

Sea, Land & Air

A MONTHLY MAGAZINE
OF GENERAL INTEREST

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The Past, The Present and The Future.

After examining the pages of the first number of "Sea, Land, and Air," the reader will immediately realise that while filling a long-felt need, we have produced something unique in Australasian journalism.

The countries and islands comprising what is generally known as "Australasia" are virtually dependent upon the sea for the means of continuing the existence of their civilised communities. The primary source of wealth in all Australasia arises from the exchange of our natural products for the primary or secondary products of other countries. The safety of our communities is dependent, firstly, upon their protection from foreign invasion by sea, and secondly, upon their military organisations.

Our advance and enlightenment are largely dependent upon the Art, Science, and Invention of Europe and America; not because we are unable to produce scientists and inventors (some of the best have originated in Australasia), but because the true development of science and invention must always be among the greater populations of the earth where facilities for observation, intercourse, trial, and development are wider.

We have grown accustomed to our means of communication, our links with other centres, which in the past have existed entirely by sea. Individuals travel and materials are moved from place to place in ships. Mails containing our written and printed communications with distant peoples are carried in ships. Our urgent communications pass with lightning speed over cables which lie in the depths of the sea.

In addition to our communications by sea, our transport and mails in steamships, and our cables on the ocean bed, our future communications and our defence will be maintained through that equally old but newly used medium, "the air." The day of fast mail and passenger aeroplane and airship services is dawning, while our cable communications

must be supplemented at the earliest possible moment by wireless stations.

On land we still depend upon steam railways for transport, and upon wires for telegraphs and telephones, but their monopoly will disappear before the rapid advance of aerial transport and wireless telegraphy. These developments will not only affect our civil and commercial life, but will have important functions in our land defence and military services.

Although the civilised world is sounding agonised cries for universal peace, and a method of minimising the possibility of future wars is within the realm of probability, any such method, based as it surely would be upon international agreement or a code of laws, should be supported with sufficient force to deter the criminal and outlaw among nations. Therefore, the art of defence must be retained and developed, and our young men, or a sufficient proportion of them, must be suitably trained.

In the foregoing we have referred briefly to things which are of vital interest to every person in Australasia, and which contain, without the aid of pure fiction, sufficient of romance and intense interest to satisfy the desires of the most imaginative reader.

Most people have grown so accustomed to steamships that they have lost their sense of wonder at this human triumph. Few pause to think of the romantic wonders of science and skill which have made and which control these floating leviathans of great speed and with the power of many thousand horses. Apart from the meagre facts told in our daily newspapers we think little about the thousands of our fellow beings who spend their lives crossing and re-crossing the wide oceans in our mercantile marine or cruising the seas of the world in our naval vessels. No greater thought is given to the wonders which bring a message to us "by cable" from our friends 12,000 miles distant, and which we might

read within two hours of its origin at the other side of the world.

The majority do take some interest in those newer marvels of wireless telegraphy and aviation. These things appeal to our imagination because of their novelty, and not really because they are any more wonderful. We are in danger, however, of losing our interest because we find difficulty in keeping informed of their use and progress, and because we imagine it is not possible to understand the "how and why" without some tedious and specialised course of study.

In the pages of "Sea, Land, and Air" we shall tell of the works and wonders of the Navy and the Mercantile Marine, of that marvellous new science first made practicable by Senatore Marconi and the present and future advance of man's efforts to fly among the clouds; also of the work of those citizen armies which are fighting for freedom on the bloody fields of Europe, and those less spectacular but valuable organisations, such as the Rifle Clubs, Boy Scouts, Cadet Corps, etcetera.

The very large numbers of people who desire to know and understand more about all these wonders of science, effort and organisation will find in the pages of "Sea, Land, and Air" instruction served in the form of entertainment and relaxation from the "daily round."

The efforts of the writers of stories and descriptive articles, of photographers, and of the practical men in every branch will be placed at the disposal of our readers. Without the labour of deep study the constant reader of our pages will be shown the mysteries and unlimited possibilities of aviation and wireless; the progress and everchanging development of man's work upon and under the sea, and the conduct and efforts of our military or quasi-military organisations which are so democratic in nature and essentially different from the autocratic militarism of our enemies.

The reader will be shown the close relationship which exists among all these things and their interdependence as well as their importance to the details of his daily life, and to the future of his country and his race.

The practical man who is engaged in any of the services within our scope will not only gather information from all parts of the world about his own work, but he also will learn of the close relationship between his work and the other services. The technical man and the student will discover delightful contributions upon the technical aspects of all questions.

Our pages will have an appeal for the ladies also. The women of to-day are keenly interested in the

marvels of science and engineering, and they are more particularly attracted by knowledge of the work of their own brothers and husbands and sons. In addition to this, however, space of no mean dimensions will be given to matters of exclusively feminine interest.

Last, but not least, we seek the interest of the rising generation. Their inquiring and imaginative minds will be readily attracted by the romantic realisms of which we write, while the educational value of such subjects cannot be overlooked. Our appeal to the young folk will be made even stronger by the frequent inclusion of clearly written instructional articles and descriptions of how to make such things as model aeroplanes, wireless stations, electrical and mechanical models, and we shall be pleased to answer their questions in reference to all such subjects.

In spite of many things which are heard to the contrary about the present and future of the Australasian countries (we have heard similar things in and about other new countries when they were at similar stages of development) we believe wholeheartedly in the people and the future of Australia and New Zealand and of the outlying portions of Australasia. We believe the future is full of wonderful possibilities, and that the people are equal to the demands and opportunities which will arise. There will be dangers both internal and external, but we are confident that they will be overcome as they have been overcome in the past by other British communities.

It is this belief, coupled with the unique scope which we have for collecting exceptional facts and valuable information from all parts of the world, which has caused us to face the difficulties of publication in these exceptional times.

The "Wireless Press" recently established in Australasia is a branch of an organisation which originated in England some years ago, extended to America, and is now represented in most of the Allied countries. Through this organisation we have available the services of an army of writers and experts in all affairs relating to the Sea, the Land, and the Air.

The scheme of this magazine has been laid before our friends in England and America, and we have the benefit of their experience and advice in commencing and carrying on our work. Their experts have told us that the success of "Sea, Land, and Air" is assured. We also enjoy the honor of "Good Wishes for Success" expressed by Mr. H. W. Curchin, the new Commonwealth Superintendent of Ship Construction, as well as those of that gallant gentleman, Captain John Glossop, late of H.M.A.S. "Sydney."



STEWING FOR 1918 CAMPAIGN.
MARS CONSIDERS THE GAME IS NOT WHAT IT USED TO BE

STEERING ZEPPELINS BY WIRELESS.

By Ernest T. Fisk.

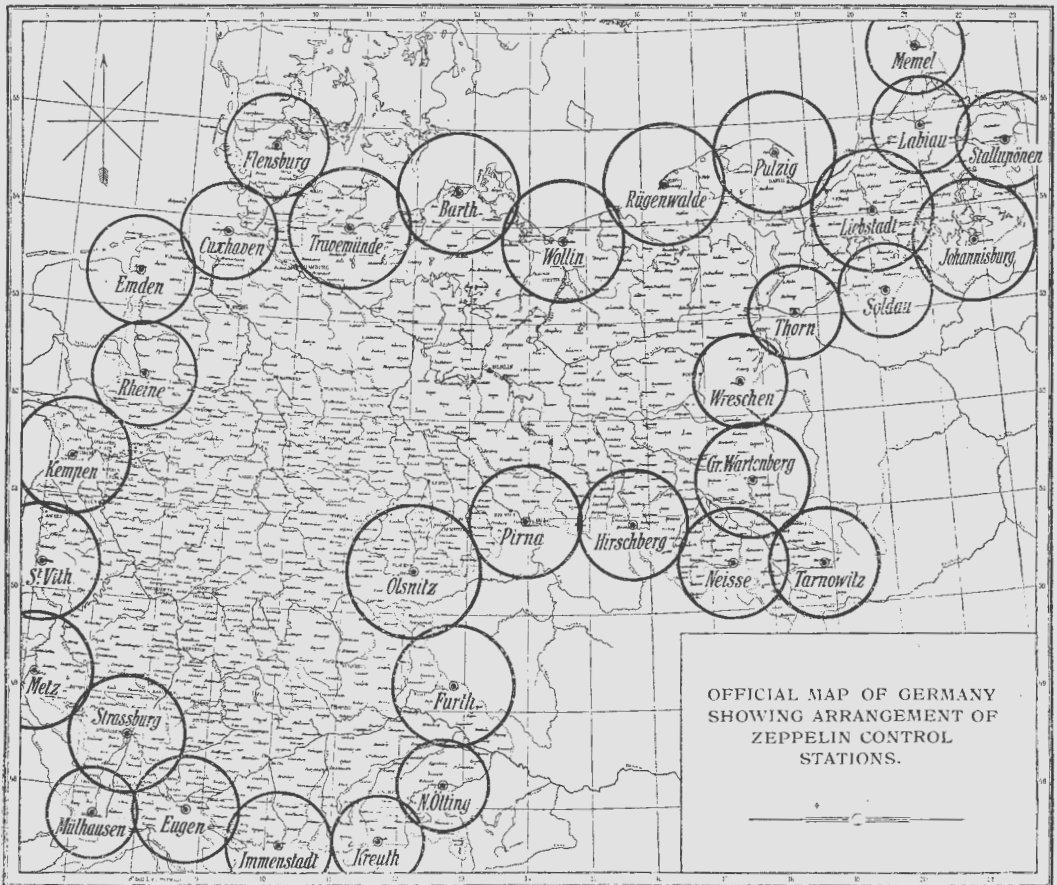
Wide interest was created by a recent report, published in our newspapers, that one of a fleet of Zeppelins, returning from a murder expedition over England, had been destroyed in France because the wireless steering arrangements were successfully confused by the French, and the fleet in consequence had lost its bearings.

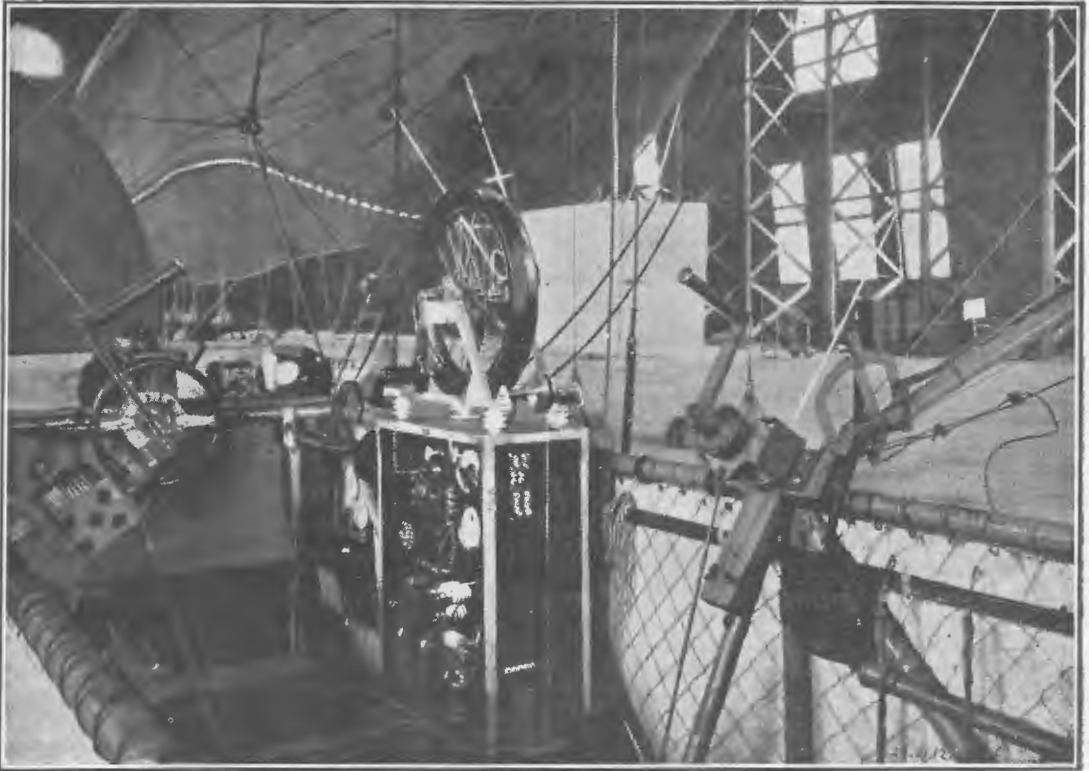
Five or six years ago, many people would have looked askance at the man who would be so bold as to talk of airships making long voyages and finding their direction by wireless. Jules Verne, or that scientific dreamer, Nikola Tesla, might have written of such things without endangering their social position, but no ordinary man would

have been safe in offering such a statement seriously.

Science and Engineering, however, move forward so rapidly nowadays that the wild dream of yesterday becomes the practice of to-day.

It is indeed a fact that Zeppelins can be, and are, steered with the aid of wireless waves. The writer has enjoyed the unique experience of listening to the wireless signals of a fleet of Zeppelins while the fleet was crossing the North Sea en route for London, during 1916. Even the familiarity acquired through many years of wireless work in all parts of the world could not prevent a feeling of wonder and expectancy as





INTERIOR OF A ZEPPELIN AIRSHIP, SHOWING COMPLETE WIRELESS EQUIPMENT. WINCH FOR TRAILING WIRE IS SHOWN.

those signals grew stronger with the shortening distance.

It would not be difficult for the layman to assume that, in developing those supposedly peaceful Zeppelin airships of which we read occasionally in the years prior to 1914, the Germans, with their over-advertised thoroughness, would create some special form of wireless apparatus for maintaining telegraphic communication between the airships and terra firma, although those who knew sufficient about wireless practice to realise the importance of an earth connection probably anticipated some difficulty in that direction.

It was not widely known, however, that a very complete scheme of wireless steering was developed for German airships as early as 1912. Had the details of that clever scheme been more widely advertised it would have rendered valuable assistance to the late Earl Roberts in his attempts to make our nation heed the threatening danger.

That is the scheme which the Germans are using to-day, and which through their

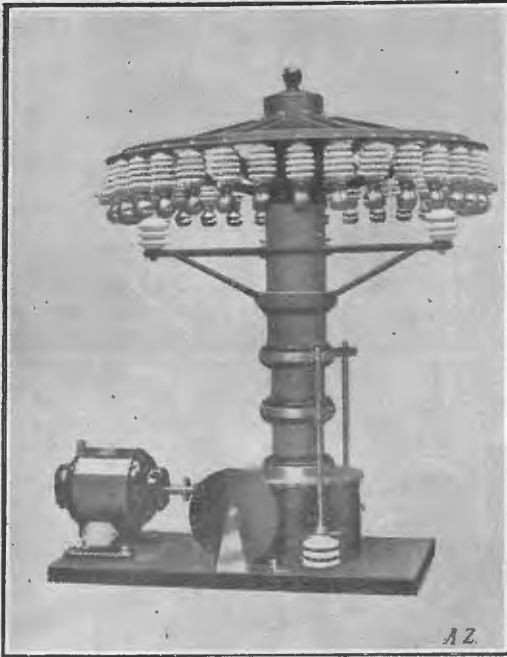
commercial greed they unwisely made known to the technical world.

The details to be unfolded below will show how completely the arrangement had been thought out, and will prove that it was intended for the assistance of airships voyaging into Russia, France, and across the North Sea.

It is interesting to note that the Germans did not make some wonderful scientific discovery, which, after development, suggested the possibility of guiding airships by wireless.

On the contrary, as every well-informed wireless man will realise, their method proves that the demand arose before the supply. The desirability of being able to guide their raiders at night and at other times when the ordinary methods of position finding were useless, led them to confiscate one of Marconi's valuable discoveries and apply it to the solution of their problem.

In the course of his experiments Marconi had discovered in 1909 that if a low horizontal wire, instead of the familiar overhead wires, is used for radiating wireless



ROTARY SWITCHING ARRANGEMENT, SHOWING MOVING ARM AND FIXED CONNECTIONS FOR OUTSIDE WIRES.

waves, the signals are largely confined to the direction in which the wire is laid. A receiving station situated in the line of direction of the horizontal wire will receive signals of maximum strength. Another station situated at right angles to the sending wire, will receive minimum strength or no signals; while a station situated in any intermediate direction will receive signals of a strength proportional to the angle of the sending wire and the direction of the receiving station. If a number of horizontal wires are laid out and a signal sent from each in succession, it is possible for a receiving station to determine which wire is pointing towards itself, because the loudest signal will come from that wire.

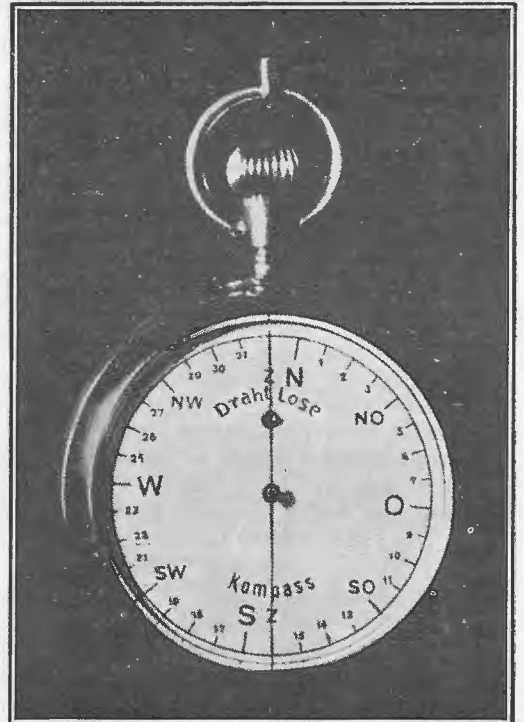
Almost immediately after Marconi had published his invention in England, the Prussian Ministry of Works erected an experimental station on the Müggell see, near Berlin, and experimented with Marconi's invention for several months. Horizontal wires were laid in the direction of the 32 compass points, and signals were sent out from each opposite pair of wires in succession. A different alphabetic letter was signalled from each pair, so that the operator at a receiving station, knowing the prearranged combina-

tion of letters and direction wires, could determine which letter gave the loudest signal, and thus determine his direction from the sender.

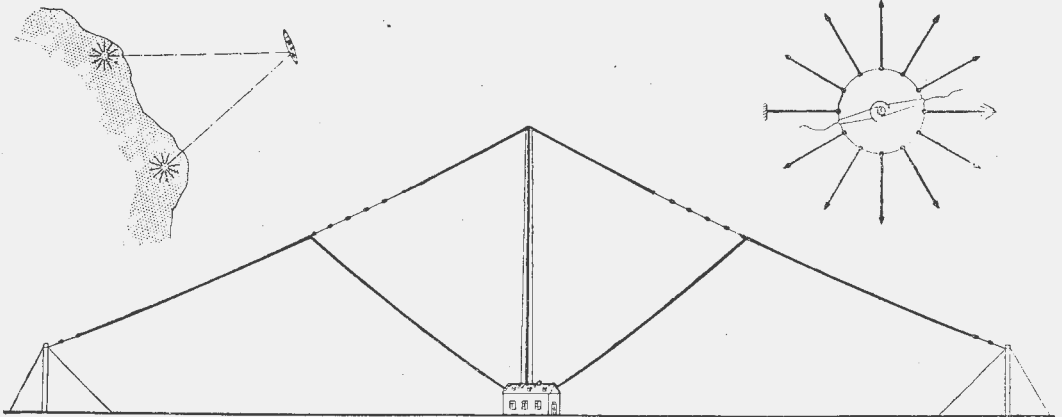
Those experiments appear to have been successful enough to satisfy the German military authorities that the method could be used to assist their cruising airships because standard apparatus was designed and a scheme prepared for erecting directive stations all round the German frontier and sea coast.

The accompanying map shows the stations which were erected. The arrangement was very thorough, because a complete chain of stations was provided with not more than 50 miles between any two stations. In their final form the apparatus and stations were modified, so that the directive signals were sent out automatically without the assistance of a skilled operator, and the determination of direction at the receiving station was more easily made.

At each sending station one ordinary vertical antenna and 32 horizontal wires were erected. Signals from the vertical wire would be received with equal loudness in all directions while signals from the



STOP WATCH, MARKED WITH COMPASS POINTS, FOR RECEIVING OPERATOR.



SKETCHES SHOWING:—METHOD OF SUPPORTING DIRECTIVE AND NON-DIRECTIVE AERIALS (at bottom); METHOD OF TAKING A CROSS BEARING (top left); DIAGRAM OF ROTARY SENDER (top right).

horizontal wires, which were lain in the well-known compass directions, would be loud in the directions of the wires and weak or inaudible at right angles thereto.

Inside the sending station the ends of the external wires are connected to a rotating switch (illustrated). This rotating switch has 33 fixed points, one for each of the external wires, and a pair of moving arms, which are rotated at a uniform speed by a small motor.

The rotating arm is arranged to connect the wireless generator first to the non-directive vertical wire and then to each opposite pair of horizontal wires in succession.

Every time the rotary switch makes contact with the external wires a signal, representing a dot in the Morse code, is made automatically by the wireless generator. These signals are separated one from another by a uniform time interval, and the switch makes one revolution every 30 seconds.

The operator at the receiving station is supplied with a stop-watch (illustrated), the dial of which is marked to correspond with the directive wires at the sending stations, while the hand makes a complete revolution every 30 seconds. With this apparatus the mode of operation is simple and easily understood.

The first dot from a sending station, at the beginning of the switch revolution, is radiated from the vertical wire, and gives equal loudness in all directions. This is termed the time signal. Then follow the directive signals, commencing with North-South, and continuing, with the same interval between each, round the sixteen

directive pairs.

For making an observation from any particular station the operator, having his stop watch set to Z* (see illustration), listens for the non-directive "time" signal. The watch is then started and stopped again when the loudest signal is heard; the watch hand then indicates the compass direction of the sending station. Accuracy of observation is assisted by the fact that ten complete observations can be taken from one station in five minutes.

The reader will have noticed above that signals are sent simultaneously from two opposite pairs of directive wires, that is from North and South or from East and West, and so on. This is done because any horizontal wire gives equal strength of signals in the direction of its length, and consequently it has two possible directions. This cannot be overcome by the system described in this article, therefore it would not assist to use the North and South wires or the East and West wires separately.

The stations are so close together, however, that an airship can always make observations from two stations, and by so doing the exact position of the receiving station can be marked on a chart. The positions of the sending stations are shown on the chart, and it is only necessary to draw a line from each in the directions given by the observations. The intersection of those lines shows the exact position of the Zeppelin.

This is a method commonly used at sea for coastal navigation where the compass bearings of two fixed objects on shore are observed. The fixed objects are found on a

*Z is the initial letter for Zeit, the German word meaning time.

chart and the compass directions drawn, the point of intersection shows the ship's position. In nautical language that is known as taking a "cross bearing;" the method is shown in one of our illustrations.

The directive effect in the wireless system is produced by the aerials of the sending stations and the receiving station can use the usual type of apparatus.

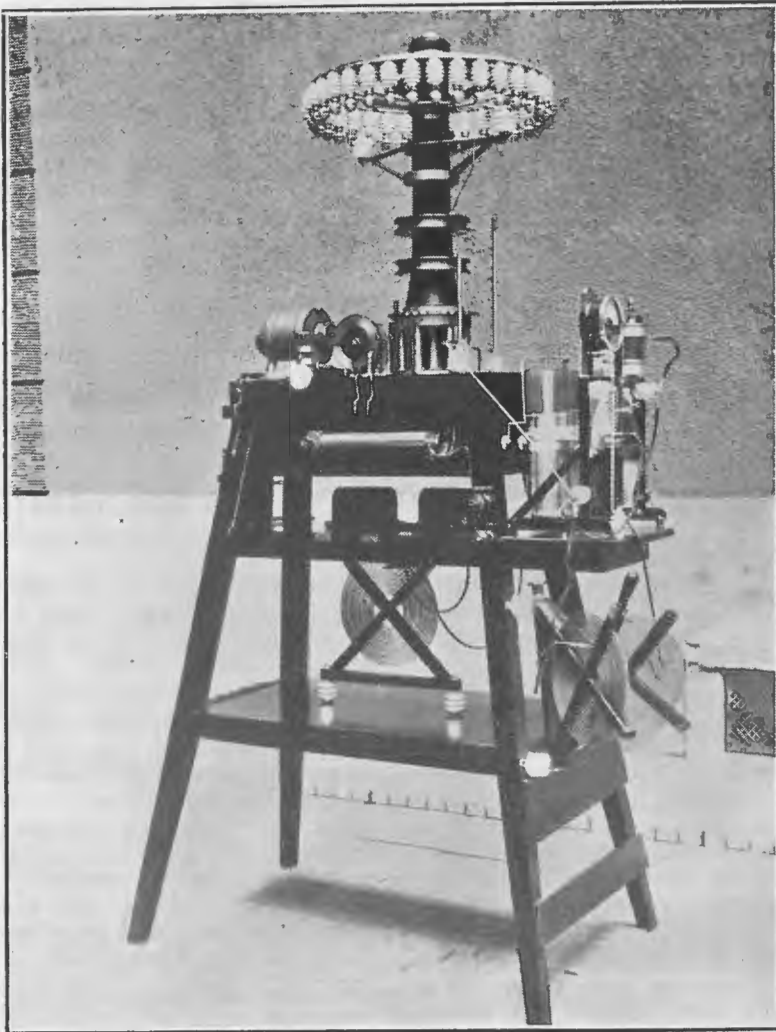
All Zeppelins are equipped with wireless apparatus, both for sending and receiving. By this means communication is maintained among the several units of a raiding fleet, and between the fleet and headquarters. Valuable aid is also lent by the wireless apparatus when airships co-operate with the Navy.

Wireless apparatus for airships differs in design from that used for other purposes, because it must be accommodated in a

limited space, and the total weight must be kept low. For the latter purpose, aluminium is largely used for metal parts, and the electric generators are designed for a high speed of rotation.

Instead of using an elevated antenna, such as we are accustomed to in naval and mercantile vessels and on land, the Zeppelin has a trailing wire, which is unwound from a winch. The metal framework of the airship is used as a counterpoise in place of the usual "earth" connection.

The large antennae which we see at wireless stations on land and in warships are impracticable for airships, and the power used for sending signals is limited by that as well as by the factors of size and weight. The power used is sufficient, however, to communicate with their bases when operating over England at night.



COMPLETE SENDING APPARATUS, USED AT GERMAN DIRECTIVE STATIONS.

The Sower of Tares

By "Centurion."

"Centurion" ranks among the foremost war writers of the day in England. His stories are always convincing and well-written, and "The Sower of Tares" should not disappoint the most exacting critic. Apart from making fascinating reading, this story is a medium by which the author skilfully brings under the notice of the public the part the British cruiser and small craft play in the present war.

"Eight points starboard!" called the lieutenant from the bridge.

"Eight points starboard, sir," chanted the skipper in antiphon from the wheelhouse as he glanced at the compass overhead.

As our drifter changed her course, making a right turn, a pennant fluttered up the flag-staff at a signalling station on our port bow, paused interrogatively at the truck, descended, and then ran up the truck again. It was the "Pass, friend; all's well" of those that go down to the sea in ships. The exchange of salutations was repeated at the guardship as we cleared the harbor mouth, and stood out to sea. The sun glinted on the brass-work of the six-pounder in our bows, the sea was smooth, and the telegraph was set at full speed ahead. Our mizzen sail was furled, and our masts bare, save for the spidery web of our wireless; nothing was to be heard except the faint throb of the triple expansion reciprocating engines in the bowels of the ship. Our craft had an ingenuous air, and but for one or two unobtrusive things might have been putting out to sea for a quiet trawl among the her-rings, as she did in the old days before my Lords of the Admiralty requisitioned her and made her stout, smooth-faced skipper with the puckered eyes a warrant officer in the R.N.V.R. The flaws in the illusion were the presence of the six-pounder forward, certain extremely lethal cases under the bulwarks aft, a wireless operator secreted in his dark room down below, and the fact that we all wore lifebelts. And in the wheelhouse was a small armoury of rifles.

Still, it seemed extremely like a pleasure trip, and I settled myself down on the bridge behind the "dodger" with a leisurely conviction that I had chosen the quietest way I could for spending a few days' leave. The crew moved quietly along the deck stowing away gear; one of them peeled potatoes into a bucket outside the galley; and my friend, the lieutenant, went below in the chart house to read some cryptic naval messages and glance at the Admiralty

"monthly orders." The Admiralty can give points to the War Office in the matter of periodical literature; you would never look for a plot in an Army Council Instruction, but in the Admiralty Orders every order "tells a story." But if you ask a naval patrol-man on shore leave, he will answer you like the needy knife-grinder: "Story? God bless you, sir, I've none to tell." The Admiralty does not love story-tellers. This is not a story.

"Something ahead on the port bow, sir!" shouted the look-out man forward.

The lieutenant, whose faculty of hearing, like his faculty of vision, seems to be abnormally developed, came rushing out of the chart house, scaled the bridge ladder like a cat, and in two seconds was by my side. He pulled out a pair of binoculars from a pocket in the "dodger" and looked through them for a moment. Then he ran to the telegraph and put her at slow. At the same moment one of the crew, without waiting for orders, handed him a rifle from the wheel house. No one spoke a word.

About a quarter of a mile ahead, a point or two off our course, I saw a dark round object, bobbing up and down like a cork.

The lieutenant got a "bead" on it, and I watched him intently. The next moment he lowered his rifle and laughed.

"It's only a ship's tub," he said. "Like to have a shot at her?" he added, as he pumped two cartridges at the vagabond. One shot fell just short, the other just over. I saw the skipper's eye on me as the lieutenant handed me the rifle, and feeling the reputation of the junior service was at stake I did not welcome the invitation. But luck was with me.

"A bull's eye," said the lieutenant approvingly. My reputation was saved.

"It might have been a floating mine," the lieutenant explained. "One never knows."

"So that's why we were wearing these beastly cork jackets," I said to myself. I began to understand the Admiralty instruction, that you must never stop to pick

anything up. For in these days, things are not what they seem, and a tub, a life-buoy, a sleeper, an upturned boat, all the ingenious flotsam and jetsam of the sea may be—and often are—merely a trap for the unwary.

The Admiralty does not encourage souvenir hunting. We only collect two things—mines and submarines.

We were out on an uncharted sea. So long as we had kept in the channel swept by the mine sweepers in the grey dawn our charts were useful. Once outside it, our

nothing of the tares sown in the deep, and the soundings on our charts reveal to us none of the shoal water of the mine-fields. Once we leave the fairway kept clear for the merchantmen, and make for our line of traffic patrols on point duty, we are like a reconnoitering party that goes "over the top" at night. We are out on the No Man's Land of the sea.

We were leaving the fairway now, we had altered our course a few points to the south, steaming in "line ahead" formation, a motor launch following us, then another



WATCHING FOR A SOWER OF TARES.

charts were about as useful to us as one of Taride's maps would be to a divisional staff at the Front. Trenches, saps, dumps, listening posts, "strong points," have altered the geography of the front; floating and anchored mines have confused the hydrography of the Channel. The soundings on our charts were more delusive than the roads and watercourses on a French ordnance map of the Somme. But at the Front the R.E. can, and do, make new maps for old, whereas we had to grope in the dark making the best use we could of our senses. The earth is solid, stable and open to aerial reconnaissance and survey, the sea is forever shifting and inscrutable. We had our secret staff map of the sea, and very useful it is for wireless work, but it tells us

drifter, each keeping a distance of about half a mile apart. If we sighted a periscope to port or starboard, we could suddenly put the helm over and bear down on it. Steering thus in a bad light, our drifter had once rammed the masthead of a sunken ship in mistake for a periscope and scraped her bottom badly, for she never misses a sporting chance. But our distance was also a defence formation. One does not march in column of fours when the enemy batteries have got the range. And when you are cruising over "No Man's Land of the Sea" you must proceed on the assumption that at any moment you will strike a mine, in which case it is just as well that Number One should go to the bottom on her own. We were Number One.

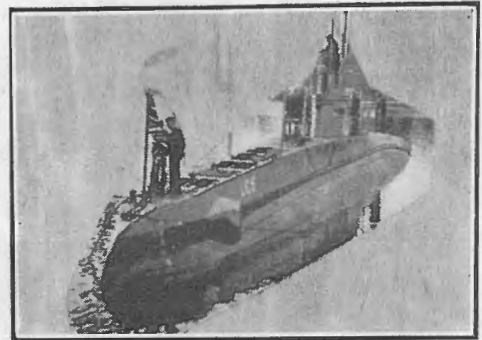
But the naval patrol takes these things as a matter of course. Down in the bowels of the ship in the crews' quarters, reached by a perpendicular iron ladder opening at a hatchway about the size of a pincushion, two members of the crew slept like dormice in a blissful "fug." Next door the wireless operator, with his receiver to his ear, was immured in his sound proof box, calling spirits from over the vasty deep. Below the engine-room hatch the engineer, with his eye on his pressure gauges, was dreamily making apple dumplings out of cotton waste. If we scraped a mine they would all be drowned like rats in a hole—a mine always gets you amidships. The skipper would probably go through the roof of the wheelhouse, and the lieutenant beside me would probably execute a number of graceful gambols in the air like a "flying pig" from a trench mortar. This had happened to one of the drifters in that patrol about a week before; they picked up one man, who will never go to sea again, and the others are all "gone west."

"They were good men—some of the best," said the lieutenant.

As I looked at the cloudless horizon and smooth sea sparkling in the sun, I reflected on the treachery of the illusion, and it occurred to me that of all the risks of active service, those endured by "auxiliaries" of the naval patrol were the most unpleasant. Personally, I prefer the trenches. But the lieutenant would have none of it. He said, and obviously thought, that his was a "cushy" place in comparison. I had heard a submarine commander to the same effect. Also my pilot in a Maurice Farman. It's a curious fact that every arm of both services thinks the other arm takes all the risks. Which is as it should be.

The lieutenant was an imperturbably cheerful person. A perpetual smile dimpled the corners of his mouth and completed the illusion of precocious boyhood produced by his diminutive stature. His frank, ingenious countenance, laughing blue eyes, and kittenish agility. His face was tanned to the color of newly-dressed leather, but when he removed his cap the tan was seen to terminate suddenly in a sharp horizontal line on his forehead, above which the infantile pink and white of his brow presented a contrast so startling as to suggest that he wore the false scalp of the low-comedian. But the palms of his hands were as hard as a cobblers, and his muscles like tempered steel. There were many deficiencies in his kit,

and seeing me glance at the toes of his feet which peeped out of his seaboots, he gravely explained that as the water came in at the tops, the holes at the toe were useful to let it out at the bottom! He was the only commissioned officer on board, and his repertoire was extensive—he was commander, gunnery lieutenant, signalling officer, and half a dozen other things besides, and he carried in his head all the secrets, which are many and complicated, of the Admiralty codes and instructions. I suppose he sometimes slept (though I never once saw him sleep), for he showed me his sleeping cabin forward, which I shared, and it did not escape me that the stove chimney was red with the rust of sea water to the height of about five feet—which opened my eyes to the luxury of his existence in the winter gales. At one time, early in the war, he conducted a series of brilliant tacti-



A CAPTURED SOWER OF TARES.

cal operations against a number of medical boards who shared a belief amounting to an infatuation, that a man who, as a result of an accident in childhood, could not march a mile without falling out and suffered excruciating agonies about once a week, was "unfit for general service." They know better now.

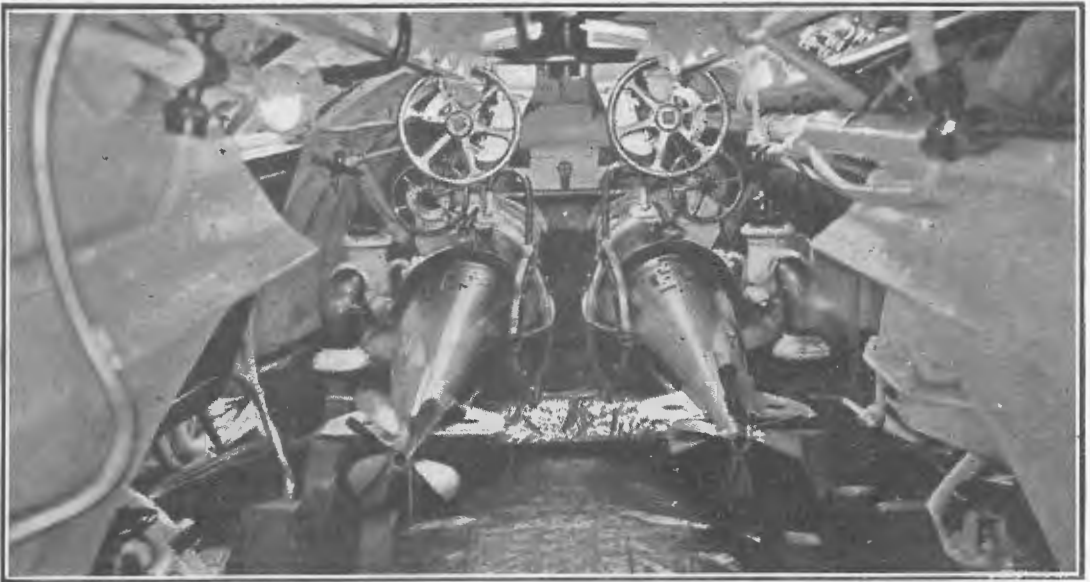
Our approach to an immediate objective was the occasion of a spirited display by the lieutenant of his gifts as a trapeze artist. We had run up a hoist of signals as we neared the line of patrols, and the engines being put at half speed, the lieutenant took two signalling flags in his hands like a pair of Indian clubs and perched himself upon the rail of the bridge. He twined his calves with simian-like flexibility round the uprights, his feet suddenly became prehensile as he anchored them to the middle rail, and with his lower limbs thus moored, he pro

ceeded to hurl his body about in space. His arms described an arc of about three-quarters of a circle with dazzling rapidity as he executed a series of alphabetic jerks in the medium of semaphore varied by almost imperceptible commas and full stops. Then he paused to take breath.

An ecstatic figure on the other drifter answered with similar gesticulations, to which the lieutenant feelingly articulated in reply.

The interlocutory proceedings of these knock-about comedians concluded with an inquiry from the patrol boat, which had

a certain "U-boat" which will never make a land-fall in German waters again. The Admiralty, which is hard to convince, paid the "blood-money" over to the lieutenant a few weeks ago, and the patrol shared it out, according to their ratings, like a herring catch. And there was a "bump-supper" at the naval base. But the auxiliaries hide their light under a bushel, and the lady visitors at a fashionable watering place are still wondering querulously why the sea is so lustrously wet—they say their bathing dresses won't dry and that they smell strangely of oil.



INTERIOR VIEW OF A SUBMARINE. This illustration shows the huge size of the torpedo tubes in comparison with other parts of the vessel.

been on point duty in mid-channel for about fourteen days, as to the success of a wedding ashore, at which the lieutenant of our drifter had assisted as best man.

"A I. The best man looked lovely," signalled the lieutenant, and we descended to the chart room for a mid-day dinner.

He apologised for the menu, which was simple enough. I discovered afterwards that he made it a point of honor to share the same rations as the crew. The table appointments were also exiguous, and there seemed a shortage of plates.

"They're gone west, sir," said the orderly with a faint smile. "That depth-charge did them in."

I raised my eyebrows interrogatively, and the lieutenant, by way of explanation, told a tale. It cannot be told here, but there is

So one more of the Thugs of the sea had been put out of the way, and her crew lie fathoms deep in the Channel awaiting the day when the sea gives up its dead.

"Dirty devils, I call them, sir," said the skipper quietly, smoking his pipe with his hands thrust into his pockets and a reef in his jumper as we did a dog-watch together. He was a large stalwart man, speaking the East Anglian dialect, in which an "a" frequently does duty for an "e" and a "w" for a "u." Apart from these phonetic peculiarities he spoke good King's English, and I noticed that he used none of the truculent pidgin-English which by a curious literary invention so many longshoremen of letters put into the mouths of those who go down to the sea in ships. Your novelist, dealing in words, is so apt

to mistake strong language for strength of mind.

The skipper paused and refilled his pipe; pursuing some obscure train of thought. Then he found speech.

"Did you hear tell of the Belgian Prince, sir? Aye, everybody has. There's never a watchdog kept in any ship afloat in which that story isn't told. I've heard as how every man in every boarding house in Lime House and Frisco and Sydney and Shanghai has heard it. It's gone round the Horn, and it's gone east of Suez. Why, there's sailormen as doan't know enough to read their own discharge note as have got that story by heart like a chantey. They'll never forget it till the Day of Judgment. I'm thinking as sailormen are not yet born that will be telling the tale round the galley fire at night long after your and my watch is up."

He paused and gazed out over a "lipper" sea. I noticed he had forgotten to light his pipe. "I knew a skipper as had once done the dirty at sea. No one knew the rights of it exactly, and the 'Old Man' never lost his ticket, but the story I heard tell was that he'd been spoken by a ship flying signals of distress, and instead of putting down his hellum to stand by, he'd kept on his course and left her to sink with all hands. And from that day he never entered a pub parlor, but all the skippers 'ud get up and lave their glass untouched and walk out. If they saw him making down street on their port bow they'd port their hellum so as to give him a wide berth. Never a one as ever passed the time of day with him or said 'What's yours?' And it grew so as not a sailor man 'ud sign on if he knew he had to sail with that skipper; some o' them would desart at the first port they made without waiting to be paid off. They got the idea as he brought bad luck, like a Russian Finn. And if you once get a notion like that in a sailorman's head, ye'll never get it out. I've heard tell of that skipper hauling up to 'speak' a ship, and when his hoist had told the name of his craft the other one wouldn't so much as dip her ens'n to wish him 'God-speed.' An' if you're an outcast at sea, God help you, for the sea's a lonesome place. It so preyed on his mind that he began to see ships flying signals of distress abeckoning him—ships as wasn't there—till one night he put her straight on a reef and then went over her bows. . . .

You see, sir, sailormen have got their share of original sin, I'm no saying they haven't,

but there's one sin no sailor dare commit, for it's the sin against the Holy Ghost—and that's leaving other men to perish. The sea's shifty enough and tarrible enough and treacherous enough as 'tis without men being. . . ." He did not finish the sentence. "Well, sir, I'm hanging about tack and tack instead of trimming my yards for a straight run, but the course I'm steering is this; the outlawry of that skipper weren't nothing to the outlawry as awaits the German when he once more weighs anchor and puts out to sea."

And he lit his pipe. It seemed to me that his hand shook slightly.

The sun was sinking in the west, his light lingering on the headlands. In the east the sky was a deep blue, flushed with rose pink, but nearer the heart of the sun these delicate tints gave place to fleece of ochre, and these in turn to flames of molten gold. The next moment the sun seemed to cease breathing upon the sky, all the colors swooned and went slowly out, and even the golden aureole changed to a dull vermilion. The rocks became silhouettes, the clouds turned black, and the shoals of rose shadow on the sea sank out of sight and gave place to a purple bloom. As the sun disappeared behind the horizon a lingering ray tinged the darkling clouds with silver surge.

With the last expiration of the sun, the wine-dark sea changed to a leaden hue, and one by one stars twinkled overhead—the crescent of the Corona Borealis to Port, the Pleiades to starboard, and over the truck of our foremast the constellation of the Great Bear. The air grey very cold. A great silence encompassed us, broken only by the lapping of the water on the ship's side. Round about us was a waste of waters stretching away into impenetrable darkness. All the friendly lights that guide the homing ships in times of peace were out. More than once before this our drifter, smothered in a fog with no warning light or siren to guide her, and unable to take a cross bearing, had found herself casting the lead in thirty-five fathoms right under the lee of a towering cliff, with only just time to put her engines full speed astern. Nothing lightened our darkness except a great beacon, which, elusive as lightning, winked at intervals through the night, revealing the dark silhouette of the motor launch as she drifted about a mile away. Our isolation was about as complete as that of a listening post. We were out in the No Man's Land of the Sea.

"The letter is—" said the lieutenant softly to one of the watch as he passed along the deck. It was our secret signal in the event of our bumping up against a destroyer seeking to speak with her adversary in the gate. If our watch forgot it our number would be up. We showed no lights, but hooded lamps, making faint patches of radiance on the deck, were stowed away under our bulwarks.

Our station was one of the favorite beats of the German submarines, and we lay there waiting for the deadly sower of tares, waiting for her as for a thief in the night. From

led down to the tomb of the wireless operator, passed up a piece of flimsy paper to the lieutenant. He took it into the unlighted chart room, and as I fell over the table he struck a match, and by its flickering light I saw his face as he read the message: Hostile submarines in sight. Course not known. As he read these words aloud—and others—the match went out. He groped in the dark for a locker, detachable and weighted, and taking something therefrom he invited me to come below. Once down in our sleeping cabin he unrolled a mysterious map under the oil lamp, and



IN PURSUIT OF A SOWER OF TARES.

time to time pale shafts of light terminating in an arc of phosphorescent cloud crept across the sky searching for the secret menace of the air as we were searching for the lurking terror of the sea. Now and again wraith like ships with all lights out stole across the field of our vision, and sometimes our ears caught the pulsation of an engine on a ship we could not see.

Time itself seemed to stand still, and how long we lay like that I could not tell. Mystery brooded over our watch, and I found myself speaking to the lieutenant in subdued whispers. Suddenly, one of the men, ascending through the hatchway that

putting his finger on one of the squares, he said, "They're there." Then we went on deck.

He took an electric signalling lamp, and, holding it up over the bulwarks, he flashed a message to the distant motor launch. A sequence of flashes answered it. And once more we resumed our vigil.

The night dragged on, the watch was relieved, the stars changed their stations as the earth rolled on through interstellar space. I sat in the bows gazing into the mysterious night, and hearing nothing but the whispered soliloquy of the waters beneath me. The dark-grey silhouette of a

transport crept by, deeply laden, for the sound of her propeller never reached me. Then a barque glided past, but not a murmur escaped her, not a sail thrashed, not a block creaked. They might have been the ghosts of the murdered ships that lay fathoms deep below us—deep in the sepulchral sea. From time to time dark objects floated by—a packing case, a hatch, an upturned boat, a derelict sleeper, the mute and plaintive witnesses to a sinister and implacable terror, "more fell than hunger, anguish, or the sea." I glanced down at the waters in which the phosphorous glowed faintly, like pale marigolds, wondering what tragic secrets their inscrutable depths concealed. There grew on my drowsy senses a feeling that the sea, as it heaved on its bed beneath the tidal moon, was talking in its sleep. Faint peals of sound seemed to animate the watery depths as though the sea were a belfry in which the bell of every foundered ship was tolling the watches of the night. I heard a dull tapping on our stern. I went aft, but could see nothing but the shadowy figure of one of the deck hands. Then a hollow gasp like a cork drawn from a bottle came from our port bow. The next moment a deep sepulchral cough echoed from amidships, I looked down through the skylight and saw one of the ship's crew turning uneasily in

his sleep. By some strange acoustic illusion his coughing seemed to be coming from the depths of the sea. Each illusion was dispelled only to be succeeded by another. A block creaked, the cordage chafed, a chain rattled. And there grew on me a masterful conviction that we were not alone. I lifted my eyes and they lighted suddenly upon a dark, boat-shaped object gliding stealthily past in the current about two hundred yards away. The next moment the beacon flashed across the waters rending the veil of night, and I saw that it was a ship's life-boat. Over the gunwhale drooped the body of a man, the head downwards beneath the extended arms and the hands lapped by the hungry waters. Across the stern another head rested with the pallid face turned upwards and gleaming in the cold searching light. I heard a soft footfall behind me, and turning, saw the skipper gazing over my shoulder. The next moment the beacon went out.

One by one the stars paled, diminished, and disappeared; the surface of the waters turned from black to a leaden grey, and, with the first flush of dawn, gleamed like mother-o'-pearl. I looked around me. Far as the eye could reach I saw nothing but the salt, inhospitable, secret sea.

—"Land and Water."

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Hush-a-bye 2E, up in the blue,
 Watched all the time by Archibald's crew,
 When the shell bursts the 2E will fall,
 Down will come pilot, observer and all.

* * *

A certain young pilot called "Skinner"
 At flying was quite a beginner,
 For he thought aeroplanes,
 Could be made to leap drains,
 Till he found his mistake out, the sinner.

THE STORY OF A BRISTOL.

"Seaweed" had a pet machine,
 Which none else might fly,
 And everywhere that "Seaweed" went,
 He kept that Bristol nigh.
 He took her for a flight one day,
 Yes, right above the ground!
 He climbed her several hundred feet
 And flew her round and round,
 And all went well till came the time
 For him to wander home;
 He brought her humming down again,
 Into the Aerodrome.
 Then what a sorry sight is seen,
 Upon her nose she's standing,
 The which may well explain the term,
 "A perfect Seaweed landing."

THE RUSSIAN REVOLUTION AND THE FRENCH REVOLUTION

By Hilaire Be'loc.

The so-called Revolution in Russia, which will eventually place that unfortunate country irrecoverably under the heel of the Prussian tyrant, is graphically compared, in the following article, with the great French Revolution, which gave freedom to France and produced the nation which now commands the admiration of the world. This article first appeared in that excellent English journal, "Land and Water."

In the course of the present war, historical parallels are constantly presenting themselves to the public mind.

Where they have been very general and very distant, they have been, if applied with caution, and with due elimination of detail, serviceable.

For instance, the parallel between the present struggle and the second Punic war, though there are vast differences in scale, both of time and space, and in object, has furnished one great invaluable lesson—the lesson of tenacity. In the one case, as in the other, the party inevitably doomed to defeat enjoyed every preliminary success, invaded the territory of its opponent thoroughly, and only failed at last through the superior will and tenacity of the apparently conquered party.

There have been certain other historical parallels which have proved valuable, for instance, the parallels between (or the identity between) the Prussian neglect of international morals under Frederick the Great with his invasion of Silesia, and the Prussian neglect of international morals to-day with its invasion of Belgium.

The parallels of the past, of blockade by sea, have also invariably held.

But there have been many more parallels drawn from the past which have been misleading, and more than misleading, highly dangerous from the fact that the secure and known history of the past has made men forecast the immediate future with a sort of certitude, as though they were following a map.

The worst of these, undoubtedly, has been the parallel from old wars of movement. It has misled the best brains and the most practised students of war in Europe. This was especially the case in autumn, 1914. Then, the new trench warfare unexpectedly developed upon its present enormous scale in the West.

There have been other of these false parallels, of which one of the most striking was the supposed parallel between the German invasion of Poland and the precedent of 1812. But the most dangerous at the

present is undoubtedly the parallel between the Russian Revolution and the French Revolution of 130 years ago, which transformed Europe.

If we allow that parallel to dominate our thought, we shall lose the war. It is misleading in the highest degree, and it misleads us precisely in those points where we most require discipline, tenacity, and vision, and makes us hope that of the Russian as the French, there will come wisdom.

Let us first observe the superficial points of resemblance.

Both movements are an attack upon, and the successful over-setting of, a political monarchical machine. Both have for their motive power the discontent of a whole population, largely an economic discontent, and both use the same phrases with regard to political opinion, though the second is merely a copy of the first in this respect. In both movements there is an appeal to ideals floating in the general mind of Europe, and, as yet, undeveloped. It is fair to add that both movements, regarded apart from their military aspect, have more in common than the opponents of the present Russian Government upheaval might be willing to grant.

But it is the military aspect which practically determines, because it is for us a matter of life and death, and when we come to that military aspect, the differences are fundamental.

To begin at the beginning. The French Revolution was undoubtedly in its origin, and even at its height, the movement of a whole people generally united and homogeneous. This truth has been defined by foreign observers and students as a whole, and by many native historians as well. It is true that the direction of the French Revolution was in the hands of a minority. It is true that the orderly process of direct and universal voting by plebiscite or referendum did not control it. But it is equally true that the nation as a whole had been thoroughly permeated before the revolution

broke out with the ideals which that revolution set out to realise, and it is worthy of remark that, with the exception of western and highly localised rebellion in Vendee and Brittany every reaction against the revolution was effected in the name of the revolution, and was an honest attempt to realise its creed. The Girondins would have defined themselves as the heirs and better representatives of the revolutionary creed than the Mountain. The Caesaristic conclusion of the whole affair was thoroughly alive with its general tendencies, and the poet who called Napoleon Robespierre on horseback was talking sense.

Now, the Russian Revolution has not such a united nation to deal with, nor a clear national ideal supporting it. Its direction is in the hands of men whose ideals are essentially cosmopolitan, many of whom are not Russians at all, but have in the past proved their detestation of the Russian character and regarded themselves as the victims of that character. The material with which it deals is not one nation at all. The Russian Empire, which it has upset, was not one organised people, but an autocracy which united under its control elements the most diverse in speech, origin, social tradition, and religion. The Finns are not Russians at all. South Russia has elements which we cannot judge in the West, but which are certainly separatist. The Cossacks are an element apart. The Poles were a distinct and separate entity, and the outlying territories to the South and to the East in the Caucasus and beyond, and in Asia, were no part at all of one united nation. The Jewish element, very powerful, very numerous, and in the main German speaking, were something utterly distinct from, and usually hostile to those whom they now largely inspire and claim to order.

One Heart, One Brain.

Again, France had in the Revolution one heart and one brain for its whole organism, which was Paris. Russia has no such centre. The town which claims to govern is the least national of all the Russian towns. Paris is the most national of all the French towns. Some sort of parallel might be afforded by Moscow, if Moscow had been the seat of the movement and the traditions of Moscow and the local native leaders of Moscow its inspiration. Petrograd can lay no such claim. On the contrary, its position is the very antithesis morally, geographically, and politically of a national capital. It is an

extreme frontier town, gathering within it and intensifying every anti-national mood and itself the artificial creation—and the recent creation—of bureaucracy.

Again, the French Revolution set out with a definite object, with a creed and documents supporting that claim. Its whole action was positive. You hate it or you love it, as you hate or you love an organised religion. In the Russian movement there is nothing of this. There is a chaos of conflicting negations. There is nothing upon which you can put your finger and say, "This is that clear doctrine for which these men have risen and for which they are willing to die."

But, undoubtedly, the sharpest contrast of all, and certainly the one which most practically concerns ourselves, is the military contrast, and here you have a contrast of north against south, of plus against minus.

The French Revolution was launched before the outbreak of the war. The war which followed upon it was a war, the flaming motive of which was military success. The appeal was made to a military nation to resist an invader who had insolently proposed to dictate domestic policy. The whole revolution naturally turned into a war of propaganda and of conquest, and the very nature of the whole thing was bound to become military from the moment that, in Danton's prophecy, "the first bugles should sound."

The Russian Revolution broke out as a consequence of defeat. Its extremists were the opponents of war, and particularly of a war of national defence. It was bred in a distaste for—or the hatred of—the profession of arms, its intensity was marked progressively by the denunciation of the military spirit.

In France the chief architect of the Revolution was Carnot, a professional soldier, whose interests, let alone whose stoical ideals, were those of a soldier. Read the movements of the man before Wattignies and see how the mere intellectual interest of tactics absorbed him. Note how the songs and the legends of the French Revolution are the songs and legends of arms; and mark the passion for military order which precisely coincides with the most violent strain of 1794.

The Reign of Terror was essentially martial law. And if you consult the motives of its cruelty, and read in detail the indictments under which its victims suffered, you

will find the overwhelming mass of them to be indictments against military treason or military slackness. Even apart from this military character of the Gallic race and of its chief modern effort you have the complete reasoning, the intellectual power which grasped from the earliest moment of the effort what should be for all of us to-day its chief lesson; that a political ideal once challenged to battle by an opponent can only be realised by decisive victory in the field.

The Russian Revolution does not show this character, but its exact opposite. Its extremists are men who cry for peace, who tell us that the punishment of aggression is immoral and who believe or say that an undefeated enemy who has already half crushed the army organisation will, if he is now propitiated, leave them for the future in peace.

The characteristic phrase of the French Revolution, rhetorical and borrowed from antiquity, was this: "The Republic does not negotiate with an enemy upon the national soil." Of such a characteristic phrase the Russian Revolution gives us no echo. There is no defining principle capable of producing such an historical sentence. The nearest thing to it is the reproduction of a false and silly sentence, framed in Berlin, "No annexations and no indemnities." In other words, no victory.

It is a phrase not only of German origin, but accurately repeated by men for the most part whose own language in Petrograd is German. It is as though when Verdun had fallen in 1792, Danton had said, "No act of wicked violence against our friends the Emigres and Brunswick." What he did say (and all France echoed him) was something very different. He said, "What we need is Daring and more Daring and ceaseless Daring." We have no such signal from the east to-day, and we may wait long for it.

A less general examination will show another characteristic difference between the two movements, which is, after all, but the natural consequence of their spiritual diversity.

The French movement was wholly directed by men who were the very concentration of the French people; their essence as it were; that professional middle class of the eighteenth century, which has been reproached for the spirit of the Jacobins, whose limited views upon liberty and property have been the jest of their oppo-

nents, whose culture has been thought too narrow—but who changed the world.

Everyone of the leading men in the French Revolution is the man trained in the traditions of the French University and in the spirit of the French bourgeoisie. It was the lawyers, the officers of the learned arms, sappers and gunners, the young poets and the young scholars, the local magnates of the towns, who made the thing, who directed it, and who conquered Europe. The modern European society which they erected has been in their image, it has failed where they lacked breadth and magnificence, it has succeeded when the strong virtues of their class were needed. They were the spokesmen and the captains of the whole affair. Napoleon himself was of them. Rousseau had been of them, Robespierre, Carnot, St. Just, Danton, the mad Marat, every name you can choose was of them.

There is nothing corresponding to this at all in the Russian movement. Whether such a class exists in Russia may be doubted. That it has come to control the revolution, if it does exist, can certainly be denied.

Now, it is unfortunately probable that without such homogeneous class direction a movement of this kind can neither progress nor succeed.

Lastly, you have the simple truth that the nation of France at the French Revolution, through the volunteers and through the less articulate action of the peasants, joined the general scheme. It was fairly articulate, it was upon the whole united, it went forward towards a common end, and that end you may see around you in Western Europe to-day. But of what the mass of the Russian peasantry may think or wish to do to-day we hear nothing. The Revolution in France took arms and conquered after the national federation. Of such national federation, nay, of so much as a national convention, we have heard nothing in Russia but promises, though many months have passed. We simply do not know what the nation, that interior Russian mass lying centrally among so many other different peoples, the Muscovy peasantry which is properly described as Russian, thinks or feels upon the whole affair. It has not spoken, and as yet no steps have been taken by which it may be permitted to think.



THE WOMEN DO THEIR SHARE.

It is no exaggeration, but the most sober truth, to say that but for the women of Britain and their work, Germany would by now have won the war. Had they failed to rise to the unprecedented demands which their country made upon them, Britain's industrial effort would have collapsed, and her armies in the field would have been paralysed. Millions of men have been withdrawn from British industry to serve with the colors; at least fifty per cent. of the male labor employed in the chemical and engineering trades has been drafted into the army; the normal staffs of offices, factories and railways and munition shops have been stripped to the bone at the imperious call of war. Had the women of Britain been unable or unwilling to step into the vacant places, the war, first lost in the workshop, would have been finally lost in the field.

But the women of Britain have not failed. Rather they have taken up their unlooked for task with an energy, and enthusiasm and an efficiency which have been one of the miracles of history. To-day there are fully 1,000,000 women engaged in war industries, and of these more than two-thirds are directly employed in the manufacture of munitions. In shipyards and in iron foundries, in chemical and engineering works they are ceaselessly working day and night. Two years ago two-thirds of the 500 processes in the making of munitions on which they are now engaged, had never been performed by a woman. The women of Britain are putting over the barrage, without which their sons, their husbands and their brothers could never hope to shatter the German lines.

But it is not in munition work alone that the face of British industry has been transformed by the extension of women labour. As post women and police, as bakers and farm-workers, as motor-drivers



IN A SHIPBUILDING YARD.

and 'bus conductors, in almost every occupation of which the mind can think, British women are now cheerfully "carrying on" while their men-folk are away. In her hour of greatest need Britain has called to her daughters. She has not called in vain. By their industry, their efforts and their heroic sacrifice, the women of Britain have saved their country and saved the world.



INSPECTING A SHELL.



FITTING AND SCREWING THE NOSE BUSH OF A SHELL.



LABORING WORK IN A DRESSING SHOP.



ROUGH-TURNING A SHELL IN A MUNITION FACTORY.



BORING WOODEN REELS FOR WINDING BARBED WIRE.



COPPER-BANDING 60 POUND SHRAPNEL SHELL.



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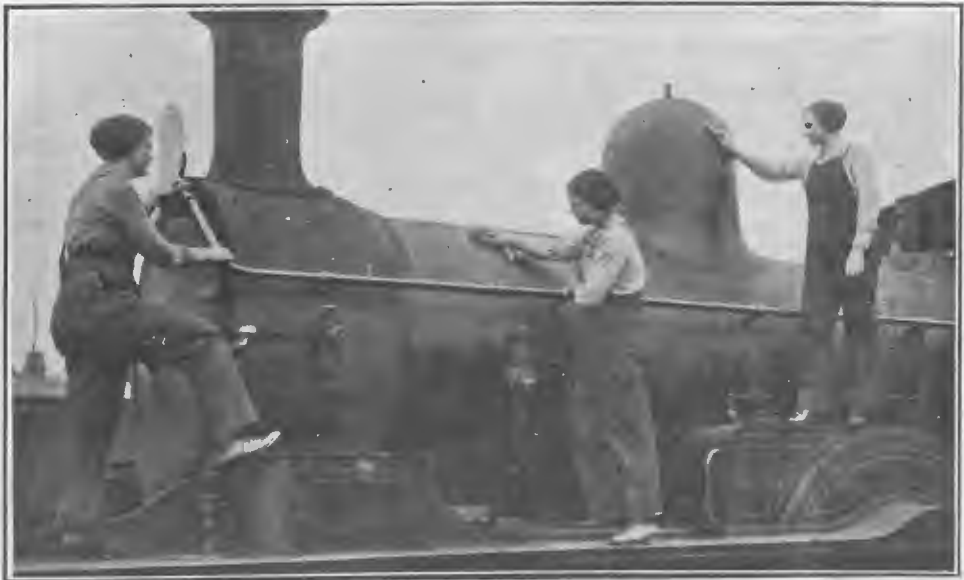
CLEARING EARTH EXCAVATED FOR THE INSTALLATION OF HYDRAULIC PUMPS.



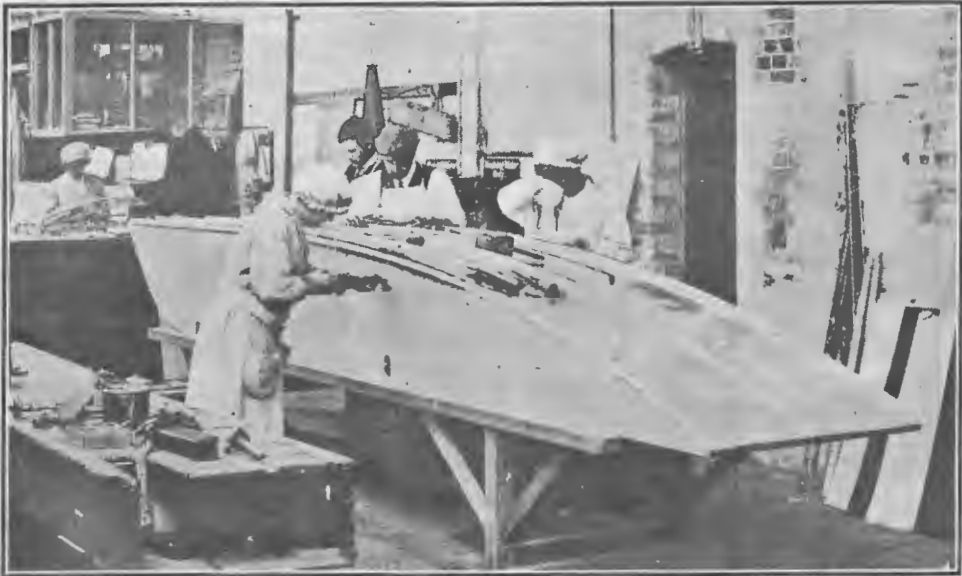
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MAKING FLOATS FOR SEAPLANES.



AT WORK IN A BRASS-FITTING SHOP.



THE MANUFACTURE OF SEAPLANES—A VIEW OF THE DOPE ROOM.



GENERAL VIEW OF A SEAPLANE FACTORY.



SOME OF LONDON'S POSTWOMEN.



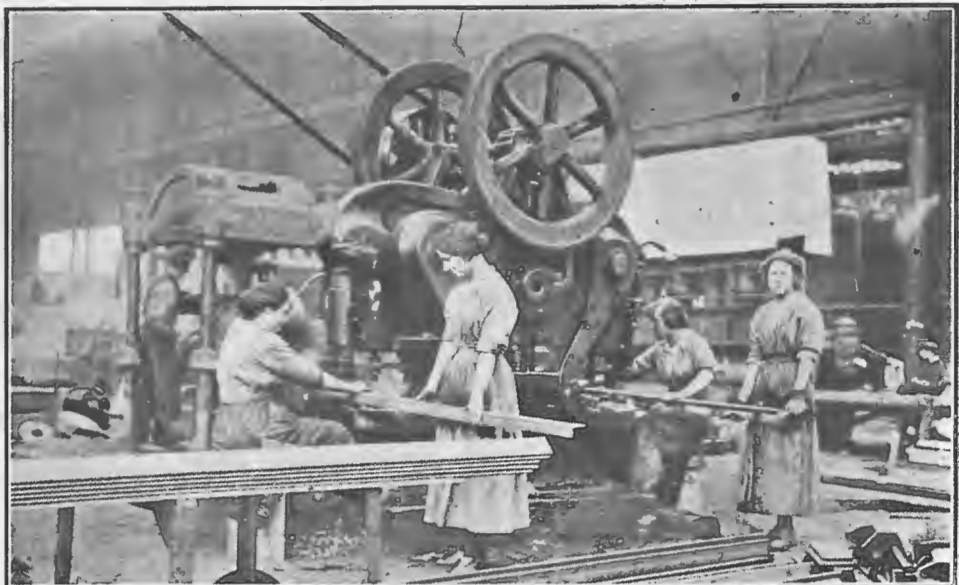
A DENTIST.



LOADING UP THE DELIVERY VAN.



WOMEN BAKERS.



PUNCHING ANGLES FOR FRENCH SHELTERS.



ASKING FOR FARES.



A MESSENGER.



CONDUCTING X RAY EXAMINATIONS.



MAKING CONDENSERS FOR MARINE ENGINES.



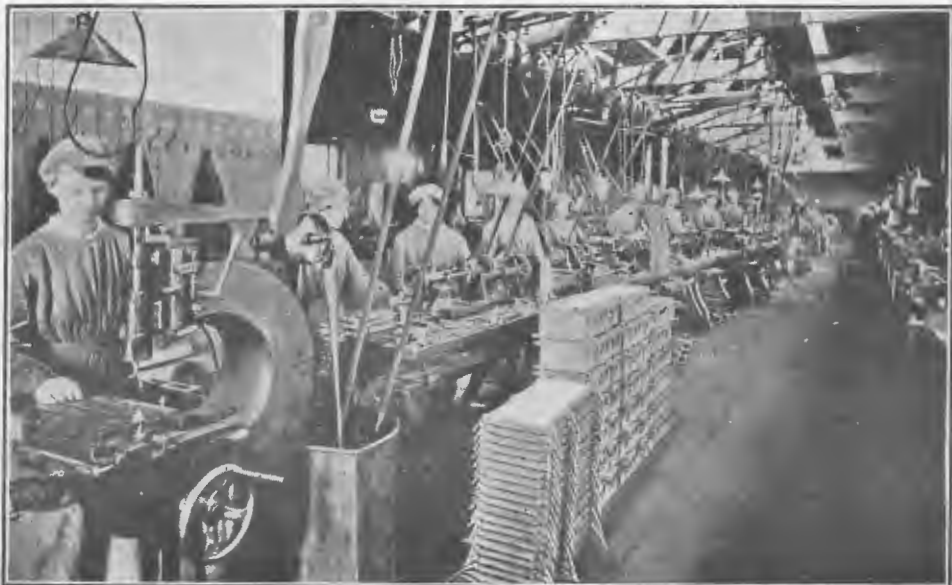
CARRIAGE CLEANERS.



MOTOR DRIVERS.



THE LONDON WOMEN'S POLICE FORCE.



MACHINING ADMIRALTY ELECTRICAL FITTINGS.



A LOCK-KEEPER ON THE RIVER THAMES.



STABLE HANDS AT A REMOUNT DEPOT.



AT WORK ON THE ROADS IN A LONDON SUBURB.



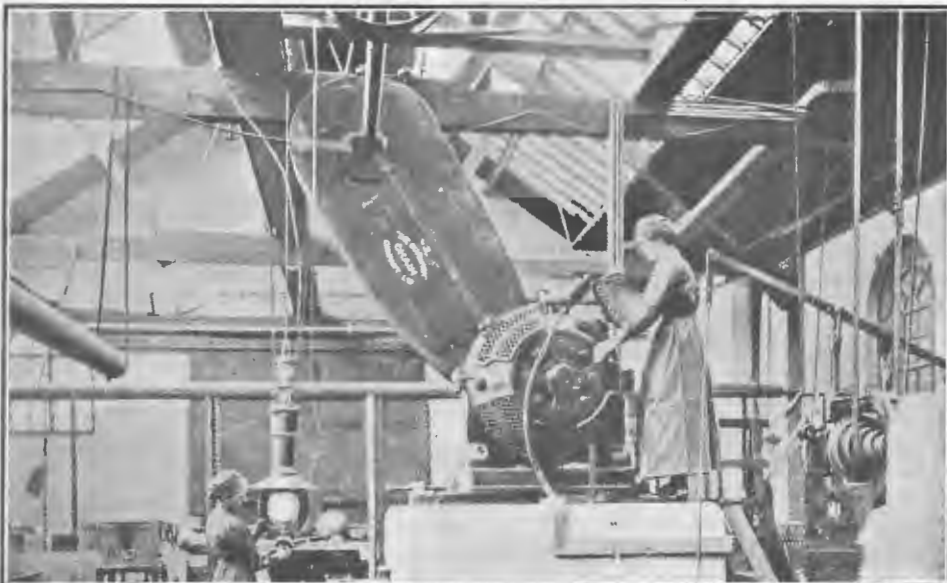
AT WORK IN A MUNITION FACTORY.



WINDOW CLEANERS ABOUT TO COMMENCE WORK.



THE WINDOW CLEANERS STARTING OUT.



IN CHARGE OF AN ELECTRIC MOTOR.



PLOUGHING A POTATO FIELD.



FOLLOWING THE HARROW.



AT WORK ON A FIGGERY.

Intelligence in Naval Warfare

By Archibald Hurd,

Author of "Command of the Sea," etc., etc.

"One day a fleet of ships, supposed to be that of the enemy, hove in sight. The signals were resorted to; but . . . somehow or other were not made so well as when made at their leisure. Geary (the Commander-in-Chief of the Channel Fleet) at last grew impatient, and going up to Kempenfelt (the first captain of the Fleet), and laying his hand gently on his shoulder, exclaimed, with good-natured earnestness, 'Now, my dear Kempy, do for God's sake, do, my dear Kempy, oblige me by throwing your signals overboard and make that which we all understand, "Bring the enemy to close action"'. '* This anecdote illustrates the conditions at sea which existed down to the outbreak of the Revolutionary War. Kempenfelt, who was afterward to sink in the Royal George at Spithead, was the pioneer in naval signalling as it is known to-day, and experienced the most bitter opposition on the part of the senior officers of the Navy, who were stoutly opposed to any change and regarded his system of flag signalling—which was quite simple—as too complicated to be of practical value.

Probably few of those who are watching the progress of events in the greatest naval war in the history of the world realise fully the changed conditions, particularly in respect to intelligence, under which hostilities are being conducted. At the time of the last Great War the system of signals employed at sea, and only recently introduced, was crude, and was regarded with suspicion and distrust by many senior officers; while the Board of Admiralty can hardly be said to have possessed what we should regard as an intelligence department. In a memorandum on naval administration, which Admiral Sir Charles Middleton prepared in 1794 for the information of the second Earl Spencer, who had then recently become First Lord of the Admiralty, he remarked that "There is no method whatever observed in arranging or collecting information, and which is of the utmost consequence in judging of the enemy's intentions; no time ought to be lost in adopting some plan for this purpose." Matters evidently continued in an unsatisfactory state during the subsequent ten years of almost uninterrupted war at sea. At the

end of April, 1805, when Middleton, who had been raised to the peerage as Lord Barham, became First Lord of the Admiralty, he constituted himself practically director of intelligence, besides acting, as Sir John Knox Laughton has remarked, "the master-mind and director of the campaign." Between the Admiralty and the ports the post-horse, supplemented by the recently developed semaphore system, was the only means of swift communication, and the orders of the Admiralty had to be con-



SENATORE G. MARCONI, G.C.V.O., LL.D., D.Sc.

veyed by small swift-sailing ships from Portsmouth, Plymouth, or Deal, as the case might be, to vessels at sea.

It is not a little remarkable, in view of the poor methods of conveying intelligence which were then in vogue, that the Admiralty in London should have managed with such comparative success to maintain control over the strategical aspect of the war. Fortunately, though means of communication were slow, the movements of ships were far slower. In any event, we were no worse off than our enemies, and the resourcefulness, seamanship and hardihood of British officers and men conferred upon Great Britain no mean advantage. The success with which communications were maintained between the Admiralty Board in London and the fleets engaged in hostilities in far distant theatres of war constitutes no mean

* "Life of Howe," by Sir John Barrow.

tribute to the organising ability and mental powers of the officers of those days.

The victories which were won at sea were gained not less by the clear thinking and cultivated intuition of the officers than by the courage and dogged pertinacity of the men under their orders. Yet it is a curious



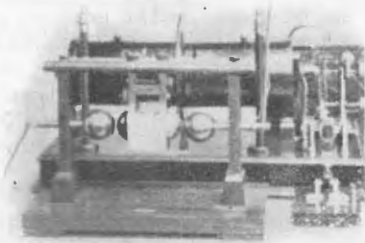
EARLY TYPE OF MARCONI TRANSMITTER.

fact that one of the legacies of the period of the Great War is that the seaman manages well enough on board ship, but cannot be trusted with the administration of naval affairs ashore except he has over him some civilian. The civilian may be a simple-minded country gentleman, dabbling in "affairs," a financier who is more at home on the 'Change; a lawyer whose proper sphere of activity is in the Law Courts, within or without the Bar; or even a man who a century ago would have been described without intention of offence as a tradesman. In short, it has become an accepted principle, since the sailors ashore and the sailors afloat achieved their triumph at the Battle of Trafalgar by an exhibition of their intelligence not less conspicuous than that of their sailor-like qualities, that a seaman should not be put in charge of the country's naval affairs. Since the end of 1805 an Admiral has consequently never been First Lord of the Admiralty, though in organising ability, political perception, and business-like capacity, British seamen are certainly not inferior to the average politician.

As one reads the story of the naval events of the period of the Great War one is lost in admiration for the ingenuity which was exhibited in overcoming the obstacles which hindered the collection and exchange of intelligence and the difficulties which were encountered in communicating orders at sea. There was no electric telegraph, much less a system of wireless, and signalling at sea was still in its infancy. The wonder of the

age was the semaphore. An ingenious Englishman named Edgeworth had hit upon the method of passing simple messages from point to point by means of wooden arms rising and falling; and the French adopted his idea. As long ago as 1794 the French were using the semaphore—meaning "a sign I bear"—as a means of communication between the capital and the armies on the frontier. The system was introduced into Great Britain by a clergyman—Lord George Murray—who afterwards became Bishop of St. David's. Lord George Murray was an inventive genius, and was never more happy than when working out some mechanical device. He was much impressed by the rude semaphore system which had been developed on the other side of the Channel, and proposed that it should be introduced into Great Britain. He laid his suggestions before the Admiralty, and, in accordance with the custom of the time, he was introduced into the King's presence and explained his proposal in detail, with satisfactory results.

In the late years of the eighteenth century a series of semaphore stations was established, connecting the Admiralty in London with the officers commanding at Portsmouth, Plymouth, and Deal. High points at short intervals were selected for the construction of semaphore towers. The intervals between the stations varied from five to ten miles.



EARLY TYPE OF MARCONI RECEIVER.

The signalling apparatus consisted of six shutters arranged in two frames, and by the opening or shutting of these over sixty distinct signals could be dispatched. In later years the system was greatly developed by a scientific seaman of the period, Sir Home Riggs Popham. This Admiral was keenly interested in signalling both ashore and afloat, and he much improved the equipment of the semaphore towers which had been erected at the suggestion of Lord George Murray. In particular Sir Home

Popham brought into use the familiar mast with two arms, which somewhat resembled the signal posts now in use on the railways throughout the world. By this means the Board of Admiralty in London was able to transmit and receive naval messages with really astonishing rapidity. It is recorded, for instance, that each day throughout the year the officers and men in charge of the semaphore stations stood ready to receive the Greenwich time signal, and that it could be passed to Portsmouth and an acknowledgment received in less than one minute if the weather conditions were favorable. The semaphore, however, could only be used for short and simple messages, and the Lords of the Admiralty had to rely upon the post-horse, travelling at the highest possible speed from stage to stage, in order to obtain dispatches from the officers at sea.

The signalling arrangements between the naval authorities ashore and the officers at sea were not less rudimentary than the means of communication between ship and ship, as signals were passed under great difficulties. The maritime peoples had very early realised the necessity of developing some simple system of signalling at sea, but the progress was slow. Commander Charles N. Robinson prepared some years ago an interesting synopsis of the history of flag signalling.* Flag signals, he states, were employed in the English service in the thirteenth century for, in the laws of the period, it was prescribed that a ship wanting to be towed or to pick up a pilot was to show a banner. In the naval instructions of 1350 it was directed that if the admiral wished to summon the captain and masters of the Fleet, he should do so by hoisting a "banner of council," and a flag was to be displayed on the discovery of a supposed enemy at sea. Towards the end of the sixteenth century some approach to a regular code seems to have been made, but it was not until Sir William Penn drew up what are known as "the Duke of York's Fighting Instructions," about 1655, that signals were incorporated in the regulations. Even then the only flags used, with one exception, were the ensigns, pendants, and red, white, and blue flags of command, in general use for other purposes. The exception was a flag striped red and white, which was used as a signal to chase, and which was possibly the origin of the United States ensign.

This code of James II. continued in use, Commander Robinson adds, until the close of the American War, when a Mr. McArthur, secretary to Lord Hood in the West Indies, turned his attention to the subject. He devised a plan by which, instead of the complicated and unwieldy method of showing the flags in particular positions on the rigging, he proposed to simplify matters by using more flags and showing them in combination. His plan was not at once adopted, for Lord Howe had also drawn up a code; but when this was ordered to be tried experimentally by a squadron under the command of Lord Hood, McArthur suggested from his old code a number of additions and alterations, the value of which were demonstrated by the experience then gained. From a plan suggested by Admiral Kempenfelt, McArthur also compiled a code of night signals, and these two codes came into use in 1792-3, and were known as Lord Howe's signals. They were used up to the time of Trafalgar, when Sir Home Popham's code was substituted, and upon this is based the system now in use.

It was many years, however, before the Navy advanced beyond the simple system of flag signalling, which Admiral Kempenfelt had developed and endeavored for many years without success to get the Navy to adopt. The senior officers of the Fleet were distrustful of innovations, fearing confusion and disaster. But the younger men were keen for some improved method. In a letter to Admiral Sir Charles Middleton, afterwards Lord Barham, Captain Philip Patton,* on October 29th, 1786, wrote: "I have turned my whole attention to signals, of which almost every action (in the) last war proved the miserable confusion and inefficiency." In the "Letters of Lord Barham," published by the Navy Records Society, appears this sailor's severe criticism of the system of signals prepared by Lord Hood. He declared that, "If no written or printed directions or explanations attend them, many parts are far from being sufficiently clear," and he added that the plan "is defective and liable to many objections, the principal of which are that it requires too many flags, above thirty being necessary." After embarking on other specific criticisms, Middleton concluded that "the night and fog signals are amongst the worst I ever saw, and would be productive of certain separation." In a later letter, also addressed, to Captain Patton,

*"British Fleet." London: George Bell and Sons.

*Great-grandfather of Admiral Sir John Jellicoe.

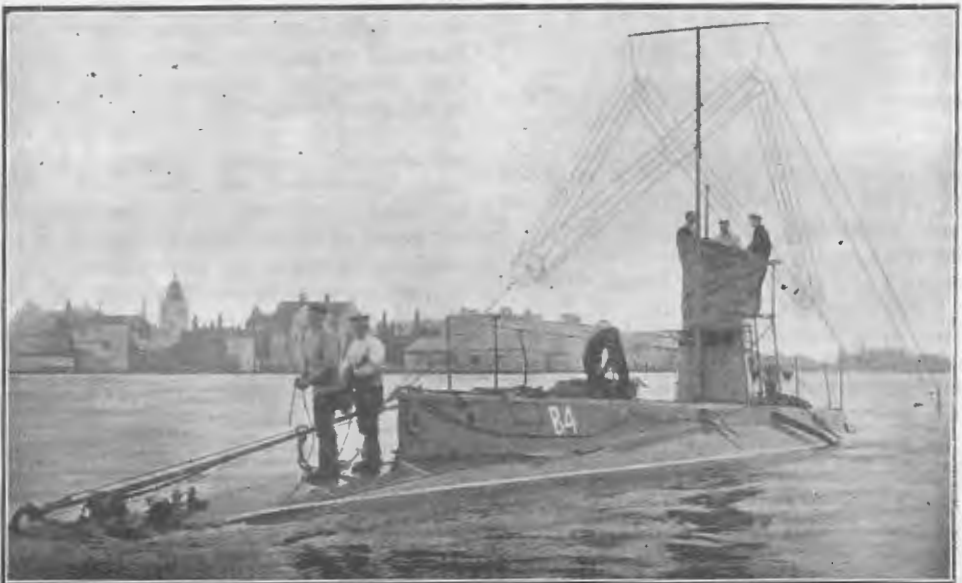
the seaman who was to preside over the Admiralty in after years and obtain some of the reflected glory of Nelson's last victory, remarked:—

“The more I consider the situation of the Fleet the more I am convinced of the necessity of confining your movements to the old Fighting Instructions, and which are certainly better adapted to fleets who fight on an equality than the more modern craze. Simple movements, with the assistance of good leading ships, are within the reach of the meanest capacity; but when additional signals are given out without system or order, as I am afraid is the case with all those I have yet seen, it must only bewilder the judgment and increase the confusion. . . . All I fear at present is the confusion of our signals, but however bad they may prove they will do no harm if left to sleep; and, however ignorant our commanders may be at setting out, their seamanship will give them great advantages in forming and keeping the line as soon as they have been practised so as to understand it.”

Rather more than ten years later Earl St. Vincent, Admiral Sir John Jervis as he then was, revealed in a letter to the First Lord of the Admiralty, Lord Spencer, that even at that date, when the Revolutionary War was in progress, full advantage was not



CAPTURED SUBMARINE, EQUIPPED WITH WIRELESS.



ANOTHER UNDERWATER CRAFT PROVIDED WITH THE MARCONI INVENTION.

being taken of even the limited assistance which the simple flags then in use could render. When numerary signal flags were introduced by Howe just before the opening of the war flagships only were provided with complete sets, and other vessels possessed nothing but answering flags. Jervis made this a subject of complaint to the First Lord, and added that, "My opinion always has been that every ship in the Navy should be furnished with them, as is the usage in the French and Spanish Navies."

On the eve of Trafalgar, though, owing to the pertinacity of Sir Home Popham, considerable progress had been made in signalling, it is evident that Nelson in approaching his hour of destiny had an uneasy mind on the matter. In the course of his brilliant career he had experienced annoyance and mortification, owing to the confusion which frequently prevailed through the unsatisfactory methods of communicating from ship to ship. On his return from his chase of the Combined Fleet, Nelson appears to have been pre-occupied with the question of signalling. Sir John Barrow states that the morning of the Admiral's last day in London was spent at the Admiralty making enquiries as to a code of signals, just then improved and enlarged. Barrow was at that time Second Secretary to the Admiralty, having been appointed to that office—which he was to hold for forty years—in 1804. "I assured him," Barrow states, "they were all but ready; that he should not be disappointed, and that I would take care they were at Portsmouth the following morning." Nelson's anxiety was not quieted by this assurance, and the same evening, just before leaving for his home at Merton, the Admiral called again at the Admiralty and was gratified to find Barrow actually engaged in preparing them for dispatch to Portsmouth. "I pledged myself," Barrow records, "not to leave the office until a messenger was dispatched with the signals, should the post have departed, and that he might rely on their being at Portsmouth the following morning. On this he shook hands with me . . . and he departed apparently more than usually cheerful."

Commenting upon this historical incident, Mr. Julian S. Corbett says* that "What Nelson was so anxious to have was the famous code which he was soon to immortalise,

entitled "Telegraphic Signals or Marine Vocabulary," the recent invention of Sir Home Popham. As yet it had not been fully adopted into the Service, but at the outbreak of the war in 1803 it had been so far recognised as to be issued to ships of the line.† Apparently it had been issued to Keith's cruiser squadron, where the inventor had been using it with great success. Under Popham's direction, indeed, it proved so great a convenience, especially in bad weather, when personal communication was impossible, that its value could no longer be doubted. Accordingly, during the time Nelson was being consulted by Barham, it was decided, apparently in some haste, that every ship should have a copy, and the decision seems closely related to the new system of cruising.

When Admiral Sir John Jellicoe took up his appointment as Commander-in-Chief of the Grand Fleet his mind was filled with no such anxiety as worried Nelson on his last day in London.

The Navy has now many well-developed systems of signalling. Flags or pennants, the semaphore, flashing signals or rockets are employed, or, on the other hand, fog horns, steam whistles, syrens and guns. Owing to the researches of Vice-Admiral Philip Colomb, the Navy obtained an admirable method of signalling by flashes on the "dot and dash" system. The number of flags which form a "set" in the naval code are fifty-eight, comprising twenty-six alphabetical flags, ten numeral flags, sixteen pendants, and six special flags. Admiral Sir Cyprian Bridge* records that, although flag signalling is a slow method compared with others, a fair rate can be obtained with practice. For example, a signal involving 162 separate hoists has been re-

† Nelson had certainly used it to communicate with his battleship captains (see, e.g., his letter to Hargood on August 5th, Nicolas, viii., 3). In saying the code had just been improved and enlarged, Barrow's memory must have deceived him. According to the Introduction and successive Prefaces to the work, the first edition was privately printed in 1800, and was used by Popham in the Baltic, principally for communicating between his ship, the *Romney 50*, off Copenhagen, and Admiral Dickson at Elsinore. Later on he used it in the Red Sea, and by the encouragement of Lord Spencer, then First Lord, he prepared a new edition when he came home, adding two new parts. Part I. (the old edition) had about 1,000 words; Part II. added about 1,000 more, and Part III. a number of phrases and sentences. This edition was in quarto and issued in 1803. Up to 1809 there were several reprints in a cheaper octavo form, but no additions or changes were made.

* "Encyclopaedia Britannica," 11th Edition, Vol. 25.

* "The Campaign of Trafalgar." London: Longmans.

peated at sight by thirteen ships in company in 76 minutes. On the other hand, a signal of 350 words has been signalled by semaphore to as many as 21 ships simultaneously at the rate of 17 words a minute. In a clear atmosphere a semaphore message can be read at a distance of 16 to 18 miles. In recent years, however, electricity has worked great changes in the Navy's methods of long-distance signalling, and a visitor to the Grand Fleet even during the hours of daylight meets the challenging flash of the searchlight passing down the lines—the signals of a senior officer.



THE LONG LATTICE MAST OF A HIGH POWER WIRELESS STATION. This illustration is doubly interesting, insofar as a Seaplane is transfixed near the top. Inset we have (1) a view of the plane, and (2) Seaman Rath, who received the Albert Medal for his gallantry in rescuing the seaplane pilot from his perilous perch.

But the most momentous change in methods of communication was brought about by the invention of Wireless Telegraphy. What would Lord Barham say could he visit the Admiralty to-day and converse with the First Sea Lord. In his day Barham was hesitating as to the wisdom of employing flag signals at sea. To-day he would find that the officer who fills the position of First Sea Lord, which he occupied in 1794-95, can communicate over vast distances without the use of flags, semaphores, or even telegraph wires. How this veteran sailor of the Great War, whose last conversation with Nelson was apparently devoted to the then revolutionary code en-

titled "Telegraphic Signals or Marine Vocabulary," would open his eyes in wonder at the marvels which are now worked owing to Senatore Marconi's researches, and which have so soon become the commonplaces of our day! He would be dumb with amazement at the statement that in the opening days of the war the Germans, by a wireless message from a home station, had been able to send a message into the farthest recesses even of the Pacific Ocean, warning merchant vessels to proceed at once to the nearest neutral port, in order to avoid capture. He would find it difficult to believe that any means existed enabling 80 per cent. of Germany's mercantile fleet to be thus saved from capture or destruction. His attention might be directed to the mysterious wires raised above the Admiralty building, catching the faintest whisper carried by the ether to the wireless room below; he would stand transfixed with astonishment as he witnessed messages being dispatched and received, enabling what practically amount to conversations to be conducted between the members of the Board of Admiralty and the Admirals commanding at sea.* "And can you use wireless for the strategical dispositions of the Fleet in accordance with the constantly changing political and naval situation?" he might enquire. He would be assured that the new method of communication, so rapid, so mysterious, and so certain, could be employed not only between the Admiralty and the commanders at sea, but between ships of all descriptions, whether naval or mercantile, and that by this method the enemy, besieged by sea as by land, and cut off from all cable communication, was able to shout out a daily budget of news and views to the world.

Nor is that all. The old First Lord might be told that the crude inventions with which Admiral Sir Sidney Smith worried him on the eve of Trafalgar had since been developed to something approaching perfection. His mind would travel back to the middle of October, 1805, when he received a letter at the Admiralty from Lord Keith, then in command of the Fleet in the Downs: "I returned from Walmer this morning," the Admiral wrote, "where I had met Lord Castlereagh, Mr. Pitt, Sir S. Smith, Mr. Francis (presumably the pseudonym of

* This development of control has greatly increased the responsibility of the Admiralty and rendered it more than ever necessary that the supreme direction of naval operations should be in the most skilful hands.

Fulton, the American engineer, who had come to this country with his plans of a submarine), and Mr. Congreve. The plans seemed determined upon, and I was only asked about the means of putting them into execution. Sir Sidney seemed to have only one wish, which is to get all the force on this coast put under his direction, to create an 'eclat' in the papers; Mr. Francis is full of coffers, carcasses, and submarine boats, which will not answer here; and Mr. Congreve, who is ingenious, is wholly wrapt up in rockets, from which I expect little success, for Mr. Congreve has no idea of the means of applying them professionally." If Lord Barham could enter the Admiralty to-day he would learn that the submarine boat had become the only active agent of German naval power. In pitying silence he would read the record of this new piracy and note the hundreds of men, women, and children who have been sent to their death by an enemy employing the latest triumphs of physical science in furtherance of methods of barbarism which the aged admiral more than a hundred years ago believed to have been banished for all time. Lord Barham would be told that these devilish craft, small as they are in relation to the huge capital ships of the Grand Fleet, have been provided with wireless installations, enabling them to listen to the gossip of the seas, and also to issue messages luring innocent merchant ships to certain destruction by the deadly torpedo.

But Lord Barham would be consoled when he learnt that, largely by means of wireless telegraphy, every enemy ship, naval and mercantile, had been swept from the seas, and that, save for the submarine—a diminishing peril, also, in part owing to wireless telegraphy—the country he served so well enjoys command of the ocean routes of the world. He would obtain further consolation from the knowledge that wireless telegraphy had proved a merciful agent in war as in peace in the saving of human life. Whenever a ship is in danger, he would be told, a cry for help is sent out by the wireless operator, and if another vessel be within convenient distance she hurries with all the speed which steam can develop to the aid of those in peril. The sailor First Lord who ruled the Admiralty and the Navy with an iron hand during the Great War would leave the Admiralty building, it may be, with thoughts confused, but with a dawning conviction that, though wireless telegraphy has been pressed

by a ruthless and cruel enemy into his service, it has also proved a source of strength to the Fleets, naval and mercantile, which defend and supply the needs of the widely distributed populations of the greatest Empire which has ever been.

—Archibald Hurd.

THE CLIPPER.

Once she sailed from Bristol Port,
A gallant ship was she,
From truck to keelson trim and taut,
Bound for the China Sea.
Yo! Ho!
Aloft and Alow,
Pride of the ocean was she.

But one day a steamer came,
Squat and black and square,
Runs in half the time, her claim,
Weather foul or fair.
Yo! Ho!
Let her go,
She has done her share.

Stripp'd of gear, her spars unshipp'd,
Her gleaming copper gone,
Like roaming bird whose wings are clipp'd
She seemed a thing forlorn.
Sad and slow,
A hulk in tow,
Her sailing days are done.

But when her end was near, indeed,
The breakers' yard her fate,
The call went out in England's need
That she must bear a freight.
Old or new,
Staunch and true,
Must dare the "U" boats' hate.

They docked and scraped her, then, of
course,
They painted her with grey,
And shoved a Diesel thousand horse
Into her hold one day.
Spinning screw,
To ram her through,
Watch her under weigh.

By mine or submarine, maybe,
She'll find a grave below;
Maybe she'll flaunt the ensign free
Through threat of wave or foe,
Walk her round,
She's outward bound,
Here's luck, old ship—Cheero!

Jchabod!

By Ethel Turner. (Mrs. H. R. Curlewis.)

Specially written for "Sea, Land, and Air."

Life was an abysmal depth of misery—a hollow and unsatisfying pageant. Moira stared at it with the wretchedest eyes. When you are only eight and stare at the abysmal depths or the hollow pageants of life you generally do it lying face downwards on the grass, kicking monotonously meantime with the toes of your shoes on the ground. If you happen to be wearing your most cherished and expensive shoes at the moment, and realise quite well that you are making holes in them, it is a subtle comfort to you; you are in this way getting square with the abyss and the hollowness.

"Hullo, what's to pay?" said a voice.

The small girl sat up and shook bits of grass from her hair and eyebrows; had there been time she would have bolted incontinently round the corner of the tennis court, for at eight you are very sensitive about being caught, with your face all blotched with tears, by a man who has just come back from the war with one of his sleeves hanging empty.

"No one's in; you'd better go away," was her muffled greeting, and she twisted her wet face out of sight.

"So the maid told me," Captain Danby said, "I'd nothing to do, though, so I thought I'd come round and have a look at the old court and smoke a cigarette. I'm not in your way, am I?"

He was standing just over her, his quiet, scarred face and understanding eyes looking down. She put a sudden arm round the khaki leg nearest to her and squeezed it tightly; all in the space of a second she knew what that empty sleeve meant to the high-spirited, athletic fellow who had once been the best player of all who used to come to her sister's parties. Then she shook back her hair and rubbed her face vigorously.

"I'm not really crying," she said. For it struck her now as a cowardly, ridiculous sort of thing to be doing while there were terrible things like war and empty sleeves in life.

"Oh, but you were, you know," said Danby, and threw himself down on the grass

beside her, "crying quarts, so you'd better tell me all about it. Go on, old chap, you're sorry for me, let me be sorry for you. Tell me all about it."

Oh, the comfortable thing it was to sit right in the circle of the one arm and pour out the bitter woe that had so long surged in her breast. It was not a woe you could tell to your mother or father, or your big sister; they lived too close to you—they would have found it impossible to realise the importance of it. But this man with the half-wistful, understanding eyes, who was treating her as a fellowman!

Her tears flowed afresh.

"He—says I'm a girl—always!" she said, and added for necessary elucidation, "Scooter."

"Let's see," said the captain and sought for a second through massed memories of cold, and mud and hellish sights and noises and hospitals for a memory of Scooter. A faithful brain cell yielded it almost instantly.

"Oh, yes, Scooter, a little chap who used to stand on his head or turn a Catherine wheel on the court while we had tea."

"He's not little," said Moira, dejectedly, "he's a head taller than me."

"But he's older, isn't he?"

"No," mournfully, "we're twins. But that's how it is with Scooter, he says he does everything better than I do."

"Hum. A young gentleman with an opinion of himself, I take it," said Danby.

Moira was an intensely honest little soul.

"He really can do things," she admitted, "you ought to see him go up one side of the door and hang down over the top and turn the handle the other side."

"And can't you? I remember I used to be able to do that. It wasn't very hard."

"No," sorrowfully, "mother wouldn't let me try it any more after I nearly broke my nose twice."

"And my friend, Scooter, rubs it in, I take it, that you lack this accomplishment?"

"Oh, yes."

"Hum."

"He really can do things, though. Used you to be able to open your legs wide and then bend down and put your head between them?"

"I can't lay claim to that, I'm afraid. I was a stiff-jointed chap, I remember. Scooter can do that, can he?"

"Oh, yes, rather. And when I have Nellie and Flossie to tea down here he takes no notice of any of us but he goes a little way off and does it, and it makes you feel—oh, you know how it makes you feel."

"Rather," said Danby, with intense sympathy, "Small, crushed, hardly worthy to exist."

"Yes," said Moira eagerly, "that's just exactly it. I mind most for Nellie and Flossie. Nellie tried to do it one day, but he burst out laughing and said, 'As if a girl could!'"

"And where is this excellent young gentleman this afternoon?"

"I thought he was going to let me go with him to the pool—everyone of the others is out. He let me catch him some worms and ask Maria for the jam tarts that were left from lunch—though I know mother meant them to serve to-morrow. And he let me carry the things half way there, and then he saw that horrid boy Moore coming and he said I was only a girl and couldn't really fish, and he sent me back."

"Hum. I see. Isn't there anything you can do as well as he can? You're twins, you say. Are you behind him in everything?"

"Oh, things like lessons. I'm past him in those, of course. But he says lessons don't count."

"I see. Anything else? Think hard of your own virtues. The first thing I learnt in camp was when squashed sit up quickly and blow yourself out again. It seems to me you are inviting that young man to flatten you completely. Can't you really think of some things in which you excel this Scooter?"

A sudden sparkle of returning animation showed in Moira's eyes; memories of certain superior powers, long crushed by the small dominant male even at her elbow, came in a rush.

"I can stand dentists better," she said, "an' it hurts me just as much, though he says it doesn't. He makes an awful fuss. Once he got right out of the chair and rushed to the gate."

"Ah, this is interesting."

"And I take castor oil much better. If you've got to, you've got to, haven't you? But he's simply awful. Poor mother's quite knocked up before she gets it down his throat. Oh, and I can run quite as fast; sometimes I beat him, but he says running doesn't count."

"I see."

The cigarette was smoked, followed by a second and third, then the family returned, including the redoubtable Scooter, and the khaki figure was claimed by the grown-ups, while Moira, with the fascinating facility of eight years old, clean forgot the abysmal depths of the misery of life in helping Scooter to count his tiny fish.

But Danby by no means forgot that sudden loving grip, and that pair of drenched eyes that had looked up at him.

He rang up to ask might two little girl friends of his come to tea with Moira the next time that Flossie and Nellie were coming. They were staying at his hotel for a short time, he said, and seemed very lonely.

"You'd think a chap like that wouldn't want to bring girls with him," said Scooter, much disappointed in his hero's conduct. "You'd think he'd bring boys."

But girls it was. When Scooter came in from school one afternoon he found Danby in the drawing room at tea with the grown-ups, but down at the tennis court there was the domesticated sight, often curiously irritating to the fierce young male, of five little girls sitting at a low table engaged in the peaceable occupation of giving tea out of microscopic cups and saucers to five dolls.

Nellie and Flossie he recognised swiftly without taking the faintest notice of them; he had long had them subdued; the newcomers he despised instantly, they looked so soft and bendable and were so small and were dressed so exactly to match each other in short tunics of tussore silk, with tan silk socks and sandals, and big bows of tan ribbon on their dark hair, which was cut in the short, square, American fashion.

Moira called to him in a nervous, conciliatory tone—there are so many ways in which a hostile, small brother can make himself unpleasant round and about a dolls' tea-party.

"It's Vera and Violet, Scooter," she said deprecatingly, "an' we've got choc'lates, have some?"

Scooter in truth would have liked some very much, but to take them did not fit in with his attitude of lordly disdain. He made

as if he had not heard and merely produced a locust from his pocket and absorbed himself in making it whirr.

However, when the tea-party fell heart and soul to its own interests again his prerogative seemed challenged, and he cleared his throat a little, and made the run to jump the tennis net.

"Watch him!" said Nellie, whom he had subjugated to loudly admiring his deeds of prowess, "he does it so beautifully."

It was intensely annoying that he should have caught his foot in the net and made a clumsy mess of it. Glancing back in the hope that the tea-table had not after all been looking at him he found both Vera and Violet gravely watching him. He bit his lip and walked at once to the sloping white railing that fenced in a bank at the side of the court and began to walk up it, balancing himself with his outstretched arms.

"O-o-oh," said Nellie, to enhance the deed, "o-o-oh, I know he'll fall."

He did fall that very instant and into a shrub that pricked abominably. As he extricated himself he fancied he saw a glance pass between Vera and Violet. A very mine was fired in his soul. He went closer to the table and threw a hand-spring. It was an excellent one, one of his very best; this time he did not glance at the visitors, but at once stood on his head.

"Oh, doesn't he do it be-au-tifully," piped that little sycophant, Nellie, but through the hot blood that filled his eyes almost to bursting he saw the faces of Vera and Violet absolutely inexpressive of the slightest admiration. Desperately he turned two Catherine wheels and still they kept entirely calm.

"I'd like to see you do it," he said furiously, as soon as he could command his voice.

"We are having tea or else we would, wouldn't we, Violet?" said Vera, and composedly drank up a cup of the dolls' tea.

"Yes," said Violet, "the grass is so nice and soft."

"You little sillies!" said Scooter, contemptuously. "Have a try, that's all!"

Vera rose to her feet and slowly laid down her doll. Violet did the same.

"Let's see; what is it you do first?" Vera said sleepily.

"Stand on your head," said the boy, gruffly.

"We could take our tunics off," Violet said, consideringly, and they unbuttoned

those brief garments, laid them neatly aside with their sandals and faced each other clad in tussore bloomers and sleeveless bodices.

"Does it hurt your head much?" inquired Vera, turning on him a moment the innocent look of a baby.

"Try," he said grimly.

Two little dark heads touched the ground—two little pairs of legs twinkled a moment in the air and were still. And then—was the world falling down about the tennis court this mild, summer afternoon? Was he in the middle of some stupefying dream? Vera went off in one direction across the court, turning, not two Catherine wheels which were his own extreme limit and the result of terrific efforts, but seven or eight, while Violet did exactly the same in the other direction, both wheeling midway in their courses until they met again, leapt up to their feet, laughed, and kissed their hands to him. Then Violet stretched her legs wide apart, bent, not forward, but actually backwards and showed her face between her knees, and Vera did the same; this was a mere preliminary to further things, a sort of jovial greeting to each other, for on springing back to normal, Vera, the smaller child, leapt on to the up-turned palms of Violet and was raised higher and higher until a column, eight or nine feet high of little girls in tussore bloomers and tan hair-ribbons towered on high. They kissed the ground—backwards—they ran lightly along the sloping white railing from which he had fallen—and they did not fall; but they showed him that they remembered he had fallen by laughing cruelly when they came to the prickly bush. They swung themselves up to the top of the strong iron arch that made the entrance to the court, and they hung head downwards from it by their toes, and whirled their bodies round it and caught at each other's heels and swung, and—and—and!

It went on for ten minutes, ten stupefying, paralysing minutes; then Violet held up a warning hand to her sister.

"That's enough," she said, "or we'll be tired for the show to-night."

"But the nice soldier-man's paying us such a lot," protested Vera in a low tone.

Violet was a harder woman of affairs.

"We agreed for five minutes," she said, "we've given him quite ten. It's not as if there were a season coming from him."

(Concluded on Page 65.)

Our Maritime Peril.

(By O. M. Bagot.)

Better ships, more passengers, more passengers, better ships, is an old axiom in shipping circles, and possibly in no part of the world has it been given more effect than in Australasia. The craft owned in this part of the world have aroused attention among those whose business calls them here, and it is often remarked that the Australasian-owned fleets compare favorably with any employed elsewhere in similar trading, and what can be said concerning the purely Interstate craft applies equally well to those employed in the many over-sea services. Those fine P. and O. liners, the magnificent Orient steamers, the Canadian-Australian, the big, comfortable White Star, Blue Funnel, P. and O. Branch, Union Steamship, Burns Philp, Eastern and Australian, and Federal and Shire Liners which we all knew so well in the days before the great war clouds burst upon us, are practical evidence of our maritime importance. Certainly, if compared with the "Cunarders" and the Transatlantic White Star Liners, to mention only a few of the steamers which maintain regular communication between the United Kingdom and America, services renowned for lavishness and luxury in every respect, they are small in size, but it is only in that they suffer, for, as with the famous Union Castle Line, which has built up such a fine reputation in the South African trade, no expense has been spared in the construction of Australasian traders, the owners invariably deciding to provide the best, and nothing but the best. The old axiom, "Better ships, more passengers, more passengers, better ships," was adhered to, and, after all, it is the best policy.

But whilst Britishers were busily occupied in legitimate competition, and attaining the stage at which their fleets aroused the admiration of all, our subtle adversary, the German, foresaw the possibilities ahead of Australasia. The great productive powers of the Commonwealth meant cargo to be shipped overseas, the carriage of wool, hides, skins, tallow, and such like commodities which Germany needed meant revenue, and also there was the possibility of cutting into the increasing passenger traffic. The thought soon gave place to

action, and those at the head of that German mercantile organisation, the Norddeutscher Lloyd, acted decisively, when it was considered the time for action had arrived.

It was often contended on behalf of the Norddeutscher Lloyd that the Company did not receive a single mark as a subsidy, but at the same time it was admitted that the German Government paid all their Suez Canal dues, and otherwise assisted the organisation, but as these facts will be referred to later it is unnecessary to devote space to them now, sufficient being that the N.D.L. was subsidised, and subsidised heavily, so when the decision was arrived at to link Australasia with the Fatherland, it was effected under the most auspicious circumstances, and in the mid eighties when the "Salier," "Hohenstaufen," "Hapsburg," and "Elbe," vessels of about 4000 tons register, departed from the German home port, Bremen, the success of the venture was practically assured. But, although such was the general impression in Germany, the Germans were careful to act unostentatiously. It was a "business" venture, pure and simple. Germany wanted Australian products, and Australia wanted German wares. Was it not natural that Germans would desire their products and their requirements carried in German bottoms? This was the explanation, and after all it was a perfectly just one had it been acted up to, but as with most other things, Germany and the Germans in close touch with the Reichstag, had an ulterior motive in view. Business possibilities were certainly considered, but, as the Hon. W. H. Kelly, M.P., once remarked, in connection with an article published by the writer, the Germans established themselves so firmly neither for business or pleasure. This fact we must now admit to be absolutely correct; especially when we recall and calmly contemplate their methods during the long period in which they had such close connection with us.

Much can be written about the German-Australian Company popularly termed the Black German Line, possibly the better known company, yet at the same time the

one to work more silently in connection with the insidious scheme to oust British shipping companies from the trade to which they had every moral right. So far as could be definitely ascertained, this organisation received little direct assistance from the Government of the Fatherland, yet there is circumstantial evidence that the guiding minds of the German Empire were behind it. This evidence is largely deduced from the fact that at the outbreak of the war that line had succeeded in establishing no less than five distinct services with Australia. In 1889, the German Australian Company had in commission seven steamers, the "Elberfeld," "Essen," "Erlangen," "Barmen," "Solingen," and "Sommerfeld." They were all of the purely cargo class. They were full powered, had good speed, and the usual good fortune enjoyed by German enterprise followed them, for accidents of any kind were rare. Punctuality was a strong point, and even the staunchest anti-German must admit that every effort was made to please shippers. Far better to lose money in fulfilling an engagement than to lose confidence of supporters. That was the keynote of the German method of conducting the insidious campaign decided on. And it was successful, for in 1914, the German Australian Company owned no less than 55 high-class steamers built for and incidentally paid for out of the profits derived from the Australian trade, the fleet being as under:—

Vessel.	Tonnage.	Vessel.	Tonnage.
Adelaide	5898	Hof	6000
Albany	5892	Iserlohn	4667
Altona	4312	Java	7676
Annaberg	4465	Kiel	4494
Apolda	4939	Linden	4188
Australia	7485	Luneburg	5819
Berlin	4196	Magdeburg	4497
Bielefeld	4460	Mannheim	5878
Bochum	6161	Melbourne	5926
Brisbane	5668	Neumunster	4324
Cannstatt	5900	Oberhausen	4322
Colmar	6184	Ottensen	4240
Duisburg	4496	Offenbach	4336
Dusseldorf	5877	Osnabruck	4240
Elbing	4884	Plauen	4210
Elmshorn	4594	Reichenbach	4217
Essen	5878	Rendsberg	4639
Esslingen	4897	Rostock	4957
Freiburg	6000	Solingen	4195
Fremantle	5872	Sumatra	7484
Fuerth	4229	Sydney	5894
Gera	6000	Tasmania	7200
Eoslar	4351	Ulm	6000
Hagen	4210	Vargin	4455
Hamm	4598	Wismar	4686
Hanau	4213	Worms	4428
Harburg	4472	Stolberg	5870
Hobart	5923		

Possibly some may contend that business enterprise and acumen was responsible for the remarkable success. There is truth in the contention. Some may remark that the Germans studied importers and exporters, keeping faith in every respect. There is truth there also. Some may assert that the Germans catered for the shipping demands as conditions warranted. Again, we must admit the truth of the assertion. The Germans did all that and more, but behind all the well-thought-out methods of inducing confidence, **is the fact that it was not legitimate business or pleasure, but the ultimate gain for Germany that prompted the Germans to cater for the needs of the importers and exporters in the manner they did.** Many people, like Mr. W. H. Kelly, knew and spoke of this, whilst others know, and even before the war were well aware of the aims of the Germans, but even now will not refer to the matter.

To-day, we are involved in a serious war. We have every confidence that the Allies will be successful and gain a complete victory, but supremacy on the battlefields or seas is not the only supremacy we must be prepared to uphold. Until recently, the cables frequently referred to the elaborate preparations Germany is making for the coming commercial war. The German shipping magnate, **Herr Ballin, a great personal friend of the Kaiser's, and prominently associated with the Norddeutscher Lloyd, recently spoke to the effect that Germany's mercantile marine must and shall be supreme, and simultaneous with that statement came the information that the German Government intends financing ship-owners on most liberal terms.** These statements can mean but one thing, and that is, that we are to have German tonnage visiting Australia again. There are among us many who say we will never do business with Germans again, but memory is at times short lived. France and Germany were at war in the early "seventies," and during the hostilities then similar statements were expressed by our present Allies. They were meant in all sincerity just as they are meant to-day, but France, after fulfilling the demands of the German peace terms, gradually developed her dealings with the Hun. The Allies will win this war—of that there is no doubt. We all desire this to be the last war. There is no doubt of that either. But we can only make this the last war by adhering as far as possible to the resolutions we are now so

firm in, and if they have to be broken, which is to be expected, by taking every precaution and exercising great care. We know what the German has done in connection with Australian shipping affairs, but we all do not know how it was done. The German is too wily to allow that. This system of building up was so wide and cleverly conducted that, explained by one

who had long acquaintance with shipping matters, it will make interesting reading. Arrangements have been made to set out in a series of articles, the first of which will appear in our next issue, the whole history of the German Companies which were associated with Australia, and, for a very brief period, with New Zealand.



THE S.S. STEPHANO, WHICH WAS SUNK BY A SUBMARINE IN 1916. THE STEPHANO WAS A SISTER SHIP TO THE FLORIZEL.

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Loss of S.S. Florizel

A few days ago, our newspapers reported the total loss in a blizzard of the New York, Newfoundland, and Halifax s.s. Company's fine steamer Florizel, together with over 100 lives, off Cape Race, one of the most dangerous spots on the inhospitable coast of Newfoundland.

The Florizel and Stephano were built in an exceptional manner for a remarkable combination of two widely different purposes.

They were owned by Messrs. Bowring Bros., of St. John's, Newfoundland. During the summer, autumn, and winter of



CAPE RACE, ONE OF THE MOST DANGEROUS SPOTS ON THE INHOSPITABLE SHORES OF NEWFOUNDLAND.

As a result of the world-wide ramifications of the Wireless Press, we are able to publish so soon after the disaster a description and illustrations of the ill-fated vessel, as well as a picture of her sister vessel, s.s. Stephano which was sunk by an enemy submarine outside New York towards the end of 1916.

each year they were employed as passenger vessels by the Red Cross Line in the New York, Halifax, Nova Scotia, and St. John's, Newfoundland service. The voyage from New York, and return, including a stay of one day at Halifax, each way, and two days at St. John's, occupied twelve days, and was very popular among Americans who desired



THE ILL-FATED FLORIZEL IN ICE FIELDS.

a short and interesting sea voyage. One remarkable feature of the voyage was to leave New York on Saturday in the terrific heat of midsummer, and, four days later, to steam among scores of huge icebergs, off the coast of Newfoundland.

Florizel, under the able command of Captain Abraham Kean, returned with the largest load ever taken before or since by one vessel. She landed the pelts of forty-nine thousand seals.

A close examination of the accompanying



VIEW OF ST. JOHN'S HARBOUR, NEWFOUNDLAND.

In the Spring of the year, the passenger accommodation in these vessels was sealed, and the decks and rails were sheathed with rough planking, and, with numerous other changes, the ships were transformed into heavy icebreakers. Manned by a crew of hardy Newfoundland seal-hunters, they

illustrations will reveal the canoe-shaped bow of both ships. This was provided to enable them to ride on to heavy ice and break their way with their great weight.

After the seal hunt, the vessels remained two or three weeks in St. John's, where they were thoroughly cleaned and renovated



S.S. FLORIZEL PASSING UNDER ONE OF THE FOUR HIGH BRIDGES WHICH SPAN THE EAST RIVER, NEW YORK.

voyaged northwards and penetrated far into the depths of the Arctic icefields. There, far from land, off the cruel coasts of Labrador, they hunted for seals, and if successful returned to St. John's with valuable cargoes of pelts. In the year 1910, the

and transformed again into passenger ships of the most attractive class.

In a later issue of "Sea, Land, and Air," we shall publish a full description of a Newfoundland sealing expedition, together with numerous photographs taken on the spot.

All In A Day's Work

By Clarence Cisin

Wonderful experiences have become almost commonplace among the officers and men of the mercantile marine. Daily and hourly in the war zone they face the danger of submarine and mine, fully aware of possibilities, but having no thought of fear. It is the general idea that whatever happens is "all in the day's work," and discussion is unnecessary. Consequently, it is difficult to obtain stories of experiences, but we have been fortunate enough to obtain the story of Mr. Clarence Cisin's actual experiences, and, as unfolded in his own words, it supplies a vivid impression of happenings in hundreds of cases. Mr. Cisin was wireless officer of the American steamer "Navajo," and since the following was written has again suffered from submarine attack. On the last occasion the vessel was sunk and Mr. Cisin barely escaped with his life.

To the crew of the "Navajo" the Fourth of July came in like the proverbial lamb and went out as a roaring lion. And, incidentally, with a display excelled by no old-time celebration of that glorious day.

The sun was shining on a placid stretch of ocean that had all the peace and quiet, if not the exact aspect, of a street scene in Flatbush. Dinner was in progress and one of the men remarked that it didn't seem at all like the national holiday without the time-honored fireworks.

Had he been a prophet, gifted with the true foresight, his name would go down in history as the world's joker.

Almost immediately the alarm gong rang out its warning.

With a few choice words regarding the vision of over-zealous lookouts—for the pie was particularly appetising—we rushed out on deck. And there was a submarine off our quarter, looking very business-like, with its gun-crew on deck preparing to fire on us. The Captain immediately rushed to my cabin with the ship's position and my key snapped out the distress call instantly. A British destroyer answered, reporting that she was speeding towards us. Our gunners opened fire upon the "sub." and after three shots from our guns she submerged. Whereupon we breathed a sigh of relief and anxiously awaited developments.

The patrol overtook us about an hour later, and convoyed us a short distance.

That night the machinations of submarines was a topic very seriously discussed.

So was life insurance.

Early the next morning, July 5th, I was awakened by the sound of shots. The Captain came to my cabin and asked if I could hear any distress calls. I listened in, and picked up a distress call from a British ship, saying that she was being shelled by a submarine. In the middle of her mes-

sage, as she was stating her position, the spark suddenly died out. It was a tense moment, as will be understood by all operators who are familiar with the peculiar appealing sound given out when an accident occurs to the transmitter.

Nothing more was heard from that ship. Then those on deck reported that a sailing ship, about three miles ahead of us, had apparently been struck by a shell, as she buckled midships and almost immediately went down.

Half-an-hour later the submarine appeared and commenced to chase us. I sent out S.O.S and established communication with a French land station. The chase was well on when, a little over an hour later, an airplane came speeding towards us—it gave us the kind of feeling a drowning man must have when he suddenly finds a life-preserver floating towards him. The plane circled round us and the U-boat promptly submerged.

We no longer felt that the newspaper talk about submarines had been exaggerated.

Somehow or other, there was not a great quantity eaten at the noonday meal, despite the fact that we expected to arrive at a French port within a very short time, and all felt that the worst was over. But the subject of U-boats is one not given to easy speculation.

We were going full speed ahead, and although a heavy fog had arisen, the engineers kept the ship at top speed. We were not breaking any "speed records" at that, for about nine and a half knots was our ship's best, even when pushed to the limit.

About three o'clock the same afternoon the fog lifted. There on our starboard side, a little over two miles away, was the ominous "sub." with her gun crew on deck, ready to fire. They didn't lose any time about it, either. A peculiar whizzing,

shrieking sound was heard, and a shell exploded about ten feet from us. A blue flame and a sickening thud—the whole ship rocked. The Captain immediately swung our ship around so that the stern of the vessel faced the submarine; then we opened fire.

I had started the distress call immediately upon sighting the submarine, adding the ship's position, which the first mate brought in a few minutes later. The wireless cabin was directly back of the after gun, and presented an excellent target for the U-boat. Shells were flying in all directions. One shell whizzed directly above my cabin, miraculously missing the masts of the ship, and landed a few yards ahead of us. Another shell exploded at about ten feet from one of the windows of the operating room, and a shower of water was thrown all around and upon the apparatus.

In the meantime I had "picked up" two British destroyers and a French land station. The destroyers sent encouraging messages stating they were steering toward us.

We expected to be struck any moment and we knew that one shell would mean good-bye. For it would not only completely disable the "Navajo," if it struck anywhere near the engine room, but would immediately set fire to the oil which we were carrying for fuel.

The battle lasted about fifty-five minutes, during which time the naval gun crew went about their business in the coolest manner imaginable. One young lad named Smith, a gun pointer, kept repeating, even with the shells bursting on all sides of us: "Those damned Germans can't hit us. Yeah! Give it to 'em, boys!" Our third mate had joined the gun crew and gave very valuable assistance. The trigger of the gun was out of order and he worked the lanyard which they had attached to it.

I realised that if one shell struck my cabin, pieces of wireless apparatus and wireless operator would be spread promiscuously about the ship. It was sort of comforting to realise that this separation would be instantaneous. Long before we entered the war zone I had decided just exactly what my procedure would be in case we were fired upon, but I little realised that, in place of self-preservation thoughts, there would come to me an overwhelming sense of duty to our glorious country, which would keep me at the key while it seemed every moment would be

the last. I cannot see my action in a heroic light, for I stayed on the job without a thought of anything but the matter in hand. There must have been a guarding Providence watching over us, at that, for though shells were flying over and around us, missing us by a few feet, they did miss.

The twenty-fifth shot had been fired when the men, watching with every nerve strained, saw an explosion take place directly above the conning-tower. Several of the enemy crew were seen leaping into the water as the submarine up-ended and sank. They had fired altogether twenty-three shells at us, and we fired twenty-seven.

When the guns ceased firing, the silence was just as it might be had you been standing close to Niagara Falls, and the Falls were suddenly turned off. So great had been the vibration in my cabin the detector point had been jarred from the crystal several times during the battle. But we were through it successfully, and ready to call it "a day."

Then, just as all hands were breathing a sigh of relief, and I was about to light my pipe, the first mate rushed into the cabin and said, "Continue the 'distress,' another submarine is in sight!"

There was to be no rest for the weary.

The engineers used all their energy in making the utmost speed, and the submarine which we had just sighted submerged within a few minutes. But not before one of the fragments of a shell had struck the stern of our ship, almost directly below my cabin, but above the water level. This required seventy-nine rivets when we arrived in France.

As I see the battle now, it is clear that with all the seriousness of the situation, there were still quite a few humorous incidents taking place while we were under fire.

Our carpenter, a Portuguese, when he heard the first shell whizzing by, looked out from the forecastle and said, "Sooter-marine!"—immediately thereafter disappearing. About three minutes later he appeared on deck, carrying his clothes done up in a bundle and his set of tools were held in his other arm; his mattress was half slung over his back—he had everything but the piano. Thus encumbered, he rushed toward one of the lifeboats; but the first mate, seeing him from the bridge, ran down and grasped him by the collar, at the same time delivering some extremely

well-aimed kicks, and saying, "I am spoiling a new pair of shoes kicking you!"—bam, biff—"and if we get through this alive"—thump—"you will have to pay for them out of your wages"—slam. "Now get below, blankety-blank you, and help pass up ammunition!"

Another incident serves to illustrate how the habits of a lifetime dominate the excitement attending emergencies. When the first shot was fired, the first assistant engineer went below to call his chief, who had turned in for a nap. He drawled lazily: "I guess maybe you'd better get up, sir, we're being shelled by a submarine," while outside the cabin could be heard the Japanese, whom we had on board as steward, messman, etc., running wildly from one cabin to the other in great excitement, and kissing each other fond farewells.

We arrived at ———, England, the same evening, and anchored in the stream. A report of our encounter had preceded us and we were visited by several of the British officials. Later we received a letter of congratulation from the British Admiralty for sinking the U-boat.

That night we all sat around "chewing the rag" until about midnight. Had it been a religious gathering, it would not have been possible to have collected a more subdued and serious group of men; most faces bore an expression of heartfelt thankfulness for our miraculous escape.

About midnight we bade each other good night, apparently to turn-in. I went out on deck to have a final smoke before retiring, and about ten minutes later the third mate appeared, followed by two of the engineers; and there, before half an hour was up, we were all seated on deck, discussing the battle again.

The next evening we crossed the Channel with four other ships bound for ——— and under the escort of a convoy. We arrived at ——— the following morning without further incident, and remained in that port a little over a week. During that time I had occasion to travel to Paris. There were about "fifty-seven varieties" of police inspectors, who found it necessary to look at my passport and papers, and it seemed as if everything and everybody was in uniform. A vast number of Americans mostly from the Medical Corps and the Engineers' Division, were in evidence. A civilian created as much curiosity as a man in uniform had had bestowed upon him a few years before the war.

Women were working as street cleaners, taxi-drivers, car conductors, and at practically every vocation of men in peace time. There was a ratio of about forty women to every man. Particularly pleasing were the car conductors, with their little white hats and neat uniforms; a sight that would have cheered the pastels and paints of Howard Chandler Christy.

The French people surely know how to make strangers feel at home. A little incident of my train trip to Paris may be interesting, to show the attitude of all French people toward Americans. In the compartment in which I was riding there was a French soldier just returning from the front and a young lad who was studying aviation. They spoke very little English; my French was not quite as good; but we were able, by means of signs, gestures and a French-English dictionary, also by drawing little sketches, to converse with each other. I believe it was the best example of the pantomime art on either continent—bar none.

When they grasped the fact that we had sank a submarine, the soldier exclaimed: "Ah! Americane! My comrade!" And he produced a bottle of wine from his kit. After which we were all comrades together.

On July 14th, France's great national holiday (the fall of the Bastille), an immense review of the troops of the allied countries was held, headed by President Poincaré. Everyone for miles around who could secure a pass for the railway trip came to Paris for this event. The soldiers of the various countries marched by amid cheering and flag-waving of a spine-thrilling order. "Old Glory" was very much in evidence. I noted particularly, however, that among the soldiers were a great many lads apparently between the ages of seventeen and twenty, and, although the occasion was one of great celebration, there appeared a tired, dissatisfied, sort of longing-for-the-war-to-end expression on the faces of the majority of them.

When we sailed from France, we were acting as a convoy to twenty-three merchant ships. The "Navajo" steamed proudly ahead of this large procession, looking as if she were leading an exciting race—a thought which, however, immediately vanished when we remembered our unimpressive speed of eight and a half knots.

The next day we arrived at ———, England. The town is, indeed, the garden spot

of the world. There are a hundred and one little nooks, shaded by gorgeous flowers, and the greenest of green trees, sending alluring invitations to all lovers of nature. All about are miniature hills, with dreamy bungalows perched on the summit, overlooking a stream dotted here and there with "kippy" little sail-boats drifting along in a care-free, lazy fashion. Really this particular town is one that would make a peot out of a Coney Island sideshow "barker."

We left this port with the whole town lined up to bid farewell. The second day out, about 4 a.m., just as I was coming off watch, we sighted the body of a man lashed to a mast. The corpse was floating quite near us and the form was withered and apparently eaten away. It seemed like an ill omen.

The next morning at 5 a.m. we sighted a crowded life-boat. The people in it were waving to attract our attention. We overtook it and saw twenty-three men—thirteen Chinamen and ten Englishmen. As we steamed past, they looked up at us with a pitiful, imploring sort of expression as if they feared we would not stop for them. We did, however, and took them aboard, when we learned that they were from the British ship *Glenstrae*, torpedoed the evening before at about 9 o'clock.

The captain immediately gave me a code message, asking that one of the destroyers relieve us of these men as we had but three life-boats, a number sufficient only for our own crew. I got in touch with a British patrol, and within a couple of hours it was alongside and took the shipwrecked men away.

A few days later, on August 1st, we had just about cleared the war zone. All hands were beginning to lose that strained constantly-alert, half-expectant, half-dreading expression that marks men who have reason to hold the submarine in great respect. A few of the men had decided to undress the next time they went to sleep. Someone even started a song about old New York town, and everyone joined in heartily.

The spirits of the third mate rose and he washed his laundry, which he had let accumulate since the beginning of the trip, because, as he said, "Clean laundry and 'dirty' subs. are a poor combination."

Then it happened!

I was taking my noon siesta, and was suddenly awakened by sounds of running and confusion and shouting along the deck. Luckily I had only to put on my slippers

and rush out on deck to find out the trouble.

One glance was enough. The after-part of the ship was a dense mass of smoke, with flames shooting up at frequent intervals. Everyone was shouting and running up and down. Someone said, "Try and heave that ammunition overboard." (We had 110 rounds of ammunition for our three-inch guns, stored away, and about 2,000 rounds of machine-gun ammunition in my operating room.) The captain bellowed down from the bridge, "Send out the S.O.S.!"

I started the generator, and one of the oilers came rushing in. "Sparks, the fire is uncontrollable," he shouted. "Keep the 'distress' going!"

I was already shooting it out, saying, "Ship on fire; burning oil."

The fire was gaining such rapid headway that within five minutes the flames were licking in the windows of my operating room. Suddenly the curtains burst into flame. We had three life-boats on the after-poop outside my cabin, and they were being lowered away. It was impossible for any of the engineers to get below to the engine room, because of the fire and smoke, and the ship was going ahead full speed. I was still repeating the "distress," when I heard through my open window one of the naval lads shouting, "We're leaving, wireless!"

I was stunned for the minute, then grasped the import of that sentence. I grabbed my pup and ran from my cabin. Two of the boats were already away from the ship. I slid down the falls just as they cut away the last rope.

It was only good luck that kept us from capsizing, for the "Navajo" was going ahead full speed. But somehow we managed to get clear and rowed away from the swirl created by the propellers.

The fire had gained such headway that the whole poop was now a mass of flames. We were approximately 1000 miles from land, and in an entirely unused ocean track and the only sign of a ship we had seen in the past four days was the patrol boat that had relieved us of the *Glenstrae's* survivors. It seemed probable that some time would pass before we stood any chance of being picked up.

These facts I had just grasped when the shells began to explode! First the ammunition for the rapid-fire gun went off with staccato reports; they sounded very much like the automatic trip hammers

used in steel construction work; then came the deep boom of the large shells, followed by the peculiar whizzing sound as the projectile shot out.

The whole after-part of the ship was one sheet of roaring flame, and we expected to see the boilers go at any moment. The life-boat which I was in was in charge of the second mate; we also had the second assistant engineer and eight of the Portuguese crew. We knew that he had to make a quick get-away, so everyone took a hand at the oars, everyone, that is, except one big Portuguese fireman. He was a man who must have been born on a rainy day; his ugly, crabbed nature had made him very much disliked while on shipboard; he had lost one eye in some manner, and the other eye had a ferocious, animal gleam in it; and there he sat, lounging back like a passenger, watching the rest row. I suggested to the second mate that this fireman relieve the second assistant engineer, who was an elderly man; and the second mate ordered him to do so. The fireman scowled, and replied, "No savvy." He savvied as well as anybody, but probably the combination of fright, laziness, and natural meanness, made him refuse.

I could see the second mate inwardly boiling with rage; he did not have his revolver with him, so in whispers he planned with me to use the end of an oar upon the fireman's head. A life-boat is no place for excess baggage, and this man was setting a dangerous example to the other Portuguese. We had but a limited amount of water and hard-tack aboard, and it was necessary to maintain strict discipline.

So, following instructions, I began edging over toward him with the intention of grasping his arms, while the second mate utilised an oar on his head—when we saw the smoke of a steamship in the distance.

All grievances were immediately forgotten in the joy of the sight. No words can express with any degree of justice the feeling that ran through us.

Within an hour we were all safely aboard. The vessel which rescued us was the Greek steamer "Iossifoglu"—some name to pronounce, but a joyous sight for us, you can bet. We all felt like giving three cheers for Greece and all things "Greecy."

There were two American firemen aboard, and their first remark was, "Well, you sure have struck a hungry ship." And they were right. Meals consisted chiefly of potatoes and tea, with variety injected by

reversing it to tea and potatoes. But we did not look a "Greek" horse in the mouth, for, compared to hard tack and water, the menu was indeed sumptuous.

I had a bunk above a Greek steward. He had, marching back and forth along the walls and over the bunks, the greatest collection of trained animals it has ever been my misfortune to encounter. Apparently, they did not annoy him in any way, but I firmly believe that he must have spent considerable time in drilling them, as they would stand at attention, form in fours, fix bayonets and charge.

All through the first night aboard I occupied myself by striking the wall with resounding whacks. I connected with and killed the enemy—sometimes . . . but not once did I miss my cuss phrase. About 2 a.m. the poor Greek steward knocked on my bunk and said, "What you mena, 'gol damn, gol damn', all night? What you mean?" I explained briefly, but to the point.

The next day we had a general hunt for shoes, socks, underwear, and various articles of wearing apparel, as some of us were shy everything, and most of us required something. We were bound for a port in Ireland, which was comforting, as was the fact that the Greek ship was a neutral one. We did not feel very much uneasiness while going through the "zone."

On August 5th we steamed up the River Shannon, where the country is rugged, hilly and green, with a scattering of thatched-roofed huts dotting the hillsides. We arrived at our destination in the evening and once again we were very much touched by the hospitality shown us.

The far-famed ready wit of the people is indeed justified. One of our men, while getting a shave, was cut, and angrily asked the barber why he didn't learn his business, whereupon the tonsorial artist replied, "Kape your mouth shet, if you want to be shaved. Shure 't isn't my fault if your face is made wrong."

The waiter in our hotel would have been called an exaggerated type on any vaudeville stage. Upon being sarcastically informed that he was never born to be a waiter, he replied, "Sure and I knew that long ago. I was born to be a Prince, it's only circumstances that makes me a waiter."

After seven days we left Ireland and sailed from Liverpool on a big American liner, arriving at an Atlantic port in the

United States without incident.

I have just received a letter from a wireless operator at the land station at Belville, France. I met this chap while in Havre, and as he had picked up our distress calls we had quite a feeling of intimacy. His letter reads:—

My Dear Mr. Cisin,—

I'm really happy to have the honor to know you, but very sorry that you did not stop a long while, while to Le Havre.

I think that was not last times see you, it will be for another.

Don't wish receive any S.O.S. of S.S. "Navajo" like this on the last 5 July at 11 a.m. and 4 p.m. (Very constantly).

Your devoted new friend,
(Signed) H.C.

P.S.—Excuse, please, my America writing, it is my first letter of this language.

The owners of the steamship company have mailed me a very liberal gift, accompanied by a kind letter of appreciation, and everything has ended very happily.

As a result of his experiences, Mr. Cisin decided to offer a few suggestions for transatlantic travellers. They are as follows:—

"If German shells start singing 'Heaven is my Home,'

It's sort of safe to say that you Had better say a prayer or two,

In fact you'd better say a few As your spirit's liable to roam."

Regarding Baggage.—Carry everything you don't mind losing.

Expect Surprises.—Don't show any signs of astonishment if, after cosily wrapping yourself in your bunk, you wake and find yourself clinging to a bit of driftwood in the aqua salty.

Be able to Speak German.—There's no sense in wasting good cuss words if they're not understood.

Practice Swimming.—If it becomes necessary to jump into the water be familiar with the porpoise dive—the enemy may think you're only a poor fish.

Conserve your Energy.—Don't try to swim to shore if your ship is sunk 800 miles from the coast—unless you have a compass with you.

Don't Boast.—The middle of the Atlantic is a poor place to brag about being unable to swim.

If taken Prisoner.—Expect the worst—you'll get it.

If firing on a Sub.—Remember it's more 'blessed to give than to receive.

A submarine's a peculiar thing -

It's sneaky, treacherous and mean.

You can best enjoy the sight of one

On a moving picture screen.

THE TORPEDO.

By Katherine Drayton Mayrant Simons, Jr.

Death, our mother, gave us her three gray gifts from the sea—

(Cherish your birthright, brothers!) speed, cunning and certainty,

And mailed Mars, he blessed us—but his blessing was most to me!

For the swift gun sometimes falters, sparing the foe afar,

And the hid mine wastes destruction on the drag's decoying spar,

But I am the wrath of the Furies' path—the war god's avatar!

Mine is the brain of thinking steel man made to match his own,

To guard and guide the death disks packed in the war head's hammered cone,

To drive the cask of the thin air flask as the gyroscope has shown.

My brother, the gun, shrieks o'er the sea his curse from the covered deck,

My brother, the mine, lies sullen dumb, agape for the dreadnought's wreck,

I glide on the breath of my mother, Death, and my goal is my only check!

More strong than the strength of armored ships is the firing pin's frail spark,

More sure than the helm of the mighty fleet are my rudders to their mark,

The faint foam fades from the bright screw blades—and I strike from the under dark!

Death, our mother, gave us her three gray gifts from the sea—

(Cherish your birthright, brothers) speed, cunning, and certainty.

And mailed Mars, he blest us—but his blessing was most to me!

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Flying and Aviators



MY FIRST FLIGHT.

(By Lieut. G. C. Scarr, R.F.C.)
Special to Sea, Land and Air.

Aeroplanes are still new enough to be novel, consequently there are few who have any idea of the sensations of the first flight. The writer, a well-known Sydney resident, tells of his experiences while undergoing the "nerve" tests the aviator is subjected to.

On December 22nd, 1917, I made my first flight.

It was a trial flight, officially arranged by the O.C. to test my nerve. The pilot did his best to frighten me by performing some fancy manoeuvres in the air. And he certainly did appear to be reckless, but he failed to accomplish his object, for after half an hour, during which we travelled forty miles at an elevation of 5000ft., I landed, feeling perfectly fresh, having quite enjoyed the experience. It was really first-class, and most exciting.

I sat in a very narrow, but quite com-

fortable, seat in the front part of the 'plane, and only my shoulders and arms projected above the body of the machine. I had a clear view ahead and all round, and by leaning over a little, underneath.

Some Nerve Tests.

One of the plans the pilot adopted to test my nerve was diving very suddenly and steeply, so that the machine was almost perpendicular, and the earth seemed to me to be just where the picture on the wall is when sitting in a chair.

Then, just as the machine would get up an enormous speed in falling, he suddenly shot up again nearly as steeply, so that we seemed to be standing on our heads.

Another trick was to rock the machine and pitch at the same time, just like a boat in a heavy sea, only much more so. The earth seemed to be swimming round in circles. Then he tried flying on one side, and, had it not been for the great thick leather apron buckled around me, I should have fallen out. At last, to descend, he came down from 4500ft. in a corkscrew of seven turns in a few seconds (it is a show trick of his, and he has often had his machine turned). The sensation was indescribable. The machine was plunging almost perpendicularly to earth, her nose pointing down, and the wings were right over. As we approached the earth, the speed was terrific, and the force of the air rushing against my head seemed too great to bear.

It was a trying ordeal, but at the same time enjoyable and interesting. When we landed the pilot complimented me on looking well, as he said that most of the new chums whom he took up for trial landed terribly sick, and unable to walk, after the spiral descent.

MY LAST FLIGHT.

Related by Lieut. A. W. M. Mowle
(For Sea, Land, and Air).

The sensation—well, to tell the truth, I cannot say. Possibly I shall be able to recall events some day, but now—well, the ending of the "affair" is one great blank.

When I regained consciousness, I remained quite still. There was no necessity for me to open my eyes to learn I

was in hospital. The odor of drugs made that clear. The air of calm and peace, after the strenuous times I had experienced for so long, made me content to remain at rest. Eventually, I opened my eyes and gazed around. Uniformed nurses were hurrying about, attending to maimed and wounded men. I tried to think—to recall something which would make my presence in hospital understandable. I knew I had been aloft—perhaps you would call it afloat—and had encountered the enemy. I had a brush then . . . It was no use, I could not remember.

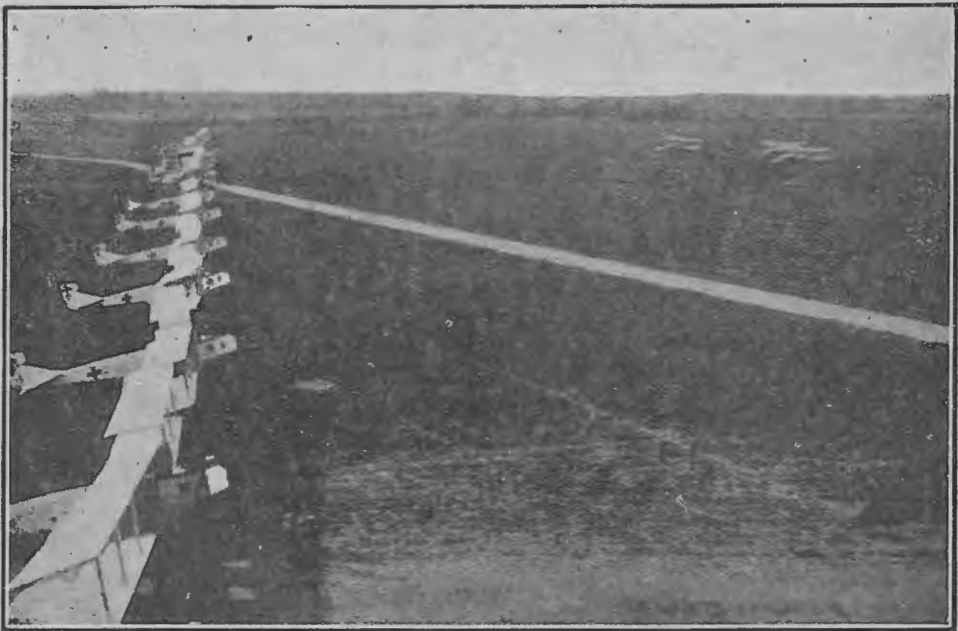
Next day one of the officers attached to my squadron visited me. He congratulated me on my escape. It seems that my machine had been so badly damaged in falling that I had to be cut out of the wreckage. We chatted about the affair, and to the story pieced together then I can add nothing.

It was on the 21st July. Six machines of the Nieuport Single Seater Scout type

with his machine, and at 8 a.m., when we gave the "all-clear" signal, our mechanics cleared the "chocks," the patrol leaving the ground immediately. We picked up our formation on the first turn—an approxi-



ABOUT TO SIGNAL THE PRESENCE OF AN ENEMY.



A FLEET OF GOTHAS READY TO PROCEED AMONG THE CLOUDS.

belonging to the Royal Flying Corps were lying on the aerodrome at ——— in France, "in line," head into the wind, this being the second offensive patrol for that day. My machine was placed second last on the left flank. At 7.55 a.m. all engines were started up and tested, each pilot making himself satisfied that everything was correct

mate turn of 1000ft. Unfortunately, the machine allotted to me for the patrol was of a type which I had never had an opportunity to fly before. The machine I had been accustomed to was changed previously for one of the latest scout machines. It was difficult to understand at once the differences in the new engine. At 1000ft.

it got a bad mixture, and petered out, leaving me with no option but to land at once—which I did successfully on the aerodrome. The engine was re-tested, and the machine examined, and I started again, this time successfully.

Some minutes had elapsed since the departure of the remainder of the patrol, now well out of sight, although it was a beautifully clear day, with only a few clouds of the cumulus type in the sky. I decided to go over the lines to a place the squadron generally frequented, my idea being to rejoin it there. But an hour passed, and I saw no sign of the patrol, so I continued to fly in a triangular fashion, waiting for them to appear. Except for a few two-seater British Artillery Observation planes flying backward and forward in a figure "8" some 6000ft. below me, signalling by wireless to the battery the correction of every round fired, I was alone.

Suddenly, looking in the vicinity of Douai, I saw several German Albatross Scouts of the single-seater type flying towards me. They seemed to be on the same level as—about 10,000ft., and approximately three miles away. I began to consider my position. Should I attack or draw out? I chose the former, and immediately opened out my engine and began to climb, in order to have the advantage of height. This accomplished, I made straight for them, approaching apparently unnoticed, having flown in and out of clouds the whole time. On reaching a position directly above them—about 200ft. higher, I cocked my machine gun, opened my sights, shut off the engine, and dived on them, firing on the machine, which appeared the most favorable target. The Albatross scouts, taken unawares, proceeded to carry out their usual mode of defence, by turning upside down. Afterwards they decided to fight.

I might mention, German Albatross machines are flown only by pilots who, according to information received from captured officers, have to prove their efficiency by flying in two-seater machines in the fighting zone for a certain number of hours, doing reconnaissance work, artillery observations, and taking photographs. They are estimated to have a speed of 125 miles an hour, flying level, and are fitted with a 120-160 h.p. Mercedes engine, which may be started by a magneto fitted to the pilot's compartment. The German idea of fighting in this type of machine is to steal on their adversaries from below, and, on reach-

ing a certain position, to "stall" quickly, that is, to fly the machine in a vertical position, nose uppermost, the object being to bring the machine gun to bear, firing the whole time, before the plane loses speed. Then it hovers, and finally ends in a vertical nose dive. It is believed they fight from below with the idea of beating a hasty retreat when occasion demands, as the fighting usually takes place over the Hun lines. But this method of fighting is not always effective or successful.

Well, to resume. The Germans, observing I was alone, became bolder, and attacked. Keeping the advantage of height I kept nose-diving and climbing, firing my gun as opportunity offered. Suddenly, one of the Albatross' rolled clumsily, then it side slipped, and finally went spinning towards the earth. I had secured a "hit." The next moment I was plunged into utter darkness. A chance shot had been successful.

I can only attribute my return to our own lines to a subconscious effort and the stability of the modern flying machine. The machine I was using must have been heading West at the time I was hit, and flying by the assistance which, although unconscious, I was yet able to render, showing that after experience in the air, flying becomes second nature.

A LAMENT.

(Some Way After Byron.)

Bumble-bee is an R.F.C. pseudonym for the De Haviland Aeroplane.

Ten little bumble bees taking off in line,

One hit a sycamore and then there were nine.

Nine little bumble bees flying fast and straight

One got a nasty bump and then there were eight.

Eight little bumble bees climbing up to Heaven,

One struck an Archibald and then there were seven.

Seven little bumble bees, attacking in a dive;

One met another one and then there were five.

Five little bumble bees way above the floor;

One saw the Hun machine and then there were four.

Four little bumble bees fighting fast and free,

One said his engine coked and then there were three.

Three little bumble bees scrapping in the blue;

One came all over queer and then there were two.

Two little bumble bees hiding in the sun,

One had a cross feed jam and then there was one.

One little bumble bee faint but still pursuing,

He hasn't come back yet—nothing further doing.

THE WIRELESS DRAMA.

By ALFRED NOYES.

The world at large hardly realises the immense changes which have been wrought in its own life by the invention of wireless telegraphy. The greatest changes always come quietly, and the new era has dawned without our knowing it, an era as different from that which preceded the invention of "wireless" as the age of steam from all preceding ages. But the change has been far more quiet than any other of the historic world-changes; perhaps because it is the most important of them all. The few people who have practical knowledge or experience in the subject are, of course, wide awake to the change; but the great majority of people look upon "wireless" as a mere adjunct to the more ordinary telegraphic methods, and probably as a less satisfactory and certain. The simplicity, and, at first sight, the seeming triviality, of the apparatus employed has probably something to do with this. Certainly, it is not realised that space and time have practically been annihilated by the discovery that messages can be sent at a pace of two hundred thousand miles a second; so that a message from Europe may reach America in about one-sixtieth part of a second. Nor is it realised to what an amazing extent the whole world has been quickened into organic unity by this single invention. It is as though the body civilisation (and Germany) had acquired a great nervous system. It is a significant fact that, despite even the conflict of Armageddon, the processes of science are knitting our world more and more closely into an organised body. The messages, the news, and the Arabian fairy tales transmitted as news by Germany, are instantaneously read and written down by every one of her enemies. The world has become much more than "a whispering gallery." It is more comparable with a single human body and mind. Even when we are at war it is like a mind at war with itself, endeavoring to suppress a criminal instinct or a vicious passion. I know nothing more strongly enthralling than the first actual experience of this ethereal contract with our enemies. It happened to myself quite unexpectedly at a flying school in the West of England. It was a day of wild rainstorms and endless mud. The place was one of the loneliest, and nothing could have seemed more remote than the battle-fields of Europe. I went into one of the

little wooden huts, and there was a young operator quietly writing down a German message (probably a romantic one) direct from Berlin. I was allowed to listen for a short time to the buzzing of the code; and, though it was strange to realise that one was listening to sounds made in Germany, it was even more strange to realise that this intimate whispering and listening was going on all over the world night and day.

The centre of the romance of wireless is probably the apparatus on the roof of the Admiralty in London. Some day one hopes that it may be written; for, if it were done adequately, it would surpass the most glowing tales of Hakluyt. The crowds that pass that sober old building in Whitehall hardly guess at the sheer intensity of the wireless drama that has been enacted there, without any cessation, since the beginning of the war. Probably the actors in the drama have grown so used to it by this time that they hardly notice it. Yet, as the messages come in from ships at sea, messages of warning, messages of appeal, messages of death, or as the messages go out, directing packet-boat and liner, patrol-boat and cruiser, or giving clues to the incessant hunt for the submarine, it is probably true to say that there has been no such centre of sheer drama in the world's history; and this is chiefly due to the invention of wireless. If Shakespeare were living to-day he would find there such exits and entrances as hitherto would have been impossible in the world of space and time.

The influence of all this upon naval strategy needs no comment here; it is a matter for strategists, and the best strategy for those who are not experts is silence. Perhaps we shall win the war when this is generally accepted.

But, on the human side, the development of wireless is of the most enthralling interest. It used to be said that the romance of the sea was offset by its monotony, the severance for long periods in mid-ocean from the rest of humanity. To-day our ships maintain an incessant conversation directly with each other, and indirectly with all the capitals of the world; and it needs no modern dramatic critic to tell us that these conversations are often the essence of the most intense drama.

It is a significant fact that, in the Admiralty records of ships attacked by the "U" boat, a large number of masters report that the enemy's first attempt was to destroy the wireless aerials by gunfire; and the adventures of the wireless operators are among the most stirring tales of the world-war. The Anglo-Californian owed her escape entirely to the pluck of the operator, who was in an exposed position abaft the bridge, while the ship was being chased by a "U" boat. He sent out calls for help, and was answered by various men-of-war beyond the horizon. Then there followed the most amazing conversation that was ever recorded in fact or fiction.

The men-of-war cross-questioned him on every detail of his ship's course, speed and appearance; every detail of the pursuing submarine also. He replied with wonderful promptness and precision, adding fervently, "Hurry up, for God's sake. Submarine firing like blazes." He received the reply: "I am Cryptic. Coming 33 knots. Can you see my smoke?"

Cryptic then gave him instructions as to the best course to steer, and, at one stage, was able to prevent the captain abandoning the ship by the sheer encouragement of the wireless. The captain had actually stopped, owing to the severity of the fire, when the wireless message came, urging them to hold on.

The submarine redoubled her bombardment as soon as the ship proceeded. The operator's gear was flying all about him; and once he sent a message to the Cryptic saying: "Cannot hear you. Concussion. Am lying on the floor. Broken glass all round me."

The Cryptic replied: "Keep your pecker up, old man. Am firing to scare him. Can you report result?"

The operator carried out his instructions lying on the floor, and reported also the wounded men on his own ship. This wireless drama worked up a climax when he sent the message: "Hurry, hurry, hurry, submarine getting abeam to torpedo us"; and then, as the wisp of smoke on the horizon grew into something like a ship, the "U" boat took fright and dived. The story did not end here, for the next message from the Cryptic was: "Report her trail at intervals." But, as for the Anglo-Californian, the operator's final message made a happy ending: "I hope she stops down. It was getting hot here. Don't worry about us. Destroyers now alongside."

This was a case where the ship was actually in process of abandonment when the "wireless" came to the rescue. Possibly, also, it was a case where the "U" boat was bagged; for, owing to the same invention, her position was very precisely reported to a considerable number of armed ships. The reader who wishes to know the value of wireless in our naval operations may simply multiply this case by the thousand, for it is typical of what is happening night and day over a great part of the world. It is hardly too much to say that "wireless" has arrived in the nick of time to save Britain from losing the command of the seas.

To listen in the wireless room of a ship at sea during a storm is a most illuminating experience. To hear distant ships talking, without the slightest difficulty, through the wildest weather, by means of that mysterious ether, is the nearest approach one can make to the realisation of other words than ours." A man would have to be a very hardened sceptic who would deny, after that experience, the possibility of "spiritual" discoveries, even to men walled around with flesh. These are deep waters, and I shall not attempt to fathom them here or to explore them further; but there are aspects of the world revealed to us by "wireless" which certainly renew our sense of the eternal miracle of the universe and our own existence.

Now, to those who search the deep—
Gleam of Hope and Kindly Light—
Once, before you turn to sleep,

Send a message through the night.
Never doubt that they'll receive it.
Send at once, and you'll believe it.

Think you these aerial wires

Whisper more than spirits may?
Think you that our strong desires

Touch no distance when we pray?
Think you that no wings are flying

'Twixt the living and the dying?
Wrecks that burn against the stars,

Decks where Death is wallowing green,
Catch the breath among their spars,

Hem the flickering threads between,
Quick, through all the storms that blind
them

Quick, with worlds that rush to find them.

You shall guide the darkling prow,
Kneeling—thus—and far inland;

You shall touch the storm-beat brow,
Gently as a spirit hand;

Even a blindfold prayer may speed them;
And a little child may lead them.



MEN and WOMEN of the FUTURE

HOW TO MAKE A FLYING MODEL AEROPLANE.

It is one thing to design a model aeroplane and another to make it fly, and the fault of a large number of the published designs—very excellent in theoretical points—is that they are quite hopeless when it comes to the practical proof.

The best thing for a model maker to do is to secure a well-known type and make one exactly the same. The model shown in plan and elevations in Figs. 1, 2, and 3 we are able, through the kindness of the maker, to describe in these pages with the necessary scale drawings and enlarged details.

The construction is simple and strong, and in complete flying trim the model weighs slightly under 6ozs.

The type is known as the "Canard" and apparently the model flies tail first—in reality there is no actual tail, but a small adjustable plane, known as an elevator, is fitted well ahead of the main plane.

The "Canard" type is one of the easiest models to fly as the elevation can be very readily altered by bending a piece of steel wire as shown in Fig. 4. It is usual to commence the construction of a model aeroplane by making the main frame or body, known as the "fuselage," using either picked silver spruce or fine grained poplar. The former wood is the better, but it is somewhat difficult to obtain in suitable lengths and sizes for model making.

The main members of the fuselage are 36 inches in

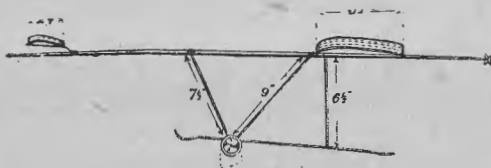


Fig. 2.

length, and are 7-16 in. by 5-16 in. in the centre with the ends gradually tapering to 5-16 in. by 3-16 in. for a length of 9 in. These lengths are not used

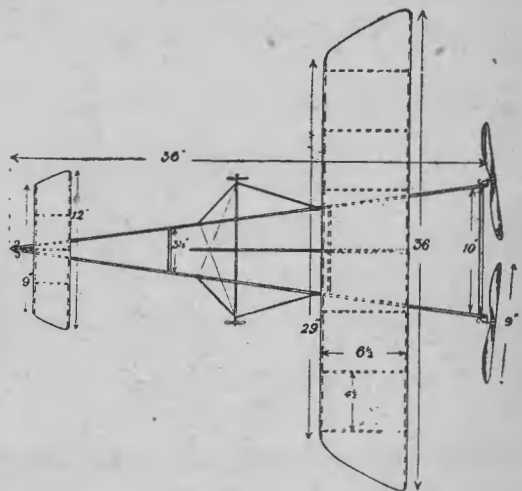


Fig. 1.

solid, however, but are channelled out with a gouge to the sections shown in Figs. 14 and 15. The former illustration gives the section to the centre, and the latter the shape quite close to the ends. The inside should be gouged out first, and then the outer edges may be rounded off and smoothed up.

The two lengths should be joined at one end by a triangular piece of wood fitted inside the channels, gluing carefully and afterwards binding with carpet thread or silk ribbon. The ribbon makes the neater and stronger joint, but is rather more difficult to do at first. However, practice makes perfect, and the difficulty is soon overcome.

The other ends of the lengths are held apart by a strut or distance piece of split bamboo, 10 1/2 in. by 3-16 in. by 1/8 in. The ends of this piece, which is shaped to a stream line form, are let into the channel a short distance from the end, the remaining portion being filled with a piece of wood. The propeller brackets are made from stout brass, 1/4 in. wide

and bent at right angles with 1-16 in. hole in the end of one portion, as indicated in Fig. 5.

This illustration also shows the method of binding the bracket to the fuselage, the binding being continued to include the strut, which must be very firmly bound, otherwise vibration will result and good flights will be out of the question.

The frame is strengthened by two more struts fitted in the channel and firmly bound, one being 12 in. from the front and the other 12 in. further to the rear. The front rubber hooks are made in the usual way from No. 18 S.W.G. piano wire, and incorporated in the binding as shown in Fig. 4. This

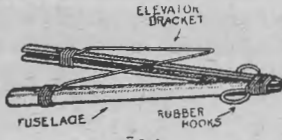


Fig. 4.

illustration also shows the elevator mounting—a piece of No. 18 S.W.G. wire 7 in. long being bent in the centre to an angle of 30 deg. with the ends bent down straight for $\frac{1}{4}$ in. let into the frame and then securely bound. The holes in the frame should be carefully drilled to avoid splitting, and the wire should be bound for a distance of $\frac{3}{8}$ in. along, and then bent upwards to about 6 degs. or 8 degs.

Connected directly to the fuselage is the chassis, the frame-work carrying the skid and wheels. It is

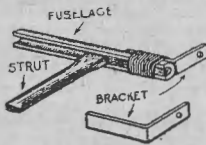


Fig. 5.

of the central skid and wheel variety, and is shown in detail in the accompanying drawings. Two V shaped pieces of No. 18 gauge wire are bound to the side members as shown in Figs. 7 and 8. The apex of each V is soldered to an 11 in. length of the same wire as that which forms the axle for the wheels.

The skid made from a split bamboo to 17 in. by 3-16 in. by $\frac{1}{8}$ in. is bound to the middle of the axle and supported at the rear by a vertical wire

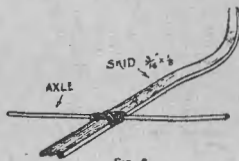


Fig. 7.

strut, as indicated in Fig. 9. This strut is attached to the main frame distance-piece, which is almost above it. The forward end of the skid is curved upwards to allow the model to ride over small obstacles when starting from the ground. The wheels should be either celluloid or aluminium discs 8 in. in diameter, and may be kept in position by means of small washers soldered to the axle.

The main plane is made of split yellow bamboo

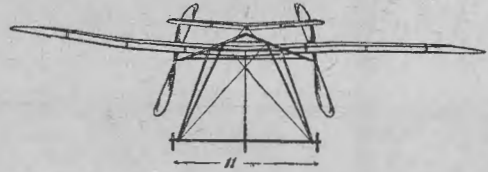


Fig. 3.

and piano wire, the latter being used for the ends of the plane, as clearly shown in Fig. 6. The bamboo for the leading edge is 29 in. by $\frac{1}{4}$ in. by $\frac{1}{4}$ in. and the trailing or black edge is 36 in. long, with the same width and thickness. The wire at the ends should be fitted into grooves cut in the wood and bound round as shown. The ribs are $6\frac{1}{2}$ in. by $\frac{1}{4}$ in. by 1-16 in. and are fastened to the spars by binding with thread. Each rib is bent over a hot flame to give a curve of $\frac{3}{8}$ in. one-third away from the forward end—this is called the camber.

The elevator is made in the same way, but on a smaller scale, the maximum span being 12 in., the cord $2\frac{3}{4}$ in. and the camber $\frac{1}{4}$ in. Both main plane and elevator are given a slight dihedral angle about 1 in 9 or 10, and they are covered with ordinary proofed silk or with Jap. silk proofed with two

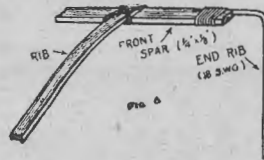


Fig. 6.

coats of thin spirit or shellac varnish, which is also used to paint the fuselage. The planes can be attached by rubber, or may be fastened securely with string.

The propellers are 9 in. in diameter and the tips are bent round to an angle of 60 degrees to the shafts, or in other words to 30 degs. to the circular line of travel. This gives an approximate pitch of 14 in. The shafts are soldered to a strip of very

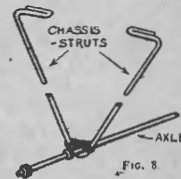


Fig. 8.

thin tin previously wrapped round the centre of the propeller. The propeller blades should be bent to shape over a blue flame and, if coated with two or three lots of shellac varnish, will retain their shape.

When the model is first used six strands of elastic should be fitted to each propeller, but when it has been tuned up and some experience has been gained in a few flights, the propellers may be bent to an angle of 45 deg., and a little more elastic added. This will produce longer flights, but care must be

taken not to overdo the increased power.
The propellers should, of course, be wound up in

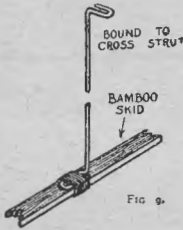


Fig. 9.

opposite directions, and to ease the work of winding it is possible either to buy or make geared winders.

When complete the model should balance at a point of $1\frac{1}{2}$ in. ahead of the leading edge of the main plane, and in order to get this point correct the main plane should be adjusted before being finally secured in position.

The model has proved a consistent flyer, and will

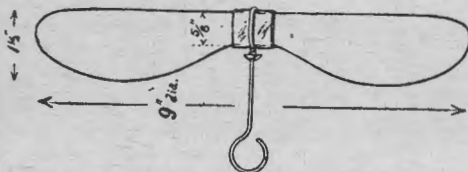


Fig. 10.

easily average a fifty or sixty second flight after leaving the ground. Care should be taken to lubricate the elastic with a soft soap solution and to slacken off the strands when the model is not being used.

Mr. G. E. Hoppercroft, a noted English aviator, has given some good hints on flying a model plane. His advice is to hold the monoplane about the level of your shoulder and start by sending it lightly for-

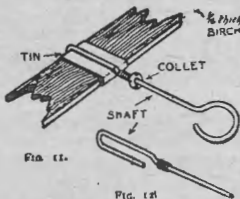


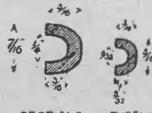
Fig. 11.

Fig. 12.

ward. You will have to test it to get the exact angle at which the tail should be set. If the aeroplane shows a tendency to dive downwards raise the tail-plane slightly; if it tries to "stand upon its tail" lower it. An eighth of an inch either way will make



Fig. 13



SECTIONS OF FUSELAGE

Fig. 14. Fig. 15.

Fig. 14. Fig. 15.

a great difference. If you find that your machine shows a tendency to turn to the right—or possibly the left—try a smaller propeller.

ICHABOD! (By Ethel Turner)

(Continued from Page 46.)

They resumed their tunics with an air of modest depreciation; they sat down again at the little table, and once more fell to the amiable work of holding tiny cups to the lips of dolls.

Scooter, who had been absolutely rooted to the ground, drew a long, long breath; then he turned away without a solitary word, and slowly and heavily and with his shoulders drooping, walked back along the garden path towards the house.

Moir's gaze followed him. He seemed to have grown smaller; there was something almost pitiful about him—he reminded her of Bingo after a fight with another dog, coming home limping and with his tail between his legs. As he finally disappeared behind the toolshed a tear of intensest sympathy started to her eye.

[We hope to provide many attractive stories from the pen of Miss Ethel Turner in subsequent issues of "Sea, Land, and Air."—Ed.]

NEW DUTCH OWNERS.

Quite a number of new shipping firms have been established in Holland during the past two or three months. The largest of these concerns is the Mij Kustvaart, Rotterdam (capital £166,666), which will be occupied in North Sea Shipping. The Stoomvaart Mij. Delobe (Rotterdam), has been founded with a capital of £8,333, and Hammersteins Reederei-bedryf (Rotterdam), with a capital of £41,666. The Nederlandsche Stoomvaart, Mij. Bestevaer (founded during the war), has increased its capital from £21,666 to £166,666.

VERY ROUGH LUCK.

Daughter (reading letter from brother in France): "Dear mother and sister, the pudding you sent was 'it.'"

Mother: "What a shame! With one of those whizz-bangs, I suppose."

SOME PRACTICAL INFORMATION.

Old Farmer (to soldier son just returned from the Front): "Well, Dick, what be these tanks like that there's so much talk about?"

Son: "Why, they're just wobbling thingamabobs, full o' what-you-may-call-'ems, and they blaze away like billyo!"

Old Farmer: "Aye, I heard they was wonderful things, but I never could get no details afore."

LATEST NEWS FROM THE FRONT.

Uncle: "The French have captured four hundred more metres from the enemy."

Auntie: "How splendid! That should help to put a stop to those dreadful gas attacks."

With Allenby in Palestine.

From Our Special Correspondents with the Forces,
Exclusive to "Sea, Land and Air."

I got back to the Squadron in time to take part in the operations that are now in progress, and shall always feel pleased about that. Our camp was very close to the front line, and consequently we got the full benefit of all the artillery fire that was going. It was a great change for everyone to be up and doing after so many months of comparative inactivity, which must have caused your people in Australia to wonder what the dickens was toward in Palestine. Generally speaking, it would appear that on our side at any rate nearly everyone knew that big events were impending, and the surprising thing was that the enemy seemed to be in ignorance of the bother that was coming his way. His positions at Gaza and Beersheba were naturally strong ones, and for that matter the whole 25 miles of front he held was made as formidable as months of preparation could make it. He appears to have completely underestimated Gen. Allenby. Maybe he was going on previous operations here. He also appears to have come a cropper in regard to the number and calibre of the guns we had facing him. The artillery fired from our side with what I thought in my inexperience was tremendous force. When the bump did come, however, I very soon modified my views on artillery activity. It was like what I imagine the "Crack of Doom" will resemble, and strangely enough, just when things were humming round their maximum, a violent storm of thunder and lightning broke along the whole front. The effect was appalling and the noise nerve racking. The attack was launched in due course, right where the Faithful were apparently least expecting it. Their main positions were turned by an outflanking movement from Beersheba, and the result was disaster for the Unwashed. All things considered, they did mighty well to get out of Gaza as they did, but the satisfaction over this must have been very incomplete. They dropped everything and simply ran for their lives.

ENORMOUS QUANTITY OF BOOTY SECURED.

The amount of war material we have taken is simply enormous. The ammunition alone is sufficient to support a fairly decent campaign for months. You can form—and I suppose, for that matter, have formed—an idea of how rapid has been our advance when you think of the time these operations have been under weigh, and the distance our troops have already covered. Jaffa has fallen, and we expect to hear to-night that Jerusalem has been taken. The rout of the Turkish army is complete, and there is reason for believing that their Teutonic friends regret rather the amount of aviation material they had collected on this front. We have taken several of their machines, and in one place captured one of their aerodromes, from which they did not have time to remove the machines. Unfortunately, they burned what they could not take away, but in spite of their efforts we collected a considerable amount of stuff that will be very handy. Apparently, this was a crowd brand new from Germany, for the machines, or remains of the machines that we have brought in, are dated October, 1917—just a month old. Naturally, the destruction of a number of such up-to-date aeroplanes has put us in good heart. Large quantities of bombs, petrol, oil, and other material have come into our hands, in addition to certain machines

as yet unpacked. These machines are of the latest pattern, and the fact that the enemy had not unpacked them seems to prove that our spectacular advance did not allow them very much time to consider the position. I understand that these latter machines were captured on the trucks at a railway station, together with other material. In the earlier stages of their Grand Scoot the Turks left several traps, particularly in Gaza and in Beersheba. It was not safe to touch even the most innocent looking objects. Latterly, however, our pursuit was too keen to allow the Unspeakable time to prepare any of these surprise packets. It is impossible to give you an idea of the position here just now, and it is a thousand pities that there are not a dozen Special Correspondents to do the whole thing justice.

THE ADVANCE A GREAT SURPRISE.

What does seem clear out of all the hullabaloo that is going on, is that our friends, the enemy, were on the verge of hopping into us. The mountains of ammunition that have been taken indicate it. Apart from this we captured some weeks back a German pilot and his machine complete, and the very angry and disgusted man told us that we were on the edge of one of the biggest surprises, and that soon we would be in full retreat towards the Canal. How surprised he must be now, when he listens to discussions about our fifty mile advance. Undoubtedly, this will be a severe blow for the Turk, not only in war material, but in loss of morale.

NAVAL FORCES PARTICIPATE.

Recent operations were largely shared by H.M. Naval Forces, and the R.F.C. The shooting of the warships was a revelation, and in places they planted their shells along the railway track in a manner that suggested the whole thing having been mathematically calculated. The work of our fliers has brought the highest kudos from the Heads, and our squadron, I am pleased to say, has particularly distinguished itself. We have dropped tons of bombs, and that with mighty good effect, whilst our reconnaissance work has earned the very highest praise. Up till quite recently the Germans were a fairly good match for us in the air, but we sprang a proper surprise on them lately, and enemy machines have simply fallen like rain. The difference between the old aviation conditions, as regards the opposing forces, and the state of affairs to-day, is that of night and day. Raids, of course, can never be absolutely suppressed, particularly those of moonlight nights, but, on the whole, our machines are far and away superior to anything the Germans have on this front.

Moonlight nights are a source of very little satisfaction to us out here, and I have arrived at the conclusion that for knocking the romance out of moonlight there is nothing like a bit of what we have gone through here. We have many experiences that in the pre-war days would have furnished food for talk up to the oldest inhabitant stage, but which are here looked upon as just part of the day's work. The other night we were watching one of our fliers returning in the darkness, or, rather, semi-darkness, and were properly put to rout when the machine we thought ours commenced dropping bombs on us.

(Concluded on Page 69.)



Conducted by Rona.

WOMEN IN BUSINESS.

Speaking generally, a woman has not the same business capacity as a man. She has neither the powers of organisation, nor the staying power.

There are women who have made themselves business successes, but, in proportion to the number of their sex in business to-day, these are very few. Only a few days ago I noticed an account of the success of a certain business woman in the city here. Now, if woman as a business success was the rule, that woman who succeeded would not have been held up as an example. It is because the successful—really successful—business woman is so rare that she is lauded at all.

Perhaps this is not altogether the fault of the woman. She may have education and intelligence—but her intelligence is not developed along the same lines as a man's. A man from his earliest youth is taken in hand and shown how to make two coins out of one. A little girl's father never explains politics or business to her as he does to her brother. She is reared on a system of "Don'ts" that leads to passivity of conduct and thought. He gives them each a certain amount of pocket money. The boy is encouraged to spend his wisely. If the girl spends hers foolishly, her parents laugh and shake their heads, and say, "Isn't that just like a girl!"

Small wonder, then, that the girl in later years thinks seriously of nothing but a rosy future in the shape of husband and home. Even the working girl pursues this aim, and she does it at the expense of her employer. She just "marks time" until she gets married. Take, for instance, the case of a girl I knew. She came to the office inexperienced, but bright, and she was given to a three-pound-a-week clerk to break in. For the first two or three weeks it took most of his time. Later on she was transferred to the office of the chief. Then it took the energy of another three-pound-a-week clerk to show her the ropes. She had hardly been there a year when she left to be married—and then was offended because she had not been given a wedding present.

How many men are satisfied with their stenographers? Very few. They take them, not because they want them, but because, as things are now constituted, they must have them. Their attitude

toward them is that resignation with its carefully conquered exasperation. Her attitude is that her employer wouldn't take her if he didn't want her, and meantime she will not expend any more of her energy than she has to.

There is an excuse frequently put forward—women are not given a chance in business. This is not true. Every business woman who ever got anywhere yet was helped by business men. We certainly have to work against certain disadvantages—but no more than men did when they blazoned their trail.

FWOLS AS AN INVESTMENT.

I heard recently of a woman in a suburb of Sydney who was training her hens to bring her in quite a nice little sum weekly. To those women who are tied to the home, and who are anxious to make a little go a long way, this should be looked upon in the light of an investment.

You know that fowls should have a good-sized run, with a moderate amount of green stuff and shade. It is only necessary to commence in a small way. You will grow with experience.

Incubators are a great help to extensive breeding, but a broody hen is surer and more reliable. Be sure that she is properly broody before setting. Keep records of the doings of your hens—know which hen lays which egg, and mark it. Then you will know which eggs to set. Don't breed from any bird that has been seriously ill.

Remember that laziness goes hand in hand with failure.

When your chickens are hatched, give them nothing for the first twenty-four hours. Nature provides for this period.

A little and often is the correct way to feed chickens.

Regularity in feeding is of the utmost importance. Do not feed by measurement, but by appetite. Fowls must have a variety of food if they are to show good results.

Keep the drinking water in the shade. If possible, put the drinking pan under a tap, and allow the water to drip. If this is impossible, change the water constantly, especially during the summer weather.

Have the houses well ventilated, without direct draughts. Sulphur burned in the hen-house is a great disinfectant.

Don't overcrowd the birds.

Doctor the ailing fowl before disease appears.

Tick is the commonest ailment. Rub methylated spirits well in to the skin with a stiff feather.

Market your eggs twice a week to secure the best prices.

THE PROUD DOMESTIC.

The independence of domestic servants is told by Princess Lazarovitch Hreblianovich in her book, "Pleasures and Palaces." Referring to the household in London of the then American Ambassador, she says:—

One day Mrs. Lowell noticed a few uncovered inches in a corner of one of the rooms of the embassy that the furnishers had overlooked when laying down a carpet. As she had a piece of carpet sufficient to cover the bare spot, she rang for one of the men servants and asked him if he would kindly tack it down for her. He drew himself up, offended.

"I beg your pardon, your excellency," he said, "but it is not my place to do that. I will ring for Alfred."

Alfred appeared, and his answer to the same request was, "I beg your pardon, your excellency, but it is not my place to do that. I will ring for Charles."

And Charles came with the same answer. They stuck their noses in the air and looked with disdain upon the humiliating hammer and tacks. Mrs. Lowell had them stand in a row while she proceeded to nail down the small piece of carpet, and then she instantly dismissed them from her service.

THE COAT-FROCK.

Of all the caprices of Dame Fashion, the coat-frock, inaugurated last year, seems to be endowed with the longest life. It appears to have come to stay.

There are so many ideas that can be followed in making one of these simple, yet smart, garments, that the "sameness" of which so many women complain in connection with the coat-frock can be easily avoided even by the home dressmaker.

Take, for instance, the new craze for wool embroidery. A simply-made dress, embroidered with these bright colored motifs, would look very smart. These can be very easily made at home, and transferred to the costume when it arrives from the dressmakers. As a rule, a dressmaker does not like doing these herself, or if she does she usually charges a high price for them.

Get some canvas, and cut out the design required. Then select a wool with a well defined cord and stitch over the pattern, using the satin stitch for preference, though this will depend largely on the nature of the pattern itself. There are many stitches that can be used to advantage. If you have not a design in your mind's eye, transfers can be procured at a very small cost. Use bright colors, and a variety of them, to produce that Oriental effect. Greens, reds, blues, and a dash of yellow, not too pale, would look very well.

If the frock is of silk, embroider with silk, outlining the design with gold thread. Any queer design will do.

When you are choosing the color for your new coat-frock, with the advent of autumn so close at hand, your mind reverts to navy blue or black as the inevitable choice. Have you thought of a dull

purple? This would be a welcome change from the everlasting blue or black. Buff-colored collars and cuffs, with the indispensable embroidering of dull purple, should strike exactly the right note.

The Importance of the Collar.

Perhaps the collar plays the most important part of all in a garment of any description, and particularly is this so in a coat-frock. The sailor shape looks best always, and is very popular just now. Made of crepe de chene or crepe Georgette, with the corners daintily embroidered in silks of two or three different shades, they will make a great difference to your frock. They are especially pretty when carried out in a deep creme or biscuit shade.

Your Old Coat-frock.

Don't put it aside because it is a little faded. Try what effect white pique cuffs, pockets, and collar will have.

HYGIENIC FURNISHING.

Very few innovations of any note have been invented since the war, novelties being practically at a discount, yet, nevertheless, a notable one may be chronicled with some porcelain finished fittings. All sorts of things are made in this unique production, bathroom fittings, mirrors, trays, cupboards, book-rails, towel rails, chairs and many other articles, and all have the same supreme claim to our careful consideration.

For porcelain finished fittings spell cleanness. They are just like porcelain itself, it being quite difficult to detect any difference. They will not chip, crack, cannot be scratched with ordinary dusting—most important of all—do not show dirty finger-marks.

For cleanliness, therefore, they are unsurpassed, and in their undisturbed whiteness look the picture of freshness from beginning to end, being cleaned without difficulty.

SOME FACTS WORTH KNOWING.

To Clean Silver.—Care should be taken in the use of silver. It is not advisable to use soap and water. A paste should be made consisting of four parts of methylated spirits to two parts of liquid ammonia, mixed with whiting. Apply the paste to the article to be cleaned, allow it to dry, then rub off with a soft cloth and polish with a chamois leather.

Chip Straw Hats.—To thoroughly clean a straw hat, the following simple method should be employed: Put half an ounce of oxalic acid into a clean pan and pour into it sufficient hot water to thoroughly cover the hat. Put the hat into the liquor and let it remain for a few minutes, holding it down with a clean stick. Dry in the sun. Then put into a cardboard box with a saucer of sulphur, and close the lid. Care must be taken that the sulphur is burning well. Let the hat remain for a few hours, and the result will be very satisfactory.

Lime Water.—Put a piece of unslaked lime into a perfectly clean bottle and fill up with cold water. Keep corked in a cool, dark place. It is ready for use in a few minutes. When the water is poured off, add more; this may be done three or four times, when more lime must be added. A teaspoon in a cup of milk is a remedy for children's summer complaint, also for acidity of the stomach. When put into milk that would otherwise curdle, when heated, it prevents curdling; so that it can be used for cooking purposes. It also sweetens and purifies bottles that have contained milk. A small quantity put into cream or milk will prevent it souring.

To Keep Milk from Souring.—A small quantity of boracic acid added to the milk will keep it from souring. It can be kept several days by this means.



MUFTI AND UNIFORM.

THE ALL-ROUND SMOKER.

Numbers of cigarette cases have been devised for the cigarette smoker, and numbers of contrivances have appeared to satisfy the soldier-man who smokes a pipe, but there is a class of man who likes a cigarette at times and a pipe at times, and a combination designed to minister to both his needs is distinctly welcome, as well as novel. It is of the folding kind, being in appearance like that cigarette case, which holds about thirty in two rows facing each other, but in this case there is one side of the case devoted to cigarettes, while the other is rubber-lined, waterproof, and very nearly airproof, and capable of holding a couple of ounces of most kinds of tobacco. The case itself is made of pigskin, with light metal frame fitted inside to prevent crumpling and damaging of cigarettes, and it is light and neat, and as hard-wearing as really good pigskin usually is. A variant is the cigarette case pure and simple, which holds anything between thirty and forty cigarettes, according to the size of the cigarette, and, folding in two, fits comfortably inside a tunic breast pocket. This is also made of pigskin, with light frame embodied and out of sight, and it will satisfy the daily needs of the most exacting smoker of coffin nails, or other brand. In both cases these articles are of the very best material, and make, and may be relied on for hard wear under the adverse circumstances of campaigning life.

A GOOD COMBINATION.

Very few people know the useful qualities of goat hair. It differs from wool in that, while wool will retain moisture, goat hair rejects it. You may soak a pair of goat hair stockings in a bowl of water, and then wring them out, and they will be as dry as if they had never been near water—and the same cannot be said of woollen articles, for wool retains a certain amount of moisture. A good combination is made by wearing a pad of thin cashmere or woollen socks or stockings, and over them, for winter, putting a pair of goat hair stockings, which will keep out all the moisture that may happen to drive through a pair of putties. For the stuff is naturally wet-resisting; it is not merely that it is watertight, for no pair of stockings, unless they are rubbered, can be called watertight, but this stuff simply rejects moisture, and if you dash a bucket of water

against the legs of the man who is wearing goat-hair stockings, the water merely runs down the outside of the stockings—it does not soak in, as is the case with almost any other fabric. Thus the man who has a pair of first-class ankle boots with putties, and inside the putties a pair of goat-hair stockings over a thin pair of cashmere or woollen socks, is just as proof against wet as the man with a pair of heavy field boots, and a good deal more comfortable, and no more weight than a pair of woollen stockings; they are, in fact, very useful things for winter work.

FOR REMEMBRANCE.

“The survivors, who were shelled in their boats, drifted for four days.”—Daily Paper.

Voices there were, and Things with woeful eyes,
Dripping and grey as Fear,
By the boat's side, as though they tried to rise,
Splashing to make us hear.

The sea seemed full of dead that could not sink,
And women's little hands
That clutched and clung, with wedding-rings ablank.
Nurse, take away their hands!

Voices there were, as wind thro' naked trees,
Called to us from the wave,
Behold! we make the freedom of the seas
The freedom of the grave.

They shelled us, too, this knightly, cultured throng,
These children of the light;
Angels in spectacles, who can do no wrong,
Because their books are right.

We left the ship, whose stern now stabbed the
heav'ns,
And thro' the swirling mists
We rowed us into battle. Four-point-sev'ns
'Gainst men with naked fists!

Voices there were, the noise of fools and blind;
Dead, hopeless monotones;
Cried, See! the bright sword of our Mind
Hath won an empery of bones.

—“The Wireless World.”

With Allenby in Palestine

(Continued from Page 66.)

Our interest in the return of our night fliers has evaporated somewhat since then, and we feel rather relieved to hear the machines hit the ground. I saw a very fine aerial combat over the aerodrome the very day of my last return from hospital. The Hun was no match for our man or machine, and he crumpled up at 2000 feet, dropping like a stone. It was a melancholy fact that I felt as pleased as if someone had given me a fiver. In the old days a thing like that would have been exploited by the press for days. Here it is summed up and disposed of by “We brought down a hostile machine to-day.” We learn, and we unlearn by this war. No one ever thinks of the relatives and friends of those killed, and as a matter of fact a death only excites more than passing comment when the deceased happens to have been a friend. Then the event is usually passed over by the remark, “Poor devil! He's taken the knock at last!” It will take those of us who get back a long time to settle down to the old conditions of things again.

Questions & Answers

This section of the magazine is placed at the disposal of all readers who wish to obtain information on subjects that come within the scope of the publication, but the Editor would like the following rules observed:—

1. Questions should be written on one side of the paper only.
2. Queries should be as clear and concise as possible.
3. Name and address must accompany all questions. A nom de plume may be used for publication.
4. Questions will not be answered by post.

QUESTIONS AND ANSWERS.

The following question reached our office before the first issue went to press, and our answer is appended.

Question: "Re Armstrong Valve. I heard that there was one of these in use on one of the steamboats travelling to the north-west, and that it was a decided improvement on the valve being used by the Commonwealth. Perhaps my information is not correct."

Answer: "Armstrong Valve appears to be somewhat of a mixing up of terms generally used in this work. 'Valve' is most frequently used by the British owing to their recognition of the fact that this new instrument owed its birth to the Fleming Valve. Edwin Armstrong is a citizen of the U.S.A., and so far as is known has never patented or dealt commercially with other than the well-known 'Armstrong Circuits,' which are merely methods of applying the modern forms of valves in practice. 'Armstrong Valve' is therefore only another name to add to the already lengthy list applied to what is now generally accepted as the 'Magnifying Valve,' in Great Britain, and the 'Audion' in U.S.A. Owing to the extensive advertisement which American research has been given during the last few years American terms and methods have received a preponderance of recognition all over the world, whereas British advancement has progressed practically in obscurity owing to the war and also because it was recognised that until lately the valves were too tricky in other than expert hands. As the result of a law suit in U.S.A. recently, the American 'Audion' was proved an infringement of Fleming's valve. This has largely cleared the atmosphere for the fruits of British research to be placed on the market in the shape of a magnifying valve which can be combined in a receiving or transmitting system to exhibit the properties of stability, simplicity and sensitivity.

"The aim of all research has been to combine maximum sensitivity with maximum stability and arrange the valve to operate with the simplest of other elements necessary to form the complete system. The 'Audion' aims at sensitivity and gets it by working on a peak characteristic, but in doing so sacrifices stability and complicates the other necessary elements in combination with it. Hence it is necessary to place it in practised hands to produce the results it is designed to give.

"The British practice is to use a valve of such sensitivity that the stability is not endangered, and by placing bulbs in series or 'cascading' them, any desired degree of sensitivity is obtainable, with constant stability and entailing only a very small increase in accompanying elements in comparison to the 'Audion,' which entails a duplication of com-

plete system for every duplication of bulb and a big reduction in stability at each duplication.

"The Amalgamated Wireless Company's standard magnifying valve receiving set uses three valves and receives and amplifies either damped or undamped waves, wireless telephonic speech, or amplifies effects from any other design of receiver and also can transmit damped or undamped waves for several miles.

"For undamped wave reception the first valve generates oscillations, which 'heterodyne' or produce 'beats' with the incoming signals, the second and third valves amplifying the beats and delivering to the 'phone. For damped waves the first valve converts the signals into an audible frequency, and the second and third again amplify.

"The range takes in wave lengths from 200 metres up to anything desired and the only operating controls are two inductances, two capacities, a coupling, and two switches, one to approximate wave length and the other to determine the method of reception."

DRYS GETS A RECRUIT.

A keen temperance advocate was addressing a meeting on his pet subject. "I should like," he declared, "to take every bottle of wine and every bottle of beer, and every bottle of spirits and sink them all to the bottom of the sea."

A man at the back of the hall jumped up excitedly, shouting, "Hear, hear! Hear, hear!"

The lecturer paused in his remarks to beam delighted approval on the interrupter.

"Ah, my friend," he said, "I see you are a good teetotaler; a man made of the right stuff."

"Oh, no," said the man, "I am a diver."

HAD TRIED THE CURE.

Doctor: "Your throat is in a very bad state. Have you ever tried gargling with salt water?"

Skipper: "Yes. I've been torpedoed six times."

HOT STUFF.

The rally of boy scouts had been a great success, and the small bugler beamed with a conscious pride when the scoutmaster spoke to him.

"Have you learnt all the calls yet, my son?"

"Nearly all, sir."

"Do you know the assembly?"

"Yes, sir."

"And the fire alarm?"

"N-no, sir."

"What would you sound if a fire should break out?"

The youngster thought for a moment.

"Er—er—lights out, I suppose," he stammered at last.

News and Notes

SHIPBUILDING FOR NEUTRALS.

Clyde ship-builders are in receipt of important offers from Norwegian shipping firms to build a large number of cargo vessels, delivery to be as soon as possible after the end of the war. The Norwegians offer a minimum of £30 per ton dead-weight, and even higher, but our ship-builders have patriotically refused to tender.

SHIPPING VALUES IN JAPAN.

According to the Japan Chronicle, a small steamer of 900 tons, built 28 years ago, has recently been sold for £50,500, or £56 per ton. The value of ships is increasing on account of the continued rise in chartering rates. A steamer was chartered for a year for the North American Service, at the record rate of £4, but this record was quickly broken by the charter of a ship of 8,800 tons at £4 7s.

CANADA AND COMMERCIAL AVIATION.

Those in charge of affairs in Canada evidently have no misgiving as to the future of aviation, as in a statement issued by Sir Robert Borden, the Premier, with regard to the policy of the new Union Government of Canada, it is set forth, among other tasks, in the following: The investigation of the possibilities of air services for important national services; the enactment of measures to encourage settlement on the land.

A NEW GERMAN GIANT.

Urging the French Government to strain every nerve to speed up the supply of aeroplanes, the "Temps" states that according to a German aviator prisoner the bombardment groups which the Germans are building in their endeavours to forestall the American machines include a giant biplane with four motors, employing bombs weighing over 660lbs. The German aeroplanes made in the month of July reached a total of 2,000, and no effort has been spared to increase the number.

DANISH WAR LOSSES.

According to the Forsikrings Kongressen, the total losses of the Danish merchant fleet during the first three years of the war amounted to 186 vessels and 191,076 gross tons, distributed as follows:—1914, seven of 9,292 tons (total); 1915, 23 of 23,832 tons; 1916, 56, of 57,566 tons; 1917 (seven months), 100 of 100,386 tons. These figures include only losses covered by war insurance. The number of lost vessels exceeding a value of £27,600 was one in 1914; two in 1915; 17 in 1916; and 34 during the first seven months of 1917. The total value of the 186 lost vessels amounts to nearly £11,000,000 on the basis of present insurance values.

DEMAND FOR MERCHANT TONNAGE.

There are interesting developments going on at several North-East Coast of England ship-yards, in preparation for the big demand for merchant tonnage

that is certain to be experienced when the war is over. The extensions at the yard of Robert Thompson and Sons, Ltd., Southwick, Sunderland, are nearing completion. An area of six acres has been taken over, and three berths have been enlarged to take vessels up to 500 feet in length. There is also space available for a berth for smaller ships, and this will be utilised as necessity arises. New sheds are being erected in close proximity to the berths, in order to facilitate construction. When the improvements now in progress are completed, there will be employment for extra workmen to the extent of between 300 and 400. In addition to the important project which Lord Furness has initiated on the Tees for a shipyard and dry docks, it is now reported that Ropner and Sons, of Stockton, are negotiating for over 3,000 square yards of additional land for extension of their shipyards.

SWEDISH SHIPPING LOANS.

In spite of handsome war profits, Swedish owners continue to apply for loans from the funds established for that purpose. Recently the sum of £134,000 was granted, the largest single amount being £33,100 to the Stockholm firm "Nord," for a new steamship of 6,500 tons. Numerous applications for the new half-year amount already to £311,000, including £102,000 applied for by the Reederei Nordstjernen. The last named firm is on the way to ranking with the Transatlantic firm as one of the leading Swedish line owners. Before the war, the Nordstjernen firm owned 16 vessels (34,000 gross tons register), including three motor ships. Up to the beginning of 1917, the fleet has been increased by 10 new vessels (including seven motor ships), and 50,000 tons. The firm has orders for new motor ships placed in Denmark and Sweden to the value of more than £1,000,000, the price per ton being exceptionally low, since the contract was placed in 1914. The new vessels are all to be put in service on the Company's lines to South America, the West Indies, and the Pacific coast of North America. The company applied for a loan of £41,500 in the summer of 1916, in respect of a motor ship (6,450 tons), to be delivered in the autumn of 1918. At the instigation of the Minister of Finance, this application was withdrawn, and the new construction postponed. Now the application is renewed and it is still hoped to obtain the vessel some time next year. The receipts for 1916 sufficed only to pay for two motor ships, which should be delivered from Burmeister and Wain this year. The Company wishes for a loan of £61,000 to pay for their first Swedish order, a 9,200 ton motor ship, being built by the "Gota" works, and due to run its trial on October 30th, 1918. It is noteworthy that this company makes such considerable use of the State loan facilities, and, for the rest, pays for new constructions from income, the capital has not been increased.

The Transatlantic company is asking for a further loan of £27,000 after having received an advance of £55,200 last year. The firm of Erik Brodus, Stockholm (formerly Gefle), has applied for £33,100. The largest Swedish owners are thus making free use of the State loans.



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