

"THE AEROPLANE"
APRIL 10, 1942.

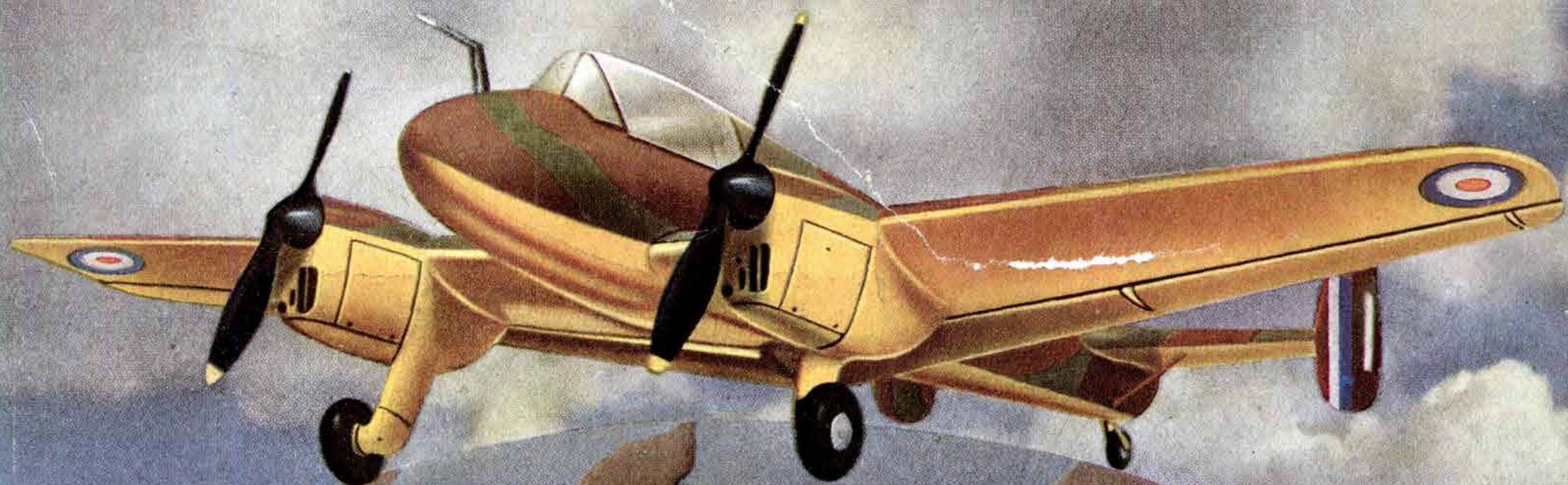
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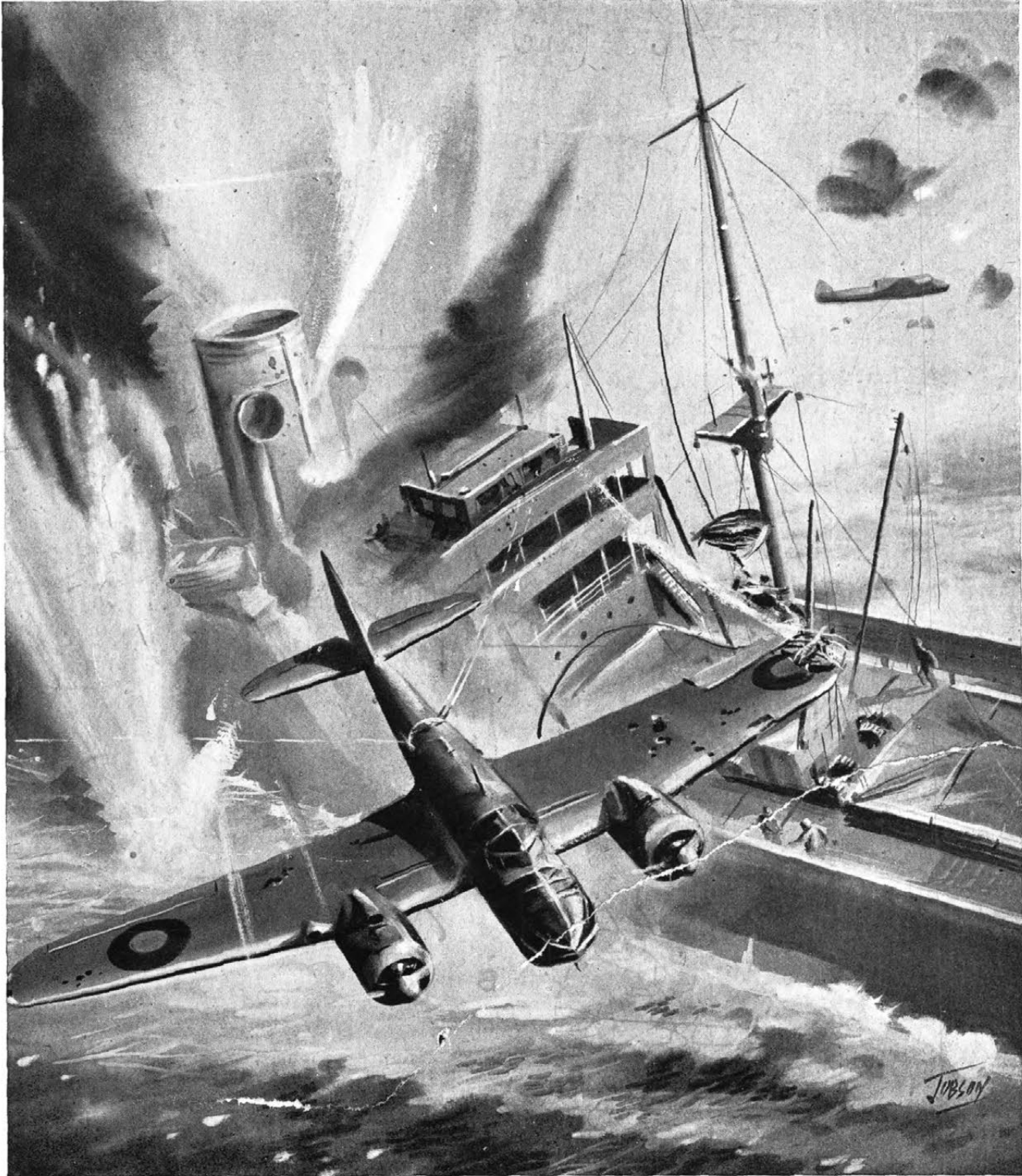
THE AEROPLANE

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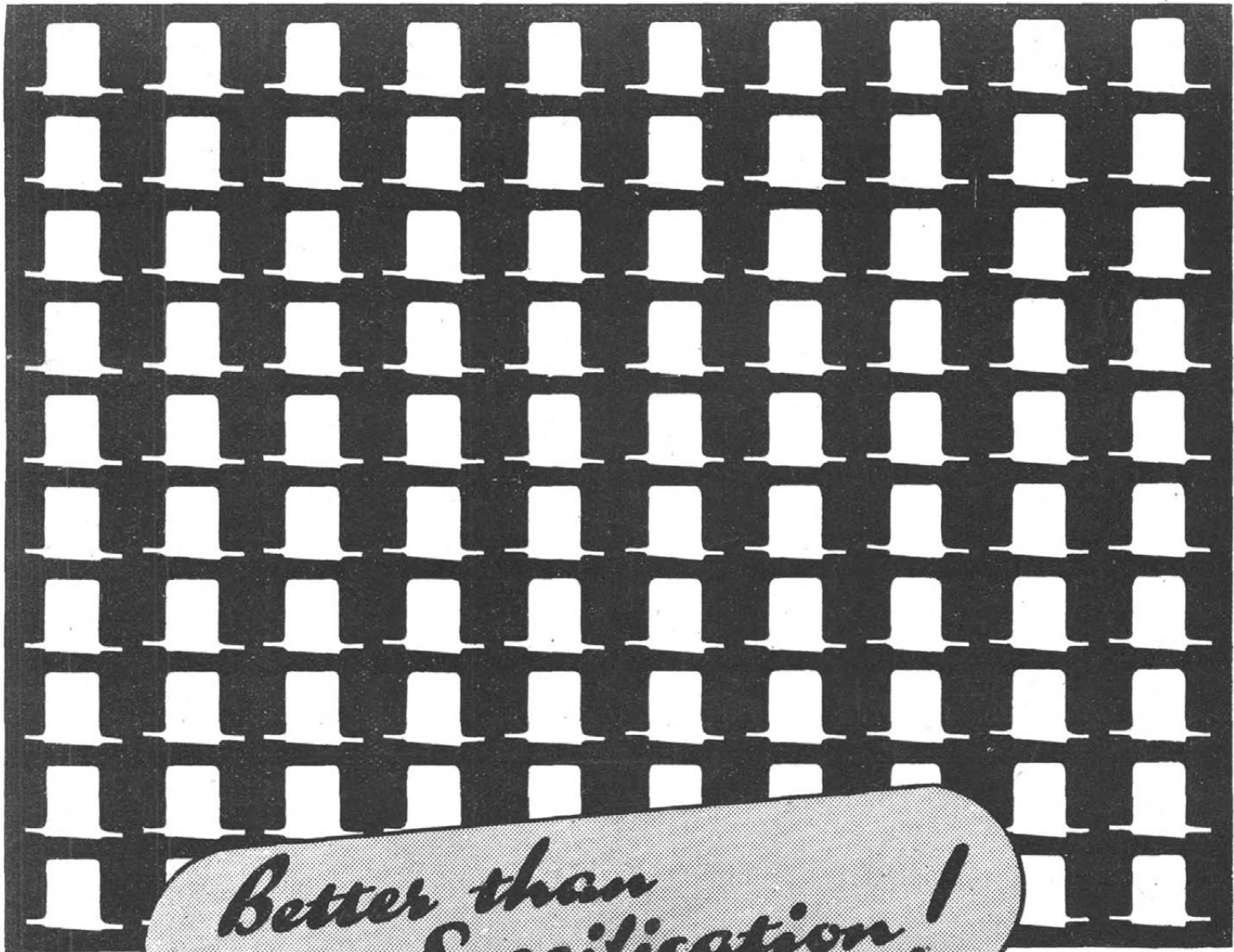
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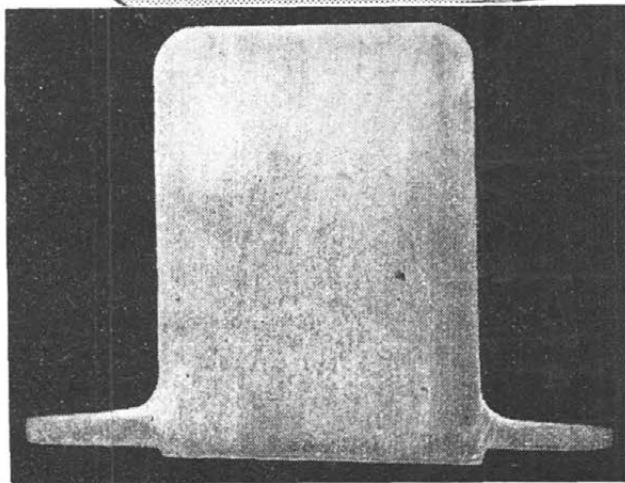
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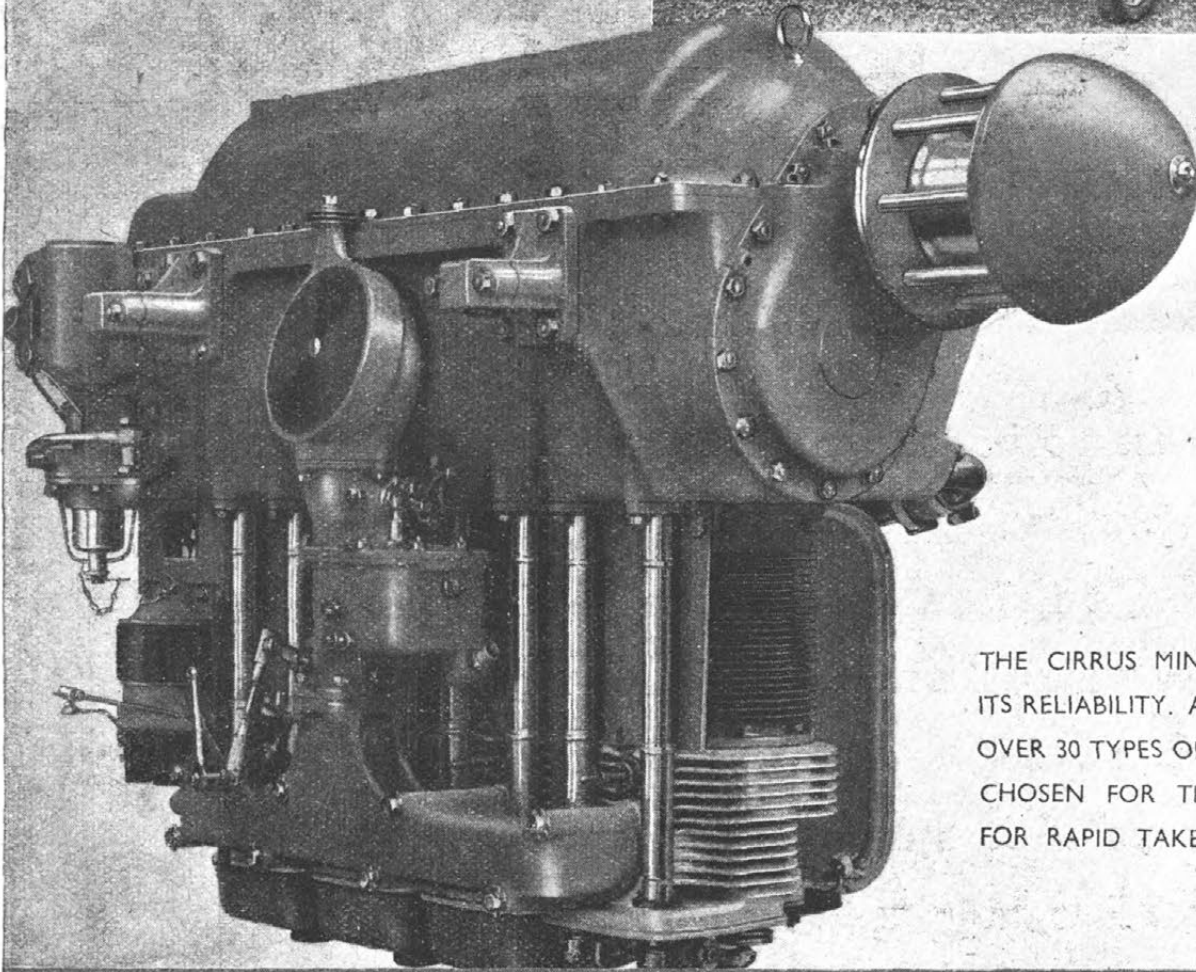
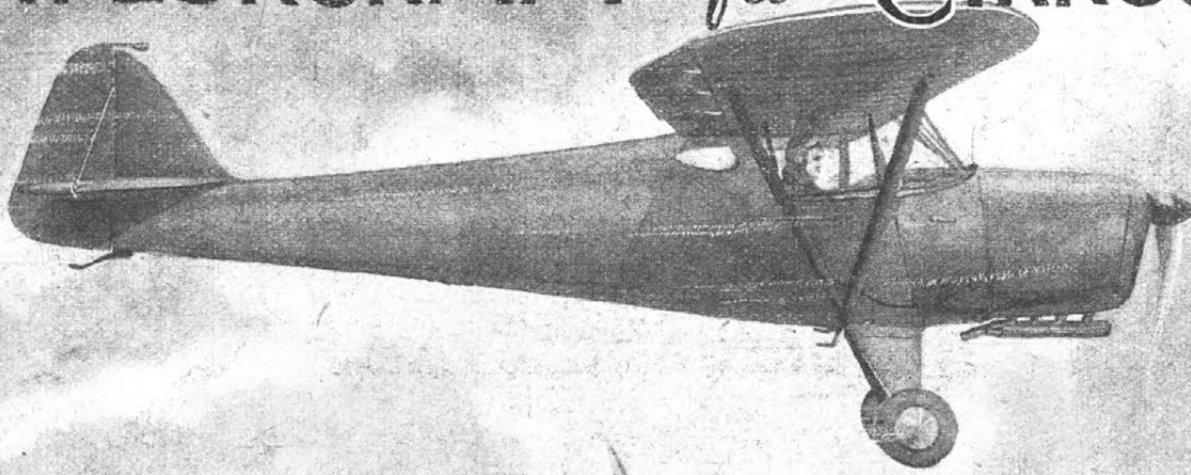
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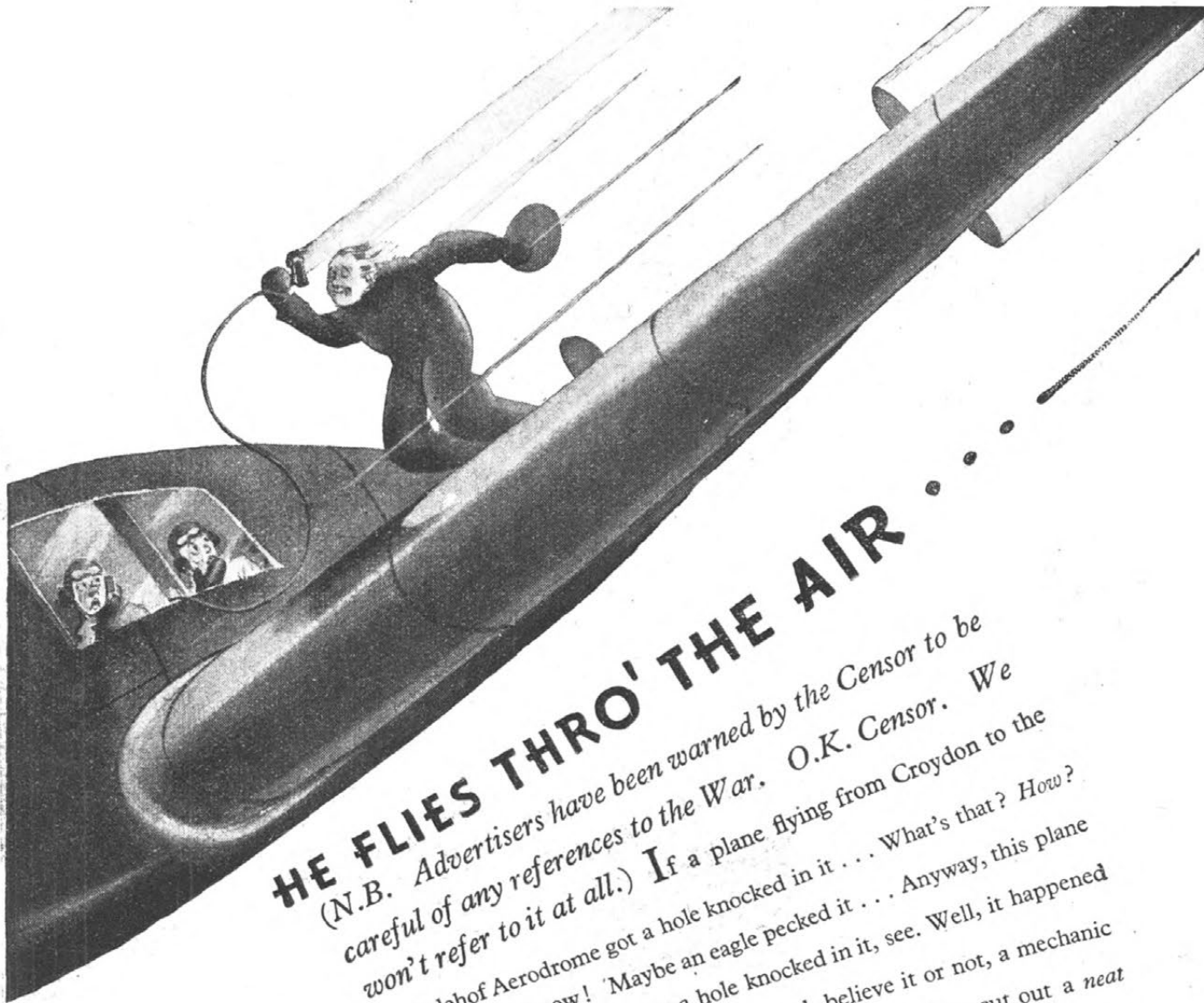
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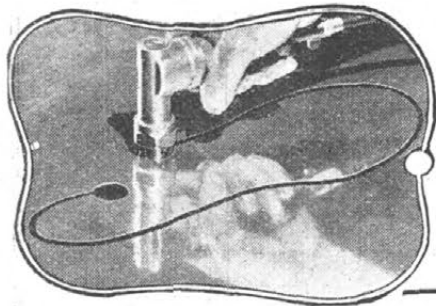


HE FLIES THRO' THE AIR

(N.B. Advertisers have been warned by the Censor to be careful of any references to the War. O.K. Censor. We won't refer to it at all.) If a plane flying from Croydon to the

Templehof Aerodrome got a hole knocked in it . . . What's that? How? We wouldn't know! Maybe an eagle pecked it . . . Anyway, this plane we're talking about did get a hole knocked in it, see. Well, it happened to have an air compressor on board and, believe it or not, a mechanic climbed out on the wing and with a Desoutter Nibbler cut out a neat hole. He then put on an equally neat patch using a Desoutter Drill and a Desoutter Screwdriver. Could that job have been done in mid-air with any other tool but the Desoutter Nibbler? No, Sir, it could not! Is this a true story? No, Sir, it is not—but we'll make it true if some one will lend us a mechanic with a good head and glue on his boots and an eagle with a strong beak.

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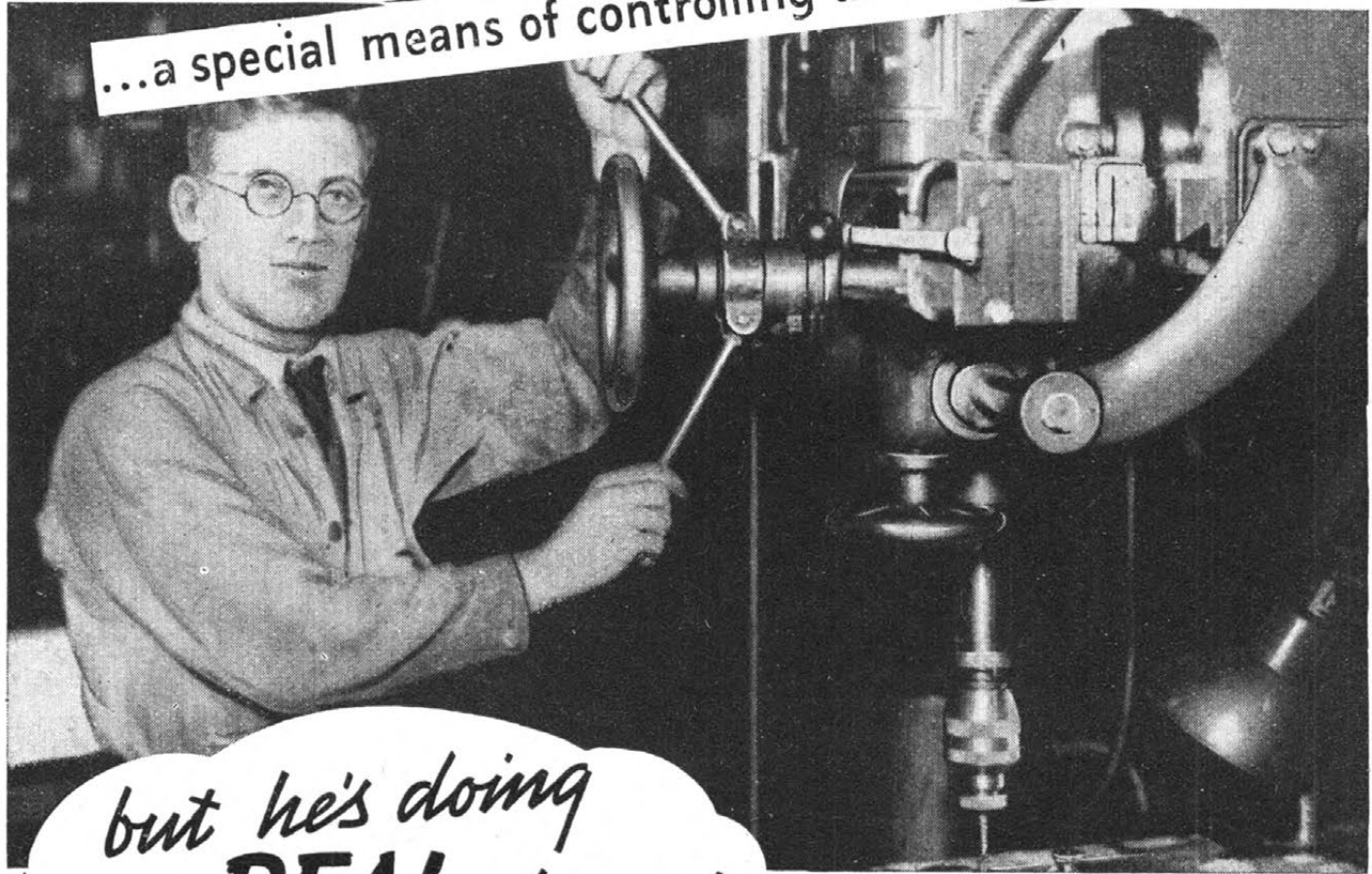
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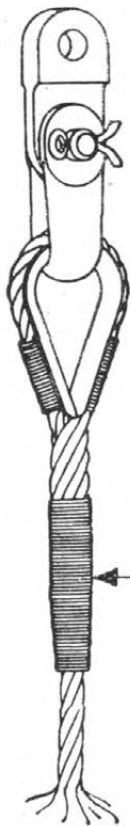


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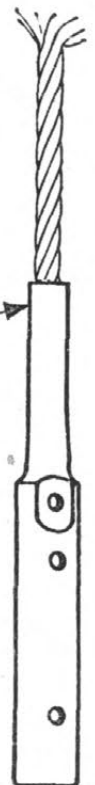
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The Company under its new title, will continue to operate under the personal control of its Managing Director M^r P.L. Hobourn and is in no way connected with any other Company

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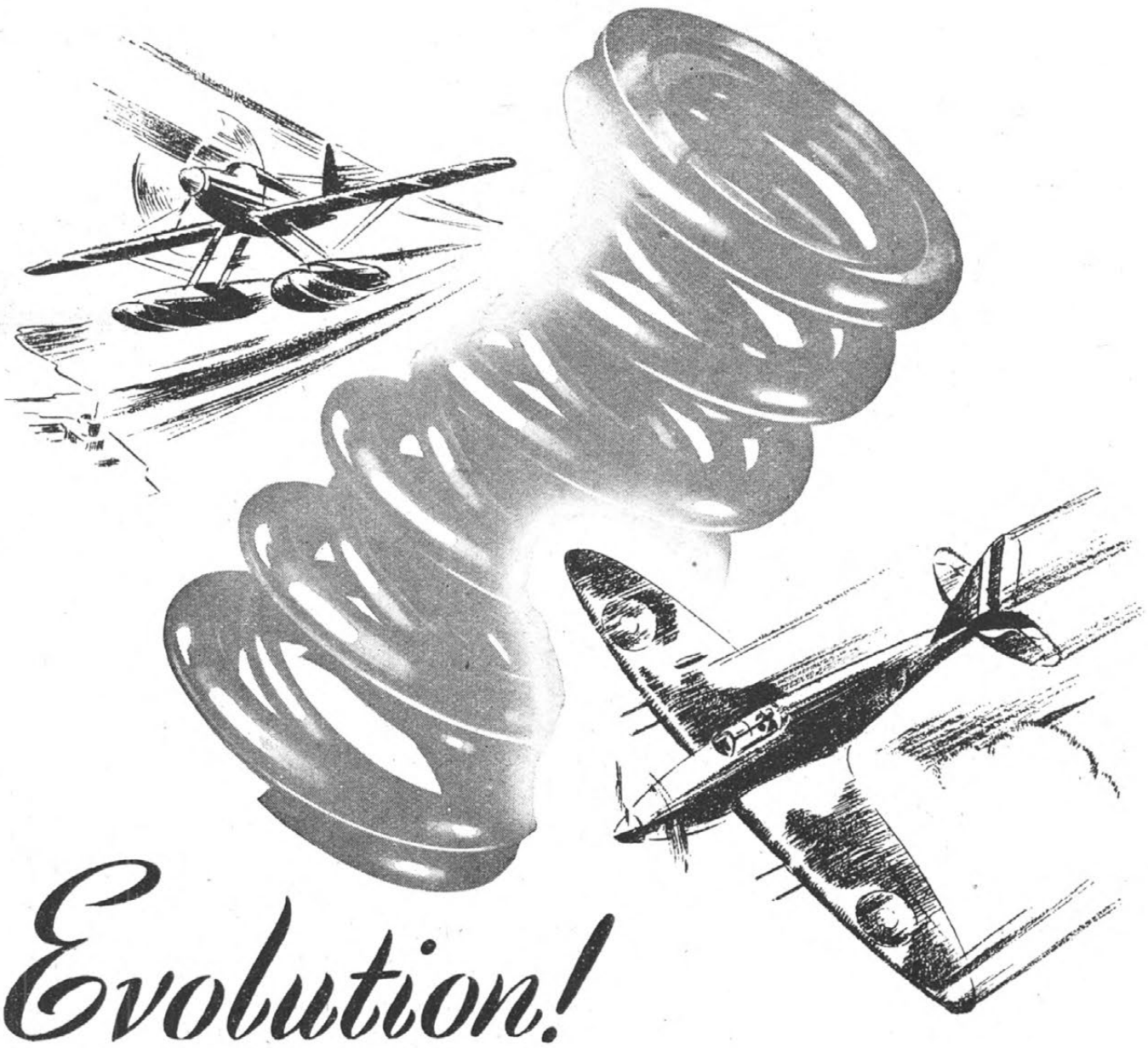
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A I R C R A F T



THE AEROPLANE

Incorporating
Aeronautical Engineering

Edited by
EDWIN COLSTON SHEPHERD
B.A., B.Litt. (Oxon)

Proprietors:
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MATTERS OF MOMENT

Pessimism Under Camouflage

RUMOURS have begun to reveal the anxiety of the Germans about forthcoming Allied offensives. Boastings about the futility of British invasion plans show the Germans whistling to keep their courage up. The rumours come from the North and the South. From Sweden come tales of a big base prepared by the Germans at Narvik against the expected scheme of British and Russians to join hands and hem in the Germans stationed in Finland and Norway. From Istanbul come assurances that the Germans have no forces in Southern Bulgaria or Greece big enough for invasion projects. From the Balkans come rumours of growing unrest and unneighbourly hostility. From Berlin the boasts of impregnability declare that the British have found no weak spot through which to open a second front.

Germany has often made rumour prepare the way for her aggressions by misleading her victims. Once again she has tried to subdue fears by a pretence of harmlessness; and hope springs so readily to life in human affairs that she may not be wholly unsuccessful in some quarters even now. In most others, the habit of expecting the worst wherever pacific protests are loudest has been too painfully acquired to be exchanged for optimistic illusions. The Allies expect to withstand heavy blows and to encounter stubborn defence when they deliver their attacks. What should hearten them is the turning inside out of the German system of disguising the truth. Whereas once the Germans were concerned only to lull their victims, they have now to try to discourage their assailants and raise the hopes of their own unhappy people.

The Nagging Ache of Fear

To a victorious Germany, a quite small swing of the pendulum is ominous. Whatever Germany has gained in her conquests has had to be devoted to carrying the War farther. The average German knows that if those gains cannot suffice to bring swift victory, there can only be losses ahead. And every little reverse in these days of full tide brings the fear of the ebb. The tide is not yet running out fast. In Russia the Germans have not lost all they feared they might. Leningrad is still unrelieved. Karkov is untaken. The Crimea has not been lost. In Western Europe no footing has yet been gained by the British. In Africa the Germans and Italians stand ready to attempt another invasion of Egypt when the trumpet of barbarian might shall sound again. For the moment

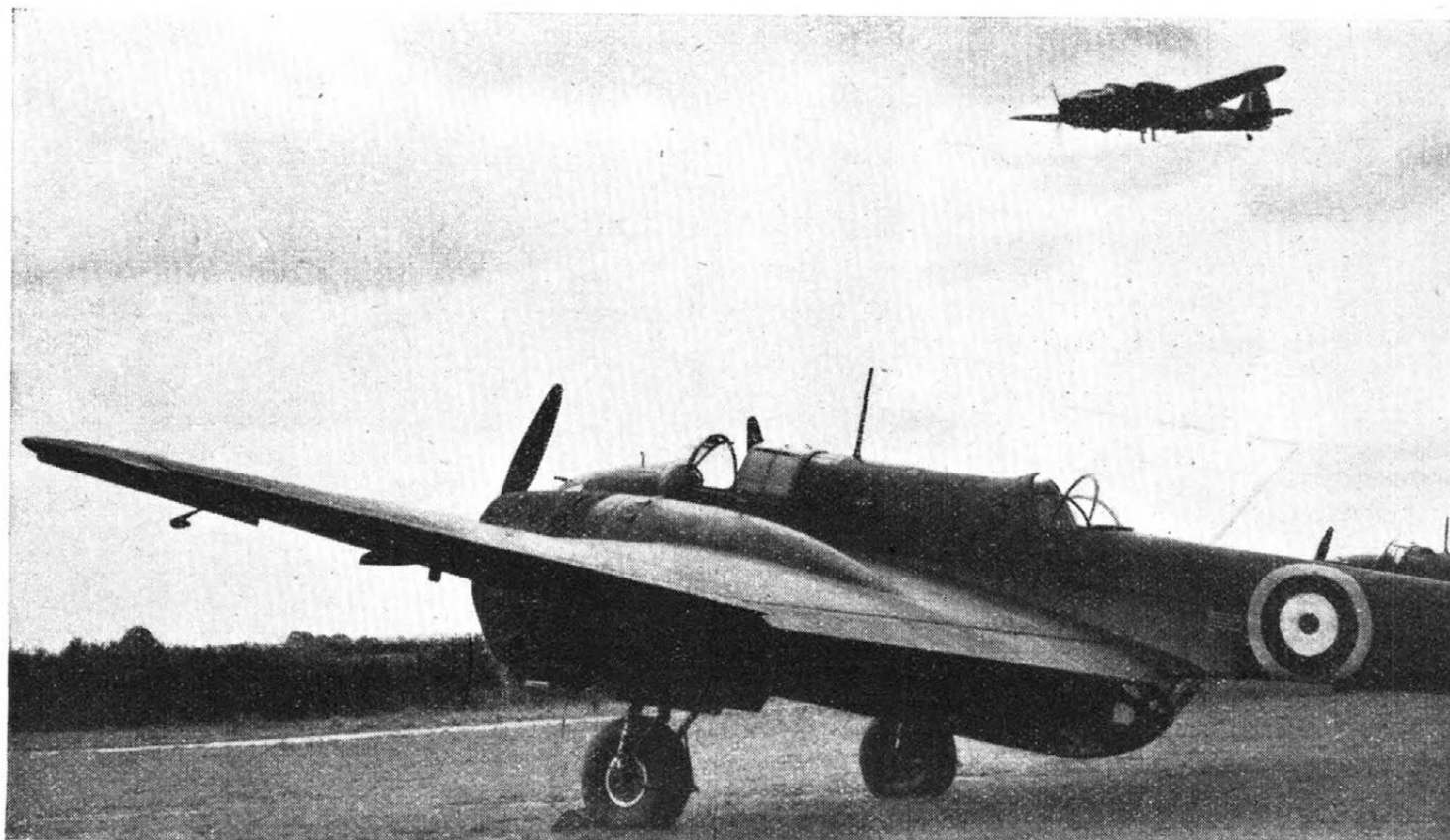
the conquests of the Reich are held intact. Only the inroads of the bombers cast thunderous doubt on the power of the conqueror to exclude the liberator from his conquered lands. Nevertheless, the Reich is uneasy; the conqueror is beginning to look over his shoulder and is not quite succeeding in the bluff of denying his fears.

Commando raids shake him into the more stupid forms of lying which served him so ill in the earlier days of the air fighting. They led him to clear his coastal areas of civilians. They persuaded him of British designs on Norway. These in turn caused him to take a daring risk with his bombarded battleships so that he might bring them from Brest closer to the Norwegian fjords. The same inexorable anxiety drove him to naval activity against the British convoys bound for Russia by the Northern route. Fumbling air raids against British ports and coastal towns betray the same feverish desire to ward off the coming blow. The protection of a coastline, 2,000 miles long, against the uncertain hazards of Spring nights is found to be a wearing duty in the face of an angry nation which is conscious of a growing strength to match its offensive mood.

The Unnerving Quality of Faith

A firm confidence, proof already against disaster, is to be felt in the somewhat grim determination of that nation to help turn the tide. Arms and munitions flow to Russia. Destroyers are delivered to Turkey. Air reinforcements go to Malta, Burma, Ceylon and India. Diffused defence lines are equipped and maintained. Sea routes are patrolled above and on the surface, and the enemy is made to pay for most of his forays upon them. And still, perhaps because of the number of its wounds and the monotony of its misfortunes, the Nation insists on carrying the battle this year to the enemy. The persistence of indestructible faith of that order is unnerving for any enemy, no matter how swollen with belief in his own invincibility he may be. Now that it is beginning to be backed up by proof of armed strength in the Allies, it takes to itself an air of the inevitable.

Germany is feeling the armed strength of the British in the air. The bombers, bringing the terror that flies by night, are all British. They are proceeding against the Reich in numbers comparable with those which a year ago were sent by the Reich against Great Britain. They serve as an index to the productive power of the Nation. If the British can build aeroplanes at that rate, they can make guns and tanks and munitions in like quantity.



["Aeroplane" photograph

A SCREEN LAYER.—A Bristol Blenheim IV fitted under the fuselage with twin ejector pipes for laying smoke screens, flies over a Handley Page Hampden.

Having chosen their points of defence and determined the strategical use of them, they can expect to encompass the transition from defensive to offensive action. Ceylon opened its defence with a vigour worthy of the great days in the Battle of Britain. Australia is hitting back at the Japanese in New Guinea and Timor. The United States Navy is ready to cut in along the routes which the Japanese must use in the farthest parts of the Pacific. India is about to face with British arms the onrush of a tyranny unknown since the days of Ghengis Khan. The Chinese in Burma and beyond are developing the attack.

Far from weakening under the "slings and arrows of outrageous fortune," the Allies are able to throw more and more into freedom's scales. The nightmare of every German who could estimate, through the mists of barbarian tribal worship, the ultimate strength of the great demo-

cracies, has begun to deck itself in the sombre robes of destiny. The recurrent fear that glory so swift and sweeping, could not endure the reckoning with the slow-moving forces of great nations roused to the peril of their spiritual heritage, is creeping back over the Reich. Few still believe that Russia can be beaten. None doubts that the British will strike as soon as the critical hour arrives. And the land of the conquering hosts understands that it is as wide open to the R.A.F. as Great Britain was to the Luftwaffe a year ago. Germany wanted the earth and sees little more than a grave before her. She will struggle fiercely to avoid the ditch she has dug.

She will boast and lie, and puff herself up like the bull-frog, but none of her tricks and artifices will avert the doom she has drawn upon herself by her own bloodstained hands.

The Use of the Bomber

ONE AND A HALF times the weight of bombs that were dropped on Coventry when the Germans opened their attempt to destroy British industrial and seaport towns was delivered at Lübeck recently by the R.A.F. The Germans have not yet done grumbling about the damage. For the encouragement of those German towns which have not had their turn, an official of the Air Ministry declared last week that British bombing policy henceforth is to concentrate on centres of production and communications. The difficulty of hitting particular targets at night, where heavy opposition has to be met, is said to have led to the decision to deal with areas rather than individual buildings.

If that be a faithful though unofficial statement of policy it represents a change of some importance. If it stood without qualification it would mean that the clamour for the bombing of German civilians had succeeded. The R.A.F. would have to confess, in that event, that it had had to follow the example set by the Germans in their night campaign against Great Britain. That would be a strange confession at a time when two of the most concentrated and destructive raids on enemy factories in France have shown

the value of heavy target bombing. Those raids met relatively little opposition and the bombing was done calmly and steadily. Because of that a smaller proportion of the total bomb load was wasted. The factories were destroyed and the towns which served them suffered only the damage caused by stray bombs.

Under the alternative policy the reverse might have been the case, as it was at Coventry. On neither tactical nor strategic grounds could that be regarded as an effective form of air warfare. Tactically there might be some limit to the concentration of a sufficient force of bombers over a given target within the hours of darkness to deliver a big enough load for the destruction or probable destruction of the selected works. Strategically there could be no question of getting better results from the destruction of non-productive property. The argument of the Germans in attacking towns rather than their productive establishments was that if a town was made unfit to live in then its inhabitants could do no work. The British case has been that if factories, electricity stations, gas works and certain services essential to industry were destroyed, then production would

able to operate at great heights. When they were sent to the Middle East, sand and rainstorms baulked them, and once more the R.A.F. could not get the best from them. They dared not be used for normal day-bombing operations because of their inadequate armament. Doubtless, when the lessons of modern war have been embodied in the design, and a means found for accurate bombing from great heights, the Fortress will be a valuable asset to any Air Force operating against targets not frequently hidden by a blanket of clouds.

The Huns Off Portugal

ANOTHER VIOLATION of Portuguese rights as a neutral has been perpetrated by an "unknown aircraft," the crew of which (to quote the Lisbon Press) shamed their uniform by committing not an act of war but a crime.

This incident was the bombing and machine-gunning of a small Portuguese fishing-boat, the "Cabo de S. Vicente," on Mar. 10, some 20 miles West of Ericeira, which in its turn is a few miles North of the mouth of the Tagus.

The aeroplane—a large four-engined bomber—passed over the vessel at mast height, dropping two bombs and machine-gunning the crew of 18. Fortunately nobody was hit, but the bombs, which were near misses, tore holes in the hull and the vessel sank in a few minutes.

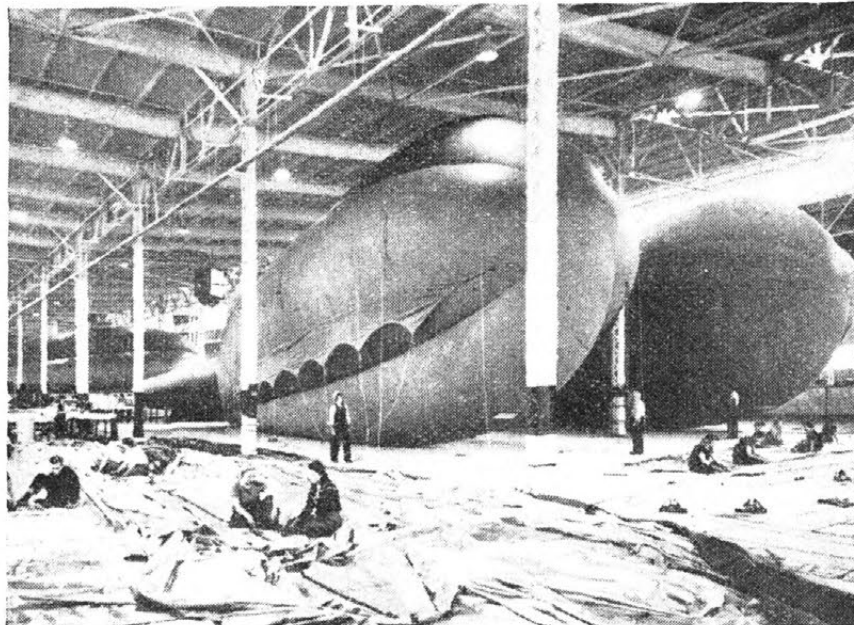
The vessel had been freshly painted with the green and red Portuguese national colours; on the sides of the hull, as in the case of all Portuguese fishing-boats, were painted the words "Barco de Pesca—Portugal" in large letters. Three Portuguese flags were being flown. It was broad daylight and there could be no possible excuse for failure to identify the vessel.

The master and crew could not identify the aeroplane. They state they are accustomed to seeing aircraft flying off the Portuguese coast, and hitherto have been able to identify them by their markings. On this occasion identification was impossible.

This is the second fishing-boat to be sunk off the Portuguese coast, and the sixth Portuguese vessel to be sunk by foreign craft—seagoing or airborne.

The whole World knows that the R.A.F. does not bomb or machine-gun fishing vessels, even those of enemy countries. Much less, therefore, would they attack fishing-vessels belonging to our Oldest Ally. Therefore the only conclusion one can arrive at is that the aircraft was German—probably one of the big long-range Focke-Wulf Kurier bombers operating from Bordeaux way—or elsewhere.

However, as British aircraft operate off the Portuguese coast the Portuguese Press, with extreme delicacy and tact, make no direct accusation against any belligerent nation—thus the aircraft was "unidentified."—L.H.H.



BULBOUS GRACE.—Mass production of barrage balloons at the Firestone Tyre and Rubber Co's factory at Akron, Ohio. This room is capable of holding 12 inflated balloons at the same time.

Guide to Salvage

IN THEIR EFFORTS to save every scrap of material that can be used again, General Aircraft Ltd. recently held a private salvage exhibition. Their purpose was to give colour and meaning to the slogans, injunctions, exhortations, pleadings and cajolery which are the weapons of democratic campaigns before compulsion is applied.

Every employee was invited to visit the exhibition to discover how he, or she, was involved in the reclamation of precious commodities in the G.A.L. works. In devious and ingenious ways, the Salvage Officer seemed to invest the humblest rivets and the rustiest swarf with the qualities of pure gold, the oiliest rags and dirtiest fabric with the worth of rare silks, broken drills with more utility than a priceless watch and worn tyres with a price beyond rubies. Twenty-three separate items, from cadmium to typewriter ribbons, were the subject of individual displays, and examples of waste perpetrated in one department or another were exposed for the perpetrators to gaze on and repent.

Bins and other receptacles, each for a specific item, are now in position all over the works, and a small staff of men and women are fully employed carrying the contents to the Salvage Centre. In six months they collected and returned to industry enough aluminium for 46 Spitfires.

One week's run was originally allotted to the exhibition, but its popularity among the employees of General Aircraft, and the interest it aroused in many other works, led to its being kept open for a month. As a result of it, speedier and more convenient methods of returning waste to industry were evolved and the process is gaining momentum as, following this praiseworthy lead, more and more factories are appointing Salvage officers and arranging salvage exhibitions.

National Service

THE Bristol Aeroplane Co. Ltd. inform us that they have had blind persons working in their Fitting Department for some time now.

The Editor

MR. SHEPHERD is making good progress, but is still in hospital. He has been well enough, to write the two leading articles this week.

The fact that goods made of raw materials in short supply because of war conditions are advertised in this journal should not be taken as an indication that they are necessarily available for export.



FOR THE R.A.A.F.—An assembly line, of Bristol Beaufort II torpedo-bombers in production in Australia.

The 135th Week of



THE WAR IN THE AIR

HUDSON WITH THE U.S. ARMY.—Hitherto, Lockheed Hudson bombers have been used only by the R.A.F. Now, some are in service with the U.S. Army Air Forces. As America has few gun turrets a hand-operated gun position replaces the Boulton and Paul turret of the British Hudsons.

A SPRING OFFENSIVE has been launched by the R.A.F. before any major campaign has flared up on any of the land fronts in Europe. Cheering evidence has been given during the past week of the growing power of attack by Bomber Command.

Although most of the raids have been on Germany itself, the Gnôme-Rhône works at Gennevilliers, near Paris, was bombed on the night of April 5. This factory was assembling parts for German aero-motors, probably the B.M.W. radials which resemble the Gnôme-Rhône motors. Of the 300 bombers which set out to attack Gennevilliers, Cologne and Le Havre on April 5 only five were lost—1.67 per cent. The losses have been much greater than this recently and the defences must have been unlucky. Yet it is evidence that the German night protection is less advanced than our own.

A welcome feature of the latest communiqués on the operations by Bomber Command is the naming of the machines which took part in the raids, thus adding cheer to those in the factories who have built the aeroplanes used and handing down to history the record of their achievements. Armstrong Whitworth Whitleys attacked the Gnôme-

Rhône works; Short Stirlings, Vickers-Armstrongs Wellingtons and Handley Page Hampdens attacked the targets at Cologne.

Two islands have suffered in the attacks by the enemy during the past week. Malta continues to resist the most concentrated air assault ever launched and to inflict heavy damage on the Luftwaffe. Ceylon beat off the first Japanese raid on April 6 with more than 50 per cent. losses to the attacking bombers.

On the Russian front this week the Red Air Force claims to have destroyed 296 German aeroplanes for the loss of only 67. All this air activity is the forerunner of the main campaigns soon to be launched. The forecasts of a main German thrust in the South of the Russian front and by Rommel in Libya appear likely to prove correct. Likewise, the few remaining neutrals in Europe—Spain, Portugal and Turkey—must fear what the Summer may bring. Switzerland, surrounded on all sides by the Axis, remains inviolate and unthreatened. Probably it is being cherished by the Axis leaders as a sanctuary should they be forced to abandon their own countries as they have abandoned all bonds and treaties in the past.

Burmese Treachery

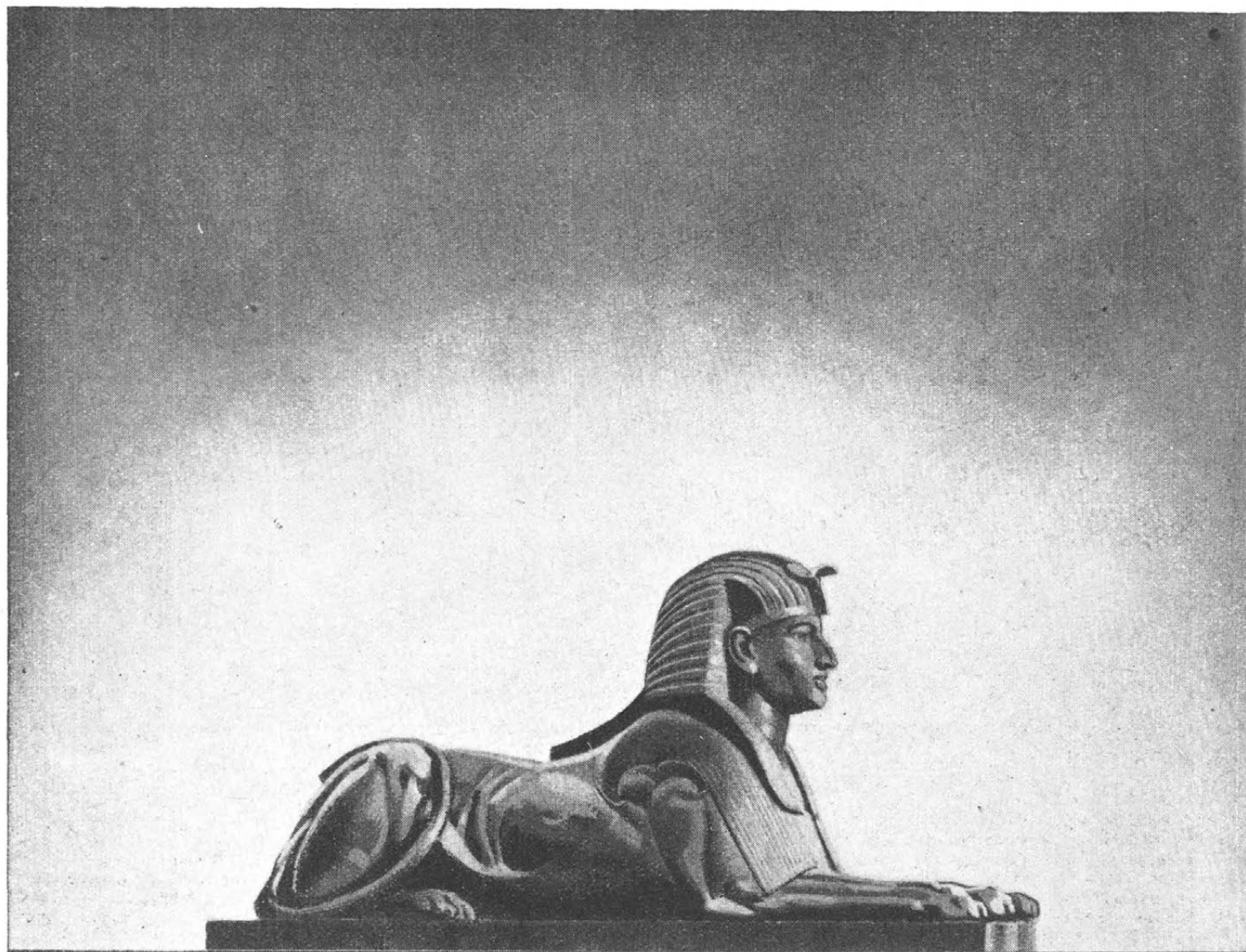
TO THE GRIEVOUS BURDENS borne by the defenders of Burma has now been added the treachery of many thousands of Burmese, who are openly fighting with the enemy in the front lines and committing acts of sabotage in the rear. From the outset of the campaign, the Allied Forces were known to be fighting under the handicap of inadequate numbers, inadequate air support, and lines of communications choked with fleeing refugees, but the perfidy of the Burmese had been effectively withheld from the outside World by the military censorship.

Official statements about the fighting in Burma last week gave no hint that the eagerly awaited air reinforcements had arrived on either the Irrawaddy or the Toungoo fronts. Japanese bombers raided two R.A.F. landing grounds, one in Central and the other in North Burma, but neither raid

caused much damage—presumably because the landing grounds contained little or no equipment. The only air action by the Allies came when Japanese bombers, attempting to raid Lashio, on the Burma Road, were intercepted by fighters of the American Volunteer Group and lost one of their number in consequence.

The Japanese, on the other hand, fully exploited their command of the air. They bombed Toungoo unmercifully until the last of the Chinese were driven from it. They bombed Nangyun (on Mar. 29, after a Chinese force had recaptured it in a counter-attack and occupied the aerodrome) and several unnamed places along the coast and inland.

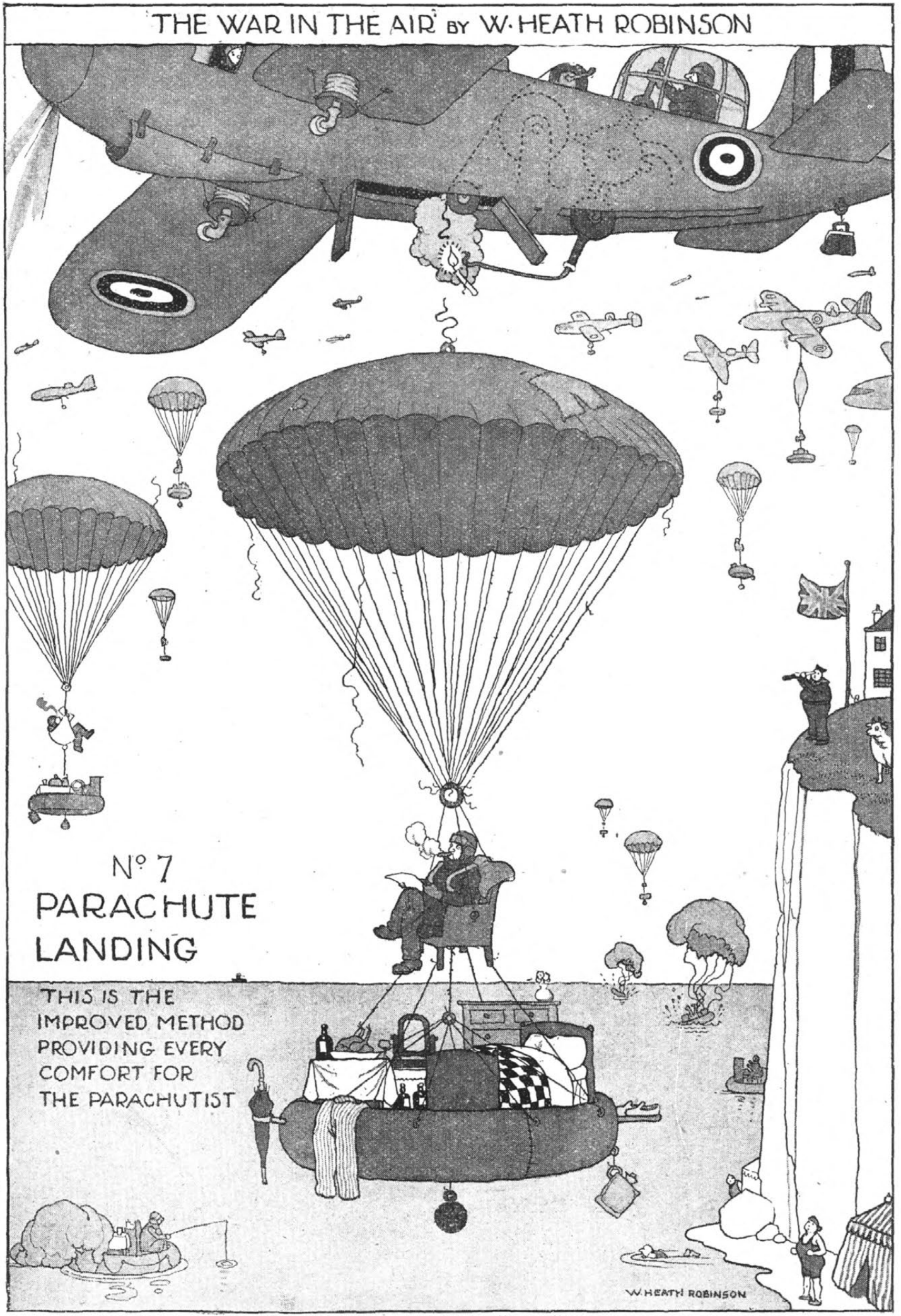
Prome fell to the Japanese on Apr. 2, largely because the British lacked air support. Later, another withdrawal was made by British forces on the Irrawaddy front. Both retreats



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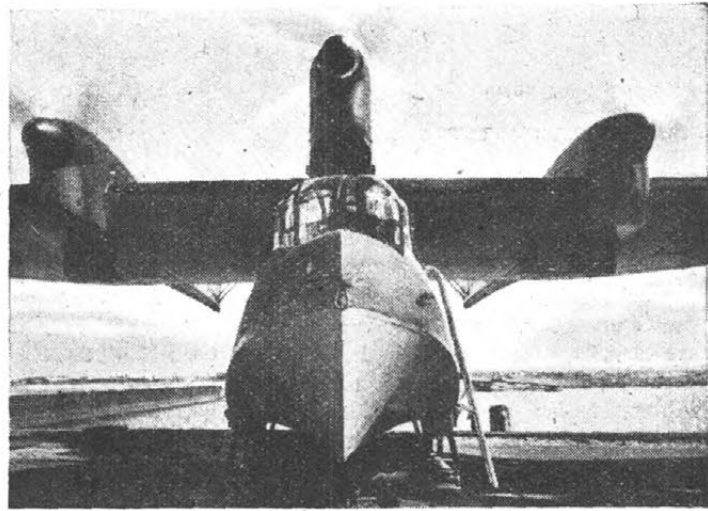
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well as aerodromes. No details of the targets bombed were given, but the Air Ministry News Service described an attack by a Wellington on an unnamed marshalling yard in the Rhine. This bomber had to fly through heavy black storms and to contend with ice and winds which reached gale force at times. As a result, it had to land at the first home aerodrome after crossing the coast. Its tanks held petrol for only another 15 minutes' flying. The bad weather may have been responsible for some of the night's casualties. Fifteen bombers failed to get back.

"Night intruders" of Fighter Command operating over enemy aerodromes last week had two confirmed successes and several probables. A Douglas Havoc shot down a Heinkel He 111 and a Czech pilot accounted for a Junkers Ju 88. Beaufighters of Coastal Command destroyed two Heinkel He 111s and a Heinkel He 115 float seaplane.

Using cloud cover, raiders reached and bombed a town in the West of England in daylight, causing some casualties and slight damage. A town in the South-west was raided at night for the first time in six months. The scale of the attacks here and elsewhere, however, was small, and indicated no change in the policy followed by the Luftwaffe for the past 11 months.

A summary of the offensive operations of the Fighter, Coastal and Bomber Commands of the Royal Air Force appears below.



DIESEL POWERED.—The nose of a Blohm und Voss BV 138B flying-boat used by the Luftwaffe in the Baltic. It is one of the few German aeroplanes with a gun turret.

Diary of the Week

Operations of the Fighter, Coastal and Bomber Commands of the R.A.F. From March 29 to April 4, 1942.

Sunday, March 29

NIGHT ... Aeroplanes of Coastal Command attacked enemy shipping off the Norwegian coast. One ship was bombed by a Hudson, another torpedoed by a Bristol Beaufort. The Admiralty reported the destruction of a Junkers Ju 88 by H.M.S. Brocklesbury.

Monday, March 30

Offensive operations cancelled.

Tuesday, March 31

Offensive operations cancelled.

Wednesday, April 1

DAY ... Small force of bombers escorted by fighters attacked docks at Boulogne. One bomber was lost, but two of its crew were saved, though wounded.

NIGHT ... Main targets: Industrial objectives and communications in West and North-West Germany. In occupied territory, bombing attacks were made on the Matford works at Poissy, and on the docks and shipping at Le Havre. Mines were laid in enemy waters; 15 R.A.F. bombers lost. Aeroplanes of Fighter Command attacked enemy aerodromes and other

objectives in Belgium and Northern France. One enemy bomber (a Ju 88) was destroyed over its own aerodrome.

Thursday, April 2

DAY ... Beaufighters of Coastal Command destroyed two Heinkel He 111 bombers and a He 115 float seaplane over the North Sea without loss to themselves.

NIGHT ... Main target: Matford works at Poissy, near Paris. Docks at Le Havre also bombed. Aeroplanes of Fighter Command attacked enemy aerodromes and other targets in occupied territory. Two R.A.F. aircraft lost. One enemy bomber destroyed over Great Britain.

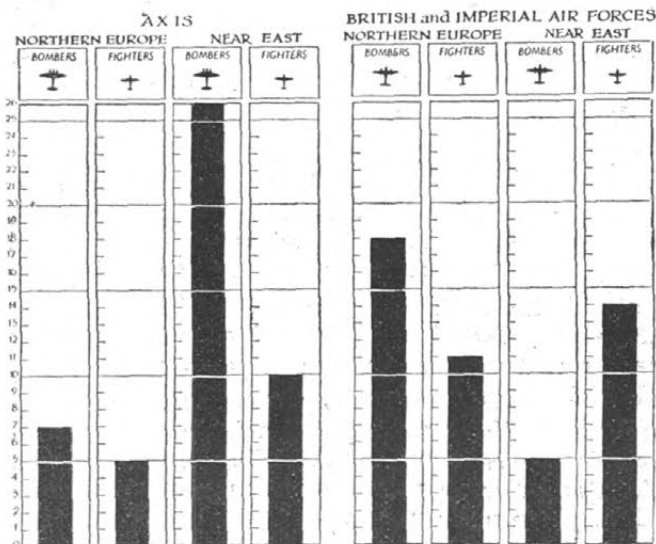
Friday, April 3

NIGHT ... One Heinkel He 111 shot down by Douglas Havoc during "night intruder" operations by Fighter Command.

Saturday, April 4

DAY ... Bombers escorted by fighters attacked railway targets near St. Omer. Fighters shot down five enemy fighters, including several Fw 190s. Eleven R.A.F. fighters lost.

THE WEEK'S LOSSES—March 29 to April 4, 1942



THE WEEK'S LOSSES AT A GLANCE.—Comparative losses in the Air War for the week March 29 to April 4, 1942, inclusive. The chart does not include aeroplanes destroyed in Russia and the Far East. The comparative losses are: Northern Europe: Axis (daylight offensive) 4 bombers; (night offensive) 3 bombers; (defence by day) 5 fighters; British (daylight offensive) 1 bomber and 11 fighters; (night offensive) 17 bombers. Near East; Axis (daylight offensive) 24 bombers and 10 fighters; (night offensive) 2 bombers; British (daylight offensive) 2 bombers and 14 fighters; (night offensive) 3 bombers. Approximate personnel losses suffered by the respective Air Forces were: Northern Europe: Axis, 36; British, 125; Near East: Axis, 84; British, 40.

GERMAN, ITALIAN AND BRITISH LOSSES.—MARCH 29/APRIL 4, 1942

Date	Axis (N. Europe)		Axis (Near East)		R.A.F. (N. Europe)		R.A.F. (Near East)	
	Machines	Personnel	Machines	Personnel	Machines	Personnel	Machines	Personnel
29-3-42	1	4	—	—	—	—	—	—
30-3-42	—	—	—	—	—	—	—	—
31-3-42	—	—	—	—	—	—	5	13
1-4-42	1	4	20	43	16	101	8	16
2-4-42	4	20	6	12	2	13	5	10
3-4-42	1	5	3	7	—	—	—	—
4-4-42	5	3	7	22	11	11	1	1
Totals	12	36	36	84	29	125	19	40

TOTAL LOSSES IN THE AIR WAR* (To dawn, April 5).

	Axis Air Forces	Imperial Air Forces
Machines destroyed in combat or by A.A. gunfire...	8,134	4,413
Personnel	22,069	12,741

* Excluding Russia and the Far East.

Corrections and Additions

The bomber reported in last week's issue of THE AEROPLANE as having been shot down by a Stirling returning from the raid on Lübeck on the night of Mar. 27-28 was, in fact, a Junkers Ju 88 night fighter, one of two night fighters destroyed by R.A.F. bombers that night during the Lübeck operations. Another enemy night fighter was destroyed by R.A.F. bombers which raided the Ruhr on the night of Mar. 26-27.

NEWS OF THE WEEK

BRITISH-BUILT AEROPLANES make up more than 80 per cent. of the total number of operational aeroplanes used by Great Britain in all parts of the World. Of the aeroplanes operating from the Home bases, 90 per cent. are British, and in the Middle East the percentage is 75 per cent. These figures were first published on Apr. 2 and are particularly interesting as Air Ministry communiqués during the past two years of the War have given exactly the opposite impression.

Fighters and bombers of the R.A.F. and Lysanders and Tomahawks of the Army Co-operation Command, together with gliders and parachute troops of the new Army Air Corps, gave a demonstration of almost every form of direct air attack last week. The demonstration was watched by about 7,000 members of the three Services, and the Home Guard. Parachute troops were dropped from three Armstrong Whitworth Whitleys and gliders were towed past and then cast off. The aeroplanes which took part in the display included Hurricanes, Spitfires, Whirlwinds, Blenheims, Lysanders, Stirlings, Bostons, Tomahawks, and a captured Me 110 and a He 111.

General Bergeret, Vichy Secretary for Air, stated at the Aviation Exhibition at Vichy on Apr. 4 that the Vichy Air Force had a total of about 1,000 modern aeroplanes.

American transport aeroplanes are expected to be carrying war materials from India to China shortly, according to an official announcement from Chungking on Apr. 4. The transport aeroplanes will carry a substantial portion of the tonnage which formerly was driven over the Burma road.

War Statistics

INDIA had its first air raids on Apr. 6 when Japanese bombers from an aircraft carrier which is known to be in the Bay of Bengal dropped bombs on two ports in the South of India, Vizagapatam and Cocanada.

Twenty-seven of a total raiding force of 75 Japanese aeroplanes, were shot down during the first air raid on Colombo, Ceylon, on Apr. 5. R.A.F. fighters accounted for 25 of the enemy's losses, and in addition five others were probably destroyed and 25 more damaged.

Mandalay was bombed by the Japanese for the first time on Apr. 3.

American and Australian attacks on Lae, New Guinea, since March 10 have probably crippled more than 10 per cent. of the total cruiser strength with which Japan entered the War. In addi-

tion, 48 Japanese bombers and fighters have been destroyed, or probably destroyed, over Australia and the neighbouring islands in recent weeks. These facts were given by Mr. A. S. Drakeford, Australian Minister for Air, on Mar. 31.

Ceylon had its first air raid alert on Mar. 30.

One hundred and seventeen enemy aeroplanes were either destroyed or damaged during raids on Malta between Mar. 20 and Mar. 30.

Thirty-three Japanese aeroplanes were shot down or destroyed on the ground by the R.A.A.F. or damaged by bombs from Allied aeroplanes operating in the Timor and New Guinea areas during the three days Mar. 30-Apr. 1, inclusive.

Bombers from the United States are being ferried across the Pacific to Australia to reinforce the Allied air forces. This fact was announced by the R.A.A.F. on Mar. 30.

A total of 25 Axis submarines have been sunk by United States Army and Navy Forces, according to an announcement made by the U.S. Navy on Apr. 1. Of this total the U.S. Army Air Force is credited with four.

The first U.S. Air Force communiqué was issued from New Delhi on Apr. 3 and stated that U.S. Flying Fortress bombers had made their first attack from India that day, on enemy shipping at Port Blair, Andaman Islands.

Malta's score of enemy aeroplanes destroyed during the month of March is given as 59 destroyed, 23 probably destroyed and 94 damaged. A despatch from "somewhere in Egypt" dated Apr. 3, said that the R.A.F. estimated that 37 enemy aeroplanes had been shot down over Malta on Apr. 1. Official communiqués for that date state that 17 were destroyed and 10 others probably destroyed by R.A.F. fighters and anti-aircraft guns. The despatch from Egypt was sent from an aerodrome from which both Wellingtons and Hudsons were operating.

Seventeen Japanese aeroplanes were destroyed by the R.A.A.F. and Australian ground defences during engagements at Darwin, Netherlands Timor and at Lae, New Guinea, on Apr. 4. The R.A.A.F. lost two fighters.

Bombs of a new type, which are said to have exploded in the air with huge flames, were used by the Japanese on air attacks on Corregidor on Apr. 3.

More than 300 R.A.F. heavy bombers attacked targets in the Rhineland, particularly Cologne, and the Gnôme-Rhône factory at Genne-

villiers, near Paris, on the night of Apr. 5. Five bombers were lost.

Three hundred enemy aeroplanes were destroyed by British fighter squadrons in the Western Desert between Nov. 18, 1941, and Apr. 3.

A fighter group of the R.A.F., largely employed on convoy protection duties, scored its 500th victory last week.

Russia claimed to have destroyed 296 German aeroplanes for a loss of 67 Russian aeroplanes during the period Mar. 29 to Apr. 4. On Apr. 5 Russia announced that 119 German aeroplanes were destroyed, 24 on aerodromes, for a loss of 17 Russian machines.

Polish fighter pilots have destroyed 500 enemy aeroplanes since their arrival in Great Britain. R.A.F. bombers manned by Polish crews had made 1,955 raids on enemy objectives by Apr. 5.

Service

GROUP CAPT. F. V. BEAMISH, D.S.O. and Bar, D.F.C., A.F.C., one of Fighter Command's best-known pilots, has been reported missing. He was commissioned in the R.A.F. in 1923, and is credited with being one of the two Spitfire pilots who reported the approach of the Gneisenau and Scharnhorst up the Channel on Feb. 12.

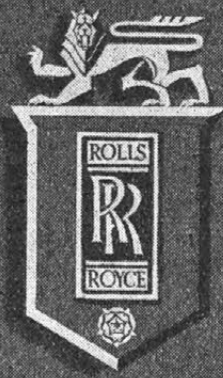
The Navy has sent a signal to the A.O. C.-in-C., Middle East (Air Marshal Sir Arthur Tedder), expressing the Admiralty's thanks to the Royal Air Force for its splendid co-operation with the Royal Navy in protecting the Malta convoy which was attacked in the Mediterranean last month.

H.M. The King of the Hellenes visited a Greek air base in Palestine on Mar. 30 and saw a large number of recruits sworn in for the Royal Hellenic Air Force.

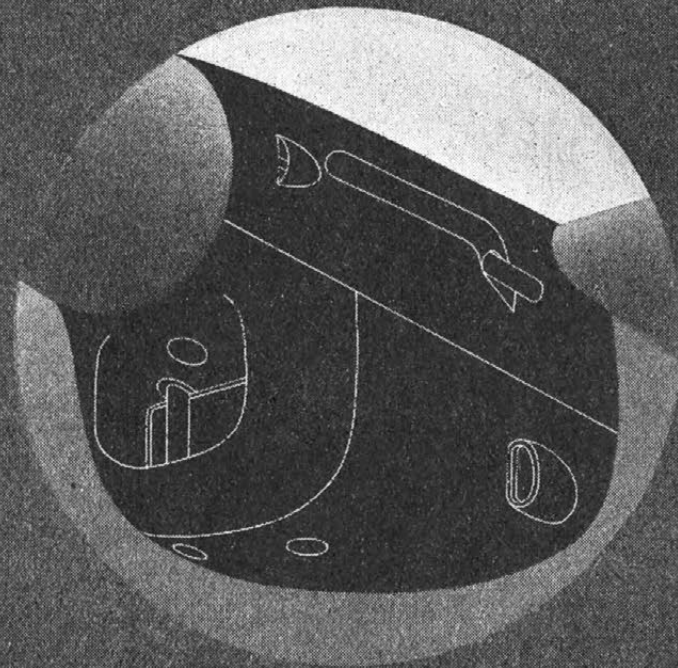
Production

CANADA'S output in the aircraft industry has multiplied 80 times since the beginning of the War, according to Mr. R. P. Bell, Director of Aircraft Production. The industry now occupies five million square feet of floor space and employs 40,000 men and women. There are orders in hand for more than 10,000 aeroplanes.

One thousand Curtiss SB2C-1 dive bombers are to be built by the Canadian Car and Foundry Co., Ltd., at its factories at Fort William and Point St. Charles. The first is scheduled to be ready early next year. The motors and instruments will be imported from the U.S.A.



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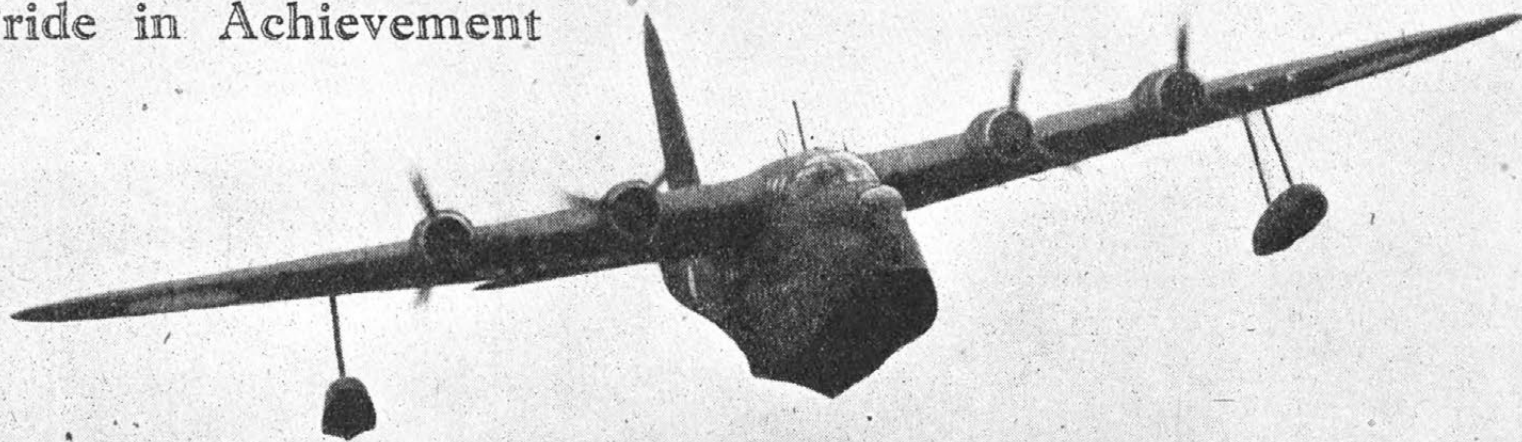
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II—THE SHORT SUNDERLAND

THE SUNDERLAND holds the distinction of having been the first British aeroplane to get the credit for an exploit in the present War. On Sept. 21, 1939, two Sunderlands were on patrol duty over the Atlantic when they picked up a radio message that the British steamer "Kensington Court" had been torpedoed and was sinking. They made for the spot at full speed and reached the steamer 10 minutes before it sank. The ship's crew of 34 were crowded into one lifeboat, and the first of the Sunderlands alighted and took on board 20 of the men, while its consort kept watch overhead. Soon afterwards the other flying-boat picked up the remaining survivors.

The two Sunderlands, with the 34 passengers between them, flew back to port and thus completed the first rescue of its kind in history. Since then, the monotonous duties of the crews of Coastal Command have been relieved on a number of occasions by similar incidents, so that by now the number of men who have been rescued from the sea by Sunderlands must be quite large.

Short Brothers (Rochester and Bedford) Ltd. produced the Sunderland in 1937. The prototype was designed to meet the requirements of the Air Ministry specification R.2/33 and was the first flying-boat designed to incorporate the British power-operated turrets which were destined to be so strikingly successful in the War.

For its time the Sunderland was remarkably well armed. With its four-gun rear turret, two hand-operated guns amidships and single-gun turret in the nose, it set new standards for marine aircraft, and when it did go into action it was not surprising that the Germans named it the "Flying Porcupine."

Apart from its normal patrol duties over the North Sea, the Atlantic and the Mediterranean, the Sunderland has seen much service as a transport during the various abortive "peninsula campaigns" in which the Allies were involved during 1940-41.

Advance parties and senior officers were conveyed to Norway across the North Sea, often in the face of fierce opposition. Thus, when Major General Carton de Wiart was given the command of the Allied forces in Central Norway, the Sunderland which conveyed him to Scandinavia was repeatedly attacked by German aircraft on the last stage of its journey. Although the flying-boat was

damaged and the General's aide-de-camp was wounded, the R.A.F. crew fought their way through and delivered their important passenger safely.

Later, during evacuations from Norway, Greece and Crete, Sunderlands transported hundreds of people to safety. In this work they often had the company of civil Short flying-boats flown by British Airways crews. One Sunderland, crammed to the roof, carried 87 men in one load—six of them in the lavatory, or so the story goes! Many distinguished fugitives from the Axis invaders have made good their escape in Sunderlands, some of them from under the very noses of the Nazis and Wops.

The Sunderland first proved its fighting powers when one on convoy duty over the North Sea was attacked by six Junkers Ju 88s on April 3, 1940. It shot down one of the Ju 88s in flames, and forced another to land in Norway, where the crew set it on fire before being arrested and interned. The rest tried, unsuccessfully, to bomb the Sunderland. The Sunderland's first and second pilots were both slightly injured by bomb splinters, and some of the boat's controls were damaged, but it returned to its base at the end of its patrol. It had previously driven off a German reconnaissance aeroplane.

Not long afterwards, in the Mediterranean, another Sunderland sank an Italian submarine and brought back three survivors as evidence of its success. The flying-boat attacked as the submarine crash-dived. A few seconds later a spout of water and oil shot into the air, and the submarine resurfaced for a brief moment before taking its final plunge. The weather was calm and the Sunderland alighted, picked up three survivors, and triumphantly flew them back to base as concrete evidence of its exploit.

The fine qualities of the Sunderland have certainly been proved in two-and-a-half years of War. Its many long hours of dreary patrol in all weathers and climates, no less than its spectacular achievements, have more than justified the British claim, made before the War, that it was then the best Service flying-boat in existence. Although the design is now more than eight years old in conception that claim has not yet been seriously challenged, and doubtless the Sunderland will win further laurels before it passes out of service.

Bottlenecks of Vital Information

By "Watchkeeper"

A STRANGE OVERHANG from the easy going days of peace now creating a nasty headache is the widespread superstition among R.A.F. servicing personnel that certain engine and airframe parts are sacrosanct and must not be touched. If they go wrong they must be taken out untouched and returned to the makers. The makers put seals on their products to foster this incredible superstition. No one knows whether the practice originated with the makers or was forced upon them by ham-fisted mechanics, but the point is that it still persists.

It is a problem that needs careful consideration, especially now that our aircraft must be kept serviceable abroad. Obviously, it can only be tackled by the fullest co-operation between the R.A.F. and the makers. At the moment it is solved or ameliorated at home by sending civilian personnel to R.A.F. stations to service these "untouchable" parts. Apart from its utter uselessness abroad, this system creates a peculiar psychology among the regular R.A.F. ground crews. The result is either a lazy acquiescence and a "Why bother?" attitude, or an angry "Why is it allowed?" reaction. Both are detrimental to full co-operation and efficiency. A man will not learn more than he is forced to learn and if he thinks that any part should not be touched by him except, perhaps, to take it out altogether, he closes his mind to it and consequently knows nothing about it—and does not want to know. On the other hand, he may be so annoyed that he thinks, "Why should I bother when the firm sends civvies to do the job?"

The working of certain aircraft parts must be thoroughly understood before a really useful repair job can be carried out on them. Hence, if a mechanic is ignorant of the working of the part he cannot repair it satisfactorily, nor can he make a reliable temporary repair which may mean the difference between an aeroplane being grounded or in the air for those few vital hours—which may mean the difference between victory and defeat.

In peace-time, the sealed part was accepted as an expedient, but war conditions demand something much more than the injunction "Do not touch" and a blob of stamped lead to seal both the injunction and the part, and, we might add, the mechanic's mind to them.

Accurately set or sensitively adjusted parts which need extra care could be serviced efficiently if Technical Training Schools were supplied with full technical information, sectioned parts, drawings and diagrams. The instructors could then pass the information and instructions to their pupils. At the moment, the schools are badly handicapped by vague or out-of-date knowledge usually culled from A.P. 1464, which is far too discursive and covers far too large a field to be really comprehensive. The repair manual for the type is often out of date and information comes trickling through months after the aircraft has been put into service abroad.

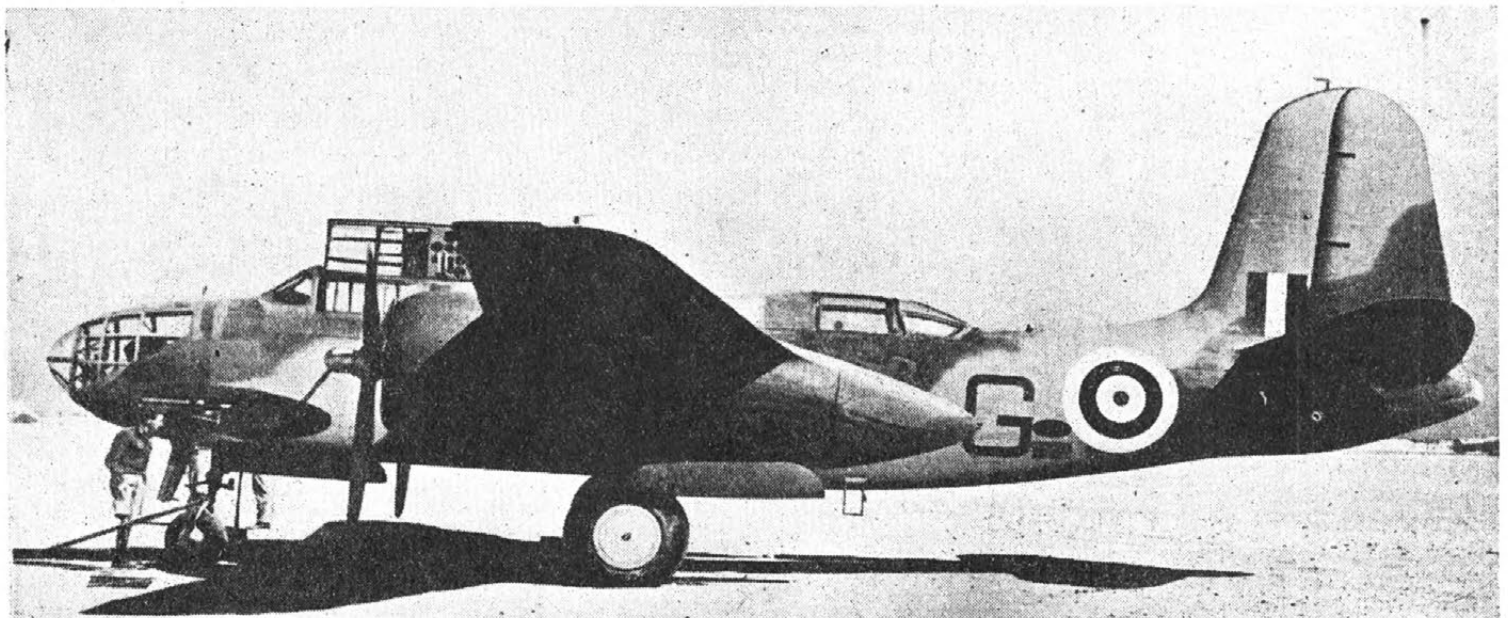


FAMILIARITY MAKES CONFIDENCE.—Royal Air Force trainees getting to know the many parts that make a complete Bristol aero-motor.

Consequently, there should be a better understanding between the Service and the makers on this important point. Otherwise mechanics will be going abroad inadequately equipped for the difficulties they are bound to meet in keeping their machines in flying condition. Data should be delivered to the R.A.F.'s ground crews as soon as it is available. Every scrap of information should be handed over with the aircraft, otherwise the number of serviceable aeroplanes will soon be dangerously small. A few diagrams and sectioned parts will not be a fraction as costly as maintaining a large team of civilians to do the work which the R.A.F. mechanics could do just as well if they were provided with the necessary information.

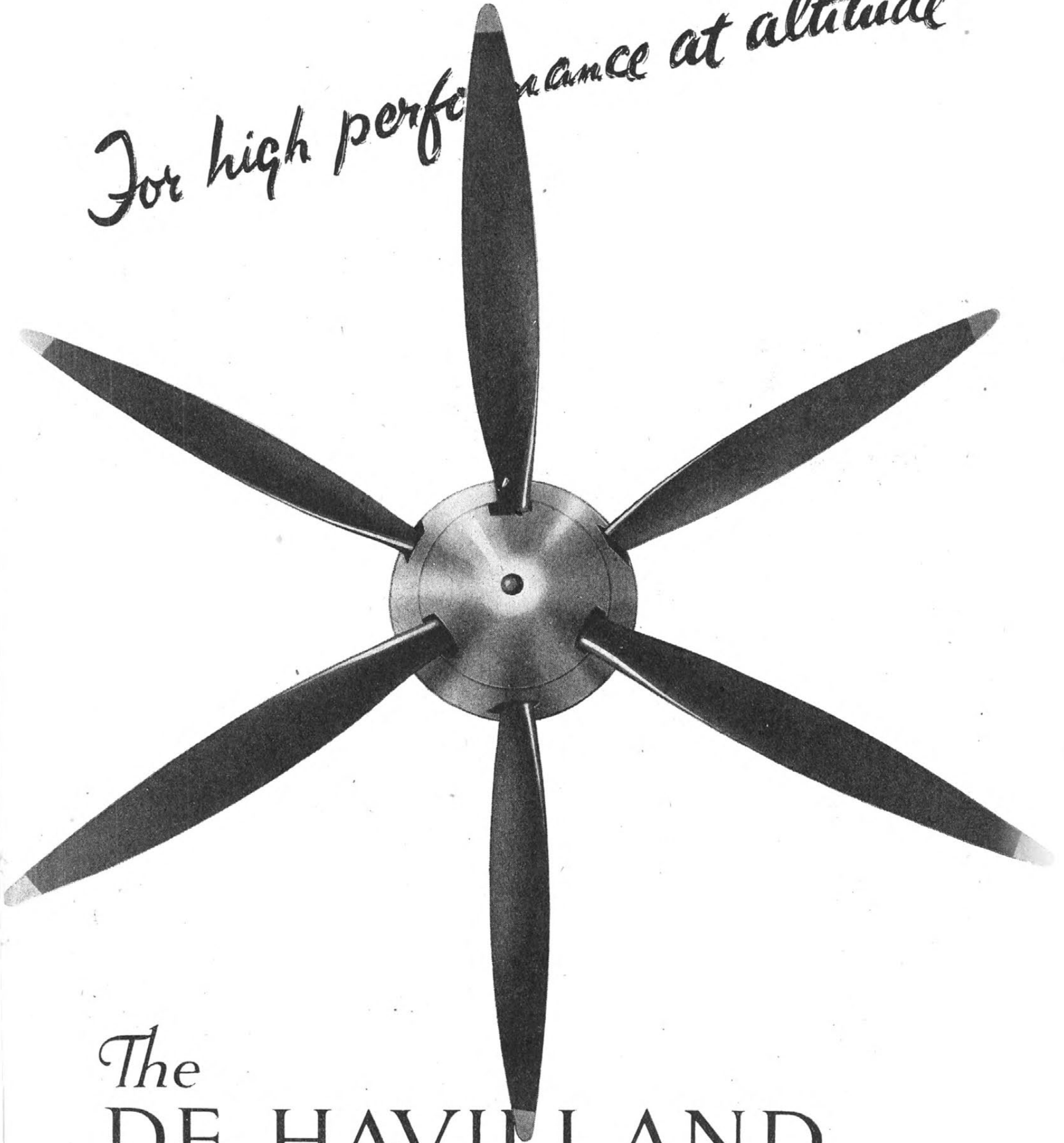
The farce of sealed parts and privately employed civilian mechanics becomes apparent when we think of the R.A.F. mechanics vainly trying to keep aircraft serviceable out in Burma, Malaya, Singapore and Java. The wonder is that they did so with so many handicaps.

Royal Air Force mechanics can do anything if they have the tools and the knowledge. Information therefore becomes a vital war commodity when we consider it in this light, and there should be no bottlenecks in its supply—or complete stoppages.



DESERT AMERICAN.—A ground crew of the South African Air Force inspecting their Douglas Boston III.

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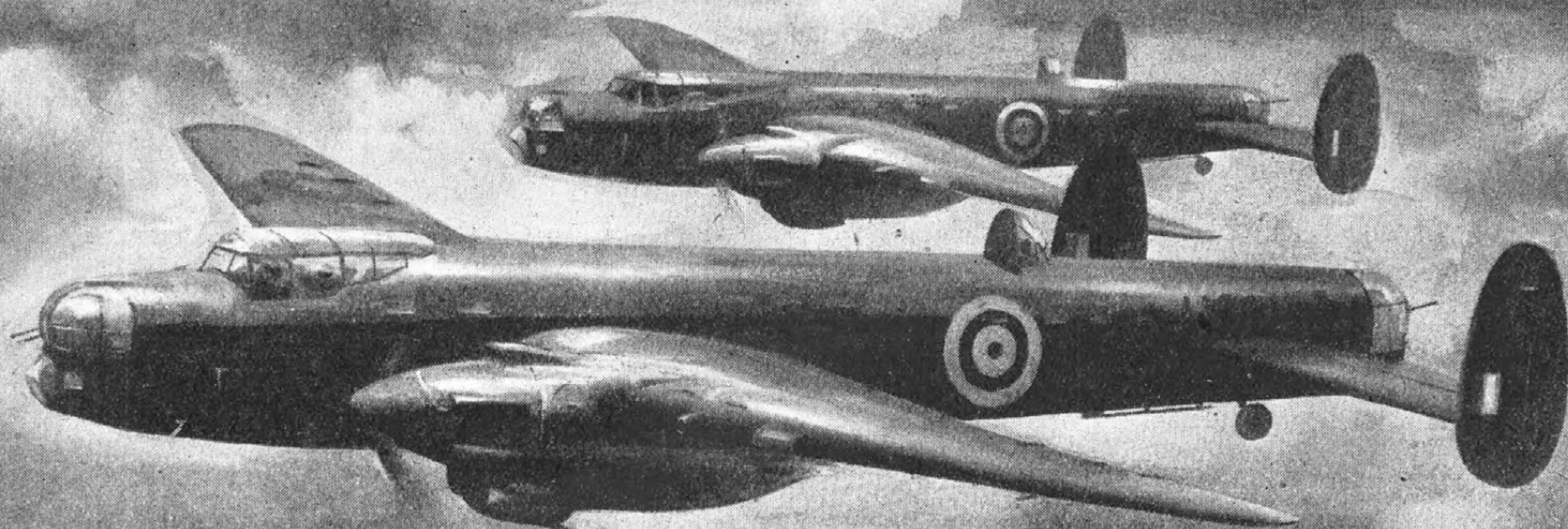
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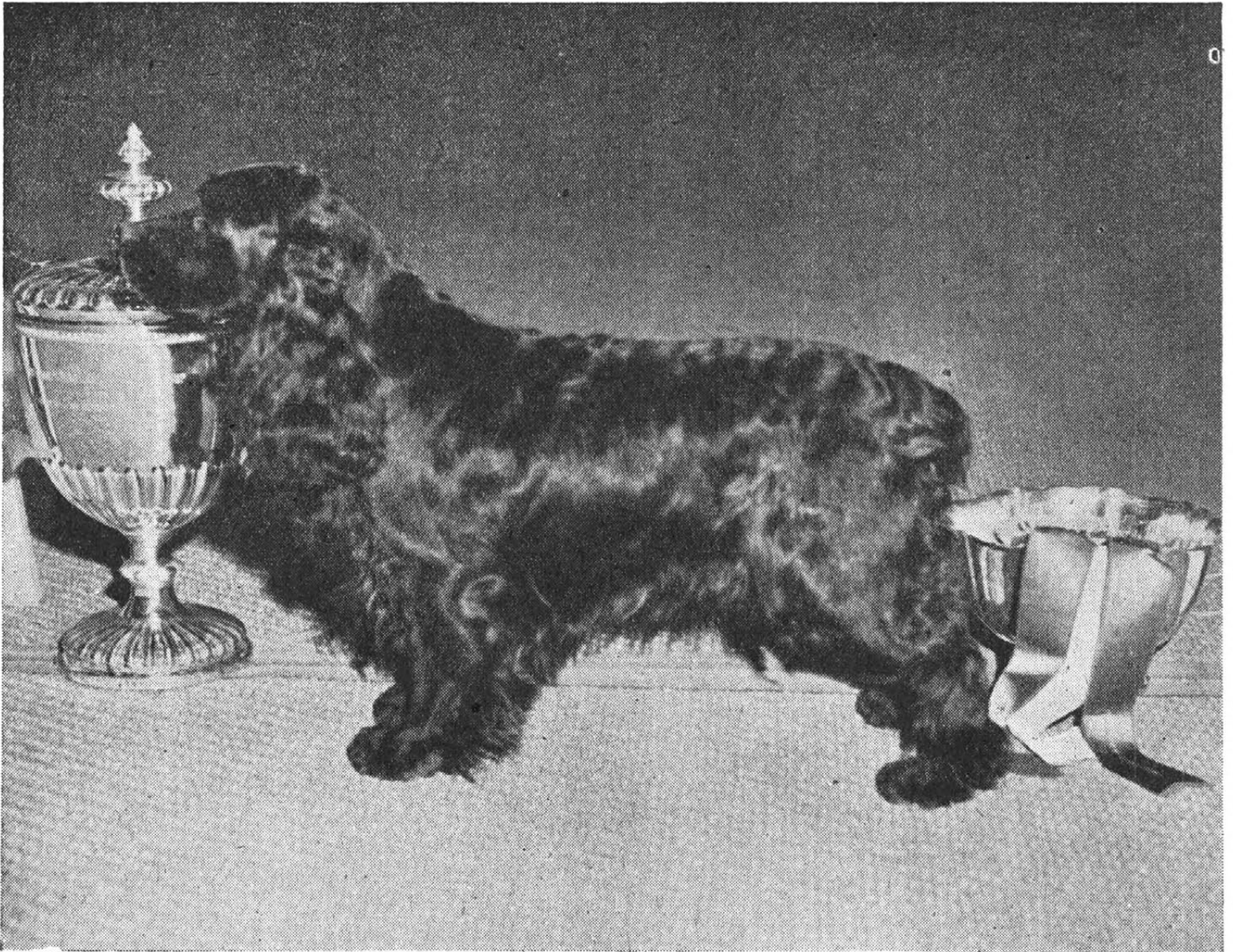
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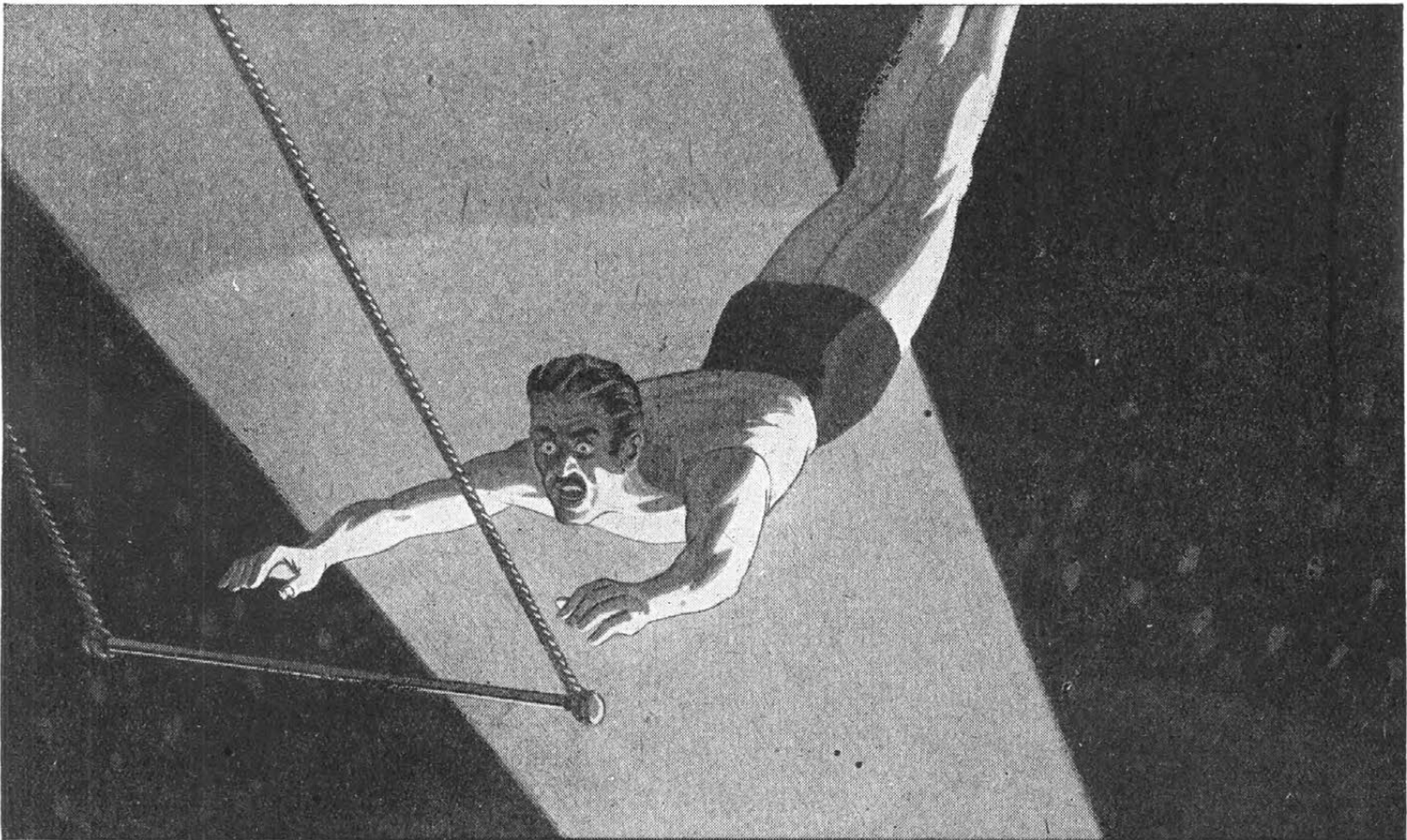
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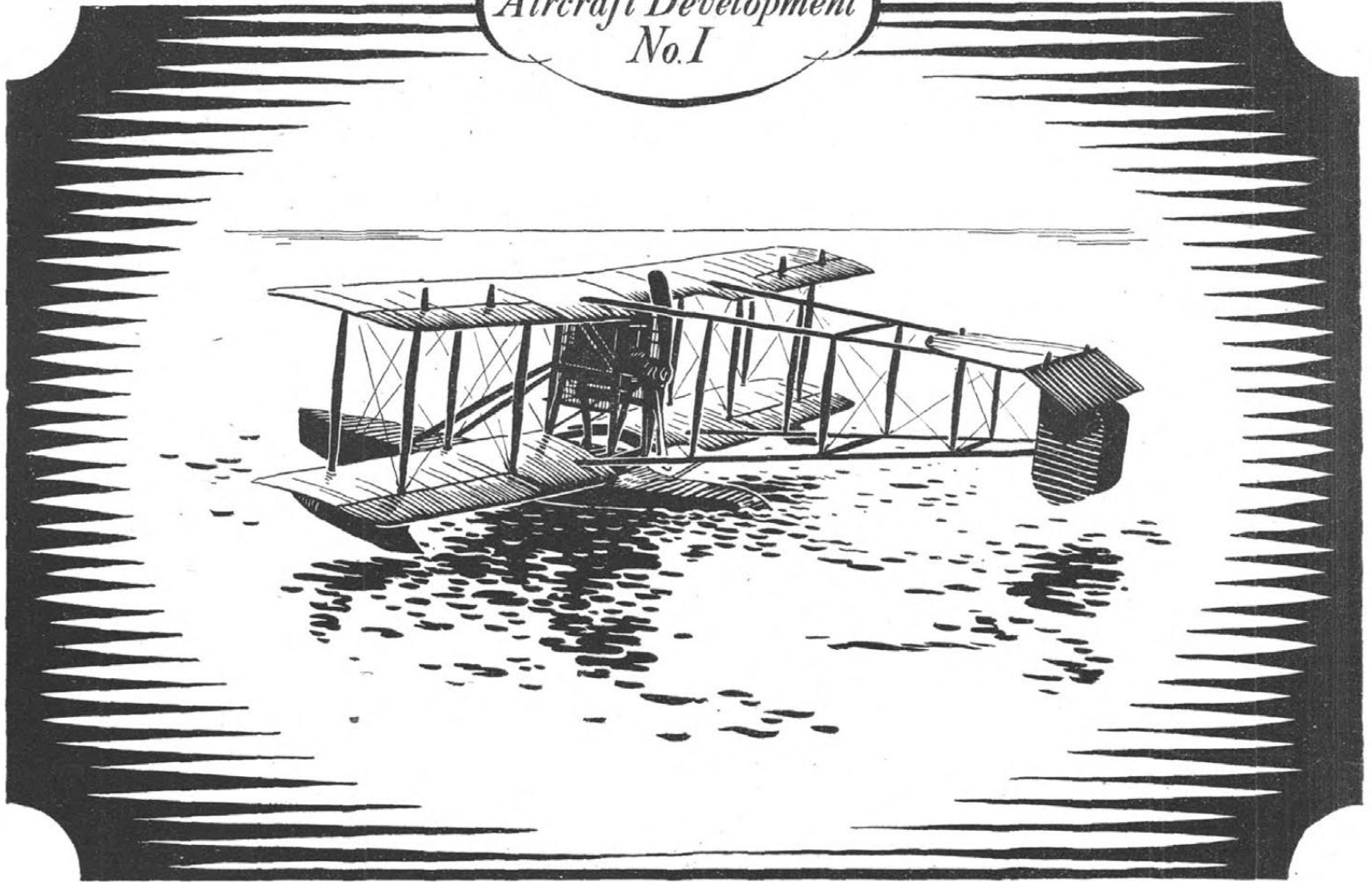
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Saunders-Roe Limited is one of the oldest organisations connected with the British aircraft industry, and was founded 112 years ago under the title of Saunders Patent Launch Building Syndicate. Early on, the company specialized in light marine craft and produced

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BOOK REVIEWS

Copies of any of the books published in Great Britain can be obtained from "The Aeroplane," Book Dept., Bowling Green Lane, London. E.C.1. Postage on books up to 10s. 6d. is 6d.; orders for £5 or more are post free.

More Weatherlore

INTRODUCTION TO METEOROLOGY. By Sverre Pettersen, Ph.D. 6½ ins. by 9½ ins. 236 pp. with bibliography, tables and index. Illustrated. Published Dec. 18, 1941, by the McGraw-Hill Book Co., Inc. Price £1 15s.

WHEN an eminent officer of the Norwegian meteorological department, the methods of which have revolutionised weather prediction, has had some years of experience of applying them under American conditions and produces an introductory handbook, we expect a high standard: and in the present case our expectations are realised.

There is only one criticism of a general nature to be made. We learn from the preface that the book aims at "an elementary presentation of general principles." Now a not inconsiderable number of meteorologists hold that an important part in weather control is played by the upper air, and adherents of the Frankfurt school hold that paths of cyclones are controlled by the pressure distribution at a height of some five kilometres; and we know that the variations of temperature, pressure and ozone at great altitudes are closely related. Accordingly, some disappointment may be felt over the slight attention paid by Pettersen to upper air conditions. But it must be admitted that as yet in most countries data from four km. upwards play little part in forecasting from synoptic charts, and that, in general, ignoring them has but slight effect.

After the introductory account of the atmosphere, we have an excellent chapter on observations and instruments: there is, however, in Table IV some obscurity, as it appears, for example, that at night when the object is two km. distant the distance at which a light of 100 c.p. becomes indistinguishable is two to three km.

Then follow chapters on evaporation, condensation and precipitation, on adiabatic temperature changes, and on stability and instability. We then have chapters on temperature variations and on wind systems in which the treatment of fogs, ice accretion and air currents will be of special interest to air navigators. After these come three excellent chapters on the chief conditions that control weather—air masses, frosts and cyclones—and then three chapters on forecasting, which form the outstanding feature of the book. In place of the old "rule-of-thumb" method, applicable in special circumstances, we have a systematic development of the processes of drawing and analysing weather charts and of forecasting from them: the whole being brought to a focus by applications to actual weather maps: the eighteen rules for guidance in prediction and the eight steps of procedure are the outcome of a firm grasp of physical principles, combined with much experience of their application and abundant material from which to find illustrative examples.

The author concludes with an admirable description of the climates of the earth and an account of the history of meteorology; here Gold and Humphreys are credited with an explanation of the tropopause, but no mention is made of the work of Dines and others on conditions in the stratosphere.

As a clearly written, physically sound and eminently practical introduction to meteorology the book is strongly to be recommended.—G. WALKER.

The Starlit Way

THE OBSERVER'S BOOK ON ASTRO-NAVIGATION. Part III. By Francis Chichester. 4½ ins. by 6½ ins. 84 pp. Illustrated. Published 1941 by Allen and Unwin. Price 2s. 6d.

THERE is much valuable material in these eighty-four small pages of large print—notes on all navigation stars, instructions on the use of the planisphere, explanations of star curves and data on possible errors in astro-fixes. The author has already covered much ground in Parts I and II of this book. The Publisher's Note at the beginning of Part III announcing the proposed contents of future volumes makes the reader impatient for the completion of this admirable work.

The Chapter on Air Navigation Stars might, perhaps, have been easier to follow if the reader had been directed to choose a conspicuous constellation (such as "good old Orion," to quote the author, "which is usually the first constellation learnt after leaving the cradle") and trace out all other constellations from that starting point. However, the Chapter forms a good reference note-book if not an entirely satisfactory instructional course. It would also help a pupil in learning the stars if he were assisted by a phonetic glossary.

Valuable instructional matter is contained in the Chapters on Weems' star curves and it makes interesting, but tantalising, reading to those not in the Service when the author closes his "History of Star Curves" with "this brings the star curve history up to the 1939 war." (Incidentally, is not Mr. Chichester a little unfair on D'Ocagne, Favé, Veater, Rust, etc., when he starts that history with the Baker Navigating Machine?)

It is good to find, in an essentially practical book of this sort, instructions for transferring position curves not only for the aeroplane's flight in the interval between observations, but also for the lapse of sidereal time between observations. Such careful plotting used to be considered an unnecessary refinement—vide Weems himself, who said that the consequent gain in accuracy was less than the uncertainty of the observations. Mr. Chichester's book proved the advance in astro-navigation in recent years and that so-called "refinements" can be applied in practice with a substantial gain in accuracy. Even the "uncertainties of the observations" can be reduced to a fair amount of certainty, as the author shows in his Chapters on possible errors.

Instruction from Mr. Chichester on precomputed altitude curves for the sun would have been valuable. Star curves are useless at daytime until the observation of stars by day has been sufficiently developed and, therefore, attention should surely be given to individual plotting of sun altitude curves as and when required for any particular flight, especially having regard to the fact that such precomputation was successfully adopted (by the Lindberghs in 1930, by Post and Gatty in 1931, and by Ellsworth and Hollick-Kenyon in 1935) long before many other more difficult "refinements" of astro-navigation were put into practical use.—NAVIGATOR.

A Self-Tutor

TEACH YOURSELF MECHANICS. By P. Abbott. 4½ ins. by 7 ins. 271 pp. with tables. Illustrated. Published 1941 by the English Universities Press. Price 2s. 6d.

YEARS AGO I happened across a little "Self Educator in French," and since then I have always been meaning to ask Professor Adams if he could have other subjects treated in the same interesting way. Recently the E.U.P. has developed the series, and here is their volume on Mechanics.

The author discusses lever, C.G., forces, friction, velocity, acceleration, work and power; machines, projectiles, specific gravity, hydraulics and gases; all in short stages with practical worked examples and plenty of test exercises. Indeed, the book would form an admirable one-year course, and all without extraneous help. With the aid of some tubing and string and a few cotton reels nailed to the mantelpiece the student can do much of the laboratory work which is so important a part of an Engineering or Physics course.

Mechanics is not strictly an A.T.C. subject, but the book deserves to be in Squadron libraries, for after all you cannot talk "popular" aeroplanes indefinitely, and a Cadet is better for knowing how his hydraulic undercarriage retracts or why the wing wants to shear when he takes off.

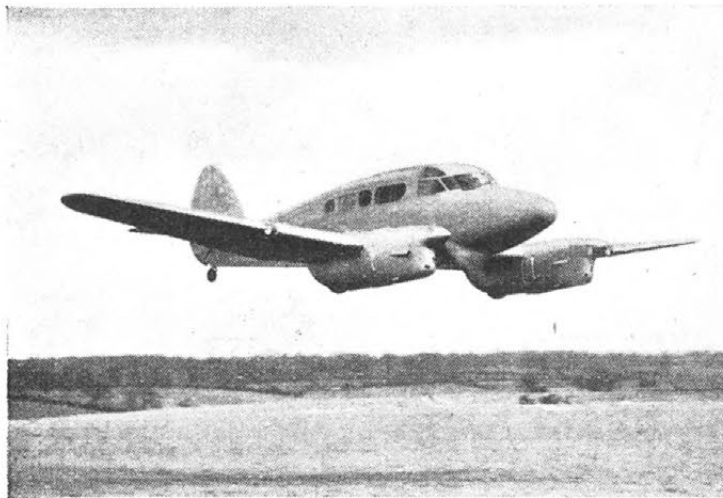
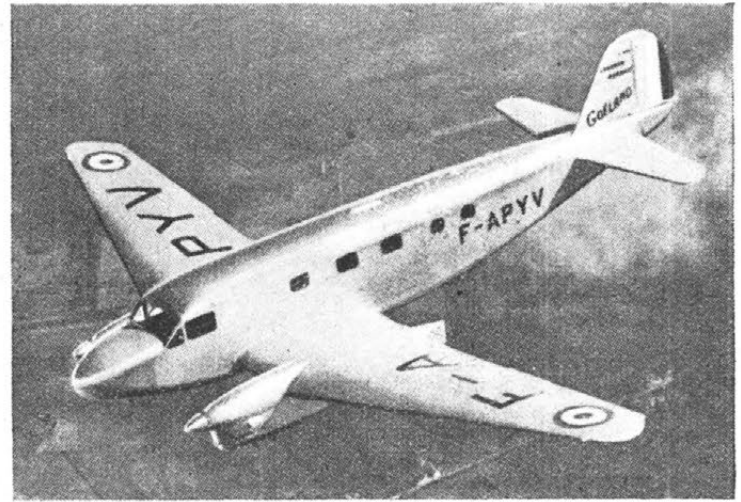
The author concludes a helpful study with useful tables of logs and trigonometry and the necessary key. A little knowledge of arithmetic and trig. is needed.—J.H.C.

Unravelling the Heavens

SIGNPOSTS TO THE STARS. Compiled by F. E. Butler. 32 pp. 7½ ins. by 4½ ins. Text illustrated by charts. Published by Geo Philip and Son Ltd. Dec., 1941, at 1s. net.

STARS now shine for a new fraternity. For centuries they have winked and twinkled only for poets, astronomers, mariners, and those omniscient folk who shape our daily destinies in the penny newspapers and plot our week's misfortunes in the Sunday tupp-nies. To-day, the stars belong equally to the air navigator, too.

This little book untangles the heavens, and names the more important stars and constellations that offer themselves as targets for the air navigator's sextant. The author charts them, explains where they are to be found at different times of the year, and describes how they are most easily recognised. His work will serve as a stepping stone to greater knowledge for those who must later make the stars in their courses help to set more mundane courses.—S.V.



DETAILED ANALYSIS.—The points by which the subjects of the previous recognition problems can be identified are illustrated in the photographs above and the drawings on the opposite page of the Percival Petrel (left) and the Caudron G6land (right).

THE PERCIVAL Q-6, THE PETREL four-six-seat communications monoplane (two 205 h.p. D.H. Gipsy Six Series II motors) and the Caudron C-440, the G6land six-eight-seat communications monoplane (two 220 h.p. Renault Bengali-Six motors) were the subjects of the previous recognition tests.

Two versions of the Petrel are flying in this country—with fixed and retractable undercarriages. The trousered type is the more common.

In this banking view the chief points of recognition are the low wing—with underslung motor nacelles at the ends of the rectangular centre-section, deep "hump-backed" fuselage with prominent pointed nose

Aircraft Recognition



215 THE PREVIOUS PROBLEMS.—(Left) a Petrel 216 and (right) a G6land.

and small curved single fin and rudder. The triangular-shaped tailplane is not visible at this angle.

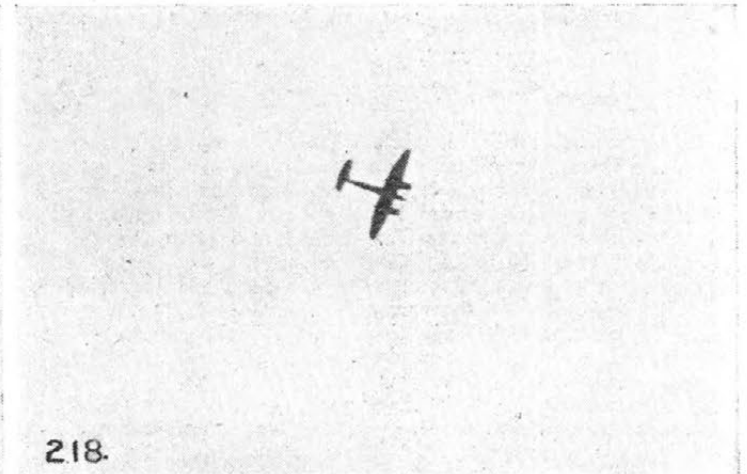
The G6land, first produced in 1934, is used in large numbers in Occupied and Vichy France, and at least one is flying on taxi work in this country.

Similar in general outline to the Petrel, the discernible recognition features are the low wing which has sharp sweep-back outboard of the large underslung motor nacelles—which extend beyond the trailing

edge—a box-like fuselage with a blunt rounded nose and a big single fin and rudder. The triangular-shaped tailplane set forward of the rudder is just visible.



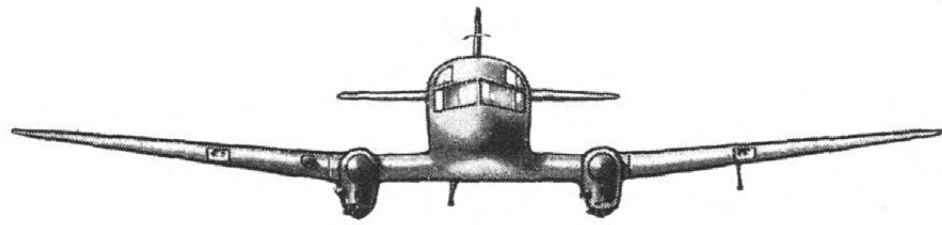
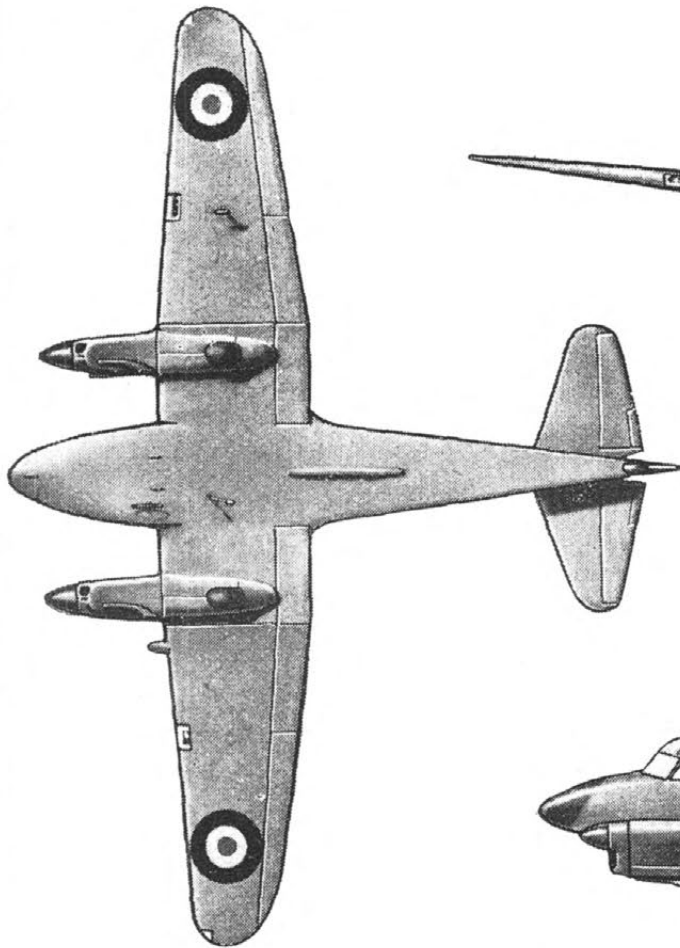
217



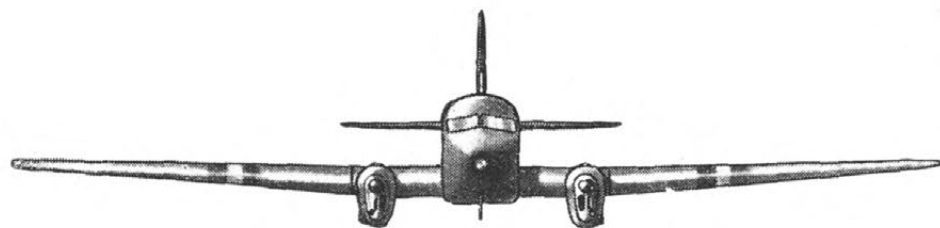
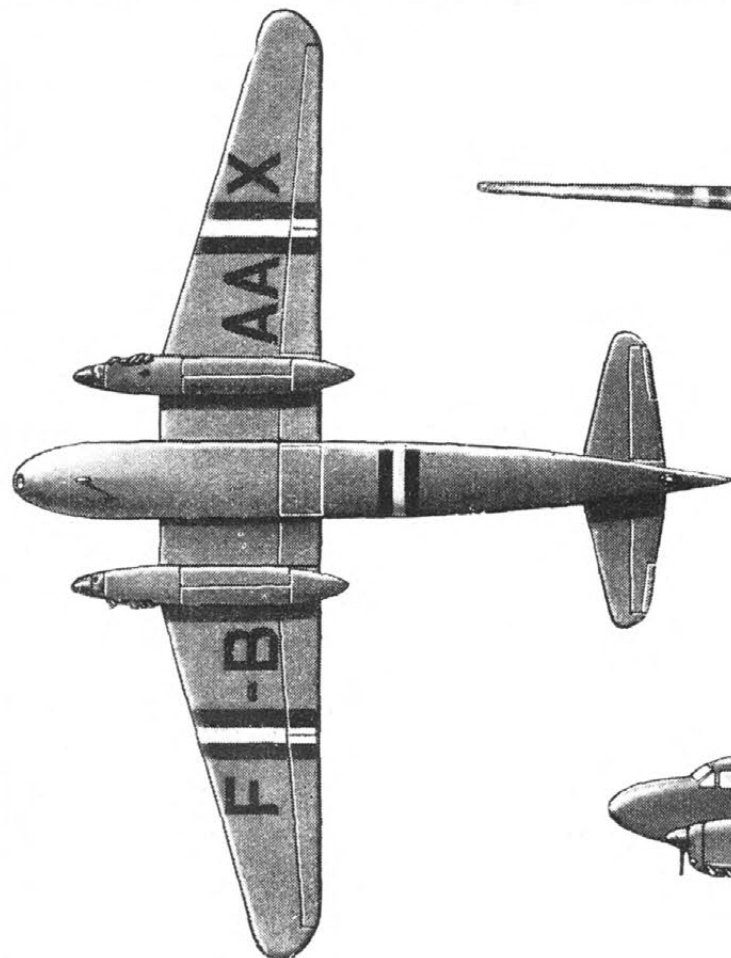
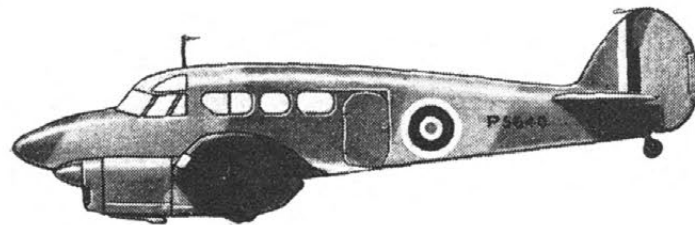
218.

FOR IDENTIFICATION CIX.—Two more photographs to give practice in the recognition of Allied and enemy aeroplanes. What they are and notes on their characteristics will be published with two more photographs on April 24. When the page is viewed at a distance of 1 ft. the aeroplane on the left is represented as flying at about 700 ft. at a distance of 240 yds.; the aeroplane on the right is shown as it would appear at about 1,220 ft. directly overhead.

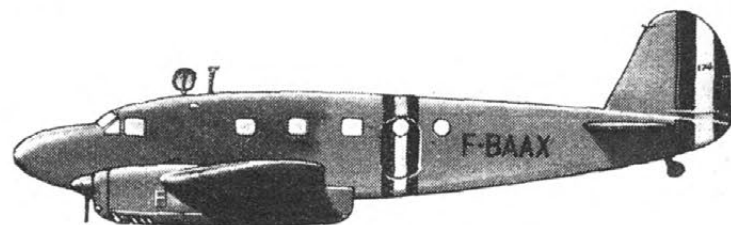
AIRCRAFT RECOGNITION



THE PERCIVAL Q-6
THE PETREL



THE CAUDRON C-440
THE GÖELAND



AIR TRANSPORT



THE PROTOTYPE.—The Potez 160, the flying scale model of the new Potez 161 trans-Atlantic flying-boat which has recently been completed in France. According to reports from Vichy the Potez 161 is powered with six 1,000 h.p. Hispano-Suiza motors, has a top speed of 225 m.p.h., a cruising speed of 188 m.p.h. and a range of about 5,200 miles. It was built at Sartrouville, near Paris, and is to be flown to Biscarosse for its trial flights. The model, the 160, was powered with six 40 h.p. Train motors and was shown at the Paris Aero Show in 1938.

Empire Flying-boat Losses

SEVEN "C" class Short Empire flying-boats of the British Overseas Airways Corporation have been lost since the War spread to the Far East. Details of the circumstances of the loss of each boat are not known in this country as yet, but several were caused by enemy action.

The *Cassiopeia* crashed when taking off from Sabang, Netherlands East Indies, at the end of December, as has already been announced, with the loss of four passengers.

The *Corio* was shot down on Feb. 3 about 35 miles from Kupang with a loss of nine passengers and a crew of three.

The *Coogee* was lost at Townsville at the end of February.

The *Circe* was lost on Feb. 28 with a crew of four and 16 passengers while flying from Java to Broome, Australia. The passengers, all evacuees, included the Consular-General of the Netherlands at Singapore and his wife and daughter, and seven other members of the Consulate. The *Circe* was last heard from when it sent out a wireless message stating it was about 150 miles out from Java.

The *Corinna* and the *Centaurus* were both damaged at Broome at different times during air raids; and the *Corinthian* is believed to have crashed at Darwin.

The *Coogee* and the *Centaurus* were Qantas Empire Airways boats, though the *Centaurus* was taken over by the Australian Government early in the War. Two other Qantas boats, the *Coogee* and the *Carpentaria*, are believed to have been in India when the Empire route to Australia was cut. British Airways is understood to have two, or possibly three, flying-boats in Australia at present which are operating for the Australian Government.

All seven boats which were lost or damaged were of the Short S.23 type, the first Empire flying-boat. The fleet of S.23s of the Corporation must be sadly depleted compared with the number of this type of flying-boat in service at the beginning of the War.

The Empire routes have had to be suspended in the Far East and the former Australian service now stops in India.

Civil Flying in France

GERMANY is reported to be trying to gain control of financial affairs in France which are connected with civil flying. The "Aviation Bank for Civil Transport" was formed in Paris last October to undertake all forms of banking business, but mainly that connected with flying. The Directors are mostly German aeronautical financiers.

A month before the new Bank was formed a decree was published by the Vichy Government which gave three months' notice of the cancellation of all existing contracts granting concessions and subsidies to air operating companies. The decree also stated that in future all regular air transport services would be operated under state authority only.

The Congo to the Cape

SABENA (Belgian Air Lines) is operating a fortnightly service between the Belgian Congo and Cape Town. The first service on the new route left Elizabethville on January 28, 1942, and arrived at Wingfield aerodrome, Cape Town, 24 hrs. later. According to reports from South Africa a Lockheed transport was used, probably a Lodestar, as Sabena is known to have bought at least one Lockheed Lodestar last year.

The new route is from Leopoldville to Cape Town by way of Stanleyville, Elizabethville, Lusaka, Bulawayo and Johannesburg. An overnight stop is made at Johannesburg and the flying time to that point from Elizabethville is about seven hours. The flight from Johannesburg to Cape Town is made in about four hours. Fourteen passengers and a crew of three were carried as far as Johannesburg on the opening service and five passengers were brought right through to Cape Town.

The distance between Elizabethville and Cape Town is about 1,200 miles.

Sabena has been co-operating with the British Overseas Airways Corporation in East and West Africa since the occupation of Belgium in 1940, and last Summer received permission from the Governments of Northern and Southern Rhodesia to operate a service between the Belgian Congo and Johannesburg for the duration of the War. Apparently permission has been given for the route to be extended through to Cape Town.

More U.S.-Canadian Links

A NEW ROUTE from Bangor, Maine, to St. John's, Newfoundland, has been proposed by Northeast Airlines. The route would operate in a circle and would serve Stephenville, Newfoundland Airport, St. John's and Argentia, where U.S. military bases are being established.

The United States has been given 99-year leases in Newfoundland, and in the application for the new service Northeast Airlines states that the company believes that as these bases are leased to the U.S.A. for this term "they are essentially a territorial part of the U.S. and that in accordance with sound public policy, they should be linked to the U.S. by an air line which is a citizen thereof and which operates aircraft of U.S. registry."

Mexican Statistics

STATISTICS for civil transport flying in Mexico for the year 1939 show that 85,481 passengers were carried, 597,718 lb. of mail, 8,255,971 lb. of freight, and 2,285,877 lb. of baggage. Only one accident is shown in 352,005 miles flown, and there is not one fatality in 918,911 miles.

At the end of the year there were 260 privately owned aeroplanes and 230 commercial aeroplanes. The number of pilots was approximately 375 private pilots and 500 transport.

New Guinea Specials

FURTHER details of some of the flights made by pilots of the air transport companies evacuating people and carrying stores for the military areas in New Guinea, Java, Timor and other places in Australasia were reported from Canberra on Mar. 25. A few details were given in February, including the story of the resurrection and final passing of the old Avo Ten, the "Faith in Australia."

In eight days two aeroplanes evacuated 769 people, mostly women and children, from New Guinea to the Australian mainland. One machine carried an average of 30 passengers on each trip and the other 16, though on one flight one aeroplane is said to have carried 53 people. One company brought nine loads of evacuees from Wau to Port Moresby and eight of the journeys were made by a pilot who retired two years ago.

The flights were made during and after air raids on New Guinea and on one occasion an aeroplane which left Port Moresby during a Japanese attack on the aerodrome was chased by nine of the raiders, but escaped. The pilot who made this flight was killed later when he crashed returning for another load.

The air line companies operating in New Guinea and which probably made most of these flights are W. R. Carpenter Airlines, Guinea Airways Ltd., and Mandated Airlines Ltd. Their equipment includes Lockheed Electras, Junkers G. 34s, Ford Trimotors, D.H. Dragons and D.H. Fox Moths.

The position of Wau and Port Moresby in relation to the Australian mainland, together with the air routes operated in New Guinea in 1938, are shown on the map below.

Indian National Airways

THE EIGHTH ANNUAL REPORT of Indian National Airways for the year ended June 30, 1941, shows a profit of Rs.47,732, subject to Income Tax. No dividend is to be paid to shareholders.

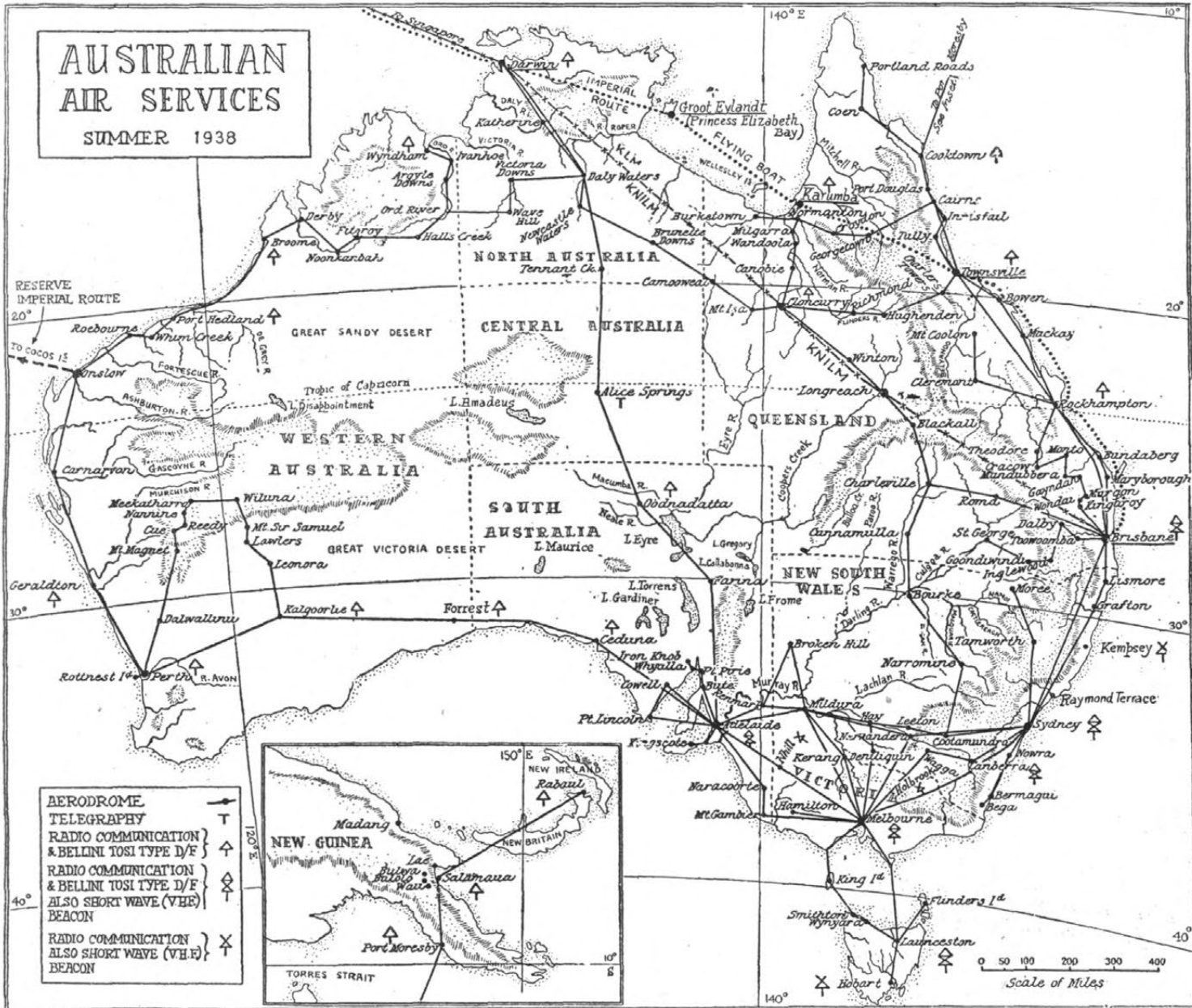
The report states that though there has been an increase in charter and passenger revenues, operating costs have also increased. Experience has shown that the Beechcraft E-17B aeroplanes, though ideal for economic air mail operations, are not entirely suitable, because of their size, for the development of passenger traffic, and the Board is considering the question of obtaining suitable two-motor aeroplanes.

Negotiations continued during most of the year with the Government of India for two-motor Douglas aeroplanes, to be operated for the Government. The Company arranged the organisation necessary for operating this equipment and trained the crews needed, but because of circumstances beyond the control of, and unconnected with, the Company, the Douglas equipment could not be made available. The Government was meeting the bulk of the expense incurred by the Company, but there had been some loss.

The Karachi-Lahore-Delhi air mail and passenger service and the Delhi-Calcutta passenger service had continued throughout the year under review and were operating twice-weekly.

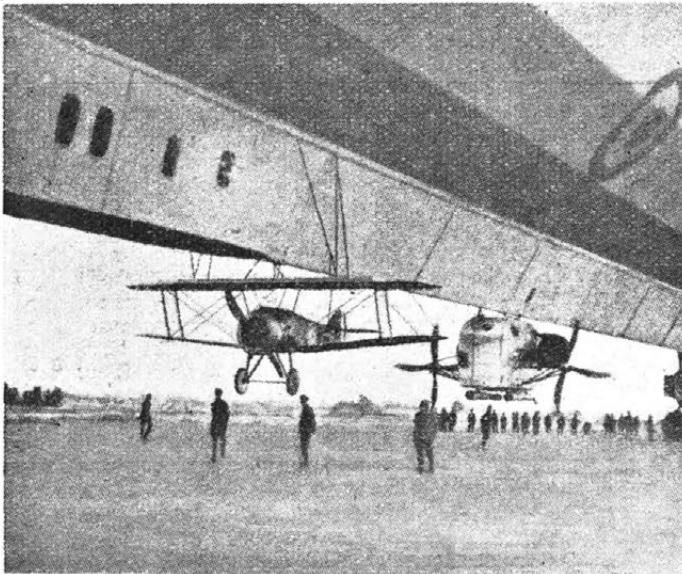
The Alaskan Airway

RADIO BEAMS are now in operation along the air route from Edmonton to Alaska and full radio facilities are available for commercial and military aeroplanes. Work on the chain of aerodromes to Alaska was rushed because of the War in the Pacific and military aeroplanes from the United States are flying to Alaska by way of Canada.



BELEAGUERED.—This map of Australia was reproduced in THE AEROPLANE in September, 1938. It shows only the civil air communications and amenities as they were in 1938. They have been increased during the past four years, but because of Australia's beleaguered position in the Pacific to-day the map should be of interest to students of the War.

SIDELIGHTS FROM THE PAST -XIX



THE AIRSHIP AS AN AIRCRAFT CARRIER.

EXPERIMENTS with the hooking and unhooking of aeroplanes from airships were made on several occasions in Great Britain with at least three different types of aeroplane. The first successful experiments in dropping aeroplanes from an airship were made at Pulham late in the War 1914-1918, when a Sopwith Camel was dropped from the R.23 without a pilot and with the controls locked. Later another Camel was released safely with a pilot on board.

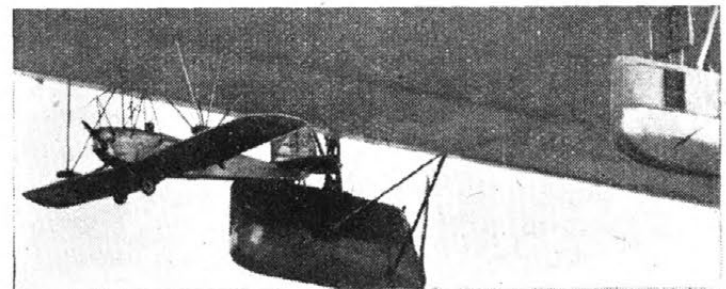
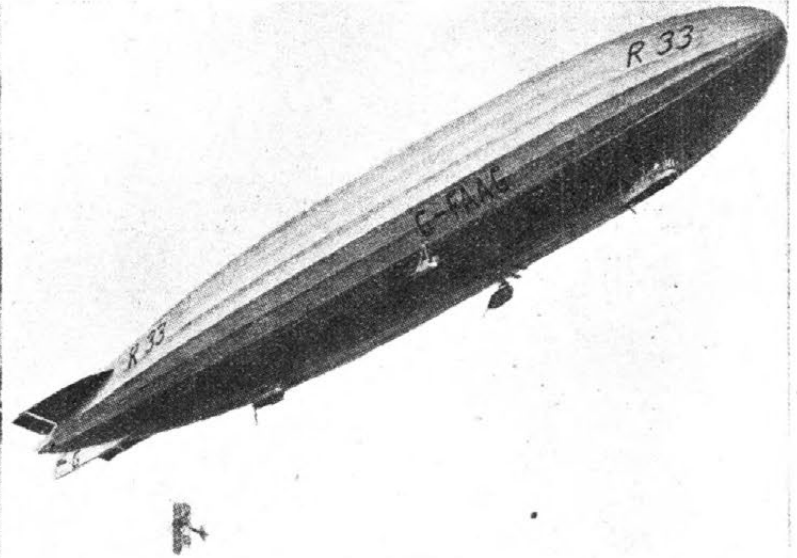
Early in the War 1914-1918 Commander Osborne and Lieut. de Courcy-Ireland were killed in an attempt to drop a B.E.2c from the envelope of a non-rigid airship.

Apparently the experiments were abandoned for several years in Great Britain, although some were made in the United States in 1922 or 1923 with a Sperry Messenger biplane.

The second successful experiments in this country were made on Dec. 4, 1925, from the R.33 by the late Squadron Leader R. A. de Haga Haig in a D.H.53, the little single-seat de Havilland "Humming-Bird" low-wing monoplane. After disengaging he flew along underneath the airship and re-engaged the trapeze, which was then wound up to the airship, and Squadron Leader Haig rejoined the crew of the R.33. The hooking apparatus was described as very clumsy and not to be compared with that used by the Americans.

The following year more experiments were made, still with the airship R.33, but this time with two Gloster Grebes. The R.33 was being used for a series of experiments at Pulham Aerodrome, Norfolk. On Oct. 21, 1926, two standard Service Grebe single-seat fighters were slung under the keel of the R.33 and at a height of about 2,000 ft. were released. The late Major G. H. Scott (who was killed in the R.101) was in command of the R.33, and two officers of the Experimental Section, R.A.F., Farnborough, were the pilots of the aeroplanes.

One Grebe piloted by Flying Officer C. Mackenzie-



Richards was released over Pulham and fell about 100 ft. before coming under full control. The second Grebe, flown by Flying Officer R. L. Ragg, was released over Cardington. The Grebes were attached to the keel of the R.33 by means of a sling which pulled the wings and fuselage tight against supporting struts to the wing and fuselage. To release the aeroplane the sling was let go by a quick-release gear operated by the pilot or by someone inside the airship.

The photographs above show, left, the Sopwith Camel attached to the R.23; right, a Gloster Grebe just after it had been released from the R.33; and bottom right, the D.H.53 attached to the R.33.

The Sopwith Camel was one of the outstanding single-seat fighters of the War 1914-1918, especially in 1917. With a 130 h.p. Clerget motor it had a top speed of 124 m.p.h. at sea level.

The de Havilland D.H.53 was first produced in 1923 and was the first light aeroplane to be adopted as a training machine by the R.A.F. It had a top speed of 73 m.p.h.

The Gloster Grebe was first built in 1924 and was one of the standard single-seat fighters of the R.A.F. It was powered with a 350 h.p. Armstrong Siddeley Jaguar motor and had a top speed of 152 m.p.h.

SPORTING MEMORIES—XC

THE HENDY HECK was the first light aeroplane built for a private owner to be fitted with Handley Page slots and flaps. Originally known as the Hendy 3308, the Heck was designed by Mr. Basil Henderson, designer of the Hendy Hobo and the Hendy 302. The Heck was built to the order

of Mr. Whitney Straight by the Westland Aircraft Works. News of the Heck was first given in the Summer of 1933, when it was expected to be powered with a 165 h.p. Napier Javelin motor and to have a top speed of 190 m.p.h. When it appeared in 1934 it had a 200 h.p. D.H. Gipsy Six motor and a speed range of 40 to 170 m.p.h.

The Heck was entered for the King's Cup Race in 1934, but on its way to Martlesham for official tests shortly before the race damaged the tail wheel when it was forced down in a field near Martlesham because of low cloud. In 1935 it was entered again for the Race but did not win a place. In November that year Flying Officer David Llewellyn and Mrs. Jill Wyndham set up a new record of 6 days 8 hrs. 27 mins. for a flight from Cape Town to Hanworth in a Heck.

Designs and Patents of the Hendy Aircraft Company were taken over in 1935 by Parnall Aircraft Ltd., who brought out a new model of the Heck.



The first Hendy Heck (200 h.p. D.H. Gipsy Six)—1934.

FORTHCOMING EVENTS

- April 10.—**Streatham**.—S.C. No. 13 (S. London).—Aircraft Bee.—Photographic Recognition.—Notes by Comp. Off.—At 2/4, Leigham Court Road.—18.45 hrs.
- April 10.—**Hoddesdon**.—S.C. No. 128 (Hoddesdon).—Preliminary Class Test.—At the Cook House.—19.30 hrs.
- April 10.—**Barnet**.—S.C. No. 168 (Barnet).—Meeting at Anchor Hall, Plantagenet Road.—19.00 hrs.
- April 11.—**Richmond**.—S.C. No. 184 (Richmond).—Meeting at A.R.P. Headquarters, Lion House, Red Lion Street.—19.50 hrs.
- April 12.—**Shirley**.—R.O.C.C. Branch 2 (Shirley).—Talk by H. James Lowings.—Recognition Comp. between team from an A.A. Battery and a team from the Club.—Third Class Test.—10.00 hrs.
- April 12.—**Cambridge**.—R.O.C.C. Branch 12 (Cambridge).—Talks on the new Third Class Test.—Surprise Competition.—Inter-post Competition.—In the C.U.A.S. Hdqrs., Fen Causeway.—14.30 hrs.
- April 12.—**Canterbury**.—R.O.C.C. Branch 18 (Canterbury).—Annual General Meeting.—At the Co-operative Hall.—14.30 hrs.
- April 12.—**Bishop's Stortford**.—R.O.C.C. Branch 21 (Bishop's Stortford).—Annual General Meeting.—Third Class and Intermediate Tests.—At Hockerill Training College.—14.45 hrs.
- April 12.—**Sudbury**.—R.O.C.C. Branch 44 (Sudbury).—Annual General Meeting.—At Reddells Canteen, Constitution Hill.—11.00 hrs.
- April 12.—**Lancaster**.—R.O.C.C. Branch 94 (Lancaster).—Annual General Meeting.—Tests (time permitting).—In the new Gymnasium, Bowerham Barracks.—14.00 hrs.
- April 12.—**Leven**.—R.O.C.C. Branch 140 (Leven).—Lecture.—Third Class Test.—In the Earl Haig Club.—16.30 hrs.
- April 12.—**London**.—Institute of Estimators Planning and Time Study Engineers.—Paper by C. Toon on "How to Start a Planning Dept."—At the Waldorf Hotel.—14.30 hrs.—Visitors cordially invited by Secretary, E. W. Barrell, 78, Abbotsbury Gardens, Eastcote, Middlesex.
- April 12.—**Malton**.—R.O.C.C. Branch 141 (Malton and District).—Annual General Meeting.—New Third Class Test.—At the Pioneer Club.—14.15 hrs.
- April 12.—**Watford**.—S.C. No. 118 (Watford).—Lecture on Aircraft Identification by B. O. Phillips.—Second and Third Class Tests.—At Watford Public Library.—10.30 hrs.
- April 13.—**Lewes**.—R.O.C.C. Branch 66 (Lewes).—"How I Recognise It."—Introduction to revised Third Class Test.—At All Saints Parish Room, Station Street.—18.30 hrs.
- April 13.—**Weybridge**.—S.C. No. 96 (Walton and Weybridge).—First Class Test.—Special Handicap Prize for Club Members.—At Weybridge Technical Institute.—19.45 hrs.
- April 14.—**Newport**.—S.C. No. 40 (Newport).—Meeting at Newport Corn Exchange.—19.30 hrs.
- April 15.—**Kentish Town**.—S.C. No. 16 (St. Pancras).—Talk by H. Corbet Cooksley.—Novelty Competition.—At North Western Polytechnic, Prince of Wales Road.—18.00 hrs.
- April 15.—**Hastings**.—S.C. No. 47 (Hastings).—Film Show.—At Central Hall.—19.30 hrs.
- April 15.—**Stoke-on-Trent**.—S.C. No. 60 (Stoke-on-Trent).—Second and Third Class Tests.—At A.R.P. Headquarters.
- April 15.—**Belfast**.—S.C. No. 151 (Belfast Roof Spotters, No. 1).—Meeting in A.R.P. Post, 45, Howard Street.—20.00 hrs.
- April 15.—**Hackney**.—S.C. No. 181 (Group 3 S.C.).—Annual General Meeting.—At A.R.P. Headquarters, 219, Mare Street.—19.00 hrs.
- April 15.—**Newcastle**.—S.C. No. 272 (Tyneside).—Meeting at the Crows Nest Hotel, Haymarket.—19.00 hrs.



SKI-ING PARATROOPS.—Parachute troops of the United States "ski" battalion land in the snow at Utah during training.

the Mathematical Master at Stationers' Company's School and instructor in mathematics to Hackney and Hendon A.T.C. His book has the merit of running elementary and advanced problems together, so that both the beginner and the partly-qualified may each start at the first page.

Contact Wanted

WE HAVE been asked to insert a note that Mr. J. S. Templeton of 88, Hounslow Road, Feltham, is anxious to get in touch with Mr. W. Coppen, late of Hamsey Green, Waringham

Company Notices

SATISFACTION

Phillips and Powis Aircraft Ltd.—Satisfaction in full on March 3, 1942, of debentures authorised July 23, 1937, and registered July 29, 1937, securing £30,000.

New Patents

APPLICATIONS ACCEPTED

- 543,845.—Turner Manufacturing Co. Ltd., P. B. Dumbell and H. C. Milner.—Tail-wheel mountings of aircraft.—Sept. 13, 1940.
 - 543,792.—H. Terry and Sons Ltd., and C. Terry.—Parachute frames.—Dec. 2, 1940.
 - 543,851.—H. L. Milner and N. S. McNab.—Airscrew apparatus for the propulsion of aircraft.—Feb. 7, 1940.
- Opposition period expires May 25, 1942.
Printed specifications available April 9, 1942.

SAVE YOUR PAPER

More Maths. for the A.T.C.

IF ANY MEMBER of the Air Training Corps cannot get his sums right, it is not from lack of proffered guidance. There has lately been a veritable spate of books explaining mathematics, many of them written with an aeronautical bias with the avowed purpose of appealing to the future airman. Now, Pitmans have added a book on maths. to their famous sixpenny "Simply Explained" series, under the title "Air Training Mathematics." The author is I. R. Vesselo, B.Sc., who is

PERSONAL NOTICES

BIRTHS

- Bidwell**.—On March 27, at Bromhead Nursing Home, to Daisy (née Mann), wife of Flt. Lt. D. M. Bidwell—a daughter.
- Critchley**.—On March 29, at North Oxford, to Rita, wife of Flt. Off. R. O. Critchley, R.A.F.V.R.—a daughter.
- Dean**.—On March 18, in Queenstown, Cape Province, to Phyllis (née Ashman), wife of Flt. Off. F. W. Dean—a daughter.
- Elphinstone**.—On March 24, to Joyce, wife of Flt. Off. Michael Elphinstone, R.A.F.V.R.—a son.
- Glenny**.—On March 24, in Preston, to Enid, wife of Air Cmdr. Glenny—a daughter.
- Ironsides**.—On March 26, at Wincanton, to Marjorie Hope (née Chancellor), wife of Sqdn. Ldr. Harold Ironsides, R.A.F.—a son.
- Kane**.—On March 22, at Oxford, to Oonagh (née Palmer), wife of Sqdn. Ldr. M. M. Kane, M.B.E., R.A.F., prisoner of war—a daughter.
- Millett**.—On March 24, at Fulmer, to Peggie (née Gowings), wife of Flt. Off. Leslie Millett, R.A.F.V.R.—a son.
- Moore**.—On March 25, at Hatch End, to Elizabeth (née Baker), wife of Denis Moore, R.A.F.V.R.—a son.
- Sewell**.—On March 24, at Newcastle-on-Tyne, to Joan (née Thomas-Davies), wife of Flt. Off. Walter Sewell, R.A.F.V.R.—a daughter.
- Shea-Simonds**.—On March 24, at Warminster, to Delia (née Cross), wife of Lt. (A) G. P. La T. Shea-Simonds, R.N.V.R.—a son.
- Vickers**.—On March 27, at Kingsbridge, Devon, to Kathleen Elizabeth (née Grant), wife of Wng. Cmdr. T. R. Vickers, R.A.F.—a daughter.
- Wheatley-Smith**.—On March 8, at Blackpool, to Anne (née Budge), wife of Flt. Off. Wheatley-Smith, R.A.F.—a daughter.
- White**.—On March 27, at Oxford, to Muriel (née Fowleraker), wife of Flt. Lt. G. E. White, R.A.F.—a daughter.
- Wootton**.—On March 7, at Whitby, to Zelia Mary (née Botham), wife of Plt. Off. Philip Wootton, R.A.F.—a daughter.

FORTHCOMING MARRIAGES

Barlow-Roberts.—The engagement is announced between Flt. Lt. T. P. E. Barlow,

- D.F.C., eldest son of Mr. and Mrs. E. Barlow, of Bramhall, and Margaret Ann Roberts, W.A.A.F., eldest daughter of Mr. and Mrs. C. W. Roberts, of London and Sunningdale.
- Bell-Oatley**.—The engagement is announced between Sqdn. Ldr. J. C. G. Bell, A.A.F., only son of the late N. G. Bell and Mrs. Bell, of Whitehouse, Co. Antrim, and A/S/O Daphne Oatley, W.A.A.F., only daughter of Mr. and Mrs. A. W. Oatley, of Osterley, Middlesex.
- Collin-Lloyd Wilson**.—The engagement is announced between Plt. Off. Robert Collin, son of the late Mr. C. F. Collin and Mrs. Collin, of Deddington, and Orma, elder daughter of the Rev. B. D. and Mrs. Lloyd Wilson, of Grange-over-Sands.
- Dyer-Bartlett**.—The engagement is announced between Flt. Off. J. R. Dyer, R.A.F.V.R., son of Mr. and Mrs. F. J. Dyer, of Deal, and Nancy Bartlett, younger daughter of Mr. and Mrs. J. R. Q. Bartlett, of Orpington, Kent.
- Eyton Williams-Barton**.—The engagement is announced between Plt. Lt. Richard Eyton Williams, R.A.F.V.R., son of Mrs. Williams, of Bedford, and Susan, daughter of Mr. and Mrs. W. L. Barton, of Maiden Bradley.
- Gordon-McMaster**.—The engagement is announced, and the marriage will take place shortly between Plt. Off. C. C. Gordon, R.A.F.V.R., only son of Mr. and Mrs. H. H. Gordon, of Ashted, and Ann Rosemary McMaster, only daughter of Cmdr. Humphrey McMaster, R.N., and of Mrs. O. P. Horlick, of Marlrow.
- Knapman-Brooks**.—The engagement is announced between Plt. Off. D. R. Knapman, R.A.F., younger son of Mr. and Mrs. T. B. Knapman, of Clifton, Bristol, and Margaret Elizabeth, only daughter of Major and Mrs. B. C. Brooks, of Farnborough.
- Peel-Kelly**.—The engagement is announced between Sqdn. Ldr. Richard Peel, R.A.F., second son of Mr. and Mrs. G. E. Peel, of Leicester, and A/S/O Rosemary A. Kelly, W.A.A.F., daughter of Mr. and Mrs. Newell Kelly, of Nassau, Bahamas.

Rooke-Harding.—The engagement is announced, and the marriage will take place on April 11, at Hove, between Sqn. Lt. C. J. Rooke, R.N.V.R., youngest son of Mr. and Mrs. C. B. Rooke, and A/S/O Elizabeth Harding, W.A.A.F., only child of the late Major P. D. Harding, M.C., The Worcestershire Regt., and of Mrs. D. M. Harding.

Tod-Strong.—The engagement is announced between Plt. Off. J. C. Tod, only son of Dr. and Mrs. M. N. Tod, of Oxford, and Miss Gloria Strong, W.R.N.S., elder daughter of Mr. and Mrs. A. H. Strong, of Caerleon, Mon.

MARRIAGES

- Beverley-Campbell**.—On March 23, at Lincoln, Flt. Off. E. L. Beverley, only son of Mr. and Mrs. T. L. Beverley, of Hatch End, to Mary, daughter of the late Mr. D. T. Campbell and of Mrs. Campbell, of Nottingham.
- Bowden-Guild**.—On April 9, at Edinburgh, Flt. Off. the Rev. G. A. G. Bowden, R.A.F.V.R., to Miss J. M. Guild.
- Coulson-Brigg**.—On March 26, at Wimbledon, J. R. Coulson, R.A.F.V.R., only son of Mr. and Mrs. J. M. Coulson, of Lاپford, to Joan Mary, only daughter of Mr. and Mrs. Brigg, of Wimbledon.
- Dale-Green-Gildea**.—On March 25, at Hove, Plt. Off. A. T. Dale-Green, R.A.F.V.R., to Eileen Gildea.
- Garrett-Hole-Baker**.—On March 17, in London, Plt. Off. I. T. Garrett, R.A.F.V.R., of Rio de Janeiro, to Edwina Aileen Hole-Baker, B.Sc., of London.
- McGillycuddy-Roper**.—On March 23, at Great Clacton, Capt. Richard McGillycuddy, The Somerset Light Infantry, only son of the late Major Hugh McGillycuddy, M.C., R.A.M.C., and Mrs. Hucks, of Wells, Somerset, to Nesta Barbara, W.A.A.F., only child of Mr. and Mrs. Frank Roper, of Layer-de-la-Haye, Essex.
- Putnam-Henton**.—On March 21, in Watford, Geoffrey Arnold, younger son of Mr. and Mrs. J. Putnam, of Sanderstead, to Joan, only daughter of Sqdn. Ldr. E. H. Henton, R.A.F.V.R., and Mrs. Henton, of Edinburgh.

CORRESPONDENCE

Civil Flying After the War

MR. C. G. GREY'S article, "Civil Flying After the War," contains in it a suggestion which, if carried out, would not only ensure that there would be "Civil Flying After the War," but it would also provide an extremely valuable addition to our War strength. He suggests that in order to get the best airliners we should build immediately Troop Carriers. Why we have not already organised and developed a special Wing of the R.A.F. on the same lines as the Americans I cannot understand. Before America declared War they had in existence an expanding Air Transport organisation, part of the U.S. Army Air Force which in itself formed part of the Material Division charged with the transportation of troops and supplies. At that time it consisted of a single large Unit, the 50th Transport Wing, which was composed of six Transport Groups, each Group composed of three Squadrons equipped with 13 Transport aircraft and the necessary personnel. It operated scheduled air services between points in the Western Hemisphere in addition to its ordinary supply runs. It is now being greatly expanded and will form the nucleus of a powerful air transport organisation in the U.S.A. after the War.

Shortly after this country entered the War the Civil Air Operating Companies were disbanded, as Mr. Grey describes, and their equipment impressed. Instead, there is no doubt they should have been expanded and aircraft with the greatest possible carrying capacity provided for the transportation of troops and material to all theatres of War. It is not too late to mobilise the latest experience available to develop such an organisation. This fact we have consistently, as a Company, borne in mind, and only a few months ago, located aircraft suitable for this purpose, and offered them, together with our organisation, to the Air Ministry. This offer was refused.

I would like to impress upon Mr. Grey that this Company is far from being "squeezed out," either by Railway or any other influence. Its entire personnel, with the exception of most of its flying crews who have been called up, are fully employed as a Unit on Government work and are ready to resume operations at very short notice as soon as the opportunity arises.

One other minor correction I would like to make, and that is that Lord Grimthorpe was the Founder and moving spirit of the Company and, together with Major J. E. D. Shaw, provided its finance.

This Company produced a Memorandum entitled "The Future of Civil Aviation," which was published a short while ago, and a copy may be obtained by any one interested on application to this address.

FREDERIC R. JACQUES,
Managing Director, North Eastern Airways Ltd.

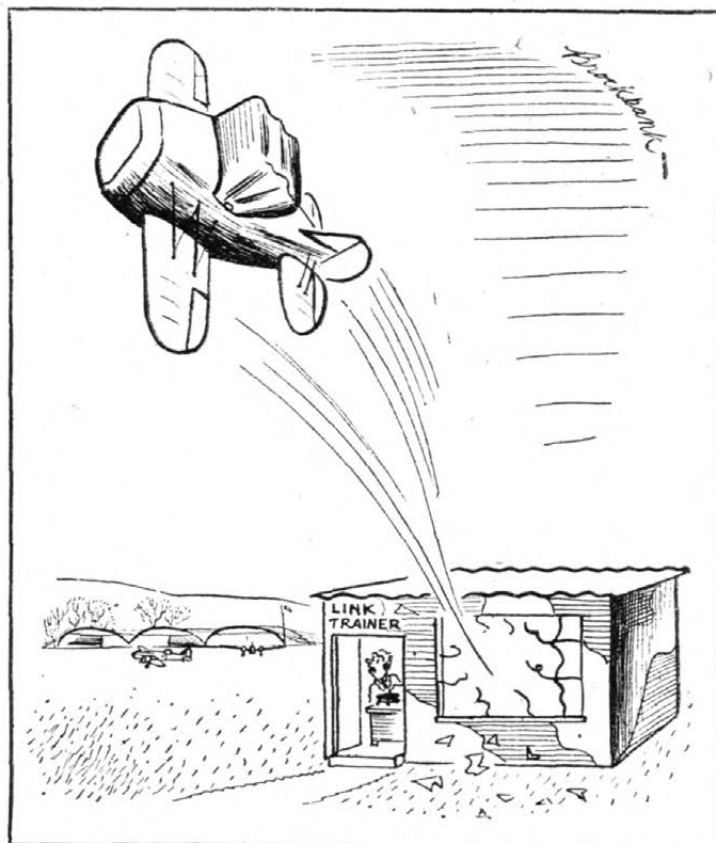
American Women Flyers

THE RECENT ANNOUNCEMENT that the Government proposes to employ American women as pilots in the British ferry service at a salary of £1,000 a year is a glaring example of the waste of British man-power and public money.

As a former Air Gunner of the Royal Air Force, discharged after being wounded in action, I have tried several times to join the Air Transport Auxiliary as a pilot, but on each occasion my application was turned down, because the A.T.A. will only accept pilots holding an "A" licence, and they have no facilities for giving primary training. I know more than a hundred other people in the same position as myself, unfit or ineligible for R.A.F. flying duties, who aspire to serve as pilots in the A.T.A. In spite of repeated requests, the Ministry of Aircraft Production refuses to allow primary training in the A.T.A., in addition to the advanced training already given, on the grounds that there is already a waiting list of pilots, and it would be uneconomical to train men and women with only limited flying experience. Further, that no part-time training can be allowed, even if the trainee is prepared to pay for his or her own tuition.

Actually, however, there is a very different state of affairs in the A.T.A. Half the pilots are Americans. Many of these are paid a salary of £1,900 a year free of British Income Tax. British pilots receive less than half of this and the junior grades only a quarter. This policy was both expensive and short-sighted, in view of the then possibility and now reality of a war between U.S.A. and Japan. Now it is proposed to train and employ American women at £1,000 a year. I fail to see how this can be reconciled with the Ministry's previous statements. Apparently it is not considered uneconomical to pay American women a salary out of all proportion to the duties they will perform.

In the meantime more than a hundred British men and women, eager to fly as ferry pilots, are passed over completely in favour of Americans. There is no reason why British pilots cannot be trained abroad, if facilities are not available in



Great Britain, like R.A.F. pilots. It is deplorable that Americans have to be attracted over here by large salaries when there are sufficient potential pilots in this country to fulfil the needs of the A.T.A.

M. CHARLES.

[Only American women flyers with many hours to their credit are being recruited for A.T.A. Many of these women pilots have exceptional experience and are fitted to take over the fastest fighters after a short conversion course. Almost all British pilots of any experience who are available for flying duties are now employed. Also the necessary conversion course is much easier to give in the U.S.A. than here and we understand that the American pilots now arriving have been through this course.—ED.]

Seadromes

THE PROJECT to anchor seadromes in the middle of the Atlantic appears immensely attractive to landmen, but is rejected out of hand by the sailor on the grounds that it is impracticable to anchor in water a thousand fathoms deep.

The sailor, however, may fancy a self-propelled seadrome, able to maintain its position by its own power. The argument is put forward that such a structure would be difficult to find, and if found by enemy bombers would be easy to defend.

If the seadromes are to be used by trans-Atlantic ferry aeroplanes, a wireless beacon or similar device would be necessary and would guide enemy aeroplanes to the seadrome. If the ferry aeroplanes used the seadrome at night the illuminated landing-deck would form the ideal bombing target. Alternatively, the presence of one enemy aeroplane at night would prevent the use of lights, and its continued presence might cause the loss for lack of fuel of several aeroplanes.

It seems extremely improbable that the seadrome could detect by radio-location the approach of enemy bombers flying at a great height in sufficient time to allow night fighters to take-off, climb to the right height, find the enemy, and bring him down before he could drop his bombs. The seadrome would appear to be the ideal high-level precision-bombing target.

Finally, what hope would it have against a pack of U-boats firing magnetic torpedoes?

FLIGHT LIEUTENANT.

A Correction

IN a recent issue, a correspondent, Mr. Ben Bloomfield, refers to "Mr. Claude Grahame-White (now a well-known M.P.)."

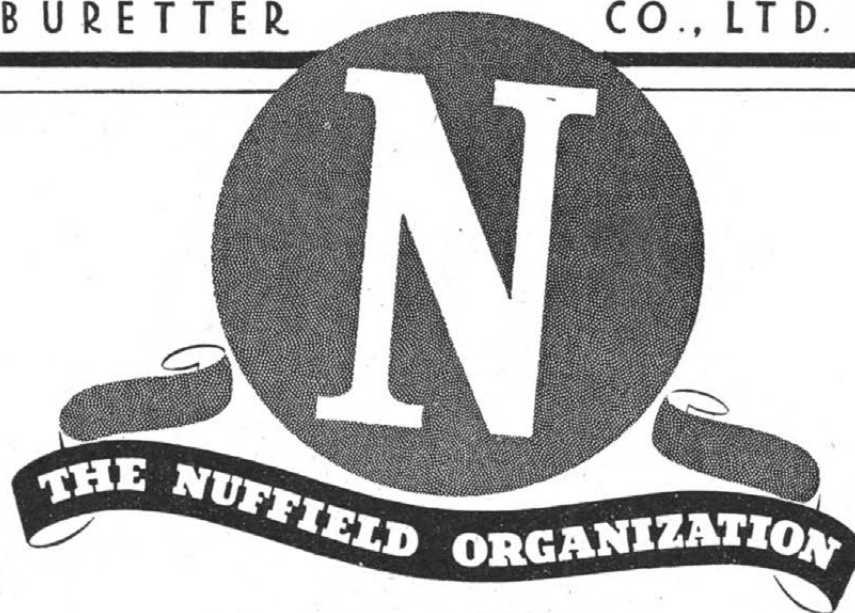
I had thought to see this obvious mix-up corrected in an early issue. But as this has not been done, I now draw your attention, in the interests of historical accuracy, to the fact that Mr. Claude Grahame-White has no connection whatsoever with Mr. Graham White, M.P.

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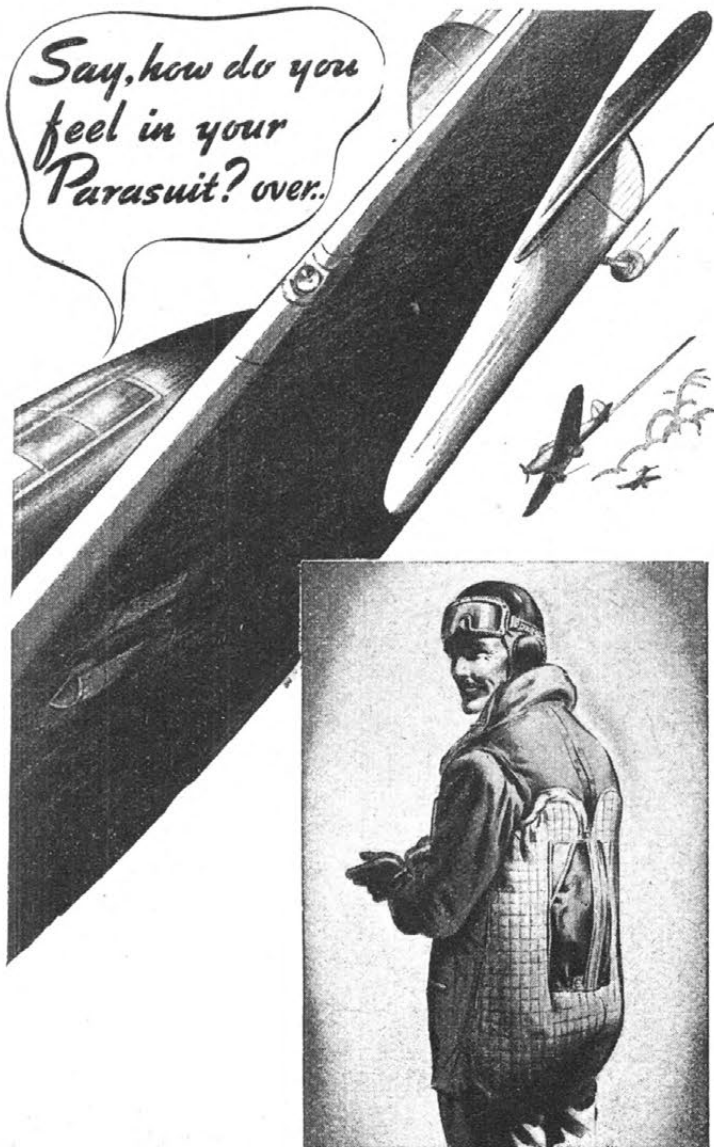
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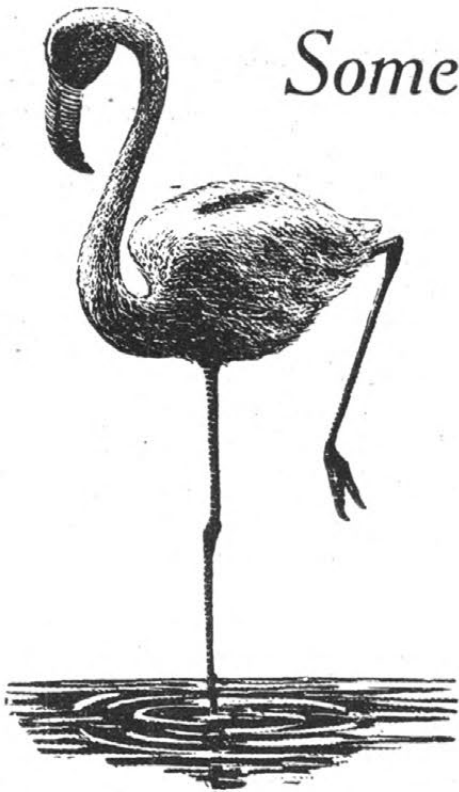
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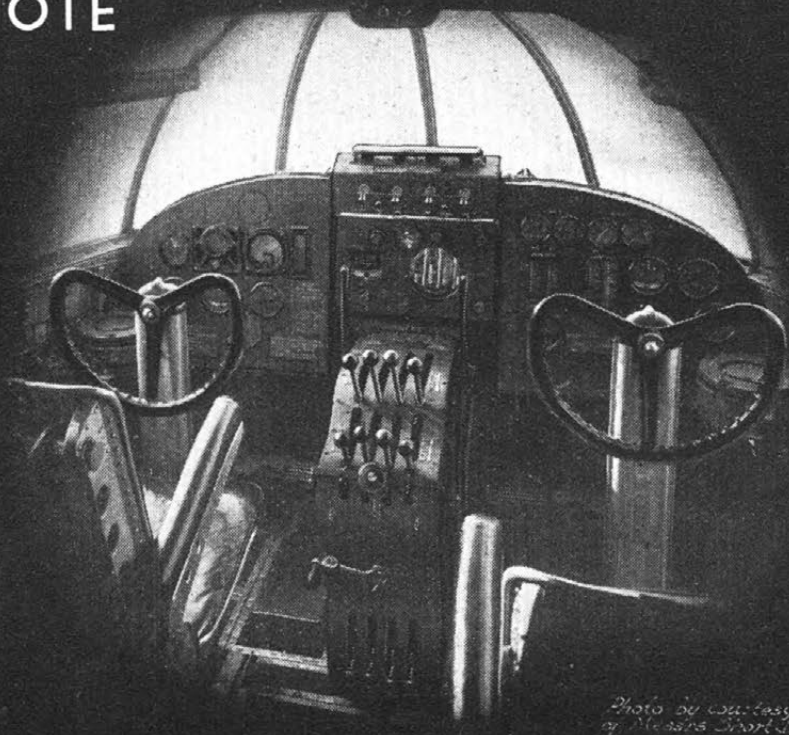
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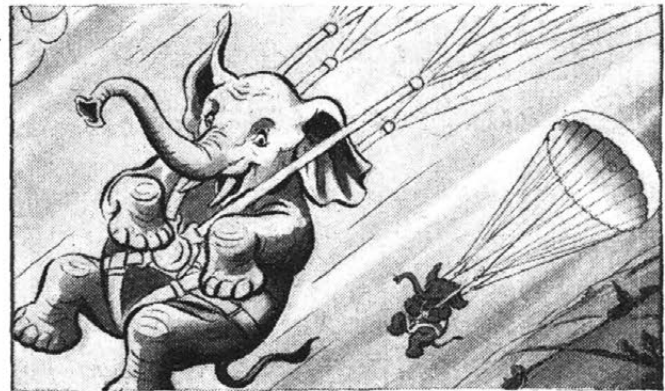
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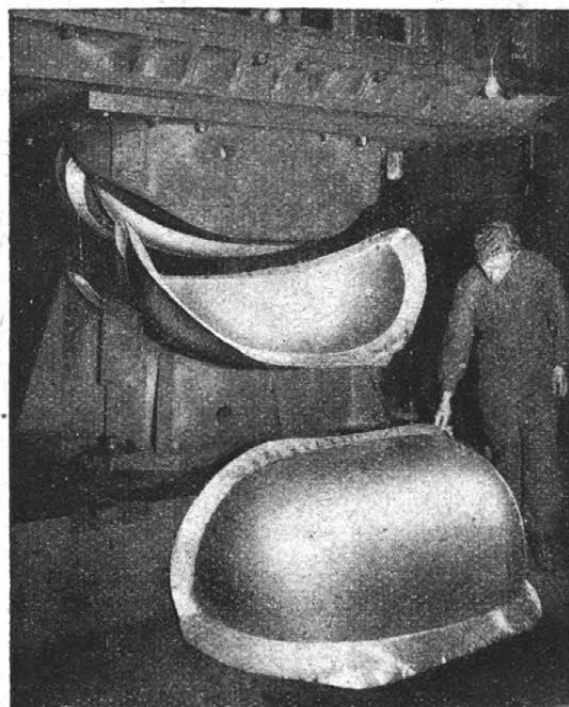
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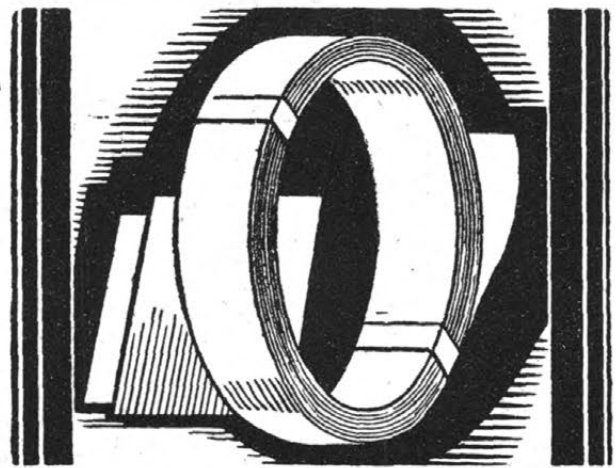
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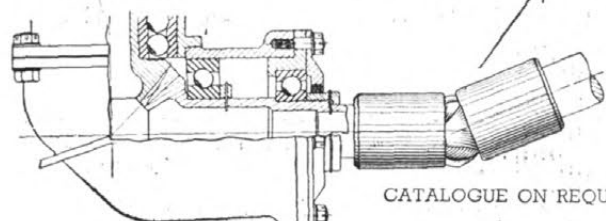
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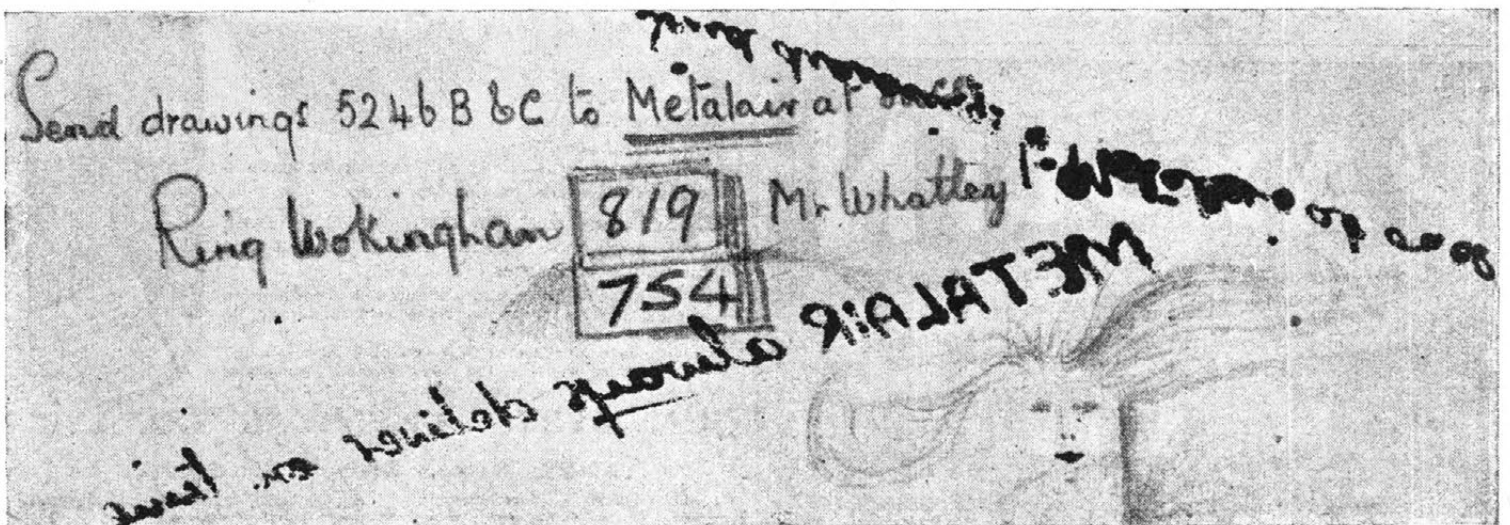
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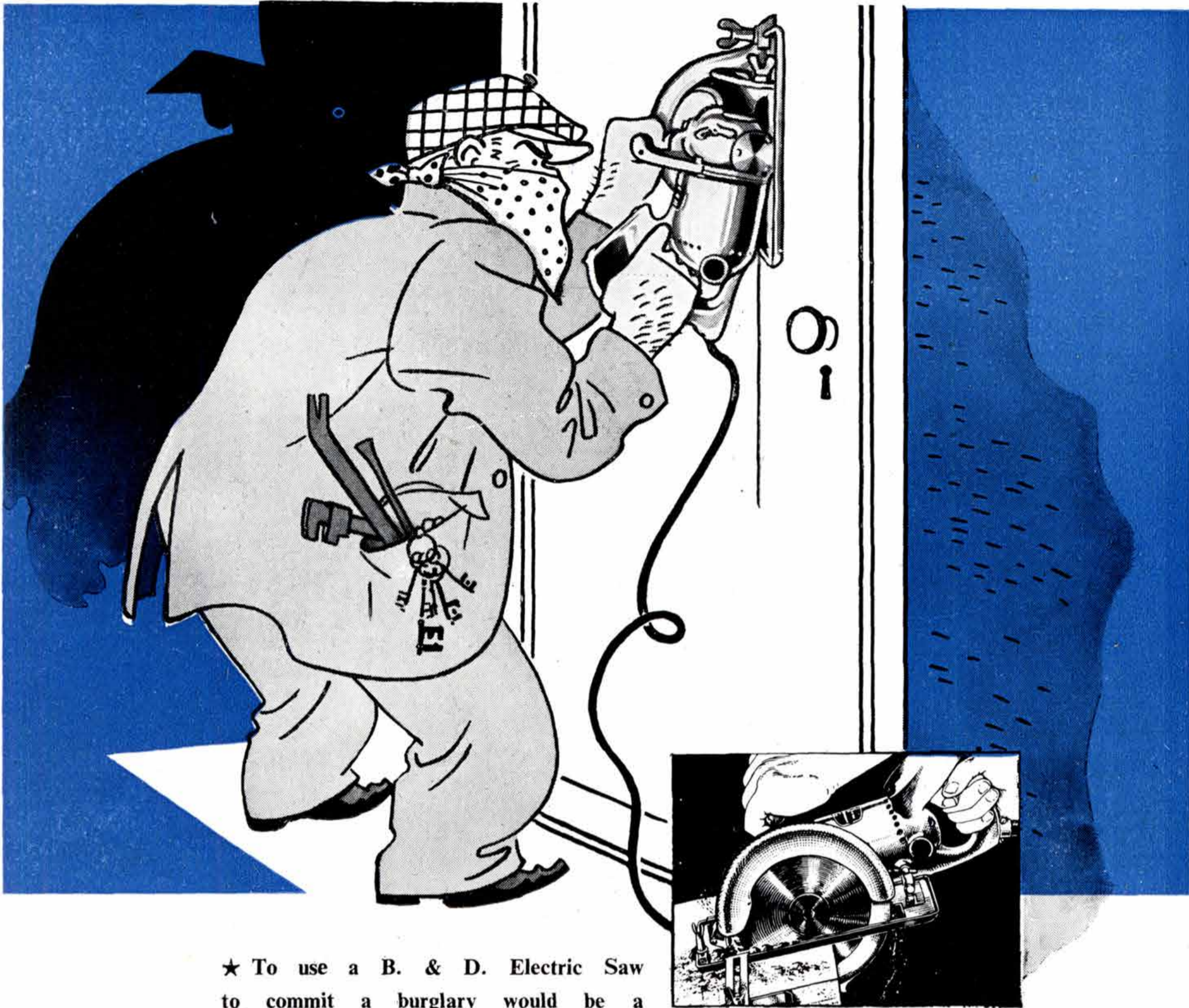
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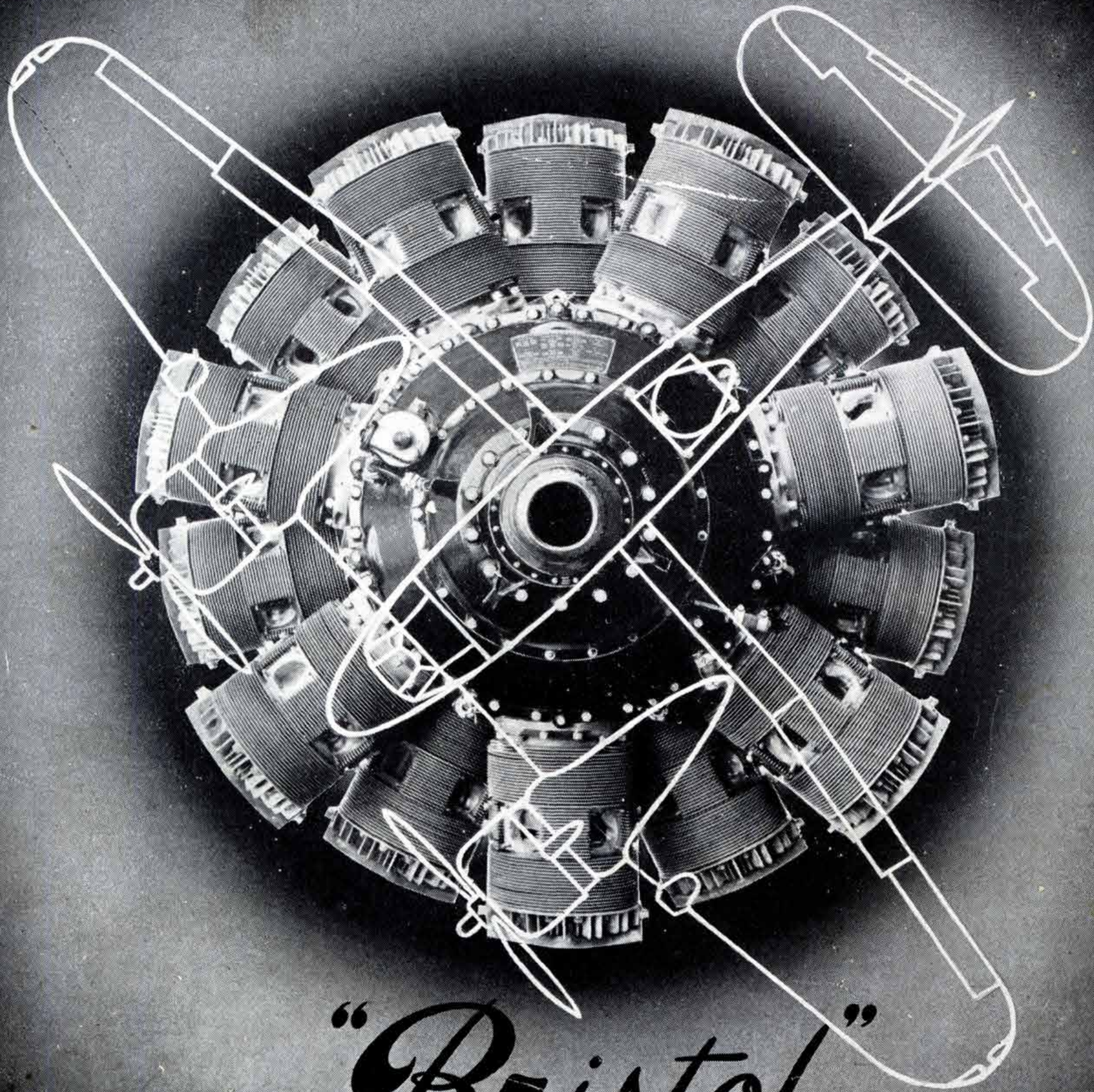
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