides coal, the Japanese produce iron, copper, petroleum, gold, silver, sul-



Another View of the Temple at Nara, Showing the Artistic Surroundings and Approach.

phur and steel, but, omitting the value of coal and copper, the aggregate value of the other mineral products is insignificant.

Agriculture.

Sixty per cent. of the people are agriculturists. Intense cultivation, scientific methods of an experimental sort, and manual labour with primitive implements, are used.

Rice is the chief crop, and the staple article of food. It must be kept growing in a few inches of water for several months. Rice land must, therefore, be flat and conveniently situated for irrigation, and valleys of small streams have been terraced at vast expense. Of vegetables the staple is the large white radish.

Destructive tidal waves produced by submarine earthquakes are frequent. It is claimed that these seismic movements may be largely traced to the fact that the shores on the side of the Pacific Ocean are slowly rising, while those bordering on the Sea of Japan are sinking.

None of the rivers of Japan are of very great size. There are numerous lakes, chiefly formed through the blocking of natural outlets by volcanic materials. The lakes, which have high medicinal value, are associated with many of the hot mineral springs which abound in Japan.

and of fruits, the persimmon and orange are the best,

The culture of tea (introduced from China in 770 A.D.) is universal in the middle and southern districts. The sweet potato forms a large part of the food of the population of Southern Japan, and the culture of the ordinary potato is extending to the North. The Japanese Government devotes much attention to agriculture.

Manufactures.

The manufactures in Japan are of importance. There is a large number of cotton mills and millions of spindles in daily operation. Japan also produces paper, matches, mats, matting, and silk and cotton fabrics. Imported raw materials are showing a decided increase in recent years, and imported manufactured products a slight decrease—a general tendency which indicates that Japan is approaching a normal state of manufacturing. The principal exports are silk, cotton, and straw manufactures, marine products and copper; the largest imports are iron, steel, cotton, and wool for manufacture, also food products.

Population.

The last census in Japan shows that the population in the whole of the Empire is, roughly, 71,000,000. The population is divided into four divisions—Royal Family, Nobles, Knights, Common people. The average density of population is 342 per square mile, but in the centre of Honshu the density is 554 per square mile. The capital, Tokyo, has a population of 2,186,079, and Osaka 1,226,647. The Japanese are an Asiatic nation, notwithstanding the substantial progress towards civilisation which the nation has made during the past few decades.

Shipping.

From the closing of the ports to foreign commerce, in 1638, until their re-opening in 1869, Japanese shipping was at a low ebb. As recently as 1892, 77% of the ships visiting Japanese ports were foreign owned, but since that time shipping has developed greatly. In 1913 Japan owned 2,072 registered steamers, with a gross tonnage of 1,513,914, and 7,343 sailing vessels, with a gross tonnage of 487,347 tons. This result has been accomplished

by the granting of subsidies to steamship lines, and also to subsidies granted to the shipbuilding industry.

The foremost Japanese Shipping Co. is the well-known Nippon Yusen Kaisha. The writer has a record that states that the gross tonnage of N.Y.K. vessels in commission in September, 1919, was 494,000 tons, and had vessels representing 84,240 tons in course of construction. The figures a year later were 462,392 tons in commission, and 54,000 tons under construction. Apparently it sold some of its vessels, for three 10,000 ton ships, building in 1919, do not appear either on the slips or in the list of craft in commission in 1920. As each vessel of this company is named after a town (Maru) the names available must be largely used up. To correct any impression there may be that this organisation is equal in tonnage to some of the great British Shipping Companies, the P. & O. and B.I.S.N. Co.'s tonnage (under one managing director) is 1,500,000 tons.

Government.

In the system of Government the Emperor exercises full executive power, with the right to sanction laws and dismiss the Diet, to declare war, make peace and conclusive treaties. He also possesses legislative power with the consent of the Imperial Diet or Parliament. The members of the Cabinet and Privy Council hold office at the will of the Emperor.

The present national tendency is to make the Ministers and other public officials responsible to Parliament and the people, instead of the Emperor.

The Japanese adopted French examples as a guide in several important ways. Local Government is organised somewhat on the lines of the French perpetual system. The country is divided into 43 departments (Ken). The prefectures are divided into municipalities (Shi) and counties (Gun). The Criminal Law is based on the Code Napoleon, and the judicial system resembles that of France.

The public debt of the country is huge, and is mainly due to the pensions granted to the dispossessed Nobility at the restoration (in 1868, when the shogunate was abolished), and the enormous expense of the wars with China and Russia.

Religion.

The religion of the people is in the main the worship of Buddha. The Government has bestowed patronage upon Shuismo (which is principally a nature worship with innumerable gods), but Buddhism is still the most popular. Confucianism is the chief rule of life for the educated classes, as it inculcates loyalty to chiefs and rulers and filial piety.

Shuismo, Buddhism, and Confucianism are not exclusive like the Christian Sects. A man may, and frequently does,

Currency.

The currency of the country is based upon a decimal system, the unit being the *yen* (at pre-war exchange rates the value was about 2s.).

One hundred sen equals one yen, 100 rin equals 1 sen. The *yen* is not coined, but gold pieces of 5, 10, 20 yen value are used. The silver coins are valued at 10, 20, 50 sen. There are also nickel 5-sen pieces, and copper coins representing 1 sen and 5 rin.



Diabutsu (Statue of the God) at Hyogo, Japan.

belong to all three at the same time. The late Sir Edwin Arnold tells the story of Buddha in "The Light of Asia."

"Before beginning, and without an end
As space eternal, and as surety sure
Is fixed a Power divine which moves to good
Only, its laws endure."

"Give freely and receive, but take from none
By greed, or force, or fraud what is his own.
Bear not false witness, slander not nor lie,
Truth is the speech of inward purity."

Japan's Emperor.

Japanese history is unattractive up to the year 1867, when Mutsuhito ascended the throne as Emperor. At that time the Emperor declared that all the vicious and uncivilised customs of antiquity should be broken through, and intellect and learning sought for throughout the world, so that the foundations of the Empire could be firmly established.

During the eighteenth, and the first

half of the nineteenth century the Japanese cultivated the national literature and history in preference to the Chinese Classics. Literature, history and religion all combined to spread the doctrine of the divine right of the Imperial sovereign, and to teach that he alone should be the legitimate ruler of the nation, and that the *Shoguns* were usurpers whose only right was might. Civil war took place in 1868, when the last of the *Shoguns* (who had ruled Japan in the name of the Emperors since the year 1600) withdrew from the capital.

Russia, and two great wars were fought before Korea could be freed from the paralysing influence of those two nations. Japan won both wars, her arms were untarnished by a single defeat. Internal corruption and disorganisation nullified all Japan's efforts to bring Korea into line with modern progress, and in 1910 Japan incorporated Korea in the Japanese Empire.

In 1912 the Emperor Mutsuhito died, and the Emperor Yoshilito commenced his reign — the one hundred and twenty-second sovereign in a direct



Torii of the Itsukushima Shrine, Miyajima, Inland Sea of Japan.
Torii means an entrance to Holy ground.

During the reign of Mutsuhito Japan made long, continued, and patient efforts to induce Korea to enter upon the paths of reform and progress upon which Japan has so conspicuously advanced, but they were all in vain. As Korea, with its magnificent ice-free harbours, would form a military naval basis in the hands of any other power that would for ever be a perpetual menace to Japanese national safety, the Japanese decided they must be paramount in Korea. Japan was thwarted, first by China, and then by

line from the Emperor Jimma, who is supposed to have ascended the throne in 660 B.C.

The Emperor Mutsuhito left to his only son and successor on the throne, dominions far more extensive than those over which he ruled at his own accession, comprising not only all the ancient Kingdom of Korea, but the Island of Formosa, and the south of the Liao Tung Peninsular. Formosa, the spoil of the war with China, and Liao Tung of that with Russia. He left him a people who have shown that

their military efficiency and courage render them the equal of the proudest military nations of Europe. Their industrial capacity enables them to conduct a large foreign trade, and also are openly aspiring to the hegemony of the Pacific, and the monopoly of the great commercial markets of China, who are absolutely united amongst themselves, and who, while fully conscious of all their personal rights as free citizens of a Constitutional Empire, are no less devoted than were their forefathers, in loyalty to their sovereign, to whom they still reverently bow as the Vice-Regent of the Gods of Heaven.

U.S.A. and Japan.

In view of the relations between the United States of America and Japan at the present time, the feeling is illustrative of the apparently incomprehensible difference between the Asiatic and the European mind. The Japanese question came into prominence in 1906-7, when the San Francisco Board of Education prohibited Japanese children from attending the public schools of that city, because Japanese adults attended also. The Japanese Government made a vigorous protest on the ground that the Treaty rights of its citizens had been violated. Under pressure from Washington, after an investigation had been made, the San Francisco Board of Education modified its action by providing private schools for the Japanese.

As a result of this agitation, the question of Oriental Immigration became acute in the United States. An Act of Congress in 1907 stipulated that only those aliens whose passports were issued direct to the United States were to be admitted, thus stopping the immigration of Japanese agricultural labourers from Hawaii. In 1908 an agreement was reached between the two countries whereby Japan undertook to restrict further immigration of labourers to the United States.

After several attempts by the Californian Legislature to pass laws restricting the property rights of Orientals (and only abandoned through the intervention of the Federal Government) a law was passed in May, 1913, giving effect to the Californian Legislature's wishes, and Japan again protested, this time on the ground that the law was a violation of the

Commercial Treaty of 1911, and caused discrimination against the people of a friendly nation.

According to recent press reports it is hoped that President Harding will accept the agreement which the Japanese Ambassador at Washington had reached with the American Ambassador at Tokyo, in final settlement of the American and Japanese difference. The agreement is pronounced satisfactory on all points except the racial expansion problem, which was pressing. The Japanese look to the western hemisphere as the only logical ground for immigration, but are nervous over the possibilities of aggression from a nation of such power and wealth as the U.S.A.

Anglo-Japanese Alliance.

The alliance between Britain and Japan began its nineteenth year on July 14, 1920, and after that date it was open to either of the contracting parties to give twelve months' notice of their desire to terminate the agreement. If no notice of termination be given, the Treaty to remain automatically invested with one year's duration.

Compared to most of the pacts between modern States the alliance has amply vindicated the wisdom of those who made it, and stood the test of time amidst many perils of change. To both countries it undoubtedly proved of great advantage in the years that are gone.

Apparently the removal of the alliance has become a fundamental object of Japanese foreign policy. Japan has much to fear from isolation, and friendly co-operation with Great Britain is essential. Japan would like Great Britain to take the initiative in proposing a renewal of the alliance, but from the British point of view, most of the political and strategical objects of the original treaty have now ceased to exist, by reason of Russia's disintegration and the passing of the German Fleet, but the fundamental purpose of the alliance, as set forth in the Treaty, remains a matter of great and increasing importance to the trade and industries of Great Britain, *viz*:

The preservation of the common interests of all Powers in China by insuring the independence and integrity of the Chinese Republic and the principle of equal opportunities for the commerce and industry of all nations in China.

In addition to the disintegration of Russia, and the vanished menace of the German fleet, there is also the Treaty of Versailles, and the constitution of the League of Nations, which has introduced a new principle into international affairs, quite different from that on which the Anglo-Japanese alliance was based. I suppose the real danger of a renewal is that it may lead to a counter-balancing combination between China and the United States. Nothing could be worse than that the British Empire or Japan should drift into a position in which they were placed in direct opposition to China and the United States. A renewal of the alliance is bound to arouse suspicion.

The question of a renewal will arise for discussion at the next British Imperial Conference in London. The decision will carry far-reaching results for the future, and it is important that the considered judgment of the representatives of not only Great Britain's representatives, but also the representatives of the British self-governing States, should be heard.

The visit of the Japanese Crown Prince to England at the present time is an event

of the utmost importance. The differences which exist between East and West should be soluble if approached from their proper perspective, and the Crown Prince's visit ought to help towards a better understanding between the nations of the earth.

Japan and the League of Nations.

Japan has not joined the League of Nations, but, after all, if the alliance is renewed, Japan, as Great Britain's partner, will be indirectly a member of the League. Public opinion rules the world in spite of Governments. The Spanish inquisitors used to complain that pens and paper were the greatest obstacles they had to contend with, but the dissemination of the knowledge of the principles of the League of Nations which exists, even if it has not accomplished much, may be the most potent factor in the solution of the problem confronting three great nations—Great Britain, the United States of America and Japan.

[We are indebted to Mr. S. R. Oishi, of Kobe, for the above illustrations of Japan.—Ed.]

HERE AND THERE

AVIATION AND WIRELESS.

As a result of the important experiments with wireless which Mr. Marconi has in hand, considerable benefit is likely to accrue to aviation, as the devices with regard to aiding navigation at sea, in foggy and thick weather, are likely to be directly reflected in their application to pilots of aeroplanes and airships.

Amongst the names of those who received war inventions awards was Sopwith, Ltd., who were allotted £3,950 for synchronizing gears. T. O. M. Sopwith was always an enthusiast, and when he established a workshop and factory at Brooklands, he never allowed the indifference of the authorities to thwart his purpose. The Sopwith *Tabloid*, a little single-seater tractor biplane, was followed by the *Pup*, *Camel*, and *Snipe* series of Sopwith machines, all of which proved their efficiency with deadly effect on the Hun. After the war the first machine ready to fly the Atlantic was a Sopwith.

British Imports and Exports by Air.

The value of imports and exports by air during 1920 exceeded the million pounds mark, the respective amounts being £677,047 and £339,108, and the grand total £1,016,155. For the last quarter of the year (October-December) the value of imports and exports conveyed by aircraft was approximately four times greater than for the same period of 1919, although there was a reduction in traffic for the month of December as compared with the preceding months.

Federal game wardens in Illinois are using airplanes to run down violators of the closed spring season on ducks. Six hunters were arrested near Erie, in the Rock Island district, recently. The wardens in a plane swooped down on the hunters, who were fined 35 dollars each.

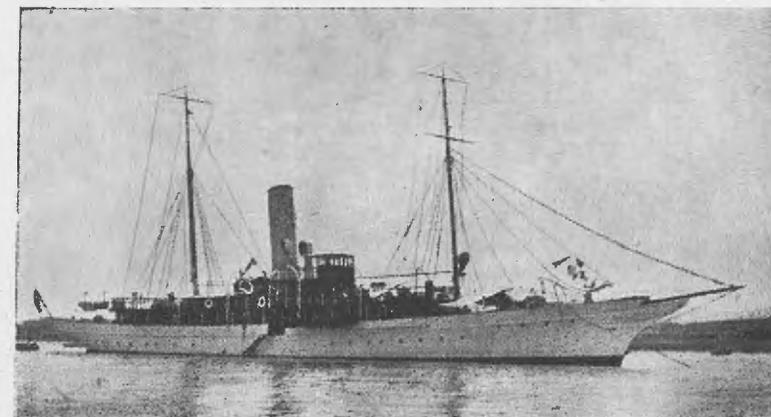
THE WIRELESS "WAVE"

AND ITS SERVICES TO MERCHANT SHIPS AND AIRCRAFT

THE closer one investigates the possibilities of the wireless "wave," the greater appears to be the scope of its application. It may indeed be asserted that no discovery has revealed the possession of such potentialities on lines so extensive in their adaptation. It has not only brought about a revolution in old-established methods and appliances, but, unlike other inventions, it is rapidly opening up new avenues of use, auxiliary to its original purpose.

The Marconi Company's establishment at Chelmsford focuses the whole of the inventive effort now being made towards

The word "perfecting" is used in no deprecatory sense, for although these appliances are, even in their present stage, of great practical utility they have not attained that stage when perfect accuracy is obtainable. In order to avoid any misunderstanding, it must be stated that in regard to the Marine Direction Finder, in ascertaining precisely at what spot a vessel is, the error amounts to only one degree, which may be regarded as inappreciable, seeing that such a slight margin would not be sufficient to involve the vessel in any danger. From this point of view, therefore, this ingenious device may



Senatore Marconi's s.s. "Elettra" Starting on its Voyage of Discovery.

the adaptation of the wireless "wave" to uses, the importance of which to shipping and aviation is unmistakable and emphatic. Equipped for the production of the essential parts of the complicated mechanism required in the construction of the varied appliances, the works are a model of admirable organisation. The various shops are light and airy, and economically arranged.

At the present moment interest is concentrated on the perfecting of the appliance known as the Direction Finder, for both air and marine work, on the wireless telephone and on the new calling-up device.

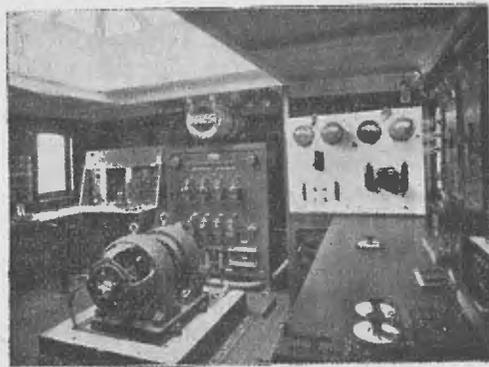
be accepted as giving sufficiently accurate results at to mark it as one of those scientific auxiliaries, the value of which cannot be estimated. Its use on ships means a vast saving of life and property, and a preventative of those disasters which produce disorganisation in traffic and loss of trade.

Captains' Testimony.

No finer testimony could be proffered than that supplied by the captains of two vessels traversing the north Atlantic route, both of which were supplied with the Direction Finder. In one instance the

captain reported to the company that during the voyage he had tested the apparatus on several occasions and had found it absolutely accurate. In another case the captain of a ship, on which the Direction Finder had been installed, stated that if the bearing is properly taken by the instruments and the deviation of the compass for the ship's head is known, the device gives accurate information, and is of inestimable value to those in charge of the vessel. These practical experiences are ample evidence of the service rendered to the shipping industry by the Marconi Company.

The application of this appliance to aircraft is dealt with on another page, and it is only necessary to state here that its value has been equally proved in this connection as in shipping.



View of Wireless Cabin on s.s. "Elettra."

More remarkable than the transmission of mere mechanical sound by the wave system, is that of the transmission of orally expressed words. A demonstration of this was given at Broomfield, where a wireless telephone set was installed, and which was worked in conjunction with another set some distance away. Although this distance was not great and the words spoken could be clearly heard, it is understood that conversations have been held with places as far distant as Rome with results which prove the invention to be of a most remarkable character and revolutionary in its application. Due to the electrical capacity and inductance of the ordinary telephone line, the harmonies of the voice are often damped out in long distance telephony, rendering speech unintelligible, though

the volume of sound in the telephone may be considerable. This disturbing factor is absent in Wireless Telephony. Articulation remains the same, the volume of sound decreasing with distance. The Marconi Station at Ballybunion, Ireland, spoke to Newfoundland in 1919. In countries where very large tracts of land have to be traversed, over which it would be unprofitable, if not impossible, to instal a telegraph system, this wonderful development of a wonderful invention will prove indispensable where transmission is immediate and urgent information is requisite; also, over a long distance this appliance should prove, when perfected to achieve this, of the utmost value as an adjunct to commercial transactions.

The Marconi Marine Direction Finder.

The extraordinary value of direction finding wireless installations is now too well known to need enlarging upon. In fog, at night, or at any time when ordinary methods of navigation cannot be absolutely depended upon, the advantage of being able to receive a definite "fix" by wireless may often be the direct cause of averting disaster. In the Fleet, when operations are being conducted and which demand an extended formation, it is practically impossible for all units to maintain their correct position by direct reckoning alone, with the result that, after a few days' thick weather, the whole formation is broken.

By means of directional wireless any ship can give any other ship its exact bearing from it, whilst any two ships

can ascertain the exact position relative to themselves of any third ship which does not lie directly between them. Shore stations can also co-operate with vessels hundreds of miles at sea, whilst the ships at the same time are able, by getting into touch with two shore stations, to place their own position with no more complicated procedure than listening for the two call signs. Provided the operator at sea can, by distinguishing the note, or by any other means determine with exactitude the location of a shore station, he may make use of it for direction and position finding, without any definite inter-communication.

The Marconi Wireless Telegraph Co., has, in addition to a new aero set, recently evolved a very much simplified marine set, which is readily accessible and is contained within a single unit. This unit takes the form of a compact teak case divided into four metal-lined fully insulated compartments containing the direction finder, the transformer, the tuning condenser, and the amplifying detector. Thus the only separate, or external, fittings are the two batteries and the operator's phones. The construction of the unit permits the removal of any one component without the usual necessity for disturbing others.

It is possible with this set to use stationary aerials of a very simple form, and with none of the complications usually associated with directional apparatus. Two closed loops, rectangular or triangular aerials, erected with their centre lines on the same vertical axis and with their planes at right angles, have been found to give the best results. Triangular erection is, however, the simplest for marine work, each triangle being suspended by its apex from a single point. The bases of the two triangles then lie fore and aft and athwartships, and cross one another at their respective centres.

The Direction Finding Unit has two independent field coils at right angles, and a rotatable secondary or search coil. Each of the field coils has its centre point earthed, and is in circuit with one aerial, the search coil being connected to the detector through a special transformer. It is by rotating this unit that an equivalent effect to rotating the aerials is achieved.

The distance over which signalling can be conducted depends upon the size of the direction finding aerial, but in practice about 300 to 400 miles is easily possible, this representing the maximum over which accurate directional work is usually feasible, and it may be considered to be more than sufficient.

Long Range Wireless Telegraphy in Merchant Ships.

Since the cessation of hostilities the engineers of the Marconi Wireless Telegraph Company have been able to turn their attention to adapting the marvellous advances made in the science of Wireless Telegraphy during the war to meet the needs of peace. One of the most remarkable of the advances made has been in the direction of perfecting an improved system of transmission and reception, whereby it is possible to obtain very much increased ranges under the special and peculiar conditions which govern the application of the art of wireless telegraphy to ships at sea in general and merchant vessels in particular.

This improved method is generally known as Continuous Wave Working. It was originally proposed by Mr. Poulsen some fifteen years ago, but it has only been found possible to adopt this system practically to merchant ship communication since that marvellous product of the industry and research of physicists and mathematicians, now generally known as the thermionic valve or triode, was produced. This latter instrument in its various forms, ranging from a tiny receiving valve up to the comparatively large and powerful transmitting valves, has completely revolutionised the science of wireless telegraphy, and when applied, as it has now been applied, to the specialised subject of communication of merchant vessels at sea, it allows the system of inter-communication between ships and the shore to be based on the assumption that good signals can be exchanged both ways at a distance of some 1,200 miles from the land, and in the case of one ship working with another the effective range of 1,000 miles can be confidently anticipated.

The development of modern instruments have enabled these great ranges to be covered without any material increase in

the power demanded from electrical supply of ships. The great improvement in range is due to the more scientific and economical employment of the power rather than to mere piling up of brute force at the transmitting station. As a direct result of these more scientific methods, the powers of syntony possessed by stations working on this principle are far greater than those which were available under the old regime, and by these modern means it is possible in a great measure to avoid the very serious handicap to commercial communication which was caused by the fact that messages intended for one receiving station could frequently be heard at other receiving stations, although there might be a con-

This arrangement, which is admirable for the purpose of safety of life at sea, does not lend itself to the commercial handling of large numbers of messages, and it is essentially for the latter purpose that the Marconi Company is now introducing the use of continuous wave installations at sea. This traffic organisation is additional to the safety of life at sea organisation.

It is recognised that every possible step is essential to ensure the safety of life at sea, and the necessary steps for this purpose are included in the organisation which has already been announced, and will soon be extended to embrace a large proportion of the more frequently used portions of the oceans.



Wireless Operating Room on s.s. "Elettra,"
Showing Receiving Instruments.

siderable difference between the wavelengths employed.

It must be remembered that one of the greatest objects to be attained in fitting wireless telegraph instruments to ships at sea is to lay down a network of communications, which will contribute, in so far as it is possible, to the safety of human life at sea. For this object it is necessary that a call for assistance made by any ship shall be received by every other ship in the neighbourhood which may be fitted with wireless telegraphy, and in order to achieve this result there is only one correct organisation available. That organisation, which has the further merit of simplicity, is that every ship shall use the same wavelength, and, therefore, every ship will be able to hear signals made by every other ship within reach.

Use of Wireless Telegraphs and Telephones.

The enormous strides made in the improvement of wireless telegraphy during the war and post-war periods are indicative of the unbounded possibilities of this new science. At the outbreak of the war both reception and transmission apparatus was so heavy and bulky that it was not possible to equip anything but the largest aircraft with anything but extremely short range sets of low efficiency and high current consumption. These sets certainly gave a fair degree of satisfaction, more especially for use on reconnaissance aeroplanes, the duties of which did not necessitate the provision of receiving apparatus. Some of the larger airships employed on anti-submarine, and other Naval operations, were, however, fitted up with complete installations

which, even in the primitive form in which they were then manufactured, proved beyond dispute not only the usefulness but the absolute necessity of an aircraft being in perpetual touch with its base and other aircraft operating in conjunction with it.

It was found that the maximum efficiency of the anti-submarine service could only be obtained by every unit being in a position to communicate information with regard to the enemy's movements without any delay, and furthermore without having to fall back on the signalling resources of other units. In land operations the same conditions prevailed, and it was apparent that in the case of all types of aircraft, other than small fighting scouts and certain other types, exclusively engaged on operations in close proximity to their base, facilities for inter-communication between the various bases, and the units operating from them would very much reduce the inherent dangers of flying. This was particularly emphasised when machines were operating from low-lying aerodromes, which were in many cases liable to be completely obscured by fogs and ground mists which formed with extraordinary rapidity, and were quite impenetrable by any form of landing lights. It was possible, however, to forecast these conditions by two or three hours, and in cases where aircraft could be communicated with it was customary to instruct them to return before the visibility became too low for a landing to be safely effected.

Visual Signalling.

Visual signalling by the Morse lamp, although difficult to conduct from very fast machines, has been in general use for several years, and for communication between short distances its simplicity, cheapness and light weight cannot fail to appeal to a very large number of aircraft users. Inter-communication between two machines in flight can be accomplished with a minimum of trouble, and "carry on" messages can be flashed to land stations from which they can be retransmitted to their destination by wireless or land-line.

From the military and naval point of view the utility of visual signalling was fully appreciated, but the necessity for transmitting messages with the least pos-

sible delay necessitated a more rapid method than the "relay" or "carry on" system. The enormous traffic on all telegraph and telephone lines was also the cause of serious errors being made in important messages.

In order to obviate these errors it was clear that direct signalling by wireless was the only alternative, and every encouragement was accordingly given to all experiments in the fruitful field of wireless telegraphy. By the middle of 1915 reception and transmission sets were ordered, which, with a total combined weight of not more than a hundred and fifty pounds, were capable of operating over a distance closely approximating to a hundred miles. These sets, however, were not particularly reliable, and at long range their signals were so weak that reception was difficult under ordinary circumstances, and when other signalling was being conducted in the vicinity it was almost impossible to receive long signals without several repeats, involving delay and annoyance not only to the receiving and transmitting parties but also to others whose signals were being interrupted. Much of this delay was found to be caused through imperfections in coding systems, and the brevity which was ultimately secured by the use of efficient code books enabled these inferior wireless sets to give extraordinarily good results.

No effort was spared which might lead to the improvement of aerial wireless telegraphy, and in 1916 a 1½ k.w. set made its appearance on the "coastal" type of airships. This set was not intended for use in any other type of airship, but during the three years in which it was in daily operation, not only in the air but also on ground stations, it was recognised as being a distinct advancement on the older pattern "spark" sets. The current for the 1½ k.w. set was derived from an electric generator direct—coupled to a horizontally opposed 2 h.p. petrol motor, the total weight of the unit being about 50 lbs. This would appear rather excessive, but when it is remembered that the motor was capable of performing other duties than that for which it was primarily intended it will be appreciated that the sacrifice in lift was more than justified. The range of this set was more

than double that of the "spark" set, which contributed to no small extent to the safety of long distance over-sea flying, and at the same time the ability of the motor to serve as an auxiliary to the main engines in supplying power for an independent blower for maintaining envelope gas pressure was a feature of some importance when the dubious reliability of mid-war aero engines is remembered.

Continuous Wave System.

The next important development in wireless apparatus was the invention and

any only to equip the long distance machines with the "c.w." system in order to lessen the danger of its secrets falling into the hands of the enemy. Under these circumstances it was necessary for a base communicating with its machines to transmit general signals on both "continuous wave" and "spark" to ensure their reception by all units. For peacetime flying this drawback does not, of course, apply, and it is reasonable to assume that as soon as the existing "spark"



Wireless Cabin on the late German Liner "Imperator." 3 K.W. Transmitter Valve Panel can be seen Through the Door. Direction Finder Fitted on two Special Aerials in Addition to Main Aerial.

adaption to aircraft of the "continuous wave" system. This system could be worked entirely from a system of batteries or from a small wind-driven generator. The range of the "c.w." system as used on aircraft was almost double that of previous plant, and a very considerable saving in weight was effected. The only practical drawback to the system was that where several machines were operating from a certain base, some at short and others at long range, it was custom-

sets are used up, the use of "continuous wave" will become universal.

Aircraft Control.

It is not generally realised that wireless telegraphy is of any use other than for transmitting messages from one place to another. Experiments have proved that aircraft can be controlled by wireless telegraphy from the ground, and that ships at sea can be navigated and controlled by the same means from a shore station. Motor launches have actually

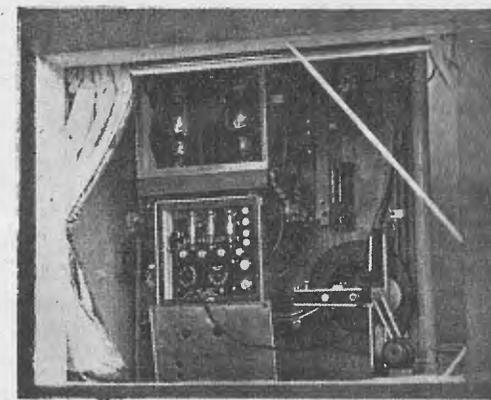
been constructed which have carried out extended cruises without a living soul on board, being completely under the guidance of a complicated electric plant controlled by a man many miles away. At one time it was proposed to use these craft, heavily laden with explosives, as active units with the Fleet, but it was found that the great expense involved in their construction and maintenance was not compensated for by any great superiority over torpedoes.

Another use to which wireless telegraphy has been put is for locating the position of ships and aircraft by discerning from which direction signals received from them are coming, an alternative method being for the aircraft to determine the magnetic bearing of two or more

the machine not being possessed of any maps or charts it would still be possible for it to obtain its position by requesting the two land stations to compare results with one another and advise it of the point of intersection.

Wireless receiving apparatus is not able to detect the direction from which signals are proceeding without the use of special direction finding instruments, so that it is not within the power of all stations to give directional information. It is on this account that experiments have recently been conducted with the method outlined above, whereby an aircraft is enabled to ascertain its position with its own instruments alone.

The principle governing all direction finding is that if a signal is being trans-



Wireless Set in Handley-Page Aeroplane.

stations from it, and by locating its bearing from them obtaining a "fix" which would, of course, be at the intersecting point of straight lines drawn on a chart.

Wireless Direction Finders, or as they are technically known, "Radiogoniometers," have been developed by the Marconi Company until they have now reached a quite extraordinary pitch of perfection. Aircraft, even if completely lost in fog, over the sea, or over unknown territory can now ascertain their exact position with very little delay and with absolute precision merely by "calling up" two land stations and asking each one for a bearing from him. No navigation instruments are required except the ordinary pattern compass and the usual maps with which aircraft are always supplied. Even in the event of

mitted from a certain position, then it will be received on an aerial nearer that position earlier than one further away. Thus if two aerials are so constructed that their distance from one another remains constant, whilst it is possible to revolve them in a vertical plane when suspended and hanging parallel with one another there will be a position when the distance from each aerial to the source of the signal is identical, and reception on each aerial will synchronise. This position will be the base of a triangle, the apex of which is the transmitter. From this it is apparent that the compass bearing of the transmitter can readily be obtained. In practice it is not possible to utilise movable aerials, and in order to eliminate the necessity for them a system has been found whereby the external

conditions can be reproduced in a small space by the use of two independent triangular or rectangular aerials with their planes at right angles. A "search coil" of quite small dimensions, which is within the instrument, may be regarded as a small direction finding aerial under the influence of the large fixed aerials. Rotation of this coil is equivalent to the rotation of a large aerial, but its size and weight is naturally much less than that of movable aerials.

The only error which is likely to occur in a position or "fix" obtained by directional wireless is when only one station is employed, or when the angle at the apex of a triangle, formed by the aircraft and two land stations, is so large as to approximate to a straight line.

Wireless Telephony.

The latest pattern wireless telephone set illustrated is one of the most astounding developments of modern times. Before dealing with the subject at all it is well to bear in mind that telephony can never be conducted with the same degree of accuracy as telegraphy on account of the extraordinary similarity of so many dif-

ferent words in the English language. Mechanical transmission and reception of speech at high speed would also appear to present formidable difficulties, so that it is not reasonable to expect telephony in any way to supplant telegraphy either in the near or distant future.

In the latter part of 1917 and the early part of 1918, the experiments in wireless telephony which had been conducted for several years began to show signs of bearing fruit. Speech was transmitted by wireless over short distances and received with the same clearness as in the receiver of an ordinary telephone. Since then the range has been enormously increased, so that to-day it is possible to transmit messages which can be received quite distinctly at a distance considerably in excess of 100 miles. The latest sets are extraordinarily simple and light in weight, and they can be operated by a single control, convenient for the pilot's hand, without any technical knowledge whatever. The use of storage batteries is completely unnecessary owing to the adoption of wind driven electric generators.

—*The Merchant Shipping Review.*

BOOK REVIEW

MY ELECTRICAL WORKSHOP

Mr. Frank T. Addyman is well known as the author of articles on "Experiments." In the book under review he will earn the gratitude of an army of young experimenters by providing them with really helpful, practical and (what is rare in such a book) first-hand guide to the making of simple and fascinating electrical apparatus. The various devices and instruments described can all be made by any intelligent young man from the simplest and least expensive of materials, and throughout the book there is a refreshing absence of technical terms. "A certain lady of my acquaintance," writes Mr. Addyman, "once told me that every

time I entered the house it was a signal to her boys 'to make a mess all over the place.' That was a long time ago, and although I have never yet found a cure for the 'mess,' I managed to stop it—more or less—from being 'all over the place' by suggesting that the boys should have a workshop of their own." Any fond father or mother who suffers in this way might do very much worse than allot a spare room to the youngsters for a workshop, giving them at the same time a copy of this book as a guide. The trouble will be to get father away from the book and out of the room.

Our copy came from The Wireless Press, Sydney: Price, 10s.

BUSINESS BY AIR

ORGANISATION OF THE SHAW-ROSS AVIATION COMPANY, MELBOURNE

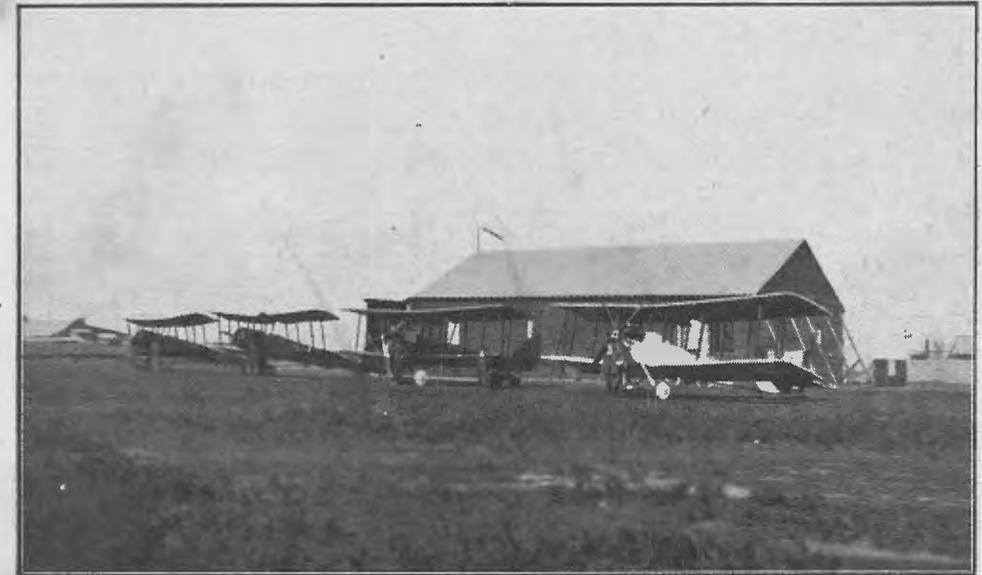
MOST of us are aware of the organisation necessary in carrying on a taxi-cab and private hire motor car company, to render efficient service. The staff and cars must always be ready for calls, however arduous.

That aviation is slowly but surely coming into its own is becoming more evident every week and the progressive Melbourne firm—The Shaw-Ross Engineering & Aviation Company—has instituted an aerial taxi service.

pansion by the addition of further buildings.

A skilled staff of aircraft mechanics, expert in both rotary and stationary engines, supports the aerial activities of the pilots, all of whom have a splendid active air service record.

The principal business of the Shaw-Ross Company is the service of aerial taxis for business and other purposes, their aim being to make it just as easy for the public to travel by 'plane as by motor car.



Some of the Shaw-Ross Aeroplanes Ready for Service.

This Company, which commenced operations on May 1, 1920, has an ideal aerodrome at Port Melbourne, 3½ miles from the city. The aerodrome consists of about forty acres of good landing ground, level and open space all round, and a water frontage for the operation of seaplanes.

A most up-to-date hangar and workshop has been erected, the roof of which is supported on "Gawco" steel girders, with a fifty feet span and an interior floor space of 3,500 square feet. The hangar is so built that provision is allowed for ex-

Intending travellers telephone the city office of the Shaw-Ross Co., located at 320 Collins Street, Melbourne, and at the appointed time a motor car calls for and takes the passenger to the Company's aerodrome, where a 'plane is waiting, and away he goes on his aerial journey. On reaching the destination a Shaw-Ross car meets the 'plane on the 'drome and carries the passenger or passengers to wherever they desire to go.

That last paragraph covers a vast amount of organisation work in all coun-



One of the Company's Machines—an "Avro"—About to Leave the Port Melbourne Aerodrome.



Interior View of Pilots' Room at the Aerodrome.



Interior View of the Hangar.



Interior View of the Workshop.

try towns, for fuel, landing facilities, etc., and yet the Shaw-Ross Co. will take a passenger to practically any point.

Their clients in the past have been numerous, among them being business men who wished to visit a far away agent without spending a number of days on the journey; estate agents who were able to give a prospective purchaser a more complete view of an estate in half an hour than they could get in a couple of days

The Company report that many business trips and tours have been carried out and as an increasing recognition of the financial value of the aeroplane as a time-saver, the demand for their services is steadily increasing.

"Stunting" of any description is rigorously "tabooed" by the policy of the Company, as being entirely out of place in commercial aviation.

The substitution of the aeroplane for the motor car is no doubt strange in Aus-



Aerial Photography.

Another section of the Shaw-Ross Aviation Co.'s business.

from the ground; photographers who desired aerial views of various districts; advertising managers seeking publicity by media of the aeroplane and so on.

The service is so organised that the firm is prepared to cover any form of aerial activity, such as surveys, regular services or business trips, or contracts with business houses for rapid transport of passengers or goods. They are also prepared to house and maintain privately-owned aircraft on contract at their aerodrome, keeping them always ready for instant use.

tralia, yet one feels much safer up in a plane than sometimes when in a motor car dodging trams and other traffic that may be on the road.

In conclusion we must emphasise the fact that the Shaw-Ross Aviation Company has instituted a service of tremendous value to commercial men, and, as has been done in the past, they deserve the utmost support in the future which will be to the mutual advantage of the passenger and the Shaw-Ross Aviation Company.

THE MOTOR SHIP "ELMAREN" WRECKED IN INDIAN OCEAN

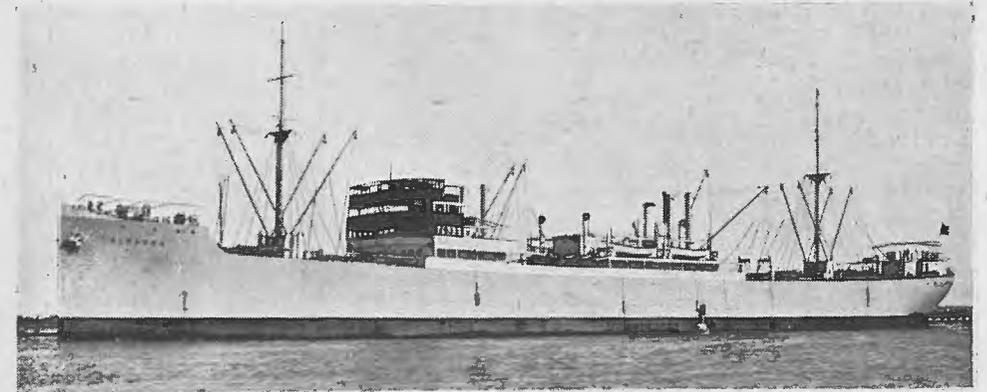
Built at Gothenburg only last year at a cost of £400,000, the motor ship *Elmaren* piled up on a coral reef in the Chagos group in the Indian Ocean, and is reported to be a total wreck. The total loss is estimated at £520,000.

The *Elmaren*, owned by the Swedish-Australian Shipping Line, was a twin-screw motor ship of 5,725 tons, 436 feet long and 56 feet beam. She was fitted with Diesel engines 2,000 horsepower each,

supposed that the *Elmaren* had engine trouble and was carried out of her course.

When the *Valdiera* arrived she found the *Elmaren* on the reef with her fore-castle, foreward holds, and starboard tank full of water, and engines broken down. The crew had landed on the island and it is feared that the vessel is doomed.

The Swedish-Australian Shipping Line have been operating in these waters for a



The Motor Ship "Elmaren" Reported to be a Total Wreck on Coral Reef in Indian Ocean.

and so far is the largest motor vessel that has visited Australia.

At the time of the disaster the vessel was returning to Europe after her maiden trip, having left Melbourne on April 22 with a large cargo of grain bound for Rotterdam. Nothing further was heard of her until the Italian steamer *Valdiera* picked up her wireless distress signals for help. The *Valdiera* immediately changed her course and made for the scene of the wreck.

The Chagos group of attols are known to be dangerous to navigation and vessels generally give them a wide berth. It is

considerable time, and recently decided to extend their activities in trade with Australia and the East. For this purpose they are having constructed six new vessels of 10,000 tons dead weight. Two of these new vessels will be equipped with Diesel engines, two with oil-burning engines and two with coal. Careful records and logs will be kept of each run and comparisons of the efficiency of the different engined boats will be made. These records will act as a guide for their future shipbuilding programme.

The *Tisnaren*, sister ship to the ill-fated *Elmaren*, is now in Australian waters.

WALTER OSWALD WATT

Lieutenant-Colonel, A.F.C., O.B.E., Legion d'Honneur, Croix de Guerre.
11th February, 1878—21st May, 1921.

IN writing of the late Walter Oswald Watt, one is faced with the obvious difficulty that no more modest or self-effacing man ever lived, and it seems almost indecent to drag into the full light of day the many instances of splendid self-sacrifice and overwhelming generosity which he preferred should remain for ever anonymous.

Yet, brilliant as was the record of his war service—which dated from August 2, 1914—the last two years were in reality the crowning point of his splendid career. Not only did he settle down to work himself, bestowing upon the humdrum everyday routine of office life those remarkable qualities and that boundless energy that had made him the great soldier he was, but he also did his utmost to see that each man who had fought with him, was given a first-rate chance of making good upon return to civil life.

His generosity was boundless, but by no means indiscriminate, for those he helped—and their name is legion—were men worthy of his assistance, and the writer firmly believes that his bountiful kindness will bear the fruit he hoped and expected it to bear.

A friend of his recently remarked that no one could know him without being the better for having known him. That exactly expresses my own feeling, and I know there are hundreds of others who, like myself, feel they have lost their best, their truest, and their wisest, friend. One turned to him instinctively when in any trouble or difficulty, and his advice and counsel were never once known to fail. He had an airy way of discarding, what seemed to one less optimistic, overwhelming difficulties, and thanks to his kindly encouragement, one left his presence a different, a better, and a stronger man.

Of the value of his services to the cause of humanity during the great war it would be impossible to speak too highly. When war broke out he was in France, learning, in Bleriot's factory, the intricate details

of aircraft structure. At first it seemed doubtful whether England would join in the fray. The Cabinet, we now know, was divided upon the question, but to Oswald Watt there seemed no doubt whatsoever as to the justice of the Allies' cause, and he, therefore, offered his services to France two days before England declared war. At the same time he surrendered to the French Government an aeroplane he had bought, and subscribed £1,000 to the French Red Cross Society. That his services were accepted he ever afterwards considered the greatest compliment he had been paid, for only seven foreigners were at this stage received into the French Army.

He was, of course, a *poilu*, but the majority of the French pilots being officers, he was given the titular rank of *Capitaine*.

The record of his eighteen months as a pilot in the great French Army is indeed a memorable one; the thoroughness of his service, and its complete success, are proved by the fact that he was created a Chevalier of the Legion d'Honneur, and decorated with the Croix de Guerre with three palms.

It was always difficult to persuade him to speak of his own achievements, but there is abundant evidence of the appreciation, admiration, and esteem with which he was regarded by the various leaders and comrades with whom he was at different times associated during his period of service with the French Army.

A Sydney lady, upon sending him some socks for distribution among the members of his squadron, received a delightfully touching letter, which translated, runs:

"Having been aviateur mechanic under Captain Watt since the beginning of the war, everything belonging to him or to his country has to me the very tenderest memories."

His enthusiasm for France, and his admiration, verging almost to the point of idolatry, for the magnificent fighting qualities of the French Army, none who knew



The Late Lieutenant-Colonel W. Oswald Watt, O.B.E., Legion d'Honneur, Croix de Guerre.

him during those eighteen months (August, 1914—February, 1916) are likely to forget.

Of his courage and resource it would be impossible to speak too highly, and General Pau's remark "That he knew neither fear nor pride," was a happy epitomisation of his comrades' feelings towards the man they so greatly honoured and revered.

On leaving the French Army and joining the A.I.F. his task became a difficult one, and although his success as a pilot had been brilliant, it was undoubtedly as an organiser and a leader that his remarkable powers received full play.



The Late Colonel Watt in Pilot's Seat of Bleriot Monoplane.

One who had long served under his command wrote the other day that:

"He was the best Commanding Officer we had ever served under was my opinion, and that of every officer and man in the Flying Corps. He had every quality to make him a great leader of men—courage, determination, and an immense capacity for work, a stern and just man of discipline, unflinching courtesy to and thoughtfulness for his subordinates, and, above all, the greatest factor in leadership, a genius for endearing himself (without conscious effort) to all who served under him."

After sixteen months in Egypt, he was in August, 1917, appointed to command the 68th (2nd Australian) Squadron in France.

The start was an auspicious one, the entire squadron making the move from Harlington to "somewhere in France" within the day, a feat never before equalled. The achievements of the famous 2nd Squadron during the next few months were destined to make history, a history of which Australia has indeed good reason to feel proud. Little has been written of the great exploits, and probably full justice will never be done to this small section of our army, which, hemmed in by the greatest possible dangers and difficulties, never once failed to play its part with conspicuous courage and distinction. Many of his officers have since stated that they could never understand when Major Watt found time to sleep during those times of stress. When a pilot started out he was always there to cheer him on his way, and when he returned he was there again, eager to hear exactly what had been done. His own enthusiasm, energy, and keenness pervaded the entire squadron and "there was not an officer or man who," in one of his officer's own words, "would not have gone anywhere and done anything for him."

For the men under his command, his thoughtfulness and care were at all times unflinching, and these feelings were returned with a devotion and affection rarely met with. Always considerate to others, he never allowed a pilot to fly a machine he had not himself first tested, and his geniality and kindly manner resulted in a spirit of camaraderie and good-fellowship which could but produce magnificent results.

The large number of D.S.O.'s and M.C.'s awarded in the 68th Squadron bear evidence of the greatness of its exploits, but I believe I am not wrong in saying that there was not one single pilot in the squadron who would not have preferred to have seen his Commander honoured rather than himself to receive one of the highly coveted decorations. That he was overlooked is indeed strange, but it may be partially attributed to his own deliberate self-effacement and modesty.

The last era of the late Lieutenant-Colonel Watt's military career was at Tetbury (Gloucestershire) where, from February, 1918, to April, 1919, he commanded the 1st Australian Wing, with its two magnificent aerodromes at Leighterton and Minchenhampton. Nothing could have been finer than his organisation and leadership. The 1st Wing, like the 2nd Squad-

ron, was a happy family, with the Colonel its much beloved and adoring father.

Although not destined to proceed to France as a unit, as the Colonel always hoped it would, magnificent work was done in providing the three Australian squadrons in France with efficient pilots and in training recruits. Tetbury will, to all who visited him there, ever remain an object lesson in efficiency and organisation, whilst to those who served there, it will be remembered as a happy home, where great things were done, and not one moment allowed to be wasted.

In April, 1919, Colonel Watt brought his Wing home in the s.s. *Kaiser-I-Hind*, and on June 23, he, and all who had served under him, were entertained at dinner, and



This Photograph was Taken When the Late Colonel Watt was Serving with the French Flying Corps, and Shows Him with His Observer in a Bleriot Monoplane.

afterwards at the theatre. Those who were present at that memorable night will never forget the wonderful tribute of love and admiration paid to Colonel Watt by those who had served under his command.

He was indeed loved in every society in which he moved, and few men have in this world been more genuinely or intensely regretted. He possessed an undefinable charm which won all hearts, and a marvellously happy knack of not merely seeing only the best in all he met, but of getting the best out of them.

All who served under him, all who worked under or with him, became at once his comrades and his friends, for whom there was nothing in reason that he would not do. This kindly nature brought him at once to the side of all who were in sorrow or distress, and in his will he has

left legacies to every one whom he knew to be in financial straits or difficulties.

His genial disposition, his fine upright character, his inordinate modesty, were reminiscent to the older brigade amongst us, of his much beloved father, undoubtedly one of the most lovable men of his day, and one of the greatest of those really great men who, forty or fifty years ago, helped so materially to make Sydney what it is to-day.

He leaves one son, who is now a boy of 15, at Wellington College, England, and who is destined for the army.

He leaves also a brother, Ernest, and three married sisters, Mrs. William and Mrs. Gordon Caldwell, and Mrs. Harry Bethune.

He was a partner in the old-time firm of Gilchrist, Watt & Co., and a director of Gilchrist, Watt & Sanderson, Ltd., the Australian Alum Co., the Great Britain Tin Mining Co., the Sogeri Para Rubber Co., the Ulladulla Brick Co., and "Art in Australia, Ltd."

He was also President of the New South Wales Section of the Australian Aero Club, for whose benefit he was an indefatigable worker, and Vice-president of the Imperial Service Club, in which he was profoundly interested. He was also a member of the Union and Australian Clubs.

This memoir cannot better end than in the words of an officer who greatly loved him:

"He was indeed a most parfait gentle knight, and Australia is the poorer for having lost a most gallant soldier and a splendid man."

MOTORING

THE most important event in the motoring world last month was the reliability trials in New South Wales held under the auspices of the Automobile Club of Australia. The route was from Sydney to Bathurst, *via* the Jenolan Caves, a distance of 162 miles which was covered on Friday, May 13, and the return trip, *via* Yetholme, Parklĕy Vale, and Mount Victoria—126 miles—was completed next day, Saturday, May 14. The total distance—288 miles—was accomplished under very adverse conditions, as there had been heavy rains on the mountains the previous week and in places the roads were like custard, and it is almost impossible to imagine a more strenuous test than that encountered on those two days.

Twenty-two cars were entered and nineteen started, all experiencing many thrills and exciting moments with skids, etc., during the trip. As several of the competitors afterwards remarked, the competition should have been postponed owing to the bad weather.

Points were allotted as follows:

- (1) Reliability involved taking passengers from Sydney and delivering at journey's end 200 points.
- (2) Hill climb 100 points.
- (3) Petrol consumption 100 points.

Total 400 points.

Cars were handicapped according to horsepower and wheel base, each car having to do an average number of miles per hour.

Messrs. Marcus Clark & Co., Ltd., entered the *Chandler* and the *Cleveland*.

As an instance of how bad the roads were, the *Chandler* had to average 22 miles per hour. When the roads were bad the car was slowed down to about seven miles per hour, but when a good patch of road was struck it was passed over at a speed between 40 and 50 m.p.h. "to make hay while the sun shined." This car, the

last but one to leave Sydney, overtook all the other cars and was second to arrive at Bathurst.

Both the *Chandler* and *Cleveland* went through the strenuous trial successfully, securing full points for reliability, and thus lived up to Marcus Clark's slogan of "The cars that keep faith."

A sharp turn in the road near Oberon was a point of great thrills to many of the competitors. On one side of the road—which has a horse-shoe curve at the bottom—is a guard rail and beyond this a considerable drop; on the other side a steep embankment. One car took the turn at a safe speed, but owing to the deceptiveness of the sharp curve the car skidded and those on board found themselves at a most alarming angle on the side of the embankment. By skilful manipulation the driver succeeded in manœuvring the car safely on to the road again and resumed the journey without delay.

Another car, an *Essex*, which put up an excellent performance, driven by Mr. A. T. Selwyn, was not so lucky. Taking the curve at about 20-25 m.p.h. his car skidded towards the rails. He immediately turned the car, practically on her own base and ran about 20 feet up the embankment, where the car hung dangerously poised. Due to the soft character of the material on this bank and the efficient brakes the car stood still and Mr. Selwyn was able to bring it back to the road, where he found that the front axle was badly bent. However, he showed a most tenacious spirit and drove the *Essex* on to Bathurst, maintaining an average speed of 9 m.p.h.

At Bathurst a new axle was fitted and the *Essex* was on the road again as if nothing had happened. As Mr. Selwyn remarked to a representative of *Sea, Land and Air*, "that turn and skid near Oberon is one of the most extraordinary experiences I have ever encountered."

While ascending Oberon Hill another car caught fire, but fortunately the fire was extinguished before any serious damage was done.

The official results were declared as follows:

HILL CLIMB.

No.	Entrant.	Car.	H.P.	Weight in lbs.	Weight plus 1.1.	Time, Secs.	Formula Points.	Points allotted.	Position.
Private Class.									
4.	Wm. Stuart	<i>Essex</i>	18.98	4,088	—	164%	131.1	100	1
7.	W. J. Stuart	<i>Chalmers</i>	23.76	3,948	4,343	181	101.0	77.04	2
3.	G. R. Martin	<i>Essex</i>	18.98	3,766	—	199	99.7	76.05	3
5.	W. C. Goodwin	<i>Hupmobile</i>	19.15	3,640	—	233	81.6	62.24	4
1.	S. Garratt	<i>Overland</i>	15.18	2,800	—	268%	68.6	52.32	5
2.	J. H. Stephenson	<i>Humber</i>	18.22	—	—	—	—	—	—
6.	J. A. S. Jones	<i>Cleveland</i>	20.25	—	—	—	—	—	—

Open Class.

1.	H. M. Hart	<i>Essex</i>	18.98	3,871	—	183%	111.1	84.74	1
21.	Boyd Edkins	<i>Vauxhall</i>	29.15	4,060	4,466	142%	107.7	82.15	2
20.	P. A. McIntosh	<i>Buick</i>	25.63	4,676	5,144	193%	103.8	79.18	3
19.	D. M. Goldfinch	<i>Wolseley</i>	16.68	3,976	—	241	98.9	75.44	4
16.	Thos. Savage	<i>Cleveland</i>	20.25	4,088	4,497	251%	88.4	67.43	5
19.	C. E. McIntosh	<i>Buick</i>	25.63	4,592	4,051	234%	84.1	64.15	6
15.	A. McNeill	<i>W.-Knight</i>	19.71	3,976	—	253%	79.6	60.72	7
9.	C. F. Sanderson	<i>Vermorel</i>	14.48	3,612	—	317%	78.6	59.95	8
17.	R. V. Cayce	<i>Studebaker</i>	21.97	3,752	4,127	240%	78.2	59.65	9
22.	Fred Walsh	<i>Chandler</i>	30.62	4,592	5,051	217%	75.9	57.89	10
23.	R. G. Todman	<i>Rolls-Royce</i>	47.98	5,488	6,037	180%	69.7	53.16	11
14.	A. T. Selman	<i>Essex</i>	18.98	3,934	—	312	66.4	50.65	12
11.	S. L. Tyler	<i>Chevrolet</i>	18.13	2,674	—	284%	51.9	39.59	13
8.	A. W. Fairfax	<i>Citroen</i>	8.59	2,100	—	491	49.8	37.99	14
18.	D. A. Shaw	<i>Westcott</i>	23.76	4,312	4,743	—	—	—	—

PETROL CONSUMPTION.

No.	Entrant.	Weight in lbs.	Petrol used, gallons.	Miles per gallon.	Formula points scored.	Allotted points.	Position.
Private Class.							
4.	W. Stuart	4,088	9.0	32.0	90.24	100	1
7.	W. J. Stuart	3,948	10.562	27.27	75.26	83.40	2
1.	S. Garratt	2,800	9.375	30.72	69.12	76.60	3
5.	W. C. Goodwin	3,640	13.625	21.14	55.39	61.38	4
3.	G. R. Martin	3,766	14.625	19.69	52.79	58.49	5
2.	J. H. Stephenson	—	—	—	—	—	—
6.	J. A. S. Jones	—	—	—	—	—	—

Open Class.

8.	A. W. Fairfax	2,100	7.375	39.05	75.76	83.95	1
19.	C. E. McIntosh	4,592	11.75	24.51	74.75	82.83	2
15.	A. McNeill	3,976	10.625	26.80	74.24	82.27	3
14.	A. T. Selman	3,934	10.75	26.79	73.94	81.94	4
10.	D. M. Goldfinch	3,976	11.0	26.18	72.52	80.36	5
11.	S. L. Tyler	2,674	10.0	28.80	63.07	69.89	6
21.	Boyd Edkins	4,060	13.875	20.75	58.31	64.62	7
17.	R. V. Cayce	3,752	13.375	21.53	57.48	63.69	8
12.	H. M. Hart	3,871	13.812	20.85	56.92	63.08	9
22.	Fred Walsh	4,592	17.0	16.94	51.67	57.26	10
9.	C. F. Sanderson	3,612	14.625	19.69	51.39	56.95	11
23.	R. G. Todman	5,488	29.875	13.80	47.61	52.76	12
16.	Thos. Savage	4,088	17.312	16.63	46.90	51.97	13
18.	D. A. T. Shaw	4,312	—	—	—	—	—
20.	F. A. McIntosh	4,676	—	—	—	—	—

FINAL RESULTS.

No.	Entrant.	H.P.	Car.	Points Scored			Total.	Position.
				Reliability.	Hill Climb.	Petrol Consumption.		
Private Class.								
4.	Wm. Stuart	18.98	Essex	195	100	100	395	1
2.	W. J. Stuart	23.76	Chalmers	195	77.04	83.40	355.44	2
1.	S. Garratt	15.18	Overland	188	52.32	76.60	316.92	3
5.	W. C. Goodwin .. .	19.15	Hupmobile	192	62.24	61.38	315.62	4
3.	G. R. Martin	18.98	Essex	—	76.05	53.49	134.54	5
2.	J. H. Stephenson ..	18.22	Humber	—	—	—	—	—
6.	J. A. S. Jones .. .	20.25	Cleveland	—	—	—	—	—
Open Class.								
10.	D. M. Goldfinch .. .	16.68	Wolseley	200	75.44	80.36	355.80	1
12.	H. M. Hart	18.98	Essex	200	84.74	63.08	347.82	2
21.	Boyd Edkins	29.15	Vauxhall	200	82.15	64.62	346.77	3
19.	C. E. McIntosh .. .	25.63	Buick	198	64.15	82.83	344.98	4
15.	A. McNeill	19.71	W.-Knight	200	60.72	82.27	342.99	5
16.	Thos. Savage	20.25	Cleveland	200	67.43	51.97	319.40	6
22.	Fred Walsh	30.62	Chandler	200	57.89	57.26	315.15	7
8.	A. W. Fairfax .. .	8.59	Citroen	190	37.99	83.95	311.94	8
23.	R. G. Todman .. .	47.98	Rolls-Royce	200	53.16	52.76	305.92	9
17.	R. V. Cayce	21.97	Studebaker	166	59.65	63.69	289.34	10
11.	S. L. Tyler	18.13	Chevrolet	177	39.59	69.89	286.48	11
9.	C. F. Sanderson .. .	14.48	Vermorel	142	59.95	56.95	258.90	12
14.	A. T. Selman	18.98	Essex	—	50.65	81.94	132.59	13
13.	D. A. T. Shaw .. .	23.76	Westcott	—	—	—	Retired.	—
20.	P. A. McIntosh .. .	25.63	Buick	—	—	—	Retired.	—

Mr. E. V. Whitbeck, one of America's foremost motor engineers, created the original engine of the famous *Lozier* car. He was later asked to produce a cheaper engine and he then created the *Chandler* and *Cleveland*. The two cars, well-known in Australia, are very popular and we understand that the *Cleveland* is very keenly sought for by buyers at the present time, as it is one of the best propositions on the road to-day.

A most interesting post-war European car now in Sydney is the Silent Knight

The business manager of *The Car* asks: "Why does a firm advertise?" And answers the question this way: "Solely to make their goods known to as many of the public as possible and to create a demand. Logically, then, when the sales fall off greater publicity is needed to restore that demand. The stopping of an advertisement simply intensifies a slump in sales. It is equivalent to discharging the sales manager and his staff. . . . Advertising is sometimes looked upon as a gamble. Nothing could be further from fact. A scientific advertising campaign is a firm's greatest asset; it does the work of many travellers in building up a business. . . . To sum up, if a firm is pre-

Minerva. This car is manufactured in Antwerp, which place it will be remembered was captured by the Germans early in the late war, and the factory was utilised for turning out guns and ammunition. Immediately on cessation of hostilities the *Minerva* Company procured fresh machinery from America and set about manufacturing cars again.

The car is up-to-date as regards latest mechanical improvements, the chassis being made in both 4 and 6 cylinder models. The chassis only are imported into Australia, the bodies being built locally.

pared to spend a given sum on advertising when trade is brisk, I maintain it would be well advised to double the expenditure when sales fall to less than the usual figure."—*The Motor Weekly*.

Hurry: "What's happened to Speeder? I haven't seen him for weeks?"

Cane: "Oh, he tried all the different makes of cars and then bought an airplane."

Hurry: "Has he crashed?"

Cane: "Well, not exactly. He started on a cross-country flight the other day, heard something rattle, and absent-mindedly climbed out to look under the machine."

OVERSEAS MOTORING NEWS

FOUR SPEED RECORDS BROKEN ON PACIFIC COAST

Carrying United States Mail, car makes sensational run from San Francisco to Los Angeles, U.S.A., and return, setting new marks for round trip, coast route, and beating fastest express train by 3 hours 47 minutes — on second trip same car breaks valley route record.

In two sensational dashes a Studebaker "Light-Six" automobile recently broke all records for speed between San Francisco and Los Angeles, U.S.A., setting a new mark for the round trip, lowering the coast route record by 2 hours 35 minutes 20 seconds, beating the best time ever before made over the valley route, and leaving "The Lark," most famous of the fast coast express trains, 3 hours 47 minutes and 30 seconds in the rear.

On the first trip the drivers, Hart L. Weaver and James C. Gurley, carried United States Government mail both ways between San Francisco and Los Angeles, being sworn in as Federal officials upon authority from the Post Office Department. In fact, the journey was made for the purpose of showing the possibilities of the automobile in transporting mail quickly.

The round trip, a distance of 864.8 miles, was covered in 21 hours 23 minutes. The trip down, over the coast route, a distance of 453.7 miles, was made in 10 hours 12 minutes 30 seconds, as compared with the previous best record of 12 hours 47 minutes 50 seconds, established in 1916.

The car and "The Lark" started their dash to Los Angeles at the same time, and it was on this occasion that the "Light-Six" beat the train's schedule by over three and one-half hours.

After hanging up these records, the Studebaker drivers went after the fourth and only remaining speed mark—that of lowering the previous best time over the valley route. They succeeded in making the trip from Los Angeles to San Francisco over this route, a distance of 411.1 miles, in 9 hours 15 minutes 50 seconds, of which time 35 minutes was spent in crossing the ferry to San Francisco. This record-breaking time was made under difficult weather conditions, the pilots being forced to drive through a dense fog 120 miles of the way.

These record-breaking trips also prove how an automobile can stand a long-continued run without mechanical trouble. In this case the car was ready to start out on

its second trip immediately after finishing the first.

New World's Record.

Cable advices state that a record of 102.5 miles per hour was accomplished on a stock model Powerplus Indian at Beverly Hills Speedway in California. This track is circular, and as the test was run on a circular one the above mileage is truly a record one.

Record Travel.

Travel record of 350,000 miles to date is the record of a Cadillac, which is in bus service on a 35 mile stretch between Watertown and Clayton, N.Y. The chassis was bought in 1914. It then had a wheel base of 145 inches fitted out with a 16-passenger omnibus body, and was run 310,000 miles. Then the wheel base was lengthened to 155 inches and the passenger-carrying capacity increased to 25. Since the car was enlarged, it has run 40,000 miles, making the total 350,000 miles to date and still going strong. So far as the engine is concerned it is practically the original. It has had three sets of piston rings, and two new connecting rod bearings, but is still using the original cylinders and the original pistons, and works as smoothly and efficiently as ever it did.

Condition of the Motor Industry Overseas.

Latest advices from America and Europe state that the worst is over in the automobile industry. Swift car prices have been reduced and Lincoln prices advanced. The law of action and reaction has always been appreciated from a scientific angle, but here we get it from the economical point of view. It will be interesting to see what light Henry Ford will throw on the situation.

Safety First.

Lies slumbering here
One William Lake;
He heard the bell
But had no brake.

—*Detroit News*.

STOWAWAYS BY HUNDREDS

ORGANISED RINGS USING BRIBERY INCREASE THE UNPRECEDENTED NUMBER GOING TO U.S.A.

BY
JAMES C. YOUNG

THE war's aftertide is sweeping into New York a record number of stowaways, and every man among them has a story to tell which makes a romance of the blue water. Each incoming ship brings these unbidden passengers. They hide in every corner. Members of crews and boarding officers have dug them out beneath piles of coal. Ventilator flues are one of their special retreats when hard pressed. From bow to stern of any ship coming this way a stowaway is likely to be found in the most unexpected place.

They are of all kinds and degrees, youth and age, criminals and innocents, mixed together. The great yearning in Europe to escape its war burdens and make another start in America furnishes the motive for most of the stowaways. The sinister members of the brotherhood include men convicted of crimes, sometimes running from prison sentences abroad, and in many cases encouraged to get away by the police on the other side, glad to get rid of them. But the real tramp of the sea is a youngster who becomes tired of home and starts out to see the world.

This common yearning of all classes to reach America has brought about a new kind of contraband business between ship crews, stowaways and an organized ring working in the Mediterranean ports, France and England, and which now is extending operations into North Sea ports. Before the war transportation to America cost from 25 dollars to 40 dollars in the steerage. This has been increased until it ranges from 120 dollars to 160 dollars, an impossible price for many who look toward this country with hungry eyes. But the new international stowaway ring will ship a man for 30 dollars or 40 dollars, guaranteeing to put him aboard, with food supplied by the crew en route, and a landing on this side. The plan works very well, except for the landing agreement.

Usually the stowaways are left to shift for themselves. Although many are caught, it is fair to assume that as many more, and perhaps by far the larger number, get safely away.

How the stowaway ring works was revealed to Commissioner of Immigration Frederick A. Wallis by a man brought in a few days ago. This man was one of two who had jumped overboard from an incoming Italian ship in the Narrows. He was recaptured, but his companion either was drowned or escaped. The ship had been searched before leaving Trieste and eighteen stowaways put off. At Bologna fifteen more were found and landed. A third search in Naples brought fourteen others from hiding. The ship's officers could not understand how these last had evaded detection.

Persistent questioning by Commissioner Wallis and a promise of special consideration brought the admission from the man that twelve stowaways still remained on the vessel. This her officers refused to believe. The immigration men insisted on the hold being searched. Both crew and officers declined. If there were twelve stowaways below decks who had evaded all previous searches, they were not the kind of men who would be brought forth by a mere request. It took the reserves from two police stations to comb that ship and a day's hard work to round up the last of the twelve stowaways.

Use of Bribery.

Commissioner Wallis found the man who had talked in fear that he would be killed if sent back to his starting place, and promised him a respite of six months or a year—perhaps even liberty—for the details of the stowaway ring. This brought the information of how the ring had become highly organized, ruling by bribery and fear. On many vessels only stowaways

shipped by the ring have any chance of getting across, as the crews keep zealous watch and put all of the others ashore when found. In other cases food is refused, except to those who have taken passage through the ring. It is almost impossible for a stowaway leaving Italy to bring anything like enough food with him for the journey, and he is compelled to rely on the help of some one aboard. Hunger drives many of them forth to surrender. But there is another class of stowaway, the real adventurer of books and the sea, who defies the ring, the crew and the devil himself—the Captain—depending only on his own wits.

There still are Captains of the old school. One of them who sails from New York in command of a big freighter belongs to both the old school and the new. This Captain is a Yale man, a husky six-footer, well known on the football field. He entered the merchant marine during the war and quickly took his certificate. He is a big, blue-eyed, blond man, having something of the university cut combined with the finishing touch of the hard school of the sea. His ship was plagued with stowaways, and trouble developed on several occasions. Then the Captain hit upon another plan. Whenever a stowaway is brought forth the crew carry him before the shipmaster. The Captain takes off his coat, puts up his hands, and it is a case of the best man winning. So far the Captain has not lost. He believes that he has found the stowaway cure; at least, a means of keeping peace aboard.

The stowaways' fate, when found out, depends wholly upon the ship master. Sometimes they are penned up like so many wild animals, at other times they are chained with arms around a post, and left there. But in many cases they are given a bunk and put to work. Of late there have been so many stowaways that most ship masters have kept them under key. The majority stay out of sight until they reach New York, when unloading means a thorough search of the ship. Recent measures to check the spread of typhus, with intensive fumigation of ships, has resulted in the death of several who did not leave holds in time to escape the gas.

Many Boy Stowaways Adopted.

There are about 100 stowaways on Ellis island awaiting reshipment, and this aver-

age has been maintained for many months. But the stowaways soon will be almost a memory of the island, following the adoption of a ruling after Donal O'Callaghan, Lord Mayor of Cork, came over as a stowaway and landed in Norfolk. The new ruling holds that no stowaway shall be landed at an American port who does not have a passport, properly vised. As this takes place in only a few instances, it means the end of the stowaway on Ellis Island. Henceforth all of them will be sent back to the other side without question or appeal, a procedure which would have prevented O'Callaghan from remaining in this country any longer than found out.

In the past many boy stowaways have been adopted, and others having relatives were released under bond on probation. How certain nationalities bend their energies to assist fellow countrymen was indicated in an illuminative way during the recent Presidential campaign. A boy had been ordered returned and the ship sailed. She touched at Savannah, when Commissioner Wallis received a telephone request from a former American Ambassador asking that the boy's case be held up, although he had started homeward. Then came a telegram from a Georgia Representative, who had been asked to help. This was followed by another message from one of the State's Senators. Mr. Wallis left for Washington on other business, and mentioned the matter to his superiors.

"Nothing strange about that," they said, "here is a telegram from a Deputy Attorney General of the United States."

While they were considering the matter, still another telegram arrived, from one of the candidates for President. Such was the operation of influence, none of the men concerned knowing the boy. Needless to say, he stayed.

The master adventure of the stowaways befell a West Indian negro in the hold of a banana boat. He was safely hidden when he saw something moving in the half light. Another stowaway, no doubt. The negro called, but his companion failed to answer. He watched intently and noted that the second stowaway was moving. The negro saw that the other had an unbelievably long body—a boa constrictor.

What happened just then never will be told. When the negro recovered he found that the boa was lying a little dis-

tance off. The boa watched the negro and the negro watched the boa. That vigil continued for hours. The hatches were down, and the prisoner knew of only one place by which he could leave that part of the hold. It chanced that his companion was directly in the path to this line of retreat. Then the stowaway remembered some of his native lore, to the effect that a boa would not attack a man unless annoyed or hungry. He certainly had no intention of annoying him, but he thought the boa looked a bit hungry. If not at that moment, the reptile would get up an appetite before long.

The West Indian tore off a few bananas and threw these conveniently close to the boa. The latter only sniffed and declined. Something must be done. Then the negro had an inspiration. The ship was filled with rats, and if he could kill a few of these he might appease the monster. A lucky blow with a stick brought the first rat and this was thrown to the boa, which devoured it at a gulp. The West Indian turned purveyor of rats and in a few hours had fed the boa a fair-sized meal. But the reptile still kept its position between him and safety, without showing any inclination to become better acquainted.

The Dash for Liberty.

For four days and nights the West Indian and the boa kept company. The stowaway dared not sleep, and rat hunting in the narrow space to which he had access kept him busy. He almost changed his colour and his hair lost some of its curl. This annual should end with the boa gradually closing in on the victim or a heroic dash for liberty. But neither happened. After a particularly heavy meal the boa dropped off to sleep and the negro, his life in his hands, crept by the reptile to his place of retreat and escaped. He came on deck with ashy face and collapsed. The boa afterwards was killed with rifles, and thus ended an epic of the sea.

One of the most interesting stowaways (continues the writer in the *New York Times*) ever landed in New York was a little Italian girl, 8 years old. She was brought before Commissioner Wallis in a sad state after long hiding in the hold of a ship. She had neither money nor a change of clothes. Apparel was obtained and the Commissioner endeavoured to learn her story. The young miss was reticent and merely would say that her mother

had put her aboard, trusting to the god of chance for a better life across the water. The Commissioner gave her an orange in hopes of more details. She took the orange, but would say nothing. Then he saw the child's eyes intently on his desk, and followed their glance to a little celluloid doll which some one had left there at Christmas time. He gave her the doll, and she beamed. This brought the whole story of the hard life at home and how she had evaded detection. An uncle was found in New York who put up a bond and took the child with him. She now is an American in the making.

Women stowaways are not uncommon. It might be supposed that they would disguise themselves in men's clothing, but most of those who reach the island have come in their own proper attire. During the war women stowaways arrived on almost every troopship and a case has been recorded of two who came aboard a cruiser. Not long ago a freighter with a crew of thirty-odd men put in to Baltimore with more than fifty women aboard.

The stowaway has two passions, food and gambling. Among the 100 on the island, speaking twenty-seven languages, these are common ties. Most of them are half-starved upon arrival and break all records when the wholesome food of the immigrants is placed before them. In the daytime they are kept in a large room, which is not a prison chamber, but has heavily grated windows. The immigration officials hold that a stowaway is no criminal merely because he stole aboard ship, but he must go back and is a man to be watched.

Entering the detention room the visitor is greeted by a motley crew. They represent shades of humanity from the fair Northman to the black African. Their clothing is in every stage of dilapidation, and men of all grades in the scale of intelligence are present. One young fellow of 30 plainly was an Englishman, well groomed, clean cut. He even wore a white collar and had been shaved. Lack of money was his only offence. Near him sat an old man of not less than 65, a picture of dejection. Unconsciously he had the posture of Rodin's "Thinker," and one wondered of what he thought. So close to the New World and a few years of something different from the past—and yet so far away.

Dangerous Stowaways.

A half dozen games of chance were under way, principally matching coins of half the countries in the world. It would be interesting to know what system of exchange they followed. Some stowaways have a little money, but usually they suffer from the common ailment of the homeless and aimless. When money fails the games are carried on with anything which offers, usually clothing. The Commissioner gave an entertainment recently at which several stowaways were billed to appear. A West Indian negro dancer was down for one act. But he could not appear for the reason that he had nothing left to wear, the dice having been unkind to him.

Sometimes the stowaway is dangerous. Commissioner Wallis has a collection of arms and other mementos. Blackjacks lead, with stilettos almost as numerous. Most of us think of a stiletto as a kind of dagger, but the real Italian article closes like a razor, which it resembles, except that the blade is keen and curved. The stowaway who causes the most trouble is the same kind of a man who is a menace ashore. Often he has a bad record, and when men of this kind are caught here the police are notified in Europe where they will land.

In the little armory of Commissioner Wallis were several table knives which had been turned into saws by the process of hacking the blade of one against another. Repeated with care and patience this imparts a saw edge, and when rubbed with soap the improvised saw will cut through the stoutest bar. Steel saws, burglar tools, flashlights and such things were other exhibits.

The Commissioner sees a real threat in the number of stowaways coming to this country.

"Many of them are criminals or potential criminals," he said, "and largely the very sweepings of Europe. We have been told that some of the police abroad are encouraging bad characters to become stowaways. The number of them reaching port affords excellent opportunity for Bolshevik agents to get across and spread

their propaganda here. We are constantly on the watch for dangerous characters."

The guards who handle stowaways are unarmed and their task is not always easy. Recently one of the men on the night watch was warned of an attempted break. On going into a bunk room he found the lights out, contrary to practice at the early hour. A ticklish position for a lone man without a weapon. He turned on the lights and was met by a circle of grinning faces in the bunks. A kind of anti-climax apparently, but the guard glanced sharply about him, and in a bottom bunk he saw one white face turned intently toward him. The man's glance travelled from the guard to the ceiling, who took the hint and looked upward, but saw nothing unusual. Still directed by the man's eyes, and endeavouring not to attract the suspicion of the others toward this man, the guard went to a private room in the corner and found that a ventilator grating in the roof had been cut out, probably with home-made saws such as described.

Boldness that Succeeded.

The guard summoned another and the two crawled up on the roof, where they found twelve stowaways ready to take a chance on life and limb as the price of escape. A lively time was had by all until they had been brought back.

It is a rule in hazardous enterprises that boldness best succeeds. An English youngster adopted that as his policy when he decided to cross the Atlantic on one of the largest liners. He was about 15 years old and well groomed. Instead of seeking a dark corner in the hold with all of the attendant privations of the voyage, he decided to sleep beneath the Captain's bed. And he made himself very comfortable there throughout the trip. At the first meal out of port he appeared in the saloon and was assigned to table along with other cabin passengers in the routine way. He dined and slept well, joined in games and generally had a pleasant time until he reached this side. Then a checking of passengers disclosed the gentleman stowaway. But boldness had its way, for the passengers made up a purse and he went free.

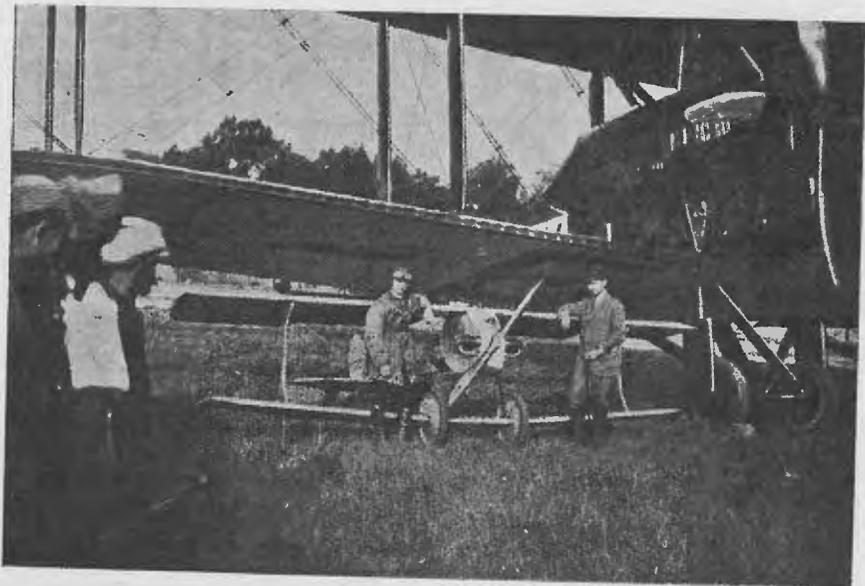
SMALLEST 'PLANE IN THE WORLD

A French Aeronautical Engineer, M. Pischof, has successfully built and flown the small aeroplane illustrated below.

The construction is entirely metallic, and the engine is a 16 h.p. Clerget-Blin. The span of the wings is 17 feet, the

feet 2 inches, and can therefore be housed in an ordinary motor garage.

How small this aeroplane really is is depicted by the photograph, which shows it beneath the wing of a Handley Page 'plane.



total length 11 feet, while the height is 4 feet 2 inches.

When dismantled with wings folded back upon the fuselage, the whole machine measures 11 feet x 3 feet x 4

The inventor, M. Pischof, has successfully flown this small machine at sixty miles per hour.

Its highest altitude is placed at 6,250 feet, and when empty weighs 225 pounds.



Aviation in Australia

TRANS-PACIFIC FLIGHT.

Lieutenant R. J. Parer, of Parer's Commercial Aviation Service, Melbourne, has decided to make a flight around Australia. The object is to raise sufficient funds to purchase a suitable machine to attempt the trans-Pacific flight, for which Mr. Thos. Ince, the famous American moving picture producer, has offered a prize of £20,000.

Lieutenant Parer will be accompanied by Mr. L. P. K. Morris (Manager), Mr. J. Girould (Mechanic), and a cinematograph photographer.

The aeroplane to be used is the famous *de Haviland* with which Lieutenant Parer won the Australian Aerial Derby. The party expect to commence the flight around Australia about the beginning of this month from Melbourne, proceeding to South Australia, thence to Perth, Broome, Darwin, Bourketown, Cloncurry, Charters Towers, Winton, Rockhampton, Brisbane, Sydney and back to Melbourne, with landings between the points mentioned.

This flight will, of course, necessitate the crossing of country that has not yet been crossed by even a white man, let alone an aeroplane. The longest unexplored stage is between Broome and Darwin, and Lieutenant-Colonel H. C. Brinsmead, Controller of Civil Aviation, will accord the party every assistance in the way of providing them with details of surveyed routes, and the Aviation Service will, of course, reciprocate by presenting the Defence Department with all data with regard to the previously unknown stages.

At all points passenger flights will be given, advertising matter and merchandise carried and distributed, and the films taken *en route* will at the end of the tour be shown to the public entitled "Around Australia by Air."

It is hoped by these means to secure the necessary funds for the ambitious and dar-

ing project that Lieutenant Parer has in mind.

American Attempt.

It has been reported in the cables that the U.S. Navy is constructing a huge aeroplane for the purpose of attempting the trans-Pacific flight.

The machine is to be a triplane, with a wing-spread of 167 feet, fitted with nine 400 h.p. motors, and will have a lifting capacity of 30,000 lbs.

The crew will number 12, and the tentative route for the flight is San Diego, Honolulu, Wake Island and Manila.

MAPPING AIR ROUTES.

Surveys in all States.

Important plans for the expansion of the Air Force are now under consideration by the authorities. They include aerial surveys in all the States.

Flight-Lieutenants F. W. Lukis, and F. H. McNamara, V.C., are about to make a survey of an aerial route from Melbourne to Perth. Sites for landing places will be sought, with the view also to establishing depôts and aerodromes so that the mobility of all ranks of the Air Force can be secured.

The Air Council is in possession of valuable information given by Sir Ross Smith, Flight-Lieutenant H. N. Wrigley, and others, and Mr. Lebbeus Hordern has offered to supply information of the coastal survey and to be made at his own cost. The civil aviation companies are also co-operating with the Defence Department in this important matter of aerial routes.

It is likely that the Air Council will acquire the aerodrome and hangars established at Richmond, N.S.W., by the New South Wales Government.

Civil Aviation Licences.

Many applications from air pilots and ground engineers for licences under the

Air Regulations, have been received by Lieutenant-Colonel H. C. Brinsmead, Controller of Civil Aviation. Early application is necessary, as, by June 28, pilots and engineers must be in possession of licences, and owners of aircraft of certificates of air-worthiness.

* * *

AERIAL MAIL.

Tenders Called: Opening up North-West.

The Federal Government has decided to call for tenders for an aerial mail between Geraldton and Derby, on the north-west coast of West Australia.

The route, which extends for about 1,000 miles, was chosen by a committee consisting of representatives of the Postal and Defence Departments, and the establishment of the service will mark the first official regular aerial mail service in Australia.

In addition to delivering mail matter at various towns, successful tenderers will have to undertake certain obligations on behalf of the Defence Department.

Under present conditions, the towns are entirely dependent on a steamer mail service.

Details of the contracts are not yet complete.

Air Route of 1,195 Miles.

Senator Pearce (Minister for Defence) has referred to Cabinet's decision in regard to the tenders to be called for the aerial service between Geraldton and Derby, the distance of which, by air, is approximately 1,195 miles.

He said it was proposed that there should be one trip each way a week. It was also provided that the persons employed by the contractor of such service must be enrolled and remain as a member of the Australian Air Force reserve whilst engaged in this service.

No tender is to be considered that is in excess of £25,000, for a period of twelve months, but a contractor submitting a tender may forward a proposal to maintain a service giving a greater or lesser number of trips than set out in the above. It is proposed that the service shall commence about October 29, 1921, or a subsequent date, as may be approved.

Tenders will be received up to July 30, 1921, and full particulars will be advertised throughout Australia.

Developing Distant Parts.

Senator Pearce added that the Government, in adopting this proposal, believed that it would be an effective way of demonstrating the value of the aeroplane for the development of more distant portions of the Commonwealth which suffered at present from lack of speedy communication. Towns and districts touched by the service contain fair populations, and are carrying on important industries of great value to the Commonwealth. In some cases it would take three months for a pastoralist to come to his nearest city, allowing time to transact business, and return to his home. If this service is adopted he will be able to do the journey in two or three weeks.

The project from a defence aspect is regarded as of great value by the Air Council. The ground survey of the route has been arranged for, and it is hoped by the Government that the conditions will shortly be advertised.

Arrangements Complete: Subsidy of £25,000.

The stages of the proposed aerial mail will be from Geraldton to Carnarvon, 270 miles; Carnarvon to Onslow, 240 miles; Onslow to Roebourne, 165 miles; Roebourne to Port Hedland, 100 miles; Port Hedland to Broome, 310 miles; Broome to Derby, 110 miles, making a total of 1,195 miles.

Although it is expected that the journey will be accomplished in three days, it is intended to allow a full week each way, thereby providing a fortnightly mail service to the chief centres. On the north-west coast, Derby is the centre of a great cattle district, and from the terminal point the ordinary mail service will radiate.

The official view is that nothing would be gained at present by a mail service between Melbourne and Sydney, and that instead of linking up the centres that already have mails at reasonably frequent intervals, it is better to make the experiment where the existing facilities are exceedingly poor. The tenders will be advertised without delay, and the contractors will be allowed to carry parcels and passengers in consideration of the Government subsidy, which may be up to £25,000. The contractor will be required to reserve space for mails, and all pilots and mechanics will be required to join the Air Force Reserve. From the defence point of

(GOVERNMENT NOTICES)

Department of Defence

AEROPLANE SERVICE BETWEEN GERALDTON AND DERBY, WESTERN AUSTRALIA

Tenders will be received by the Secretary, Department of Defence, at Melbourne, until July 30th, 1921, for the establishment and maintenance of an aeroplane service in safe and suitable aeroplanes between GERALDTON and DERBY, Western Australia, over the route described hereunder for the term of one (1) year from October 29th, 1921, or from some such subsequent date as the Minister for Defence may approve, which date should not be later than four (4) months from July 30th, 1921.

Each tender must be submitted on the printed form provided for the purpose, copies of which may be obtained from the Controller of Civil Aviation, Department of Defence, Melbourne, or from the Secretaries, District Contract and Supply Boards, Victoria Barracks, Petrie Terrace, BRISBANE; Ordnance Buildings, Pitt Street North, Circular Quay, SYDNEY; Keswick Barracks, ADELAIDE; Military Barracks, PERTH; and Anglesea Barracks, HOBART.

Each tender must be signed by the tenderer and sureties and witnessed by a Magistrate.

Each tender must be enclosed in a sealed envelope addressed to the Secretary, Department of Defence, Melbourne. The envelope must bear the words "Tender for Aeroplane Service."

A tender may be delivered by hand to the Secretary, Department of Defence. If forwarded by post it must be sent as a registered letter and postage prepaid thereon.

The route of the service is from GERALDTON to DERBY, *via* CARNARVON, ONSLOW, ROEBOURNE, PORT HEDLAND and BROOME, and vice versa.

The approximate air mileage of the various stages of the route is as follows:

GERALDTON to CARNARVON	270 miles.
CARNARVON to ONSLOW	240 miles.
ONSLOW to ROEBOURNE	165 miles.
ROEBOURNE to PORT HEDLAND	100 miles.
PORT HEDLAND to BROOME	310 miles.
BROOME to DERBY	110 miles.

Total 1,195 miles.

Contractors will be required to make each week one trip from GERALDTON to DERBY, and back to GERALDTON, touching at the localities mentioned above, and will be required to reserve for the purposes of the Government in each aeroplane employed in the service, space sufficient to accommodate mails weighing 100 lbs.

Tenderers must undertake that pilots, mechanics and other persons employed by them on this service shall enrol as members of the Australian Air Force Reserve, and remain as members whilst so employed.

In no circumstances will consideration be given to any tender in excess of £25,000; but tenderers may forward proposals to maintain a service giving a greater or lesser number of trips than as set out above.

Attention is particularly directed to the Conditions of Tender and Conditions of Contract printed on the tender form.

G. F. PEARCE,
Minister of State for Defence.

Melbourne.

view this is regarded as very important, providing a continuous patrol, and educating pilots regarding the little known and badly protected coast.

Apart from these conditions, the enterprise will not be hampered by official control. Payment of the subsidy will be made on the successful carrying out of each weekly trip, thereby placing the main responsibility upon the contractors. At present it takes three months to make the return trip to Derby.

The itinerary mapped out is as follows:

Geraldton to Carnarvon ..	270 miles.
Carnarvon to Onslow ..	240 miles.
Onslow to Roebourne ..	165 miles.
Roebourne to Port Hedland..	100 miles.
Port Hedland to Broome ..	310 miles.
Broome to Derby ..	110 miles.

All commercial aeroplanes will show the registered mark—G.A.U.

Brisbane and Melbourne.

Major Murray H. Jones, who is surveying the military air route from Melbourne to Brisbane, *via* Sydney, arrived in Mudgee recently, accompanied by an assistant.

Austin's aerodrome, just outside the town, was inspected and approved by Major Jones. It is probable that Mudgee

will be a stage and scheduled stopping-place in a regular air-service between Brisbane and Melbourne.

Lieutenant R. Parer, of the Parer Commercial Aviation Service, Melbourne, has received messages from China asking that he should give exhibitions and joy-flights at Hong Kong, Shanghai and other centres.

As he is now busily engaged in planning his flight around Australia, Lieutenant Parer will not be able to respond to the requests received.

First Aviation Examination in Queensland.

The first examination in Queensland for pilots' certificates under the Air Navigation Regulations of 1921 was conducted at Brisbane, when two candidates—Messrs. F. L. Roberts and S. W. Burge—presented themselves before the examining board of representatives of the Department of Defence (Civil Aviation), comprising Captains E. J. Jones, F. W. Follitt, and T. C. Backhouse, medical officer. The candidates were both graduated pilots, and as such required little further examination beyond a rigid medical test.

OBITUARY

Australian aviation suffered great loss last month by the unfortunate deaths of Lieutenant-Colonel W. O. Watt, O.B.E., and Major H. G. Ross.

Lieutenant-Colonel W. Oswald Watt,
O.B.E., L.d'H., Croix de Guerre.

This famous Australian airman, known to practically every member of the Australian Flying Corps, was accidentally drowned at Bilgola, N.S.W., on Saturday, May 21.

It was with deep regret that everybody heard of the death of Colonel Watt, a memoir of whom appears on another page of this issue.

Major H. Galsworthy Ross.

One of the leading pioneers of commercial aviation in Australia, Major Hubert Galsworthy Ross, was accidentally killed at Port Melbourne on Sunday, May 22.

The late Major Ross served throughout the Great War and was attached to the Royal Air Force, where he rose to the rank of major.

After the war he returned to Australia and, together with Major T. T. Shaw, formed the well-known Shaw-Ross Engineering & Aviation Company, of Melbourne, in which he was a partner and a pilot.

He was 36 years of age and resided with his partner, Major Shaw, at Black Rock, Melbourne.

His death will be very severely felt in the activities of the above-mentioned Company and to commercial aviation generally.

On behalf of our numerous readers and ourselves, we extend to the relatives and friends of the late Lieutenant-Colonel Watt and Major Ross deepest sympathy in their bereavements.

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Railway Waggon Builders. Contractors to N.S.W. Govern-
ment and all important Coal Mines.**

AVIATION IN NEW ZEALAND

BY

HENRY BATESON (Our Special N.Z. Correspondent).

WELLINGTON, May 27.

The Work of the Air Board.

The Minister for Defence (Sir Heaton Rhodes) recently made an important statement with regard to aviation in New Zealand. He stated that the Air Board had thoroughly investigated the position and had decided to make provision for the development of aviation along lines which would enable the Dominion to possess civil aviation for commercial and other needs, and at the same time to provide for the necessities of aerial defence in case of emergency. The key of the system was the Air Board, which would advise the Government on all sides of the question. On the purely defence side the function of the Board would be to advise the Government as to the purchase, rent and preparations of key aerodromes; the purchase and maintenance of war aeroplanes; the inspection by members of the Defence Force of aviation schools and their equipment; the institution of refresher courses for ex-R.A.F. pilots, so that the valuable training of these men might not be lost to the country; and the allotment of Defence machines to civil companies. In referring to aerial defence the Minister mentioned the high cost involved. This prohibited the development of aviation on purely defence lines and without the development of the commercial side. The Board will also have to advise the Government on this matter, and how it could best be developed. He mentioned that the work done so far by the Board had been chiefly confined to constructive and research work for the development of civil aviation. An Air Force has not yet been formed, but it is probable that a Territorial Air Force will be organised shortly.

Aerial Mail Services.

The Timaru-Christchurch trial aerial mail service has been suspended, but a new

service will be commenced in June between Blenheim and Christchurch. The Canterbury Aviation Company have the contract for this service.

In the North Island a trial service between Auckland and Whangarei has been inaugurated. Heavy storms have been experienced on the East Coast. On May 16 a seaplane was leaving Whangarei in a strong, gusty, wind, when she stalled and hit the water at great speed. The machine settled down on the water owing to engine trouble, but in rising a wave struck and broke the propeller. A coastal steamer towed the plane into port.

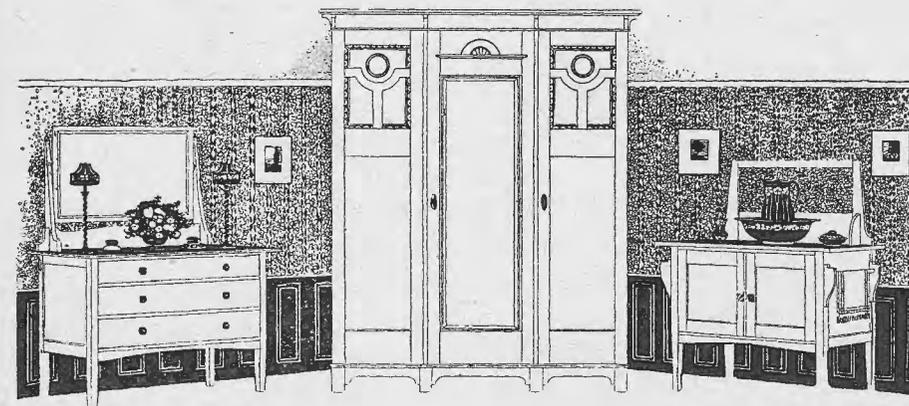
R.A.F. Cadetships.

Provision has been made by the Air Ministry, London, whereby the Governor-General is empowered to recommend two candidates for cadetships for the R.A.F. (Cadet) College. The candidates must be between the ages of 17½ and 19 years and have certain definite qualifications specified by the Air Ministry. The normal length of the course of instructions will be two years.

Side Winds.

Recently a novel use was found for a seaplane in Auckland. A launch towing a raft of logs broke down in the Hauraki Gulf and search by ordinary methods failed to locate it. A seaplane from the New Zealand Flying School was commissioned and the lost launch was soon found.

A prosecution which is probably unique in the world is to be brought in Timaru, the headquarters of the New Zealand Aero Transport Company, shortly. The ranger of the South Canterbury Acclimatisation Society has expressed his intention of bringing a charge against the Aero Company for alleged disturbing and pursuing of game on a sanctuary—the Washdyke lagoon.



The "Shelcote" Bedroom Suite

The Suite comprises a 5 ft. 6 in. Wardrobe with large hanging space occupying two-thirds of the wardrobe, the remaining third being fitted with shelves. A 3 ft. 6 in. Toilet Table. A 2 ft. 6 in. Cabinet Washstand, affording all the necessary accommodation in a modern bedroom with a great saving of space. This feature should particularly commend itself when the limited space of some of the flat bedrooms of to-day has to be dealt with. On view in our Fitted Showrooms.

Price - £55 10s.

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It is not too much to say that were our stock offered at the moment in London or New York, DOUBLE our prices would be realised.

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AIRCRAFT PROGRESS

SPEED CONTROL AND FLYING EFFICIENCY

Many attempts have been made to evolve an aeroplane the speed of which can be varied within wide limits, and one of the most recent attempts to attain this end was illustrated in *Conquest* December number (p. 68). To obtain the necessary variation of speed, inventors have generally made use of one of the following ideas:



A Side View.

- (1) The enlargement or reduction of wing area while in flight.
- (2) Modification of the angle of incidence of the wings. (This system has been tried in France on the Schmidt machine, and in

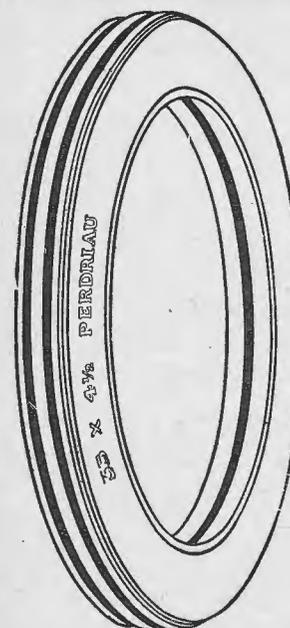
America on the Lanzius aeroplane.)

- (3) Alteration of the wing section. Tried in England on the Fairey machine, and in America on the Dayton-Wright monoplane.
- (4) The fitting of one or more auxiliary planes (slots) on the leading

edge of the wings, the angle of incidence of the slots being different from the angle of incidence of the leading wings. This is the method adopted in the new Handley-Page wing.



Front View of the Experimental Machine of Messrs. Gastambide and Levavasseur. The Wings are fully open.



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Towards the end of the war the French authorities were studying the problem, and when the armistice was declared two inventors, Messrs. Gastambide and Levavasseur, had produced a machine in which the first three of the above ideas were incorporated. With the assistance of M. Latham, cousin of the French pioneer aviator, M. Hubert Latham, they have since effected considerable improvements.

Briefly, the machine is a tractor biplane, with a span of 41 feet, 36 feet long, and fitted with a Salmson 250 h.p. engine. The lower plane, carrying ailerons for transverse stability, is capable of varying its

machine is not disturbed while the changes are being made. When the extensions are closed the lifting surface is 345 square feet, while an area of 560 square feet is available when they are open. The speed variation lies between thirty-seven and one hundred and twenty-four miles an hour.

The chief advantages which accrue from such an arrangement are that the machine can rise rapidly from the ground without attaining the great speed which is usually necessary for the "take-off" of a fast machine, while in the air the planes can be



The Commercial Gastambide-Levavasseur Machine, showing the wings closed.

angle of incidence. The upper plane can vary, not only in angle of incidence, but also in area and wing section.

The span of the upper wing does not vary, but the distance from front to back (chord) is variable by means of three surfaces movable in relation to one another. The middle panel or surface remains fixed, the under sliding extension gliding towards the front, and the top sliding extension moving to the rear, giving a variation from 63 inches to 29 inches. The wing section and the angle of incidence are modified as the upper wing gets larger.

Exact details of the controlling mechanism have not yet been published, but it is understood that the stability of the

adjusted either to fly at a maximum speed or at the most economical speed for the particular engine in use. For landing the wing surfaces are set so as to bring the speed of the machine to its lowest limit.

The new aeroplane was recently flown by the French aviator Grandjean, at Villesauvage, near Etampes, the scene of the Gordon Bennett race. The trials are regarded by the *Union pour la Sécurité Aérienne* as in every way satisfactory. As a result of these tests the larger machine, with a 500 h.p. Salmson engine (shown in the illustration above), has been constructed. The results (concludes *Conquest*) of the trials are awaited with considerable interest.

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OVERSEAS AVIATION NEWS

Holland.

With a view to speeding up the development of civil aviation in Holland, the Royal Aero Club of Holland has appointed a committee for aerial touring. Among the items which are put down for its consideration are: Modifications of the International Aeronautical Convention to facilitate aerial touring; study of the best machines for touring; competitions; development of aerial routes; research work on signals, etc.; simplification of customs formalities; means for popularising aerial touring.

Cost of Cairo-Cape Aerial Survey.

The cost of the British Air Force's activities in connection with the laying out of the Cape to Cairo aerial route is revealed in the course of a report on the Air Services by the Auditor-General. It is shown that approximately £25,600, besides an amount not yet ascertained for pay and allowances of the air force personnel, was charged for expenditure. A sum of £3,000 was originally allotted for the inspection of the route in June, 1919. The Air Council authorised the total expenditure as £15,000, excluding the pay of the air force personnel. It was ascertained in July last year that the expenditure that was administered by the army paymasters and the Rhodesian Government in certain sections would be approximately £50,000. The report states that the Air Ministry has not yet replied to the Treasury's inquiries upon this point.

New French Military Aeroplane.

From France it is reported that the *Établissement Schneider*, at Creusot, are hard at work on a new four-engined military aeroplane, in which the four engines will be arranged in tandem inside a central fuselage. The wing span will be about 100 feet, and the power plant is to consist of four engines of 400 h.p. each. The machine will be designed for bombing work, and will carry several machine guns. The Goliath pilot, Lieutenant Gonin, has been engaged to test the first machine, while it is possible that Casale, who has already tested the Blériot *Mammouth*, will test the second machine.

A New Naval Air Station in Hawaii.

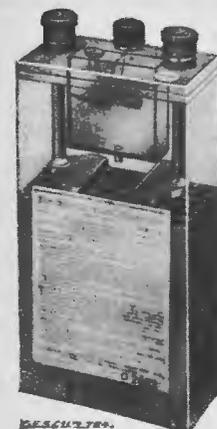
It has been reported that it is proposed to build a Naval air station at Pearl Harbour, Honolulu, the U.S. Naval Base in Hawaiian waters, at a cost of £267,000.

The Bristol "Tramp."

Among the few firms which are still busy on aircraft construction is the Bristol Company who, in addition to a large Air Ministry order for Bristol Fighters, are engaged on the construction of a new triplane, somewhat on the lines of the luxurious Bristol *Pullman*, except that it is not designed to carry passengers. The fuselage is very roomy, so as to provide ample space for cargo. The power is to be furnished by four Siddeley *Puma* engines of 230 h.p. each, and the carrying capacity of the machine will be in the neighbourhood of 2½ tons. The speed will not, of course, be as high as that of the *Pullman*, the power being much smaller. The Air Ministry are said to contemplate various uses for this machine, such as carrying spare parts from one air station to another. If desired, the machine could also be used for wireless experiments, photography, etc.

Across the U.S. in Thirty-three Hours.

How the U.S. post office is consistently encouraging air-borne mails is exemplified in the latest feat under its auspices announced from New York. The test was to convey six sacks of mails from San Francisco to New York by aeroplane, and this was accomplished in an elapsed time of thirty-three hours. Letters were actually delivered to the addresses thirty-seven hours after they were posted on the other side of the American continent. The total distance, which was covered by relays of aeroplanes, was 2,666 miles. The actual flying time was twenty-five hours fifty-three minutes, and the average speed one hundred and three miles an hour. One of the pilots, Mr. Jack Knight, made a thrilling night flight from Cheyenne (Wyoming) to Chicago (eight hundred and thirty-nine miles). Although he had never been over the ground before, he made the journey in perfect time without any mishap. On the way he made three land-



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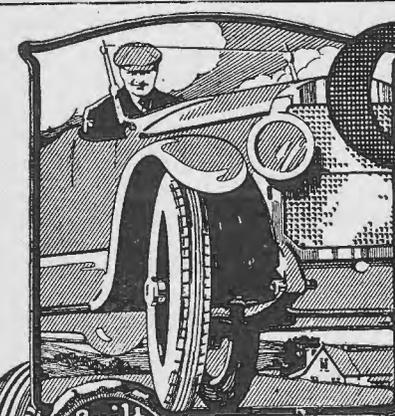
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ings in the dark to take up mail, flew through three snowstorms, and frequently encountered fog. This latest feat of the air mail service surpasses all previous achievements. The quickest time hitherto recorded for trans-continental mail was seventy-two hours by a combination of special mail train and aeroplanes. Before the introduction of aircraft on the Atlantic-Pacific mail route it took four and a half days for letters to travel from New York to San Francisco.

Another Pacific Coast Flip.

It is announced unofficially from Jacksonville, Florida, that Lieutenant W. D. Coney has flown there from San Diego, California, a distance of 2,079 miles in 22 hours 32 minutes actual flying time.

Newfoundland for Air-Mail.

From St. John's the Post Office authorities announce the inauguration at an early date of an air-mail service in the north portion of the island. Only the usual postal rates are to be charged.

Japan.

A correspondent of *The Aeroplane* in Japan writes:

Rebel Aborigines Fear Aeroplanes.

A recent air demonstration carried out by the aerial police department of the Formosan Government had a greater effect than was hoped for upon the insubordinate aborigines. The Koshabokan tribe, one of the fiercest groups of Formosan head-hunting aborigines, offered to surrender, and several other tribes also submitted at the same time.

New Air Lines to be Established.

Mr. Yukiteru Ozaki has announced that he will open an air line between Tōbashi, Miye Prefecture, and Toyama, and the Oriental Park Co. will join with him and establish the company with a capital of 10,000,000 yen. Another air line will also be opened between Tokio and Osaka and take both passengers and cargo. The company will be established, also with a capital of 10,000,000 yen, by Mr. Ryokan Tachibana, with the help of Mr. Takichi Hashimoto.

Avros in the U.S.A.

The Lawrence Sperry Aircraft Co., Inc., have recently purchased the entire stock

of *Avro* biplanes and spare parts belonging to the Interallied Aircraft Corporation. These will be marketed at prices ranging from £1,250 to £4,500, according to requirements. The Sperry Co. are also bringing out a small single-seater sporting biplane similar to a machine, *The Messenger*, designed and built by them for the U.S. Army.

Air Mail Appropriation.

The Senate Committee has restored the original sum of 1,250,000 dollars asked for the Post Office Air Mail, and has increased it to 1,500,000 dollars. The U.S. Navy, it is believed, will get 60,000,000 dollars.

Los Angeles to New York in Two Days.

Quick delivery in New York of a letter posted on January 24 in Los Angeles was made possible by the use of the airway part of the journey. It was delivered in New York at 5.30 p.m. on January 26, the letter having been carried by the night mail from Los Angeles to Salt Lake City, reaching there in time to be transferred to an aeroplane, which carried it to Omaha. It was taken by train to Chicago, and by aeroplane from Chicago to New York.

Boy Mechanics for R.A.F.

An open competitive examination, it is announced by the Civil Service Commissioners, for the entry of boy mechanics to the Royal Air Force will be held in London, Edinburgh, Dublin, Birmingham, Bristol, Chatham, Leeds, Manchester, Newcastle-on-Tyne, Norwich, Plymouth, and Portsmouth, on May 27. The limits of age are 15-16½ on July 1, 1921. Regulations and forms of application will be sent in response to requests by letter addressed to the Secretary, Civil Service Commission, Burlington Gardens, W. 1, on and after March 1.

Progress in Peru.

A national aeronautical company was founded for commercial aviation in Peru as far back as July last year by Lieutenant Lloyd Moore, one of the crew of the *N.C.3*, Mr. A. E. Russell, and Captain M. A. Mott, an experienced American war pilot. This organisation appears to have done well up to the present, and possesses nine planes at its aerodrome at Bellavista, with an additional machine due to arrive shortly. A number of pupils have already been en-

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rolled and drafted off with their licences as C.N.A. pilots, one of these pupils, Mr. Herbert Tweddle, recently completing the flight of about 700 miles from Lima along the Peruvian coast to Puerto Pizzaro, the most northerly port of the Republic. The company hope that they will be able to receive recognition by the F.A.I. for pilots' certificates to be issued by the C.N.A. for those who are trained under this aegis. The bulk of the C.N.A. flying traffic up to the present has been south of Lima to the comparatively thickly populated agricultural areas of the Province of Ica. Flights to the various haciendas and towns in this section are effected in from one to two hours. Overland by motor-car or horseback the same trip would require a strenuous two or three days. The steamer trip, when a ship is available, requires from one to two days. The machines have been used for the transport of passengers, mail, money, newspapers, spares for machinery, etc. The carriage of newspapers was done as an experiment, and reveals the enormous field open for mail-carrying aeroplanes along the Peruvian coast.

A New Venture.

The first aeronautical auction sale in South Africa was held on December 7, 1920, when the entire stock of the South African Aerial Transports, Ltd., was put up for sale. As originally intended, the property was put up as one lot, and was provisionally sold to Captain Ross and Lieutenant Thompson, both pilots of the ill-fated S.A.A.T., Ltd., for £950. It was then offered piecemeal, but as an aeroplane is of little use as a table ornament, and as the various other items could not very well be divorced, it was agreed that the original sale should stand. The new owners will start a new company on sensible lines in an endeavour to make flying not only popular but remunerative from the point of view of the promoters.

The Ross-Thompson Company.

According to the *Johannesburg Star* "the Ross-Thompson Combine continue to do good work in a quiet way to popularise flying.

Charting the Rockies Air.

At Blossburg, on the summit of the Continental Divide, a branch of the Helena, Mont., office of the U.S. Weather

Bureau is to be established, for observations of air currents and other details which will be used in charting a safe route for aeroplanes above and across the Rockies.

The Dutch Indies Acquiring Aircraft.

A number of *D. VII.* machines from the Fokker factory fitted with British engines, for use in the Dutch Indies, have been ordered by the Dutch Colonial Department. They have been specially constructed for use in the damp warm climate of that part of the world.

First all-Japanese Air Race.

Recently the first all-Japanese air race was flown over a course of 400 miles. Seven machines were entered, and the winner of the race was Ishibashi on a *Spad*, with Hispano-Suiza engine. His time over the course was 3 hours 27 minutes. Presumably this *Spad* was built under license, as the race was for Japanese-built machines.

Aeromarine Flying School to be Established at Keyport, New Jersey.

During the war the Navy Department established a school for carpenter's mechanics and used the factory of the Aeromarine 'Plane and Motor Company as a class room for government workers. Navy pilots were sent there for construction work and training and piloting for smaller types of seaplanes. A new flying school will be opened this spring, but instead of being trained for war, students will be trained to take their place in commercial aviation.

C. F. Redden, President of the Aeromarine Engineering & Sales Company said that since the Navy arranged with his concern to distribute *HS-2* Navy patrol flying boats which the Government has released with the idea of developing commercial flying, many inquiries have been received from sportsmen and others concerning instruction for pilots. During the past year, development of commercial flying has been very rapid and many women and men have realised that this means opportunity for them.

Those who wish to learn flying want the finest instructors, and the assurance that the planes used are of the best. Before the war Aeromarine was a well-known name in aviation—even then Aeromarine products had proved their worth. To-day

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Flying instruction will consist of five hundred minutes flying time, all of which will be in machines equipped with dual control so that students will be taught to fly correctly under dual instruction.

The plant of the Aeromarine Plane & Motor Company includes 66 acres with 16 buildings, a club house, restaurant, engine plant, assembly building, a seaplane station and flying field for land machines. This is the only flying school in the East where pilots can receive both land and water instruction at the same location.

"It is the intention of the Aeromarine Company," said Mr. Redden, "to make this school the most elaborately equipped special flying school in the country. We realise that we are faced in the future with a possible lack of trained pilots. Many of the pilots who served in the air service during the war have returned to civil life. This affords a remarkable opportunity for the thinking man to prepare himself to take an active part in flying—the newest, quickest and by far the most comfortable mode of transportation.

"Already a great business has been born—a business greater, from a profit standpoint, than any railroad or any other means of transportation, and people are beginning to realise its safety and its swift and silent speed.

"The action of the United States Navy in authorising the sale of a limited number of *HS-2L* coast patrol flying boats for less than one-third of what it would cost to build them now, has created intense interest in commercial aviation.

"The extensive advertising campaign we have conducted has brought many inquiries and in nearly every case the Aeromarine Company has been asked if we could supply trained pilots. To the young man who wishes to enter a new business, the opening of this flying school provides the way."

Secretary of the Navy Launches Latest Type of Commercial Flying Boat and then Takes Initial Air Trip Over Washington and Down the Potomac.

The first of a series of Naval aircraft converted into flying boats for commercial aviation was launched recently by the Secretary of Navy Denby. In the launching party were Captain Moffat, Chief of Naval Aviation, members of the Senate and House, Naval Affairs Committee and other distinguished persons.

These boats are the well-known Navy Coast Patrol flying boats which did such wonderful service in patrolling the entire Atlantic Coast and doing convoy work during the war.

The boats have been converted by the Aeromarine Company into six-seated open cockpit and six seated enclosed cabin passenger boats, equipped with 400 horsepower *Liberty* motor and wing spread of 72 feet, speed of 75 miles per hour.

In launching the boat, Secretary Denby said that he considered it of a very real importance that our people became familiar with the present day safety and the advantages of commercial aviation. Therefore in order to stimulate interest in commercial aviation so that we will have trained men available for national defence in the case of emergency, the Navy Department has allotted a limited number of these well-known aircraft to be sold to the public at one-third the actual cost.

We believe that those interested in aviation and desiring to keep our aeronautics abreast of foreign countries will quickly take advantage of this opportunity to procure equipment of such proven reliability at so low a figure.

After the launching of the boat, Secretary Denby, together with officials of the Aeromarine Company took a flight over Washington, circling around Washington Monument and then a flight down the river near historic Mt. Vernon.



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<i>Birriwa</i>		<i>Marama</i>	{ C. F. Griffiths (s) J. M. Camps (j)
<i>Bombala</i>	C. W. Donne	<i>Mararao</i>	W. A. Hawkins
<i>Boonah</i>	F. A. Cook	<i>Marella</i>	W. H. Harris
<i>Booral</i>	T. V. Tressler	<i>Marsina</i>	A. Cuthill
<i>Boorara</i>	T. Alexander	<i>Mataram</i>	C. H. A. Kidman
<i>Bulla</i>	R. T. Stephen	<i>Maunganui</i>	
<i>Bundarra</i>		<i>Melusia</i>	S. F. Stafford
<i>Cakulu</i>	F. Exon	<i>Minderoo</i>	M. A. Prudence
<i>Canberra</i>	H. W. Barnfield	<i>Mindini</i>	E. F. Hayes
<i>Carina</i>	W. Hill	<i>Moana</i>	G. Illingworth
<i>Changsha</i>	B. Boni	<i>Moeraki</i>	L. G. Devenport
<i>Charon</i>	J. E. Cleary	<i>Mokoia</i>	
<i>Cooee</i>	P. D. Hodges	<i>Monowai</i>	
<i>Cooma</i>	V. M. Brooker	<i>Montoro</i>	A. L. Dixon
<i>Delungra</i>	I. B. Gibson	<i>Morinda</i>	F. C. Davies
<i>Dilga</i>	H. F. Giles	<i>Nairana</i>	H. A. De Dassel
<i>Dimboola</i>	R. T. Murray	<i>Navua</i>	F. E. Duggan
<i>Dinoga</i>	T. W. Bearup	<i>Ngakuta</i>	S. G. Bargrove
<i>Dongarra</i>	H. J. Byrne	<i>Niagara</i>	{ W. J. Martin (s) E. W. Caldwell (j)
<i>Dromana</i>	F. Stevens	<i>Ooma</i>	A. E. Sheppherd
<i>Dumosa</i>	H. Beckett	<i>Oonah</i>	R. M. Firminger
<i>Dundula</i>	J. H. Pullen	<i>Paloona</i>	G. M. Whiteside
<i>Eastern</i>	J. F. Hutton	<i>Parattah</i>	K. L. Simpson
<i>Emita</i>	I. R. Hodder	<i>Rakanoa</i>	A. D. Grattan
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(Continued on next page.)

(Continued from last page.)

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RESCUE WORK AT SEA.

Value of Radio Direction Finder.

An interesting example of the value of the Marconi wireless direction finder to ships at sea, particularly in the case of mishaps, is quoted in London *Fairplay* of March 24. The Norwegian ship *Ontaneda* was badly damaged in a violent gale while crossing from New York to Bergen. The early morning of January 11 found her drifting in a heavy sea with disabled engines and a heavy list. Her captain, owing to the cloudy sky, could not take observations from the stars. He was forced to estimate his position by dead reckoning when sending out his Radio SOS signals. Several vessels went to the position as indicated, but they could find no trace of the distressed steamer. The signals exchanged by these vessels were recorded by the British vessel *Fanad Head*, which was equipped with a Marconi direction finder. As it was apparent to those on board the *Fanad Head* that the vessels that had gone to the assistance of the disabled steamer were experiencing difficulty in locating the drifting ship, Captain Finlay, of the *Fanad Head*, decided that he could be of assistance in locating the *Ontaneda*. Delay occurred at first owing to the swamping of the *Ontaneda's* dynamo, but the emergency wireless gear was brought into operation. From the signals sent out from this installation, the operator on the *Fanad Head* took the true position of the *Ontaneda*, and was surprised to find that she was straight ahead, and comparatively close at hand. According to the position the disabled vessel had notified by wireless, it had been reckoned that she was some 90 miles further south. The bearing given by the direction finder on the *Fanad Head* were confirmed shortly afterwards when rockets sent up by the *Ontaneda* were seen. The *Fanad Head* had a difficult task owing to heavy seas breaking over the vessel in effecting a rescue of the *Ontaneda's* crew. The *Fanad Head* is a steamer of 5,200 tons, built in 1917 by Workman, Clarke & Co., Ltd.

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WIRELESS INSTITUTE OF AUSTRALIA NEW SOUTH WALES DIVISION

THE Fiftieth General Meeting of this Division was held at "Wireless House," Sydney, on May 10, and in the unavoidable absence of Mr. E. T. Fisk, Mr. H. Stowe presided.

After the minutes of the previous general meeting were read and confirmed, the Honorary Secretary read the following Presidential Report for the year 1920-1921:—

In many respects the past twelve months have been very satisfactory from the point of view of the Members of the Institute. Much good work has been done by the Council and the various sub-committees.

The matter of transmitting licenses has been advanced very considerably and it is hoped that measures contemplated during the next few months will achieve our objective. In this connection it may be stated that the Victorian Division is heartily co-operating and the South Australian Division and Western Australian Division have long since been as one with us in this regard.

The arrangement of the Syllabus has put the work of this Division on a most satisfactory basis and will especially appeal to members as it enables them to anticipate the arrangements.

During the past six months repeated efforts have been made to secure a suitable club room which would be available for members at all times and where buzzer practice could be conducted and meetings held and lectures delivered on topical wireless subjects. Unfortunately so far we have been unsuccessful in finding accommodation within our means which would be sufficiently central, but members can be assured that the matter has not been dropped, but, on the contrary, is very much in the forefront of the Council's deliberations.

It has been considered most undesirable to occupy cheap premises with dingy surroundings as such can only have one effect on the morale of the members.

SOUTH AUSTRALIAN DIVISION

The Monthly General Meeting of this Division was held at Alfred Chambers, Currie Street, Adelaide, on Wednesday evening, May 4, Mr. Hambly Clark presiding.

A letter from Mr. Reed, a member of the Victorian Division, was read, which stated a news bulletin was to be issued by this Division every evening and invited members of the S.A. Division to listen in for the Victorian signals when a test is arranged. Keen interest was shown by all members who intimated

The subject of registration has had the attention of a special Committee and the matter of finalising the Memorandum and Articles of Association is almost complete. In this regard it might be mentioned that the South Australian Division has recently completed the registration of that Division under the Company's Act in South Australia.

Our membership during the period has increased from 64 to 75 despite the defection of 8 members, which indicates a matter of 19 new members. In view of the difficulties in the way of the experimenter at present we view this position with much satisfaction.

The Balance Sheet presented to the Annual General Meeting will convey to Members a good idea of the close supervision which has been exercised over our finances and discloses a fairly strong position.

In conclusion I would like to point out that the thanks of all members are especially due to the executive officers of the Division who have worked in conjunction with one another in carrying out the arduous duties which devolved upon them and which will be greatly increased in the future as the Institute grows.

The Division was very fortunate in its Council which directed affairs for the period, a full attendance being recorded at practically all meetings thereof.

Wishing the Institute every success in the future.

(Sgd.) E. T. FISK,
President.

Owing to being indisposed Mr. Basil Cooke was unable to deliver his lecture—"The Function of the Condenser"—but he has promised same for some future occasion.

At short notice Mr. H. Stowe prepared a comprehensive discourse on "The Fundamentals of Electricity," which he illustrated by experiments whereby members were treated to a most interesting lecture.

their willingness to co-operate in the test.

Mr. Bland gave a very interesting lecture on cabinet construction and finishing.

Mr. Hawke also gave a lecture on Primary and Secondary batteries, their advantages, disadvantages and construction.

Both speakers were accorded a hearty vote of thanks, and further lectures are promised by other members in the near future.

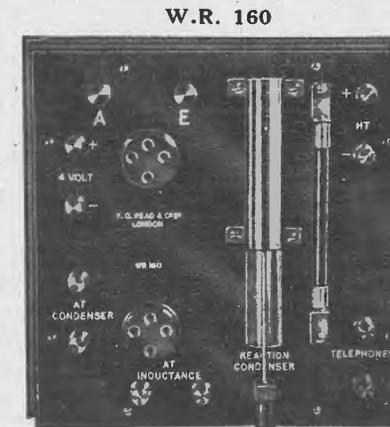
The next meeting of this Division will be held on Wednesday, June 10.

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The following call letters of wireless telegraph stations are supplementary to the list—Circular No. 6 "Wireless Calls"—published by the Wireless Institute of Australia.

Circular No. 6 is obtainable from the Honorary Secretary of each Division, or from The Wireless Press, Sydney—price, one shilling and sixpence per copy.

NOTE.—S.S. = Steamship; L.S. = Land Station; S.V. = Sailing Vessel; W.S. = War Ship; M.V. = Motor Vessel.

Station.	Call Signal.	Station.	Call Signal.	Station.	Call Signal.
S.S. Trevalgan	BAB	S.S. Sonnenfels	GBDF	S.S. Wotan	GBLW
S.S. Baron Inchcape	BAU	S.S. Bermuda	GBDJ	S.S. Naimés	GBLX
S.S. Coquetmede	BDE	S.S. Alster	GBDL	S.S. Eichsfeld	GBLY
S.S. Benmohr	BDO	S.S. Wolfsburg	GBDM	S.S. Hornsee	GBLZ
S.S. Hatipara	BHH	S.S. Heluan	GBDN	S.S. Rhenania	GBMC
S.S. General Church	BOL	S.S. Eduard Woermann	GBDR	S.S. Cap Polonia	GBMD
S.S. War Hermit	BPW	S.S. Gertrud	GBDV	S.S. Gerfried	GBMF
S.S. Clan Monroe	EIS	S.S. Crostafels	GBDX	S.S. Nerbudda	GBML
S.S. Warfield	EKT	S.S. Aschenburg	GBDY	S.S. Bosphorus	GBMN
S.S. Somerset	EPL	S.S. Altenfels	GBDZ	S.S. Antwerpen	GBMP
S.S. Megna	EQP	S.S. Kybfels	GBFC	S.S. Waldenburg	GBMQ
S.S. Makalla	ESA	S.S. Heilbronn	GBFD	S.S. Hamburg	GBMR
S.S. Malayan	ESC	S.S. Pionier	GBFJ	S.S. Erfurt	GBMS
S.S. Chalister	ESF	S.S. Gundomar	GBFL	S.S. Austria	GBMT
S.S. Diyatalawa	ESZ	S.S. Horncap	GBFN	S.S. Binfield	GBMV
S.S. Pruth	EUU	S.S. Almeria	GBFP	S.S. Roma	GBMW
S.S. Athol	EVY	S.S. Arensburg	GBFQ	S.S. Karl Leinhardt	GBMX
S.S. Cape Colony	EYV	S.S. Hornsfels	GBFR	S.S. Isis	GBMY
S.S. Canara	GAF	S.S. Gallipoli	GBFS	S.S. Leapark	GBMZ
S.S. Chindwara	GAR	S.S. Lippe	GBFW	S.S. Baron Garioch	GBNC
S.S. Borderer	GCL	S.S. Tilly Russe	GBFX	S.S. Plauen	GBND
S.S. Fultala	GDC	S.S. Totmes	GBFY	S.S. Sausenburg	GBNF
S.S. Trewellard	GIE	S.S. Irmgard	GBJD	S.S. Polo	GBNJ
S.S. Naneric	GKO	S.S. Alma	GBJL	S.S. Sofia	GBNL
S.S. Knight Companion	GKS	S.S. Masuria	GBJM	S.S. Waitemata	GBNM
S.S. Kathlamba	GLF	S.S. Ravensworth	GBJN	S.S. Grangemouth	GBNP
S.S. City of Edinburgh	GNC	S.S. Rudelsburg	GBJQ	S.S. Cramond	GBNQ
S.S. Santhia	GOE	S.S. Ehrenfels	GBJS	S.S. Dessau	GBNR
S.S. Sofala	GOH	S.S. Delta	GBJT	S.S. Olympos	GBNS
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S.S. Falkenfels	GBCF	S.S. Atta	GBKW	S.S. Frankdale	GBPK
S.S. Matadi	GBCK	S.S. Schwinge	GBKX	S.S. Knight Prendor	GBPL
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S.S. War Pathan	GBCM	S.S. Schwarzenfels	GBKZ	S.S. Seiglinde	GBPN
S.S. Wentworth	GBCN	S.S. Augsburg	GBLC	S.S. Steigerwald	GBPQ
S.S. Leicester	GBCP	S.S. Franziska	GBLD	S.S. City of Melbourne	GBPR
S.S. Itajahy	GBCQ	S.S. Hebe	GBLJ	S.S. Karpathos	GBPV
S.S. Regina	GBCT	S.S. Normannia	GBLK	S.S. Sheafmount	GBPW
S.S. Santa Cruz	GBCW	S.S. Gudron	GBLM	S.S. Nasmyth	GBPX
S.S. Furst Bulow	GBCX	S.S. Gera	GBLN	S.S. Pinnau	GBPY
S.S. Clare Hugo Stinness	GBCZ	S.S. Elbe	GBLP	S.S. Glenade	GBQC
S.S. Artemesia	GBDC	S.S. Spezia	GBLQ	S.S. Harvestchude	GBQD

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S.S. New Brunswick	GBSW	S.S. Hagen	GBYW	S.S. Montazah	GCLZ
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THE AUSTRALIAN NATIONAL MONTHLY

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TOPICAL INTEREST

Edited by S. E. TATHAM.

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THE MANAGER, THE WIRELESS PRESS, 97 CLARENCE STREET, SYDNEY.

All Editorial communications should be addressed to THE EDITOR, *Sea, Land and Air*, 97 CLARENCE STREET, SYDNEY.

Sole European Agents; THE WIRELESS PRESS, LTD., 12 AND 13 HENRIETTA STREET, LONDON, W.C. 2.

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