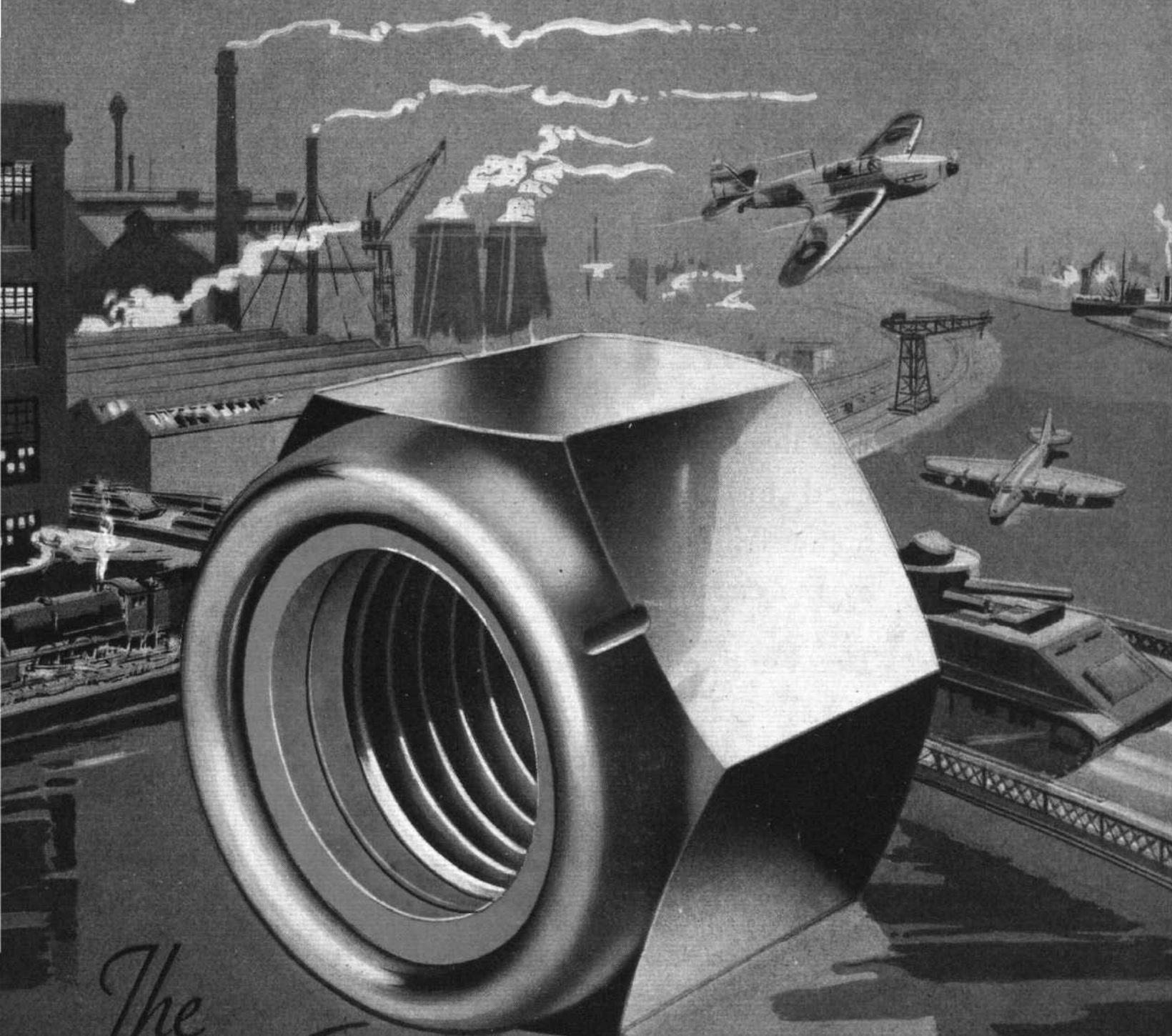


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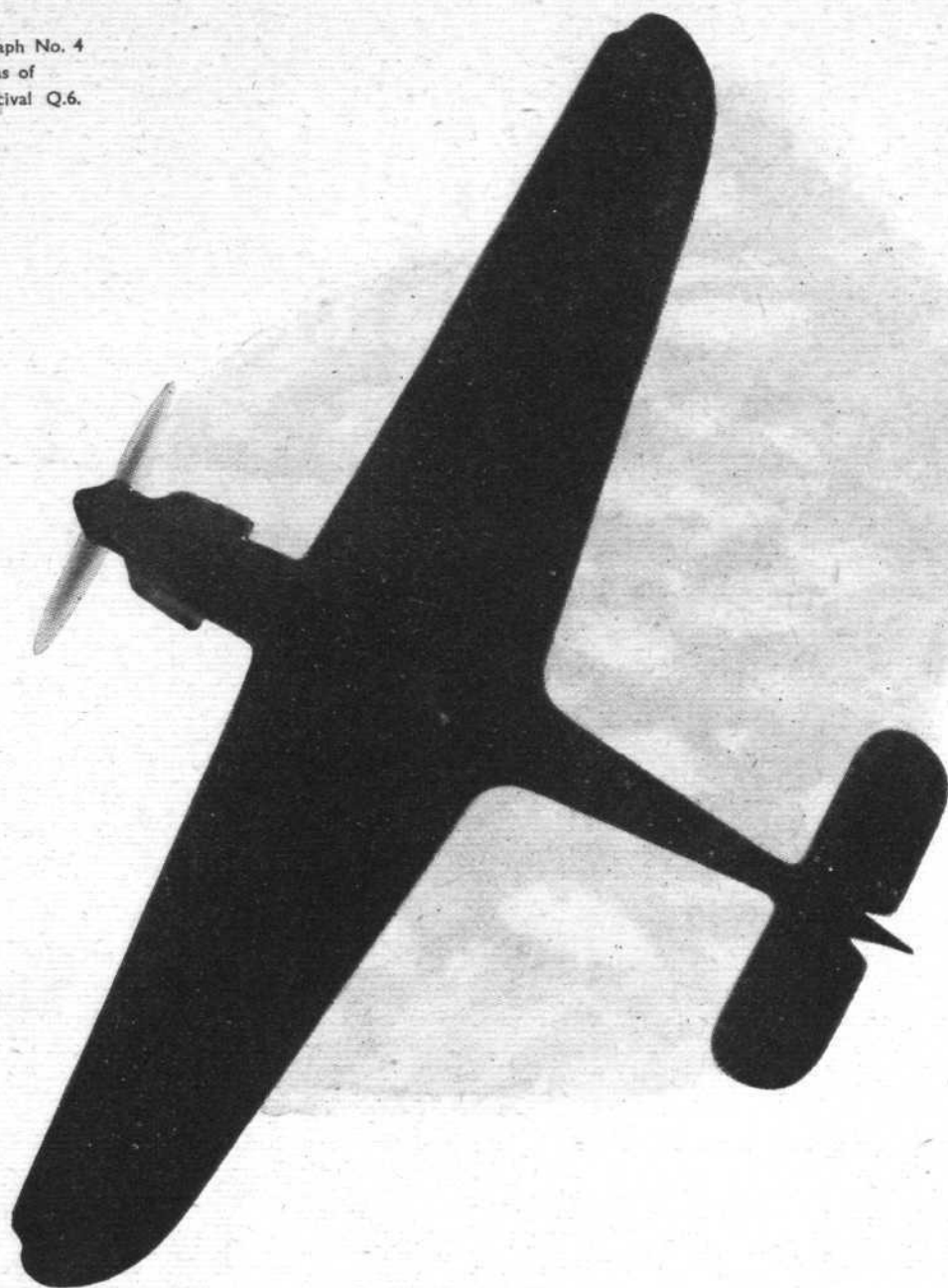
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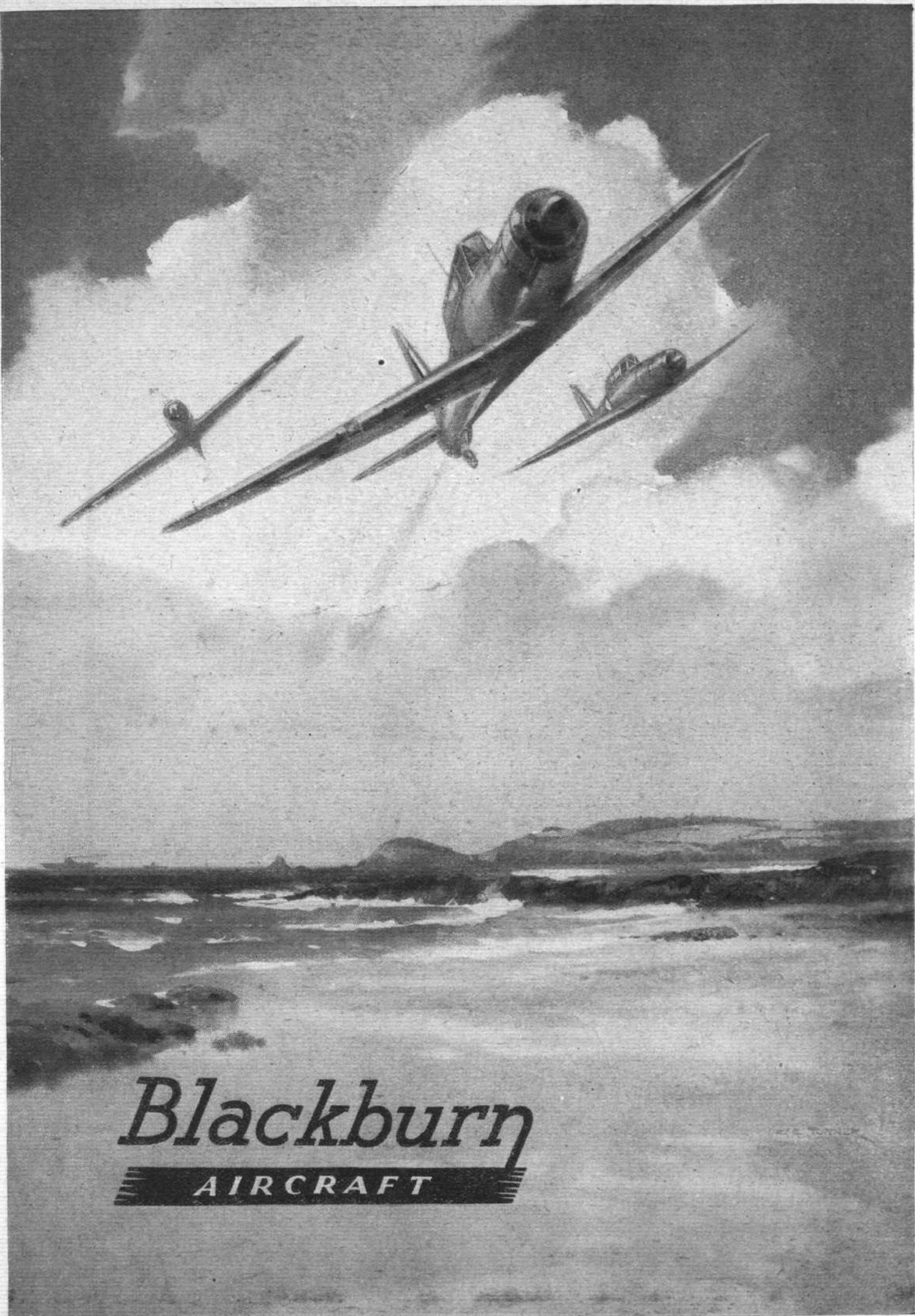
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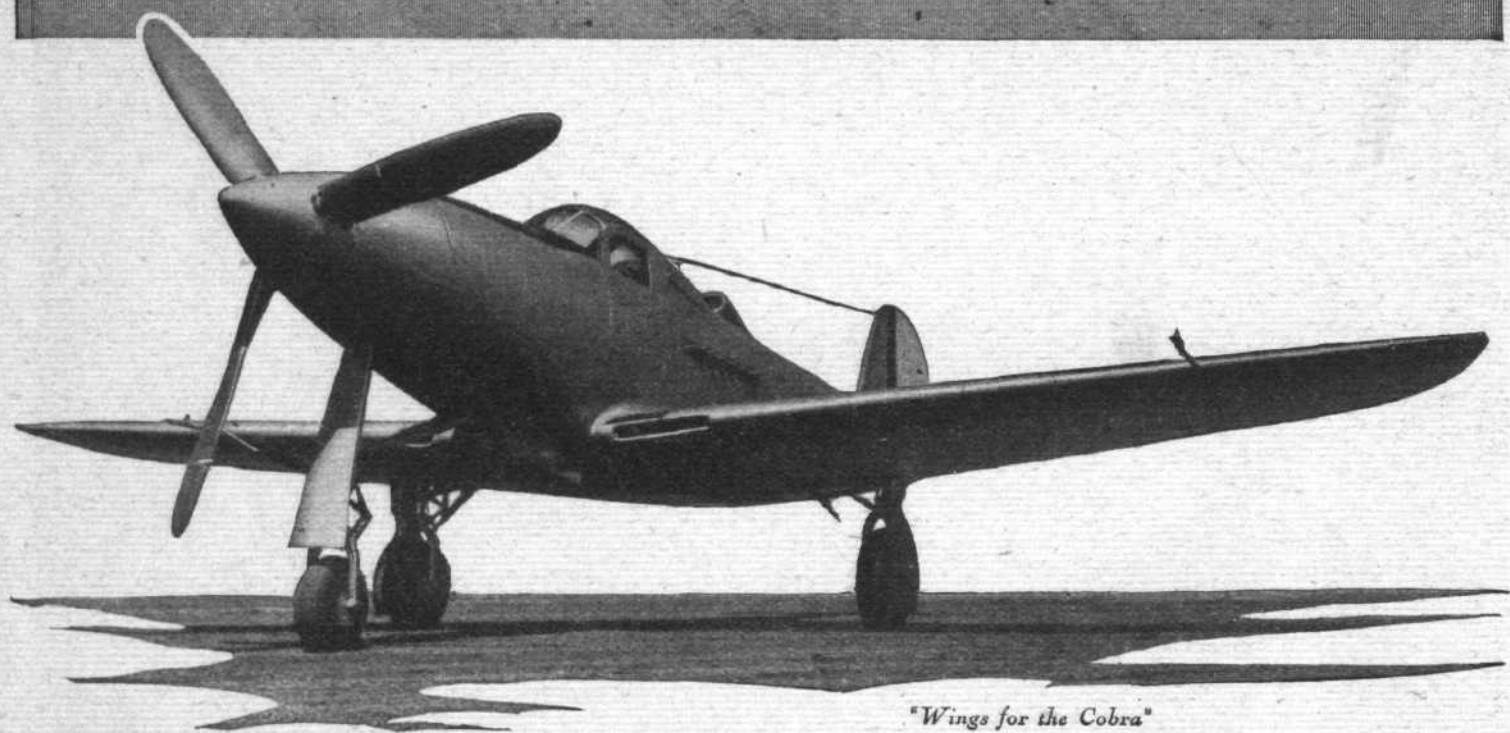
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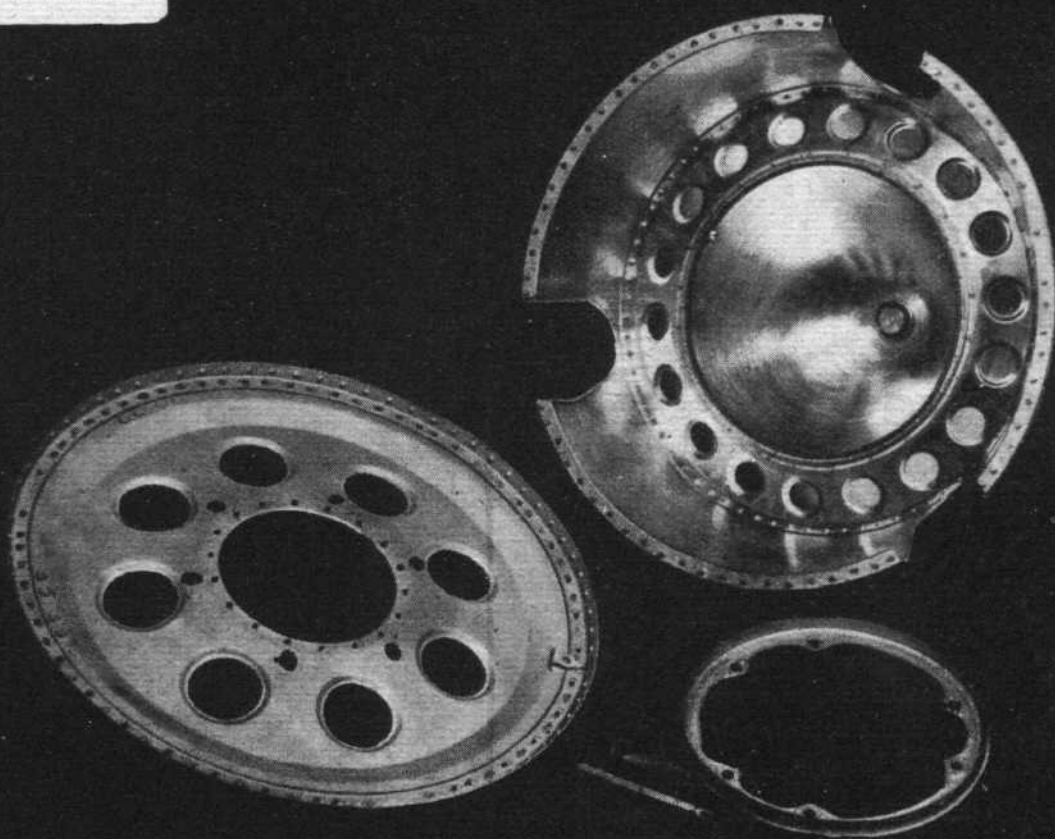
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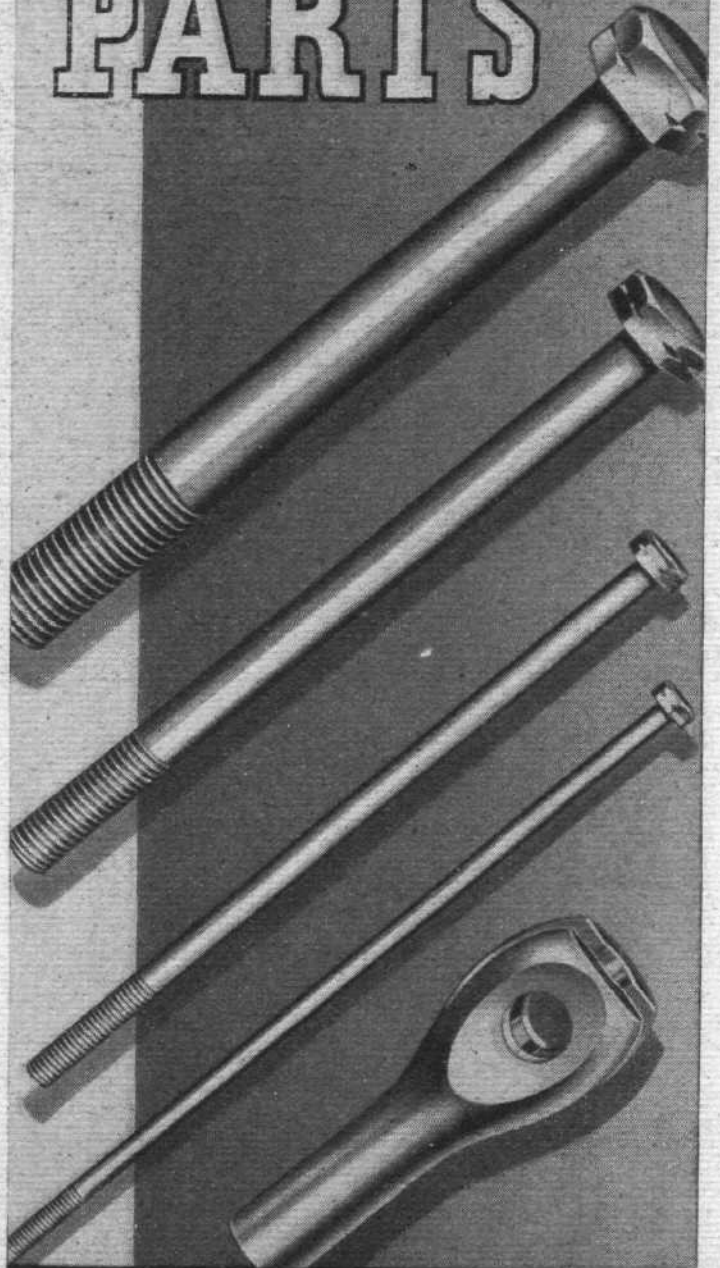
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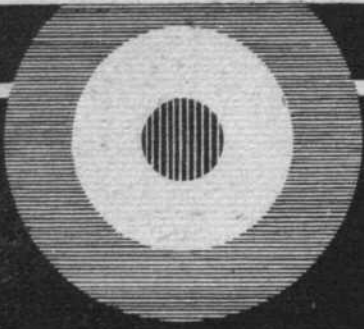
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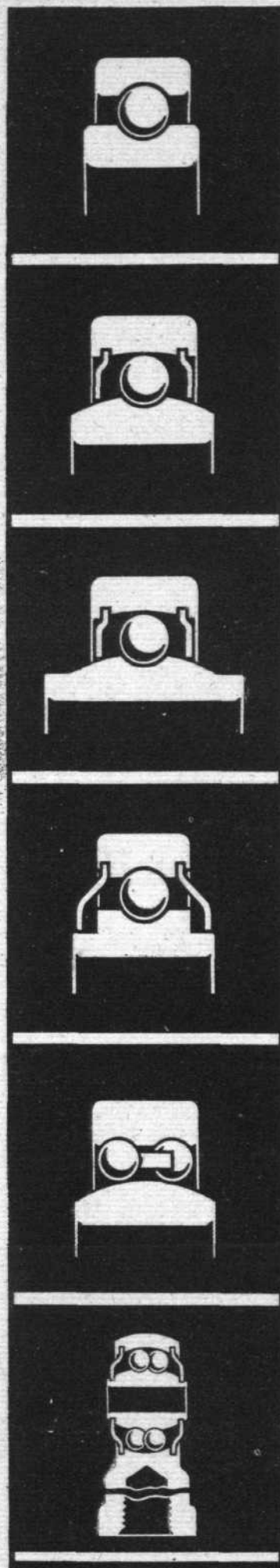
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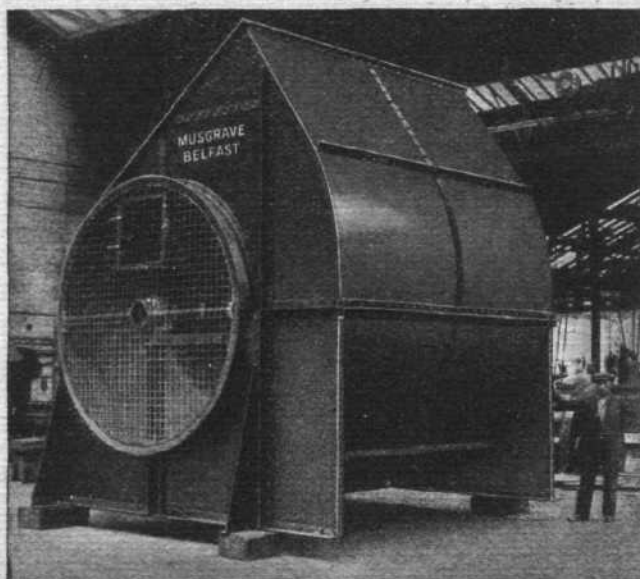


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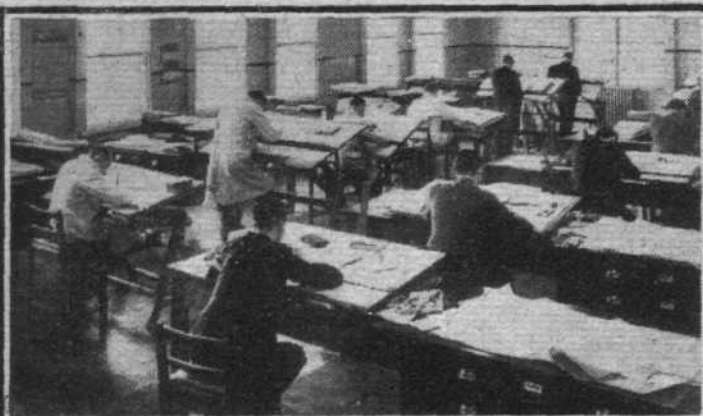
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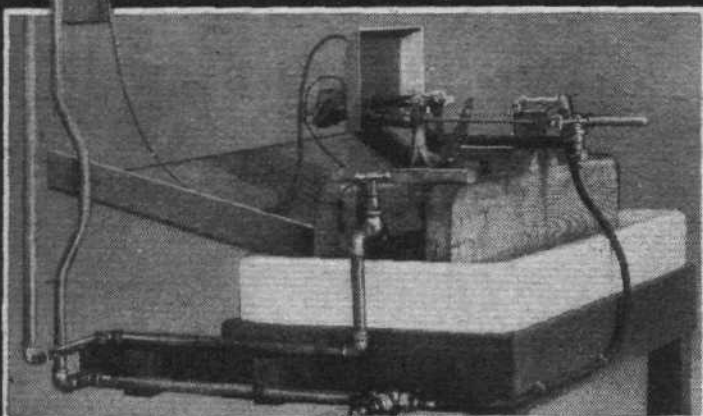
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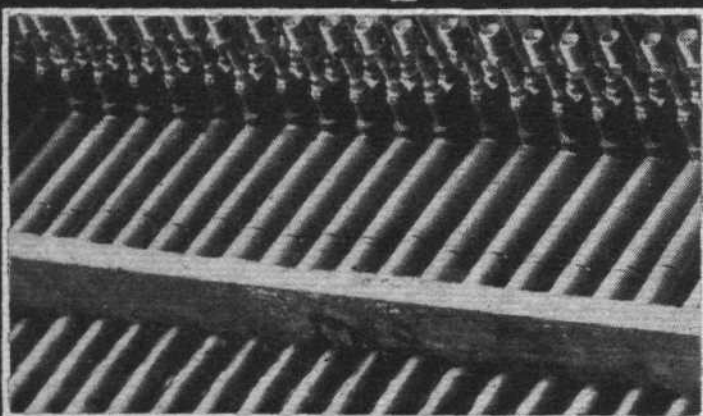




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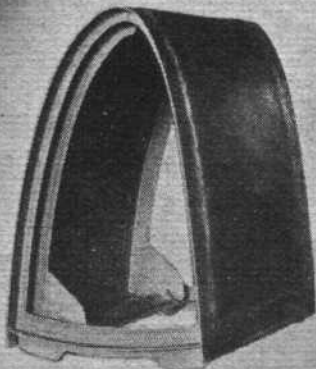
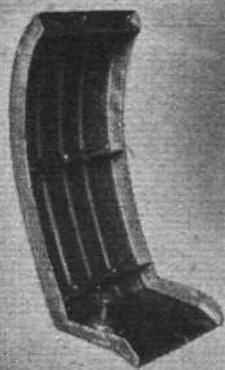
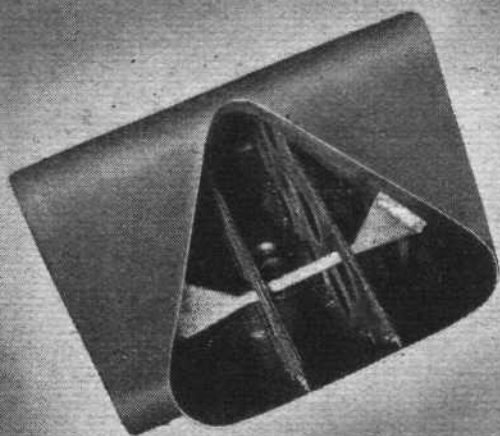
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JULY 3rd, 1941.

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## The Outlook

### "Loopy" or "Loppy"?

WHEN contemplating a fairly small twin-engined military aeroplane of the fighter type, one naturally thinks of three possible engine arrangements: The orthodox, with two engines on the wing and the pilot in a normal fuselage; the variation in which the tail surfaces are carried on tail boom extensions of the engine housings, and the pilot sits in an abbreviated fuselage; and the engines-in-tandem arrangement, in which the pilot sits between the engines.

An ingenious reader of *Flight*, who is serving in the Royal Air Force, has sent us the interesting suggestion that it might be possible to use a lop-sided arrangement in which one of the two engines is housed in an ordinary nacelle on the wing, while the other is in the nose of a fuselage, the wing being suitably shifted laterally to bring the lateral centre of gravity on to the centre of lift.

Our first impulse was to throw the letter straight into the waste-paper basket. In fact, it made a beautiful landing right at the bottom (happening to be the first one opened that morning). But later in the day the idea kept worrying us, and the upshot was that the letter was retrieved from the w.p.b. The originator of the idea had enclosed a rough sketch, and what did as much as anything to condemn it at first sight was that he had shown the tailplane and elevator on one side of the fuselage only. We idly sketched-in the other, and the aeroplane began to look less crazy.

The advantages of the arrangement are obvious. Instead of two engine nacelles and one fuselage, one has but one engine nacelle and one fuselage. Thus not only weight, but quite appreciable drag should be saved.

Against the scheme is the fact that the machine might have to fly slightly "crabbed," due to the fact that the drag of one engine installation would be greater than that of the other, and the displacement of the wing would tend to aggravate matters. The fighting view would be better on one side than on the other, and in a scrap the pilot might prefer always to attack from one side, whenever possible. It would be interesting to have the views of designers and pilots.

### Questions to be Answered

FOR many years past there has been speculation on all sides about the fighting value of the Red Air Fleet. The Russians have been very reticent about the equipment of this force, and about its training. On festive occasions there have often been mass flights of great numbers of aircraft over Moscow, but they gave observers no information except that the formation flying was good enough. The little campaign in Finland suggested that the training of the squadrons engaged there was anything but good, and that often there was only one navigator with each squadron or flight. There has been time to make good some shortcomings, but hardly to raise the whole force on to a really high level. In numbers, however, it may well be the largest air body in Europe.

The first week of fighting between Germans and Russians gave few grounds for answering any of these questions. The claims put forward on each side did not justify anyone in forming a definite opinion. Notwithstanding the sudden and unexpected aggression, the *Luftwaffe* is not likely to have caught the Russians napping and render the Red Air Fleet inactive as it did the Polish Flying Corps.

The sheer numbers of the Russians and the dispersal of their air bases (many of them are grouped round the approaches to Afghanistan, and seemed to be a threat to India) make such extermination impossible. In fact it is quite possible that Russian claims to have held up *Panzer* divisions by air action are correct. But the bombing of Bucharest, Helsinki, and other cities suggests that the Russians are inclined to regard "frightfulness" as a useful instrument of war, which we know that it is not. The attack on Constanza, the Rumanian port on the Black Sea, may well have had a more practical object and a more useful result—though we British know from our own raids on Kiel and Wilhelmshaven that one raid does not put a great port out of action. The Russian attack on the Rumanian oilfields (presumably the storage tanks) may have far-reaching results.

Air efficiency depends on supplies of oil and many other things, and Russian communications are notoriously indifferent. Without doubt the *Luftwaffe* will assail the railways and roads, and do all that it can to keep the Russian aircraft from getting its supplies. It will probably be some time before the true course of this new war in the air can be correctly assessed.

### Helicopter Development

**R**USSIA is "in the picture," although indirectly, in a very different way. Igor I. Sikorsky, engineering manager of the Vought-Sikorsky division of the United Aircraft Corporation has recently broken the world's duration record by remaining in the air for 1 hour 32 minutes 30 seconds, at Stratford, Connecticut. As our older readers will know, Igor Sikorsky, who left Russia a good many years ago, is one of the

pioneers of aircraft designers. His name, in the early days of flying, when he worked in his native Russia, was associated particularly with large aeroplanes, of which he designed several. He has never forsaken his old love, the helicopter, and in the United States he has found the finances needed to carry out research and development work. We recorded recently a flight of his from water, the machine having had air bags substituted for the wheels.

No one would claim that the latest Sikorsky helicopter is a military aircraft in its present form. With its numerous rotors (for control as well as for lift) and its open girder fuselage, its drag is high and its performance necessarily low. But Sikorsky does appear to have found one solution of the control problem. This is not the only one. In this country several designers were at work on helicopters when war broke out. Such firms as J. and G. Weir, Hafner, and Kay had long experience of gyroplanes, and some of them at least were turning their attention to the helicopter. The "jump-start" gyroplane goes some way towards the helicopter ideal, but does not possess the ability to hover, in the way Sikorsky hovered for more than one and a half hours. It would be reassuring to know that British development work on helicopters has not been shelved.

While it is quite true that so far there has been no reference to German use of the Focke-Wulf helicopter on which Fräulein Thea Rasche did such good work before the war, it would not be safe to assume that its special abilities will not be applied to war operations. It is not likely to make its appearance as a large troop carrier, but the possibility of using it to supplement the Ju. 52s and the parachute troops should not be overlooked. The Germans are usually quick to see military applications.



**OFFENSIVE SWEEP'S BROOM:** In the recent sweeps over Northern France the Mark V Spitfire has added to the laurels it already possessed as a metropolitan defender. This photograph, taken from a Blenheim, shows clearly the two 20 mm. shell-guns and four .303 machine guns. Of interest also is the D.H. constant-speed airscrew and the modified air intake and oil-cooler.



# War in the Air

**The Luftwaffe and the Red Air Fleet : R.A.F. Bombs Harder Than Ever : Daylight Sweeps Over France : U.S.A. Types in Action**

EVERYONE is now familiar with German methods of reporting the results of air combats (usually gains and losses are simply reversed) and when German spokesmen stated that within the first 24 hours of their war with Russia no less than 1,000 Russian aircraft had been shot down or destroyed on the ground, one is inclined to believe that the German air losses must have run nearly into four figures. The Russian claims, however, were more modest than that. On the Sunday on which the invasion started the number of German machines destroyed was first given as 65, which was later altered to 76. This is detailed, though not circumstantial. As yet there are no data for estimating the accuracy of Russian claims. The Red Air Force may well have undergone some reorganisation since it made a public exhibition of its shortcomings in the war with Finland, but its equipment must be much the same now as it was then. The *Luftwaffe* has certainly much more fighting experience. Both sides agree that Russian machines have been bombing targets in East Prussia, though the claims made are at variance. We must hope that the Russians are seriously attacking points of military importance, and not merely indulging in "frightfulness." If they work on a sound plan they should be able to damage many things in the eastern parts of Germany which we British have not yet been in a position to tackle.

## Hard Bombing

THE R.A.F. Bomber Command has redoubled its efforts against the Ruhr and German naval bases since the new campaign began. It would not be correct to say that Germany is now fighting on two fronts. To a German that means a land war on two fronts. What is certain is that our bombing must, and will, produce more effect now than it could do when the German army was kicking its heels in various subjugated countries. It is now using up war material at a great pace, and it is at such a moment that a country feels the effect of blows at its reserves and production, and particularly at its communications. Of course, for the last year and more, German production has



**TWICE REMOVED.** An R.A.F. fighter-pilot removed this Messerschmitt from the sky and now ground staff are removing it from the sands of the Western Desert. It needed a new undercarriage, anyway.

far exceeded the amount which R.A.F. bombers were able to destroy, and the German staff must have felt confident that they had enough in hand before they undertook this last invasion. The longer the Russians can hold them up, the greater the strain on the German reserves will be, and the greater will grow the effect of the R.A.F.'s blows.

It will be interesting to see if the Russian Generals will adopt the plan which proved so successful against Napoleon, and retreat in good order wherever and whenever they cannot hold the invaders in check. Admittedly Russian mobility could be upset if the *Luftwaffe* gained complete control of the air, but if the Red Air Force can even partially hold its own, those tactics should be as possible now as they were before the days of mechanisation. The greatest service which Russia can render to the Allied cause, which means to her own chance of survival, will be to keep the German armies continually engaged, never to let Hitler stop when he has seized the Ukraine or any other definite place and declare the incident closed. Russia needs to keep large German forces continually engaged. Previously, by merely having an army in existence, she held fairly large German forces inactive on her frontier. If Germany can arrange that the Red Army no longer exists as a fighting force, then she will be able to withdraw those divisions for use elsewhere. If the setting free of those divisions were to mean the subjugation of Britain, the chance that Russia would rise again would be indeed inconsiderable. Tsarist Russia, whatever its faults, was in the last war a very chivalrous Ally, and by keeping very

large German armies engaged in the East, contributed largely to the final victory of the Allies—in which she unfortunately could not share. However, the victorious Allies did obliterate the infamous Treaty of Brest-Litovsk.

## Our Fighters Over France

WHILE the Bomber Command has been striking harder than ever at Wilhelmshaven, Kiel, and the Ruhr, the daylight sweeps of the R.A.F. over occupied France have also been growing in strength and ferocity. It is not a counterpart to the Battle of Britain last summer, when the *Luftwaffe* deliberately tried to prepare for an invasion of Great Britain. Our objects are more limited, but we are defying the *Luftwaffe*, showing our contempt for it, reducing its strength to some extent, and—perhaps the most important of all—encouraging our friends and well-wishers in France. Often when our machines have flown low along the French coast the crews have seen French peasants waving them *Bon chance!* Messerschmitts and other German machines have been falling down on the soil of France in quite appreciable numbers, and each wreck tells the French peasants that their time of servitude is not for ever.

In the combats which have taken place of late the mention of cannon in our fighters has been growing more frequent. The shell-guns call for more accurate marksmanship than do the eight Brownings, but the effect of a hit is very satisfying. Another useful innovation is the one-man rubber dinghy now carried by our fighters. On one day, when our



## WAR IN THE AIR

fighters shot down 28 enemy aircraft, a Squadron Leader who has had many successes shot down two Me 109s one after another, but immediately had his Hurricane badly damaged by a third which got underneath him. He gave that machine a burst too, but when he was within three miles of England he had to jump with his parachute. He promptly inflated his dinghy and floated for 45 minutes until he was picked up. The dinghies, coloured yellow, attract attention from a good way off.

After one combined raid the Bomber Group which had taken part sent the following message to the Fighter Group which had provided the escort: "All Blenheim pilots wish to express appreciation of the excellent support provided by fighter escort."

### Congratulations

SIR ARCHIBALD SINCLAIR, Air Minister, sent the following message to Air Marshal W. Sholto Douglas, A.O.C.-in.C., Fighter Command:—

"Congratulations on striking success of your squadrons in recent fighting over France. It shows not only that they retain their ascendancy over German Air Force, but that they can overcome all the disadvantages of fighting over the enemy's fortified territory and air bases and still inflict on him severe defeats. May good fortune attend you and your squadrons in making the most of this fresh advantage which your skill and hard fighting has won."

It may be presumed that the Germans have transferred a number of their most experienced fighter pilots



**SHIPS' SHEPHERDS.** The smiling crew of a Coastal Command Hudson, snapped when just about to embark with their gear before taking off to shepherd in a convoy reported nearing home. Coastal patrol is their chief duty.

from France to the Russian front, for the R.A.F. men have found the Messerschmitts over France distinctly loth to attack, and often somewhat unskillful when they did venture. Naturally, the R.A.F. has to use new pilots at times (everyone must make a start), but our men are very carefully trained, and our formations are led by experienced officers who are now quite veterans, and know every trick and turn of the game of air

combat. Consequently, British successes have largely outnumbered British losses. In one recent period of eight days (on one of which there was no large-scale operation) our offensive sweeps destroyed 112 enemy aircraft for the loss of only 26 British fighters, and from them five pilots were saved. Naturally, when the fighting takes place over hostile ground, some of our men who have to jump with their parachutes are taken prisoner, and likewise some German machines which go down damaged can only be claimed as probables—whereas over England they would become certainties when the wreckage was picked up. Both of these considerations rather spoil our average when we fight over the Continent—but the figures quoted above are extremely good even after such allowances have been made.

### Salt on its Tail

ANOTHER case of ramming a German has recently come to notice. An experienced Polish pilot, who gained the *Croix de Guerre* when fighting in France, has recently joined a Polish squadron of the R.A.F. In one day he took part in two sweeps, and on the first shot down one Me 109 and probably got a second. In the second sweep he shot down two more, and in doing so ran out of ammunition. Then a third Me attacked him, but he manoeuvred so that his airscrew cut off the whole of the German's tail. A fragment of the enemy machine cut his face badly, and the blood partially



**PILOT'S PILLION:** Our pilots don't usually sit on each other but this was the only way in which Captain K. A. Quirk of No. 1. Squadron S.A.A.F. could give his brother officer a pillion ride back to base when the latter made a forced landing in enemy territory near Acroma, Libya, a daring rescue for which he received the D.S.O. His name ought surely to be Captain Flag, we'll tell the cock-eyed world!



## WAR IN THE AIR

play their part in the Middle East. Both South African and Australian pilots have been doing some very successful fighting with them, and the Italians have accordingly suffered.

One of the results of the fight in Crete has been to raise the question of the defence of aerodromes. As was pointed out in these columns at the time, the Army is responsible for this, and it follows that if the General Staff does not make due arrangements, the air squadrons may be driven off from their grounds through no fault of their own, but to the serious harm of the Army. The question has been raised in Parliament, and the Prime Minister said that satisfactory arrangements had now been made between the Army and the Air Force. The latter is raising a large body of men as aerodrome guards, but Mr. Churchill declined to give details except in secret session.

## Information Wanted

Another matter connected with Crete on which fuller information would be welcome is the precise way in which the Germans used their gliders. An Army commentator, General Collins, in a recent broadcast,

BRITISH AIR LOSSES TO JUNE 28th				
	Over G.B.	Over Continent	Middle East	
June 22	—	—	—	
" 23	—	—	—	
" 24	—	—	—	
" 25	—	—	—	
" 26	—	—	—	
" 27	—	—	—	
" 28	—	—	—	
Totals	0	0	53	11

Total in Northern Area : 2 104.  
Middle East : about 317.

ENEMY AIR LOSSES TO JUNE 28th			
	Over G.B.	Over Continent	Middle East
June 22	—	31	—
" 23	1	20	2
" 24	2	9	26
" 25	2	13	1
" 26	1	10	7
" 27	—	8	23
" 28	—	5	9
Totals	6	96	68

Total in Northern Area : 4,877. Middle East : over 1,880.

blinded him. He flew back to England, but struck a telegraph pole when landing, and broke his collar bone in the crash.

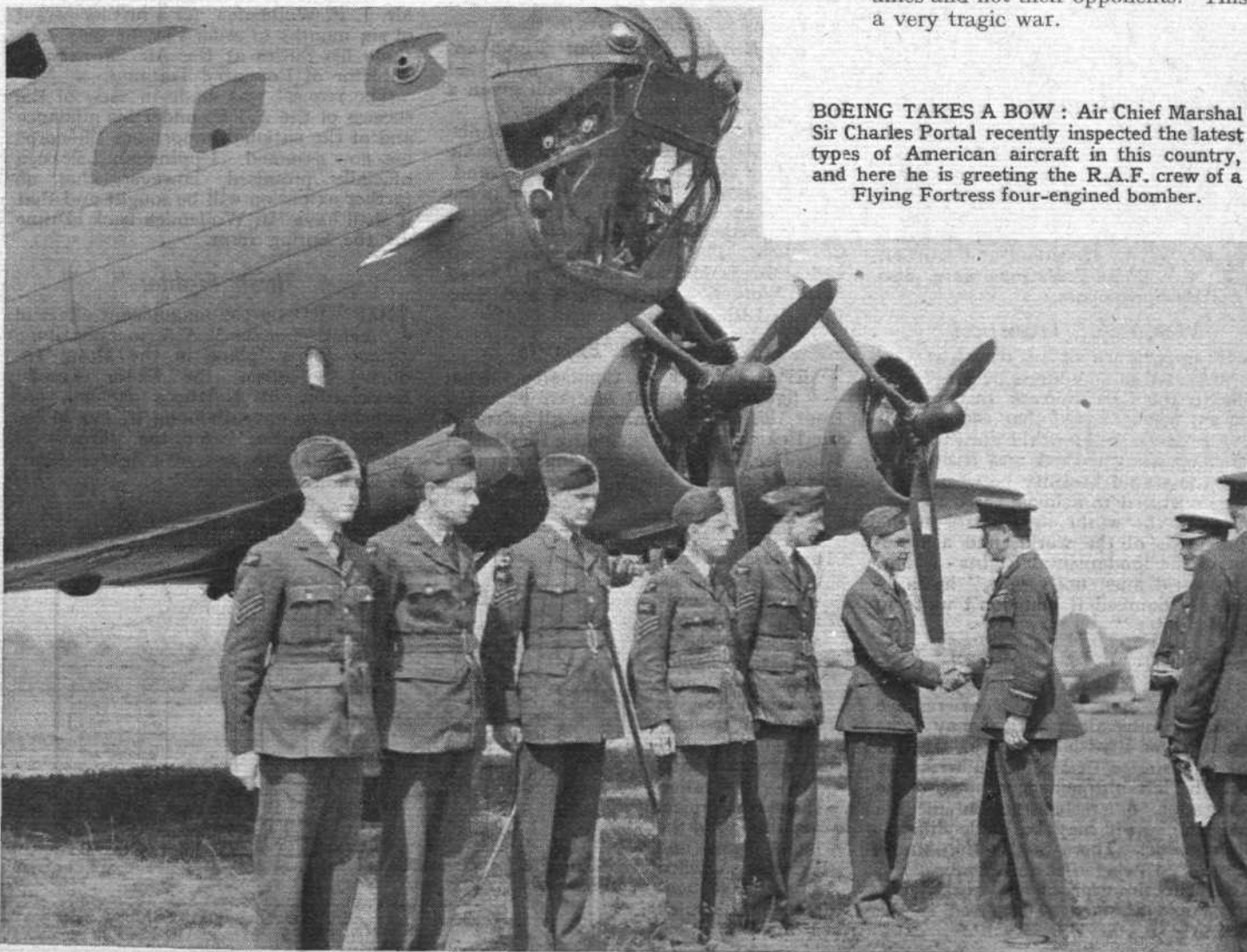
For several weeks German air activity over the British Isles has been on a very slight scale. That meant that there have been fewer bombers for our night fighters to discover and shoot down. None the less, thanks perhaps to radiolocation, the latter have had quite a number of successes, two on one night, four on another, and so on. The clear weather naturally helped the defenders to spot some of the raiders.

Turning to the Middle East and Far East, it is satisfactory to learn that some Catalina flying boats have been delivered at Singapore. That base needs every good thing which can be given it, and the Catalina is a very good thing. Tomahawks are another American type which have begun to

said that some of the troop-carriers towed a couple of gliders, each of which conveyed a dozen or so soldiers. More details may be published before long.

The Air Force and the Fleet Air Arm continue to play a prominent part in the Allied advance in Syria. The latter torpedoed a Vichy destroyer off Beyrout. Last Saturday, June 28, American-built aircraft were used by both sides in an air combat, when six Vichy Glen Martin bombers attacked our troops in the neighbourhood of Palmyra. A squadron of the Royal Australian Air Force, also flying U.S.A. machines, probably Tomahawks, intervened and shot down all the six Vichy machines in flames. The French pilots were doing their duty, as they saw it, and one can only deplore the necessity which forced British Empire airmen to deal in that way with men who ought to be their allies and not their opponents. This is a very tragic war.

**BOEING TAKES A BOW :** Air Chief Marshal Sir Charles Portal recently inspected the latest types of American aircraft in this country, and here he is greeting the R.A.F. crew of a Flying Fortress four-engined bomber.







**SEEING FOR THEMSELVES:** The British Air Commission in America believes in getting around and gathering first-hand information at the source. Here we see Sir Henry Self (the tallest of the group), Director-general of the Commission, with I. M. Laddon (pointing), Consolidated Vice-president, and Fred Sigrist (right) watching work on a Liberator at Los Angeles.

### B-19 Takes Off

ONE can imagine the excitement—and the nervous tension of the Douglas stress-men—when America's biggest bomber, the 62-ton B-19, made its maiden flight at Santa Monica last week-end.

But all was well and "Hitler's Headache," as it has been nicknamed, made a perfect take-off and a normal landing after a cruise of some 75 miles, during which it was triumphantly escorted by U.S. fighters. Congratulations!

### Royal Aeronautical Society

MR. GRIFFITHS BREWER, Hon. F.R.Ae.S., is to be the next President of the Royal Aeronautical Society and comes into office in October. He was elected at the June council meeting of the society when Professor L. Baird, Mr. W. C. Devereux and Lt.-Col. J. T. C. Moore-Brabazon were also elected Vice-presidents.

### World Air Transport

THE importance of air transport was indicated in an address by Mr. H. G. Wells to the Czechoslovak Institute on June 25, when he said that there would never be peace in the world until the two English-speaking nations and Russia got rid of the stupid hostility between them and co-operated to achieve three things: Control of the world air, control of the staple foods of the world, and a statement of the fundamental Rights of Man. "The world must unify now," he said; "you are damned if you don't unite in a world order."

### Warn Your Children

THE public is again warned by the Air Ministry not to touch or remove wreckage of any aircraft they may come upon whether British or enemy. It is of vital importance that all such wreckage should be left untouched; otherwise the examination or reconstruction of the damaged aircraft may be made difficult or impossible. There is also the danger of concealed delayed-action bombs.

The exact location of all wrecked aircraft should at once be reported to the police.

In spite of previous warnings several children have been severely injured recently through handling ammunition which they have found near the spot where an aircraft has crashed. If they pick up articles which they do not know have come from aircraft and may be of a dangerous nature children should be encouraged to show them to a responsible adult at once.

### Generous Help

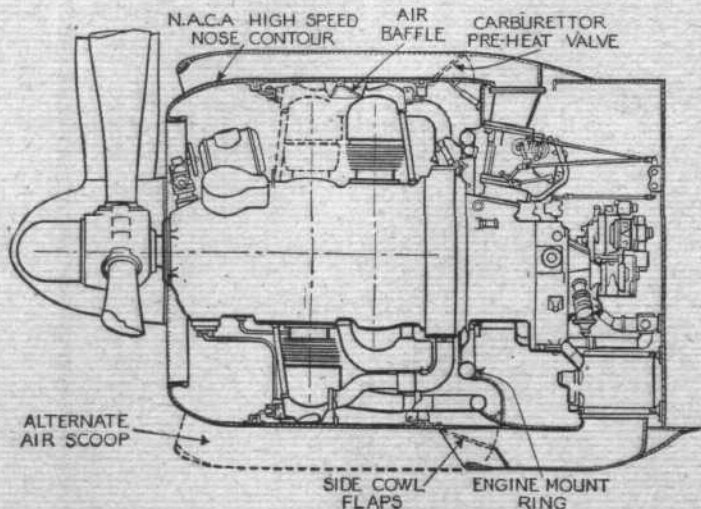
THE R.A.F. Benevolent Fund announces that Rolls-Royce, Ltd., and Handley Page, Ltd., have each given a donation of £10,000 to the fund.

In addition to their donation, Rolls-Royce, Ltd., have given a considerable amount of advertising space to the fund, and this form of help has also been given by Bentley Motors, Ltd., The Cement Makers' Federation, The Dunlop Rubber Co., Ltd., The Bristol Aeroplane Co., Ltd., Morris Motors, Ltd., The United Wire Workers and S. Smith and Sons (M.A.), Ltd.

### U.S. Aircraft Exports

DEPARTMENT of Commerce official figures show that aircraft exported from the United States to all parts of the British Empire, including the United Kingdom, totalled 248 during February and 414 during March. Corresponding

**REDUCING DRAG:** Much progress has been made in America with engine cowlings. Air-cooled and liquid-cooled engines for fighter types are now claimed to be equal in cooling, drag and fuel consumption. The illustration shows a typical installation of the latest Pratt and Whitney R2800 single stage two-row engine, which is most effective.



# HERE AND THERE

figures for U.S. world exports for those months were 346 and 482. It will be remembered that figures for production of military and heavy commercial aircraft which we have announced previously were 972 and 1,216, which means that Britain received 36 and 40 per cent, respectively of U.S. production for those two months.

### U.S. Production Figures

THE Office of Production Management announces that the U.S. manufacturers constructed 1,334 military and heavy commercial aircraft during the month of May.

This is a slight decrease from the previous month when 1,493 were made, and is probably the result of the industrial friction which has showed itself in the form of several strikes.

### Mr. Wolfenden Stays On

AT the request of the Secretary for Air, the trustees of Uppingham School have agreed to release their headmaster, Mr. J. F. Wolfenden, for a further period of six months in order that he may continue his duties at the Air Ministry as Director of Pre-entry Training.

The request was made in view of the success of the A.T.C. under his guidance and of the national importance the corps has now assumed. Uppingham has been officially promised, however, that no further extension will be sought and that it shall have Mr. Wolfenden back in time for the Spring term.

### Irish Fighter

INSPIRED by the magnificent effort of members of the M.A.A. in subscribing £5,000 for a 'plane in the Motor Industry Squadron, the Motor Agents' Association of Northern Ireland has launched an appeal among traders in the "Five Counties" for the purpose of raising funds to present a fighter 'plane to Britain's war effort.



# VERSATILITY

A close-up, black and white photograph of a propeller hub. A control lever with a cylindrical handle is visible on the left, extending from the hub. The background is dark and out of focus, emphasizing the mechanical components of the propeller.

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# NO JOKE FOR "JERRY"

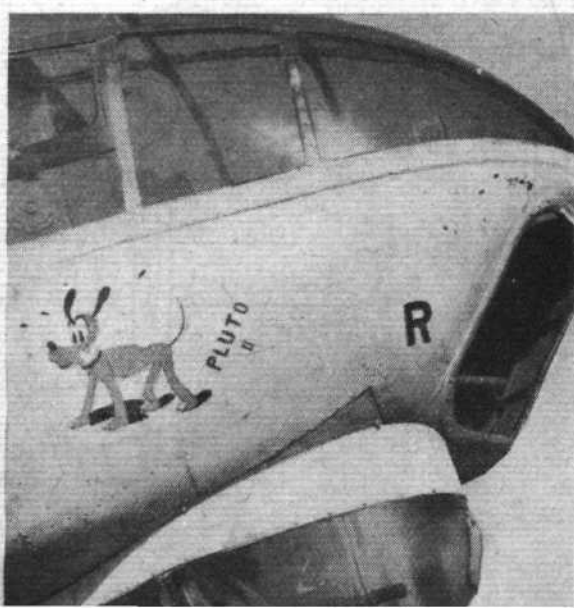
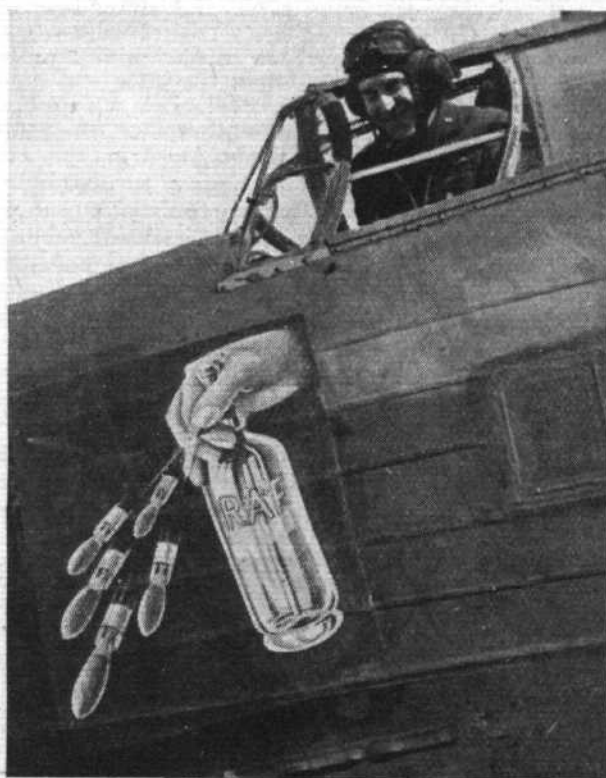
*Comic Emblems, Beloved of the R.A.F., that the Hun Cannot "Laugh Off"*



**N**EXT to double rations and seven days' leave, the British fighting man loves a jest, grim or otherwise. In fact, the Germans are said to have alleged we won the last war because of our sense of humour!

No section of our fighting forces keeps up this old British custom (which mystifies our enemies) with greater zest than the R.A.F., who decorate their aircraft with cute and comic little emblems.

The clown (immediately below) expresses suitable contempt of Jerry's flak and 109Fs, the Ozard of Whizz (bottom left) has been adopted as the unofficial crest of a heavy bomber squadron, and, although Walt Disney never meant him to be that kind of bird, Donald Duck (bottom right) now indulges in egg-laying over enemy territory—so laugh that off Adolf!

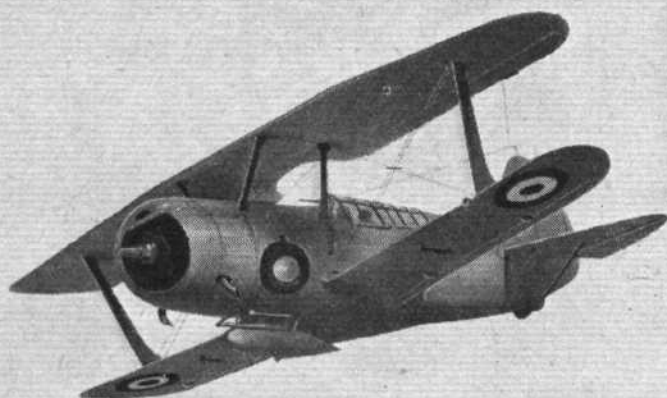


# FRIEND OR FOE ?

*A Brace of Useful Biplanes : The Fairey Albacore and the Curtiss Cleveland*



**Fairey Albacore.** Single-bay wings, equal span, parallel edges, rounded tips, no stagger. Small diameter radial engine. Pilot's position in long, enclosed cabin, high and well forward. Air-intake below and aft of cowlings. Fixed undercarriage with faired legs. Tapered cantilever tailplane, rounded tips; large fin and rudder with broad, rounded apex.



**Curtiss Cleveland.** Single-bay, staggered wings, equal span, single inter-plane struts. Top wing backswept on leading-edge of outer panels, straight trailing edge with large "bite" in centre-section. Lower wing of narrow chord, straight parallel edges with fillet at roots. Large diameter radial engine, oval cowl, covered cockpit, well back. Retractable undercarriage. Tapered tailplane.

**I**N TENDED to supplement and replace the Swordfish for T.S.R. duties with the Fleet Air Arm, the Albacore is a larger type of single-bay biplane with straight parallel wings of equal span and having rounded tips. A notable characteristic is the height of the enclosed cabin—the top of which forms a transparent centre-section for the upper wing—which projects well forward of the leading-edge and provides the pilot with an admirable view for deck-flying. Incidentally, the wings fold for easy stowage aboard an aircraft-carrier. The comparatively small diameter Taurus engine is enclosed within a tapered, long-chord cowl which has an exhaust pipe on the starboard side. Readily discernible, also, is the oval section air-intake, which protrudes from the underside of the nose immediately aft of the cowl. The fixed undercarriage has well-faired legs, but no spats, and is interchangeable with floats.

Bomb-racks are fitted under each bottom wing, a torpedo, when carried, being slung under the fuselage. The cantilever tailplane has a straight taper of moderate degree to the leading-edge, a slight taper to the trailing-edge and rounded tips, while the fin and rudder are large and have a broad, rounded apex.

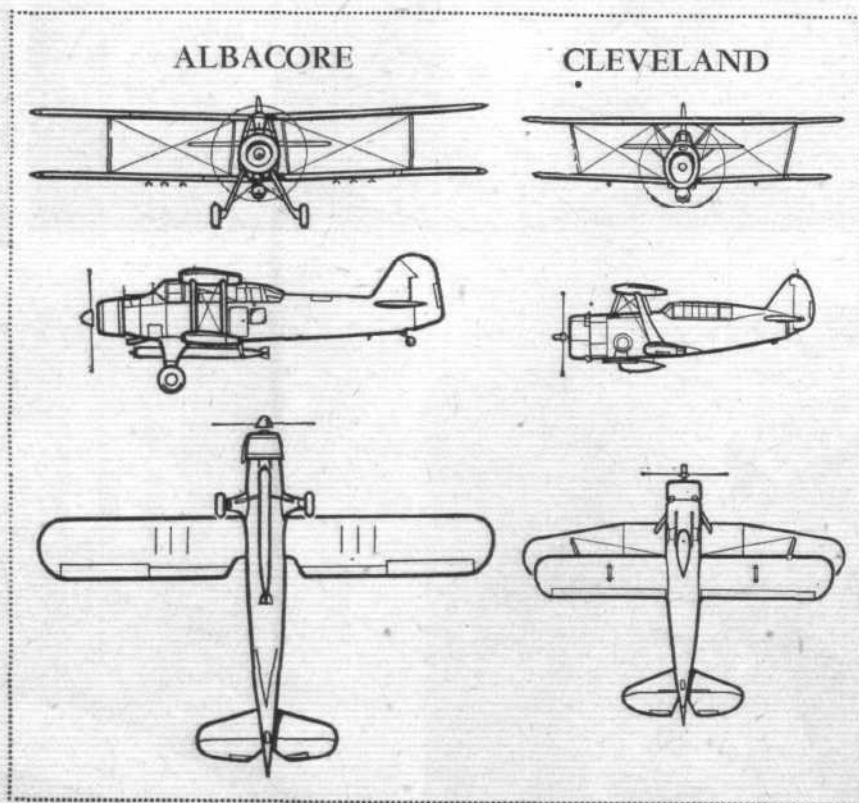
A development of the famous "Helldiver" produced for the U.S. Navy, the Curtiss Cleveland, is being supplied to Great Britain as a dive-bomber, and may well meet some of the needs of the newly-formed Army Co-operation Command. It is a single-bay biplane with a pronounced stagger which is accentuated by the shape of the upper wing. This has a backsweep to the leading-edge of the outer panels, the trailing-edge being straight but with a large "bite" in the centre-section. The bottom wing is of the same span but has a narrower chord, its edges being straight and parallel. All four wing-tips are rounded.

The large diameter radial engine is encased in a cowl of oval section, and the wheels retract upwards and inwards into recesses in the sides of the fuselage. The cockpit is set well back, the pilot's "office" being aft of the trailing-edge of the top wing, hence the "bite" in its centre-section to increase his view upwards and

forwards. The centre-section struts are also sloped well outwards from the top of the fuselage to give a clear view directly forward over the considerable length of decking between the windscreen and the actual nose.

Fin and rudder are tall and with a small rounded apex and a straight slope to the leading edge. The tailplane is strut-braced and tapers fairly sharply on both edges to small rounded tips; it has a V-shaped "bite" in the trailing-edge to permit rudder movement. Racks for small bombs are mounted beneath each bottom wing, and a large bomb can be carried under the fuselage. The latter, however, is sometimes replaced by a streamlined auxiliary fuel tank, as shown here, when additional range is required.

*Next week: The Catalina and the Consolidated 31.*





# TRULY ILLUSTRIOUS

*Aircraft-carrier's Crew Saved their Ship  
in a Seven-hour Fight*

**H**OW the aircraft-carrier *Illustrious* successfully fought off six mid-ocean attacks by nearly 100 German and Italian bombers and torpedo planes in a seven-hour Mediterranean battle makes one of the most thrilling air/sea stories of the present war.

This epic encounter took place in January, but the facts have only just been released for publication.

Sailing with the battle fleet, the *Illustrious* was first attacked by a pair of torpedo-bombers, both of which dived down and launched their deadly missiles at her, but a prompt change of course enabled the carrier to dodge the "tin fish," while a few of her own aircraft roared off the flight-deck and chased the enemy back to shore.

Having thus failed at what he doubtless expected to be a successful surprise attack, which would leave him a clear sky in the immediate vicinity of the British ships, "Jerry" then launched the main air offensive of the day and concentrated chiefly on the *Illustrious*. In wave after wave his dive-bombers swept down over the British aircraft-carrier, whose commander took avoiding action, while her guns spat fierce defiance and her own fighters vigorously waded into an enemy who greatly outnumbered them. Nevertheless, several heavy bombs found their mark on the *Illustrious*, knocking out some of her A.A. guns and starting several fires both fore and aft. But the rest of the gun-crews kept up the barrage, and the F.A.A. pilots and air-gunniers continued to smash into the Stukas while the ship's steering-gear worked overtime to spoil the aim of the Junkers as much as possible.

In the meantime gallantry and efficiency aboard the *Illustrious* saw to it that the fires were quickly put out and the damage below decks shored up. One fire, however, defied all the efforts of reinforced fire-fighting parties for some time. This was in one of the hangars where damage caused by a heavy bomb seriously hampered the men's repeated attacks upon the flames. But, undaunted by the imminent risk of exploding petrol tanks, they made sally after sally into the blazing hangar until, bit by bit, they got the outbreak under control.

## Steered by her Engines

By this time the *Illustrious*, with destroyers in attendance, was heading for Malta. Her steering-gear was out of action, and the many gallons of water poured on to the fires had given her a bad list. But, steered by her engines, she ploughed on while her crew worked unceasingly to tend the wounded, repair damage and fight fires. One party had a great struggle to prevent water reaching the dynamos, and down in the boiler-room conditions had become almost unbearable from the thick clouds of black smoke and fumes from the chemical extinguishers that poured in. But steam had to be maintained at all costs, and the men, gasping for breath through wet cloths, held on doggedly and kept the propellers turning.

It was not long before the third attack came, but this was a high-level attack by seven bombers which were sighted afar off and tackled in good time by the protective fighters. Beaten off from their intended victim, these bombers dropped their loads harmlessly in the sea. The *Illustrious* was not given much respite, however, and soon a force of 15 Junkers dive-bombers escorted by five fighters was seen approaching. The first two waves dived at the ship, but the gunners aboard her, though handicapped by smoke from the remains of the fires, put up such a withering barrage that a "near miss" was the worst "Jerry" could



**NEAR MISS.** An untouched photograph, taken from an escorting destroyer, of bombs bursting near the *Illustrious*.

do. The rest of this Stuka formation, seeing that their escorting planes were beginning to wilt under the harassing machine-gun fire of the British fighters, made one more attempt to dive-bomb the *Illustrious*, but were driven off without dropping a single "egg," and retired with undignified haste.

By this time the *Illustrious* was getting near Malta, but she had to fight off two more attacks before making port. With only a few miles to go, she was treated to a combined high-level and dive-bombing attack by 17 enemy machines, and a little later, when actually within sight of the harbour, two more torpedo-bombers made a last-minute attempt to get her before she made port. But she opened up with such hot and accurate gunfire that both these attacks were driven off without further damage—in fact, the last one hardly developed into a definite attack at all, the torpedo-bombers sheering off under the heavy fire without even getting within torpedo range.

And so, saved by the seamanship of her commander and the devotion and efficiency of her gallant crew, the *Illustrious* came into port at Malta, where, incidentally, she was picked out for special attention in four more air-raids during her stay there. But in these she was only hit once, although the official report described the two final attacks as "on a very large scale."

No fewer than 70 bombs fell in the immediate vicinity



**HE COULD TAKE IT!** This British sailor did not even duck when a Stuka's bomb burst alongside his action station.

## TRULY ILLUSTRIOUS

of the ship during the four biggest onslaughts. During the attacks at sea, her guns and aircraft shot down nine German aircraft, while a further seven were seen to have been damaged, at least two of which were so thoroughly "shot up" that they almost certainly failed to get back to their base.

"It is evident," runs the official report, "that the entire ship's organisation, the centralised control of damage and the initiative and energy shown by all was of a very high order."

Six officers and 12 other members of the *Illustrious* crew are to be decorated "for great courage and devotion to duty in the face of enemy air attack," and particulars of these awards are given in the "Service Aviation" section of this issue.

DIRECT HIT?—Or perhaps another near miss! Conditions were not ideal for perfect photography.

# Correspondence

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters.

### FLYING BOAT TRAINERS

#### Smaller Types Neglected in Britain

YOUR comparison of flying boats in two wars given in *Flight*, May 22nd issue, was most interesting. It is amazing that in all the years of flying-boat design and operation in this country so little attention has been paid to the smaller training flying boat. The Saro Cutty Sark and Cloud were designs which broke new ground in many ways, and if they had been developed further would have made admirable trainers for flying-boat pilots.

It is agreed that the handling of a flying boat in getting off the water and alighting has problems of its own, and yet there is not in existence one monoplane with a high wing loading, V.P. airscrews, flaps, retractable floats, etc., which is designed especially for the training of pilots who will be required to fly "Sunderlands" and "Lerwicks," etc.

There are many who believe that lack of training in the handling of high-speed flying boats was the cause of the loss of a good number of the brilliant "Empire" boats. When one is shown a "Kent" or "Calcutta" for instance, and informed that these are the aeroplanes upon which prospective Empire Boat pilots receive their tuition in marine handling—well!

The neglect of the design of small flying boats—with the exception of about one company—is unique in this country. I maintain there is very urgent need for the introduction of a monoplane flying boat of some 6,000 lb. all-up weight capable of carrying a crew of three, having all the modern dangerous things to aid performance; flaps, V.P. airscrews, etc.! The top speed, using two Gipsy Sixes or two Lycoming "flats" (the six-cyl. O-435) would be about 180 m.p.h.

It always seems a pity to me that this type of boat was not developed in the days before the war, then we could have explored overseas markets too.

The Grumman Company in America are leading in the small boat class, and will presumably reap rich rewards in Government contracts and other markets, with their G.21 and Widgeon.

JOHN A. SIZER.

### DEFERRED R.A.F. SERVICE

#### Weeks that Drag into Months

AS one of those who are awaiting a call-up for flying training, your paragraph on "Deferred Service" in the issue of May 22nd came very near home.

I originally applied for transfer to the R.A.F. early in February of this year, and six weeks later, on April 3rd, I was accorded an interview by the A.C.S.B. at Oxford. Six weeks seems a long time when every advertisement stresses the "Do it to-day" aspect, but it is possible most of the delay was the fault of the Army—the usual channels are proverbially sluggish.

I passed and was recommended for a Commission in the R.A.F.V.R. for training as a Pilot/Observer. I was informed verbally before I left that I could expect a call-up "in about five weeks." This was eight weeks ago, and on enquiry at

the Information Bureau of Adastral House I was told that there would almost certainly be at least another month's delay, probably more. I now realise from what I have heard of other people's experiences that "about six months" would have been nearer the mark than "about five weeks."

Nobody can possibly quarrel with the Air Staff's policy of keeping an untrained pool always available, and if six months' detention is necessary, well and good. I do submit, however, that those who respond to the call for Air Crew Volunteers should be told what to expect. Men are allowed to leave the A.C.S.B.s with the idea that their call-up is a mere matter of a few weeks, and months of subsequent hanging about in an occupation in which they have ceased to take any interest does neither the man nor the R.A.F. any good.

Misleading information from a source which should be reliable does not help matters and, apart from my own case, I, personally, know of several others who were told to expect call-ups within much shorter times than appear to be the rule and which have, in every case, proved to be entirely false.

Waiting with some fairly definite end to look forward to does no one any harm, but waiting "in a vacuum" on a day-to-day, hand-to-mouth basis rather tends to cause deterioration in keen material.

"LIEUT., R.A."

### "Y" Scheme for Navy and F.A.A. Recruits

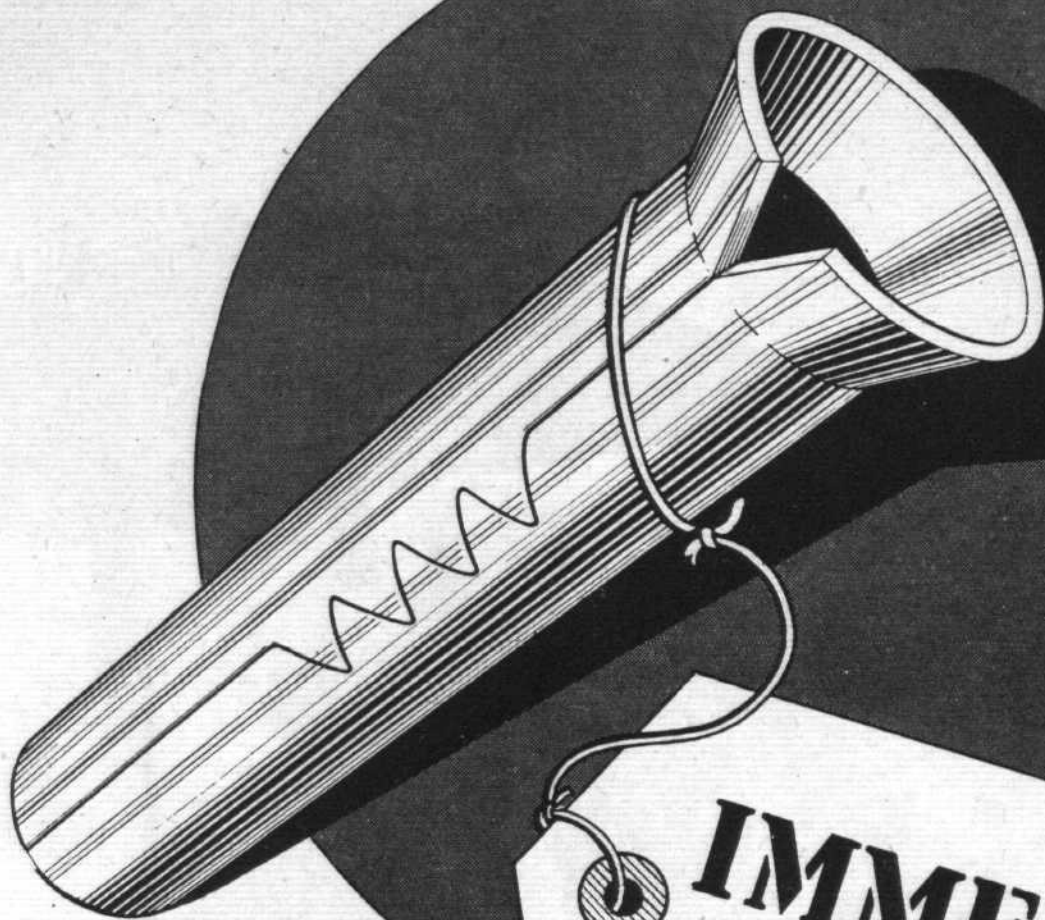
UNDER a new scheme of entry known as the "Y" Scheme, young men who wish to carry out their war service in the Royal Navy, including the Fleet Air Arm, have now an opportunity of applying to enter the Navy for the period of hostilities as soon as they reach the age of 17, though they will not be actually called up for training before they are at least 18. Young men, whether at school or at work, who are medically fit, can apply for entry under the "Y" Scheme, provided they have either reached the standard of education equivalent to that required for the School Certificate Examination or have served satisfactorily for at least a year in a Junior Training Corps, Air Training Corps, Army Cadet Corps or recognised Sea Cadet Corps. Those reserved in certain trades will not, however, be eligible.

Candidates can volunteer for service as seamen or for training as Pilot or Observer in the Fleet Air Arm, and those accepted for the latter duties, if they satisfactorily complete their course of training, will be granted temporary commissions in the Air Branch of the R.N.V.R. Candidates accepted as seamen will also be eligible to be recommended for temporary commissions after a period of service.

Since the number of men who express a preference for Naval service when registering is usually greater than the number which can be accepted, the advantage of entering the Navy as early as possible under the "Y" Scheme is obvious.

Full particulars of the "Y" Scheme, and how to join, can be obtained from the Naval representative at the nearest Combined Recruiting Centre, the address of which can be obtained from any Ministry of Labour and National Service Office.





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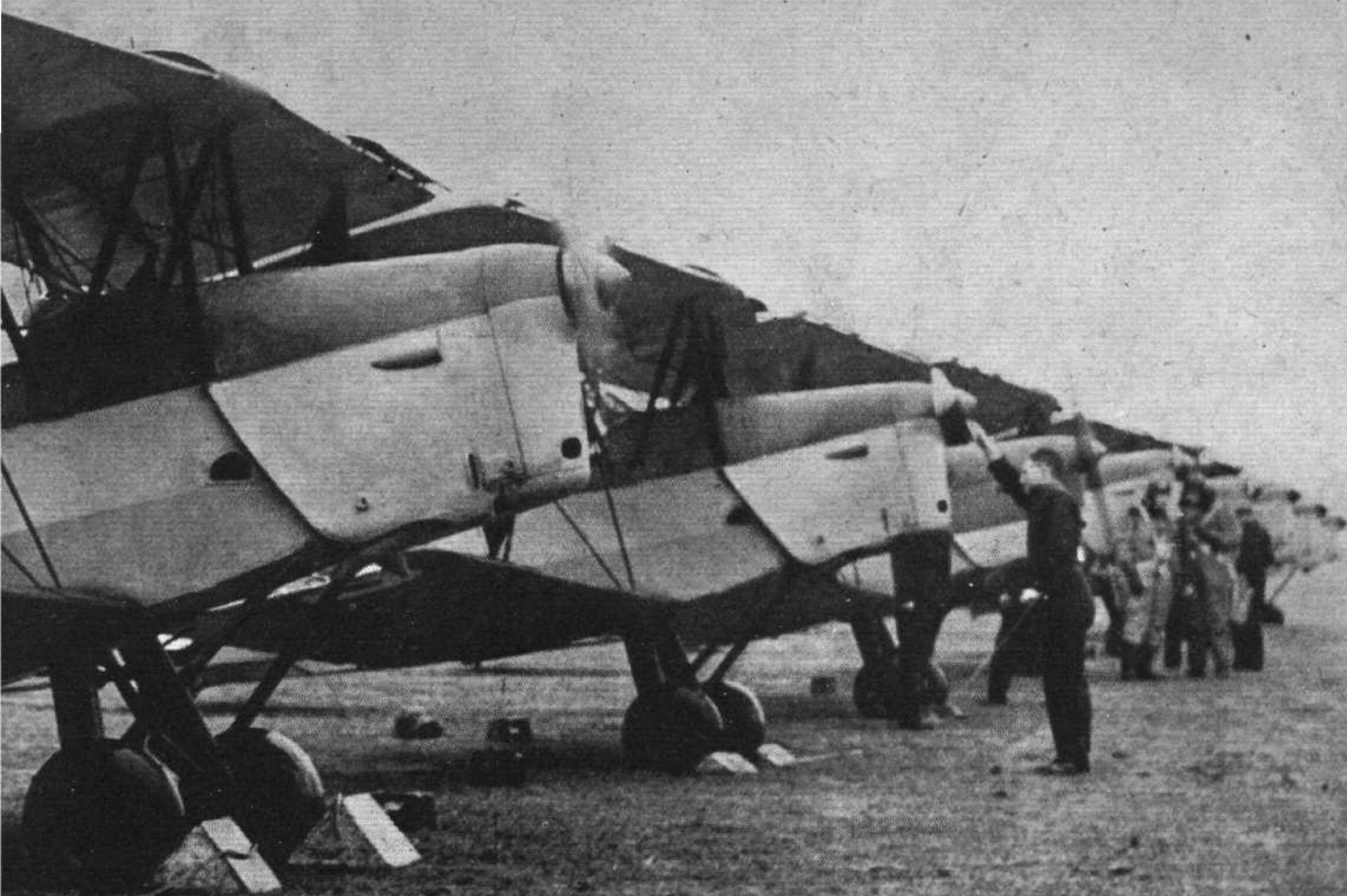
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Photograph by "Flight"





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(GIPSY MAJOR ENGINE)

Superb flying qualities, unsurpassed reliability and serviceability explain the choice of the Tiger Moth as the principal basic trainer of the air forces of the Empire.



## MASTERS OF ENGLISH CRAFTSMANSHIP

**T**HE end of the seventeenth century was a hard time for English Cabinetmakers, who were almost put out of business by an invasion of foreigners following an unfortunate fashion. It was Thomas Chippendale who, by the beauty of his designs and the wonderful accuracy of his workmanship, showed that English craftsmen were still the finest of all.

In the eighteenth century the great triumphs of cabinet work were by Englishmen, and, as everyone knows, examples of work by Chippendale himself are

used, admired and eagerly sought after still.

In the Pullin Organization to-day an able management controls designers, joiners, cabinetmakers and men of many of the trades jealously maintaining the good English standards of workmanship that served Chippendale so well. They do not boast of their products, but they know the Royal Navy, the Army and the Royal Air Force are using them, and are glad to be worthy of the Services that have proved themselves second to none in the world.

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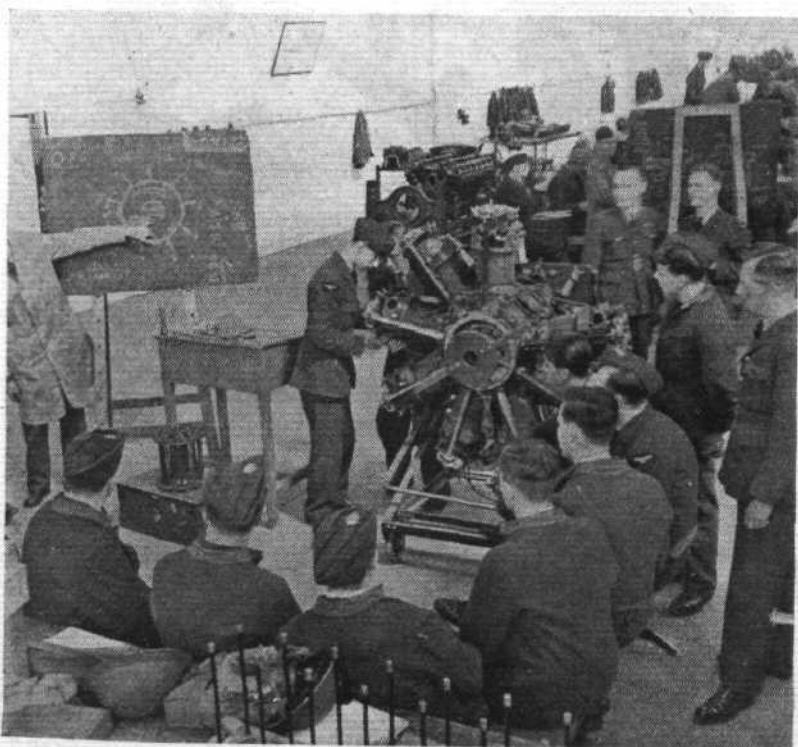
## NOT SO ERKSOME!

### R.A.F. Ground Staff Learn Aircraft Maintenance

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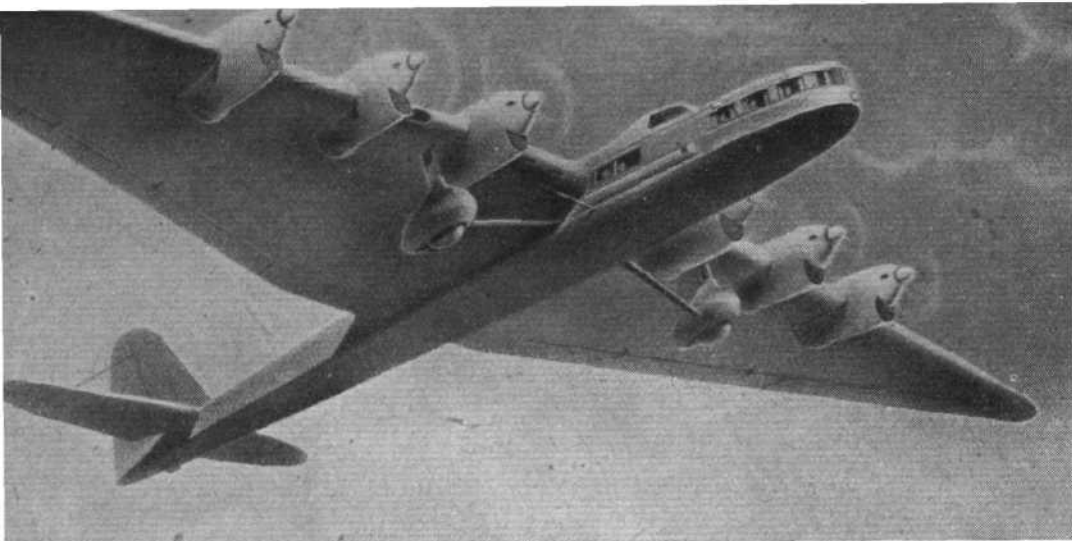
These pictures, taken recently at one of these schools, depict typical scenes in many similar establishments all over the country. Ground staffs are divided, roughly speaking, into two main sections—those who look after the engines and those who service the airframes—though the specialists in armament, radio and instrument maintenance are equally important, of course.

Above is a general view in an R.A.F. "classroom," the other pictures showing instruction on undercarriages, engines and "skin" repairs.



# THE SOVIET

*The Conflict of Fascism and*



**AIRLINER OR BOMBER?** The L-760 has a wing span of 210 ft. with cabins in the wings. It is one of the latest Russian designs, having been put into service as an airliner on the run from Moscow to the Caucasus about a year ago. It may be engaged on night bombing duties now, though it appears to be unarmed.

**T**HE greatest aeronautical question in the last decade may soon be answered. How strong is Russia in the air? Her air force, in fact her whole industrial system, is now on trial. It is her trial by combat, with the major part of the Russian military machine pitted against a great concentration of German fighting strength.

Articles which have appeared in the aviation Press of the world about Russian aviation over the last ten years have mainly been speculative, both about total strength and about technical details of aircraft types. Prior to that time there was little even to be speculative about, for the aircraft industry and the air force have both been built up mainly in this period. In the various Five Year Plans Russian aviation, both civil and military, has made great advances. But its beginnings in the 1920's were elementary and it remains to be seen whether the advances made are such that the military arm will be able to combat the *Luftwaffe* successfully.

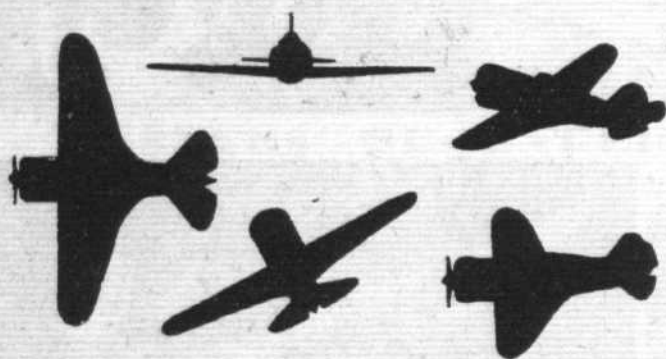
Authentic information from Moscow is almost non-existent, the Soviet Government having pursued a consistent policy of saying nothing. But several definite facts are known. Reports from Spain during the so-called Civil

War, when Germany and Italy fought with Franco's rebels against the Government troops aided by Russians, showed that the Russian fighters gave a not unworthy account of themselves. Many of these were the I-15 single-seater biplanes with Wright Cyclone engines, four machine guns and a maximum speed of about 230 m.p.h. It was not unlike the Armstrong-Whitworth Scimitar. But however well such a machine did its duties in those days, it could not "stand the racket" in the aerial warfare of to-day.

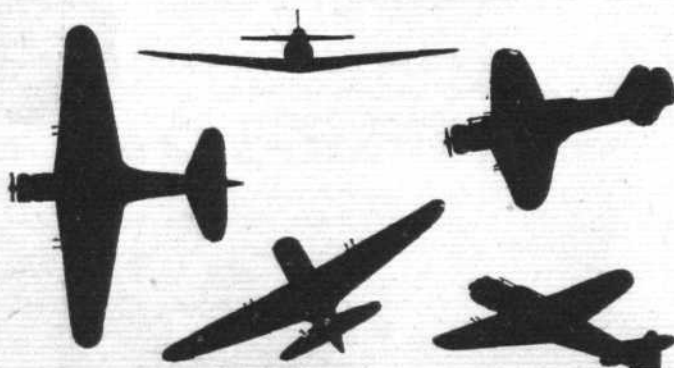
Another fact is the enterprise displayed by the Russians in developing the idea of parachute troops. There are few who will dispute this Russian claim and it is now evident that descent from the air is a method of warfare particularly suitable to defence or offence in operations over large land areas. A trip through Russia shows that the whole country is "parachute minded" and many parachute towers for introducing the youth of the country to this latest of air sports which can be turned to military use have been erected.

Third outstanding fact about Russian military aviation is the manner in which it has been utilised on other national tasks during the years of peace. Spraying of swamps to kill the malarial mosquito, fire watching and dusting with insecticides of forests, sowing of crops, all these are tasks assigned to the military pilots.

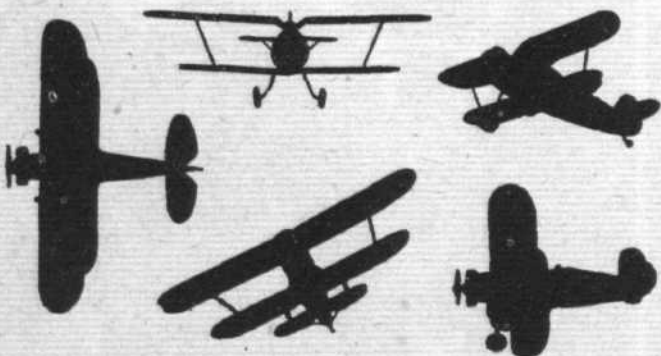
The work of the Russian pilots operating over the Arctic Ocean has attracted little attention but has been of a sterling character. The rescue of the crew and passengers of the *Chelyuskin*, was one epic incident. The ship carried meteorologists and other scientists, their families and work-



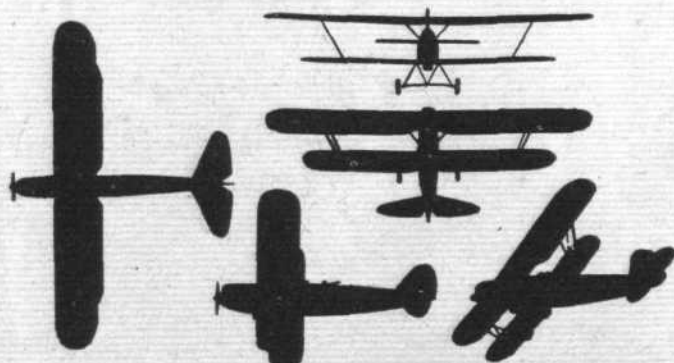
The I-16 single-seat Rata fighter with 750 h.p. M-25 (Wright Cyclone) engine. Armed with four machine guns, it has a speed of 280 m.p.h.



The design for this monoplane fighter was acquired from U.S.A. It is the Vultee VUGB.



The I-15 is also a single-seat fighter. With the same M-25 engine and four guns, it has a speed of 230 m.p.h.

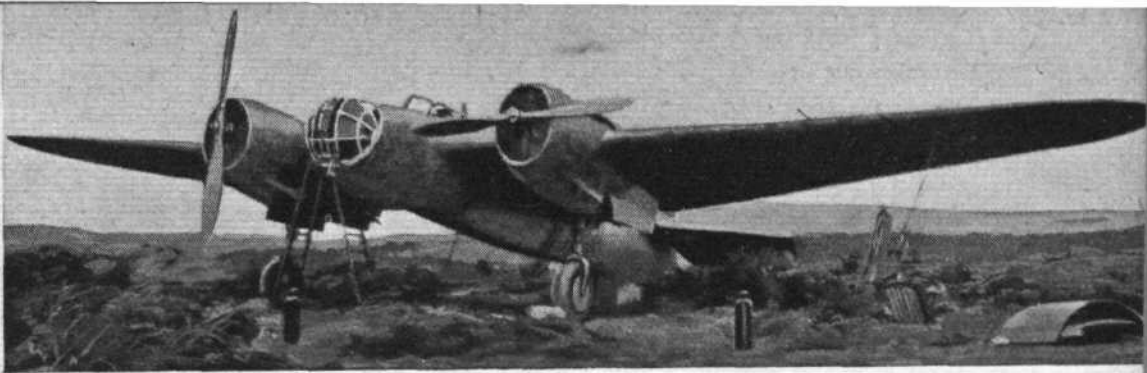


This two-seater biplane is the reconnaissance bomber R-5. It has a 680 h.p. M-17 engine of B.M.W. design and carries four machine guns and bombs.



# IR FORCE

## unism in the Air



men who were going to establish weather stations along the inhospitable Siberian coast. Caught in the ice, the ship was gradually crushed. By working feverishly, some of the cargo was transferred to the ice floe before the ship sank. Then came a long wait under severe living conditions while radio communication was established and rescue aircraft awaited. Weather hampered the searchers seriously and the floe was in a very bad condition for landing. But flight after flight was accomplished as the ice gradually broke up, each flight taking a few more of the marooned to safety. Only one life was lost, the person being crushed by packing cases during the break up of the ship.

There is a close connection between the civil air services and the air force. It was the military pilots Gromov, Umashev and engineer Daniline who captured the long-distance record in July, 1937, by their flight of 6,305 miles in the ANT 25 from Moscow, over the Arctic, down to San Jacinto, in California. But the present tasks of all these pilots are grimmer than their past ones.

### Russian Designers

The letters ANT stand for A. N. Toupolev, who for many years was Russia's best-known designer. He disappeared in 1938 after his arrest. Another able engineer, Grigarovitch, died in 1938 after spending some years in prison. Polycarpov, a collaborator of Grigarovitch and designer of the I-16 fighter, was also in trouble at the same time. He is now no longer concerned with aircraft design, having adopted a political career.

All Russian design has been very strongly influenced by the purchase of foreign licences. In 1937 rights were acquired from U.S.A. for the manufacture of several Boeing, Consolidated, Seversky and Vultee designs. It was also in the later 1930's that the British and German machine tool industries received large orders from Russia.

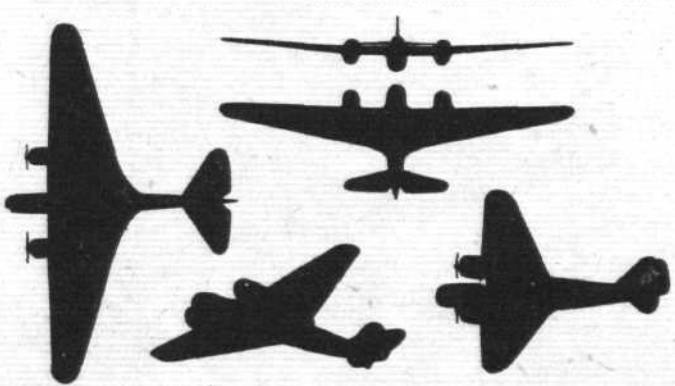
A more modern bomber design is the mid-wing SB-2 with two M-25 engines of 750 h.p. each. Its speed is about 270 m.p.h. If well armed and armoured, this machine should be able to inflict some hard blows on eastern Germany.

Russian engines are almost entirely adaptations of foreign types, chiefly the American Wright and the German B.M.W., the 750 h.p. M-25 being a Wright Cyclone design and the 680 h.p. M-17 being the B.M.W. VI.

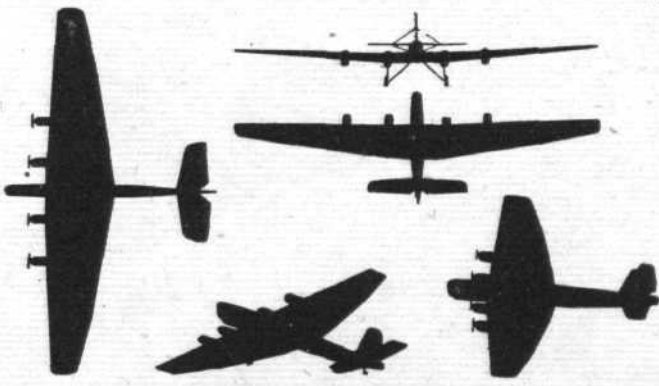
But it should not be thought that the Russians are doing no work of their own. They may have handicapped themselves by getting rid of some of their best designers such as Toupolev but the organisation which he controlled, the Central Aero and Hydrodynamic Institute at Moscow, sometimes referred to as the Zagi from its initials, is still in existence. It has sections devoted to aerodynamics, testing of materials, instruments, stress calculation and flight testing. This corresponds somewhat to our Farnborough.

Another institution to which we have nothing corresponding very closely, though the newly formed Air Training Corps has some features in common with it, is the Osoaviakhim which is an organisation for giving preliminary training in and stimulating enthusiasm for aviation and chemistry in the youth of the Soviet, though why the two should be grouped together is not entirely clear.

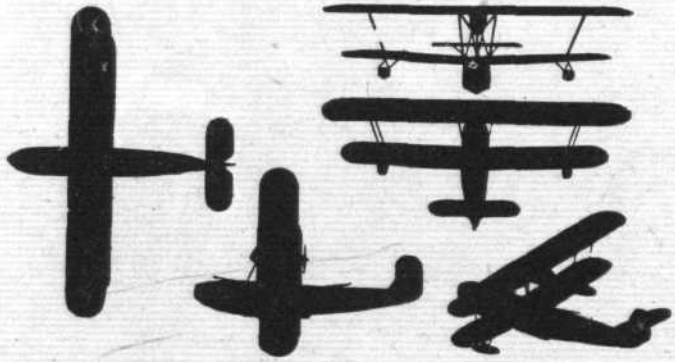
A feature of Russian aviation, though it is confined almost entirely to the civil side, has been the tendency to build big machines, machines which have not been distinguished by their speed or their aerodynamic cleanness. The *Maxim Gorky* was the outstanding example of this and is the only aeroplane which has had a printing press as part of its equipment. A later example is the L-760 which has a span equal to that of the huge Douglas B-19 bomber which is now under test. It has six engines delivering the



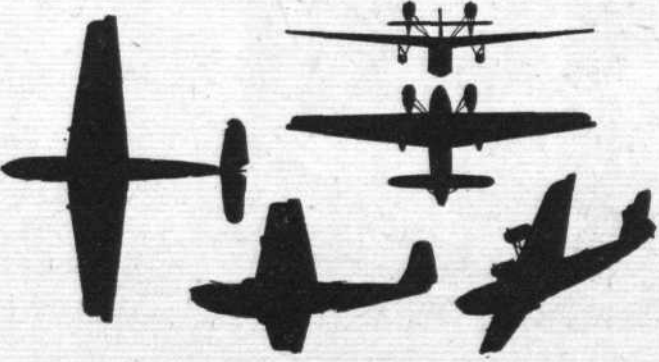
Silhouettes of the SB-2 mid-wing bomber. Its appearance shows that it is a modern design.



The TB-3, formerly the ANT-6, is a heavy bomber carrying 2,200lb. of bombs at the low maximum speed of 120 m.p.h. Its four engines are M-17 type of 680 h.p. There is also a later model of improved performance.

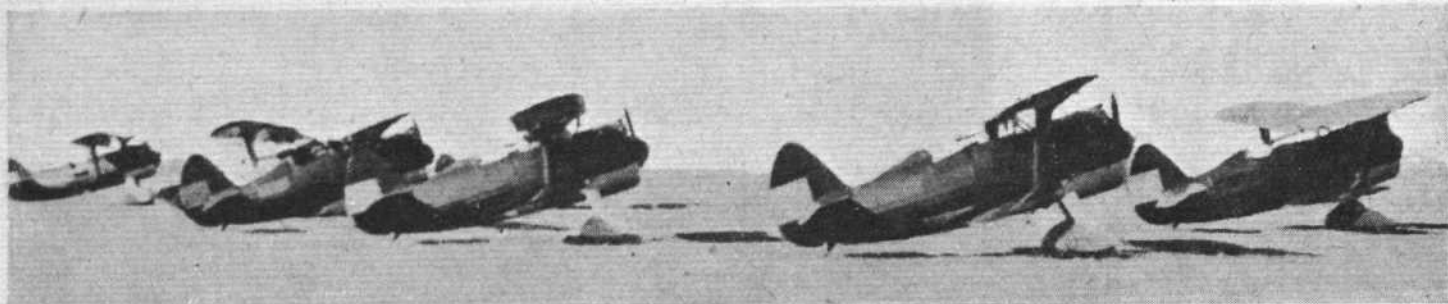


This three-seat reconnaissance flying boat, MR-5, has one 680 h.p. M-17 engine and two machine guns. Speed, 140 m.p.h.



This MBR-2 reconnaissance flying boat has two M-17 engines and three gun positions. Its speed is about 150 m.p.h.

## THE SOVIET AIR FORCE



**FIGHTERS IN SPAIN.** I-15 biplane fighters gave a good account of themselves in the Spanish War, when the Russians aided the Government forces against Franco and the Germans and Italians.

same power as the four of the Douglas, 8,000 h.p. Its loaded weight is 103,000 lb. while that of the Douglas is 164,000 lb. Maximum speed is given as 186 m.p.h.

Women enter into the traditionally masculine pursuits more in Russia than in other countries. Women sometimes work even as sailors so that it is not surprising to find that they have women parachutists also. Whether they will take any active part in the present combat is more doubtful.

The latest official release on the Russian Air Force is Marshal Voroshilov's speech of March, 1939. Sources of Russian news in this country, though they can give no figures, state that the Air Force is now considerably stronger than at that time and that Moscow has kept completely secret all particulars of the latest aircraft. Extracts from the speech follow:

"The speed of our fighters and bombers is well over 312 m.p.h., and the ceiling has far surpassed 49,000ft. We have the best aeroplanes in the world as regards loading capacity, and in this field we have won almost all the world records.

"In the years from 1934 to 1939 there has been a 213 per cent. increase in horse power; in 1934 our bombers were able to carry 2,000 tons of bombs in one flight; in 1939 they could carry over 6,000 tons. By 1939 the firing

capacity of aircraft machine-guns increased by 300 per cent. per second. The Fighter Air Force increased from 12.3 per cent. in 1934 to 30 per cent. in 1939.

"Our up-to-date fighters and bombers have a speed exceeding 375 m.p.h. We now have squadrons of dive-bombers. More than 5,000 aircraft throughout the whole country took part in the November parade last year, and had the weather been more favourable more than 8,000 aircraft could have participated.

"Our pilots can resist the enemy bravely and persistently in individual as well as in group engagements. The Fascist pirates have a good idea of this, but now they will learn still more about it. In the Soviet Union there are thousands of heroes like the late Brigade Commander Serov, who destroyed scores of Fascist aircraft at night on one of the western fronts.

"We can only say that the number of our aircraft exceeds the numbers mentioned in English papers and magazines. We have enough aircraft to beat the ferocious Fascists. Among our pilots are 161 Heroes of the Soviet Union.

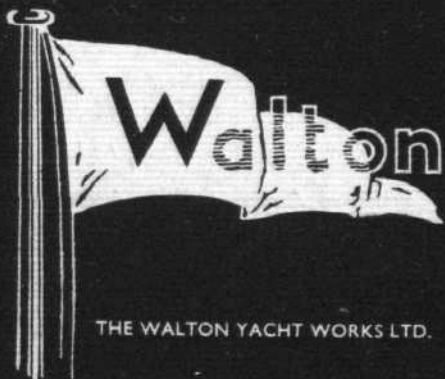
"During the two months of war at Khan-khingol we destroyed 660 Japanese aircraft and lost only 143.

"We have thousands of parachutists ready for action and trained to a modern fighting technique."



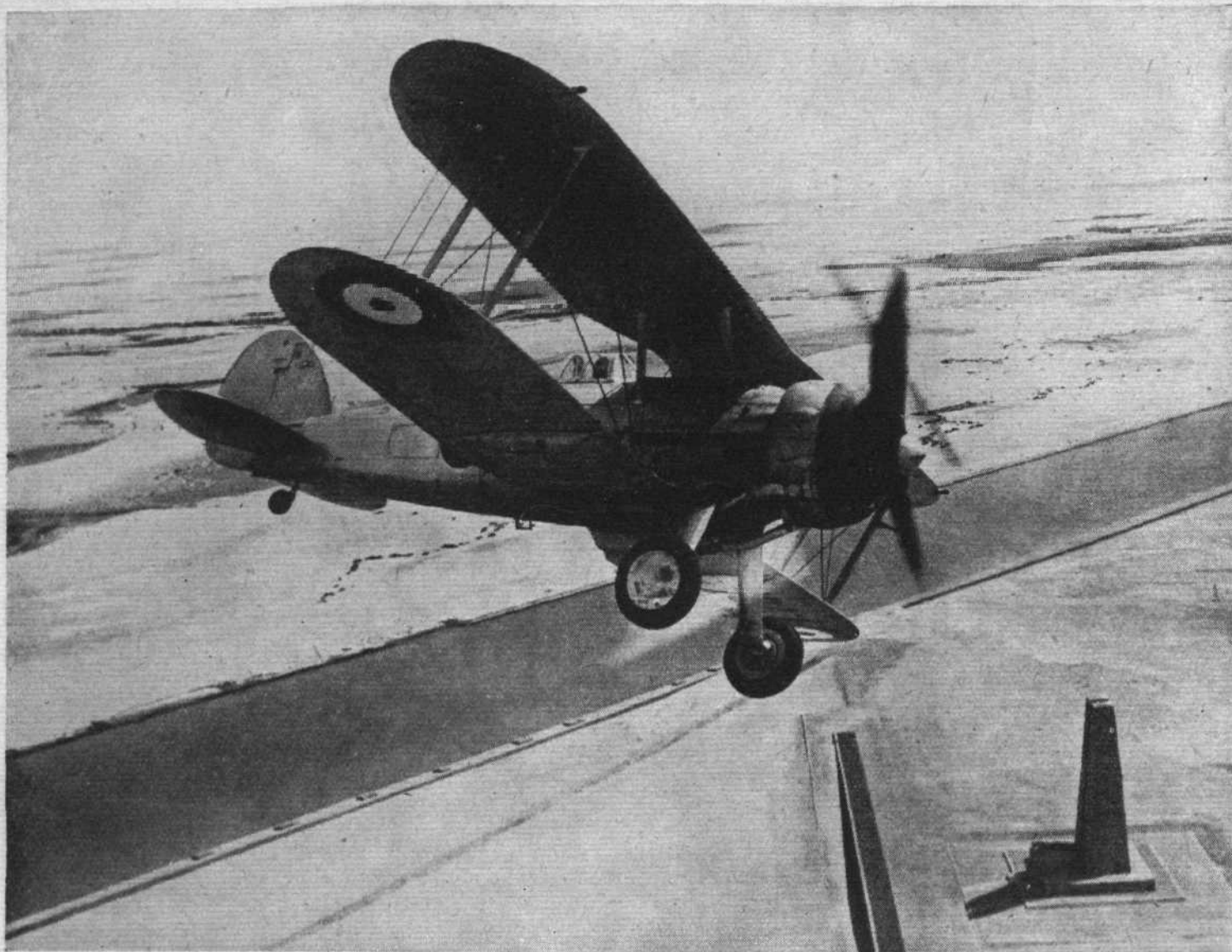
As this photograph was taken six years ago, it indicates how long the Russians have been at work training paratroops. It shows women parachutists after landing at Baneasa Aerodrome, near Bucharest. This may be happening again, but in deadly earnest, for Russia and Rumania are at war.





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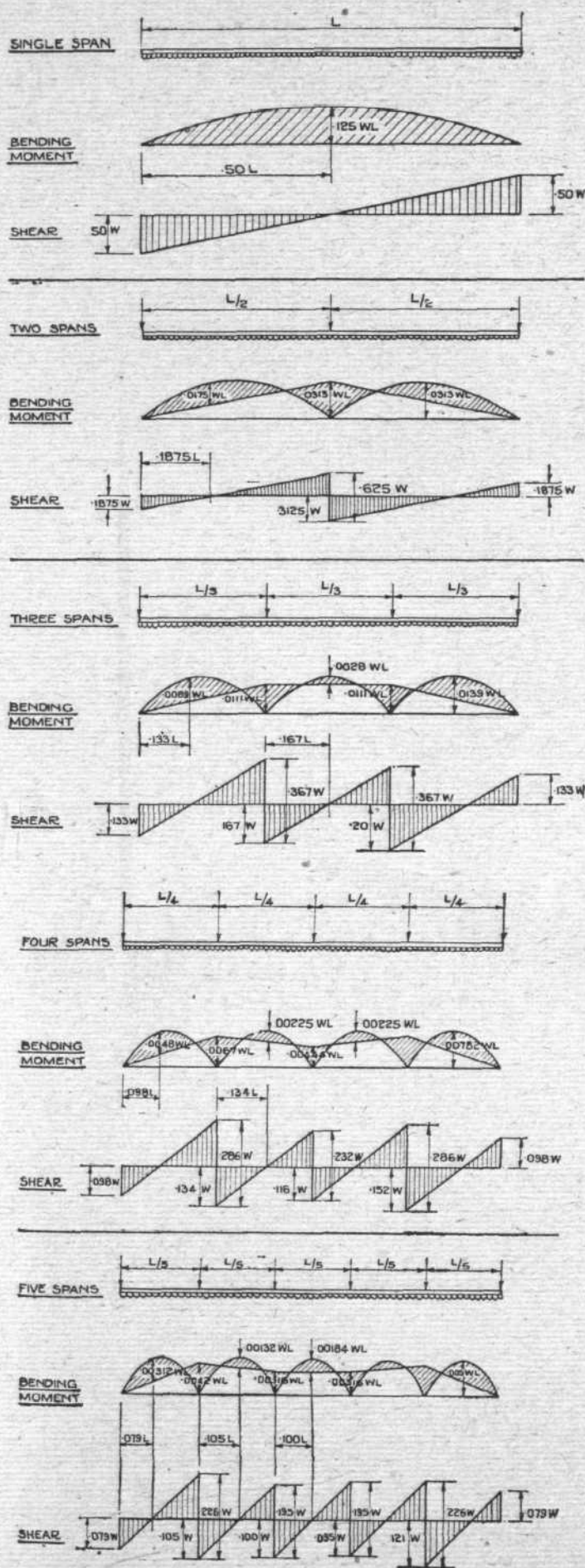


# THE AIRCRAFT ENGINEER

No. 184.

16th Year.

FIG. 1.



## CONTINUOUS BEAMS

A Simple Method for Quick Approximations

By W. L. MORSE

CONTINUOUS beam problems are of frequent occurrence in aircraft structures, and it is rather tedious to work out the Three Moment Equations for their solution in every case, particularly when there are more than two spans.

In order, therefore, to lighten the task, the reactions and fixing moments at the supports, and the maximum bending moments at intermediate points, have been set down in the accompanying diagrams (Fig. 1) for a distributed load uniformly spread over each of 2 to 5 equal spans.

As a quick approximation, the loading in many instances can be considered as uniformly distributed, and the diagrams can thus be used for a rapid check on the strength of the beam in bending, and also to determine the effect of using intermediate supports.

It will be noted, by the way, that for the sake of clarity the scales of bending moment and shear have been varied from case to case.

### More than 5 Equal Spans

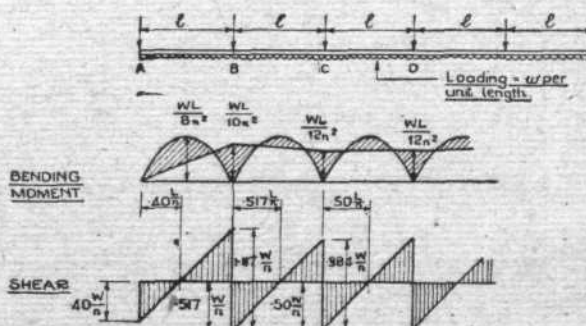
It is usual to assume that the fixing moment at the supports next to the end (such as B in Fig. 2) is  $\frac{wl^2}{10}$  and at all intermediate supports, such as C, D, etc., is  $\frac{wl^2}{12}$  where  $w$  is the loading per unit length and  $l$  is the length of each span.

TABLE 1

No. of Spans $n$	Coefficient of $M_n$	Coefficient of $M_s$	Remarks
2	0.0313	0.00444 0.00316	These values were taken from Fig. 1.
3	0.0111		
4	0.0067		
5	0.0042		
6	0.00278	0.00232	These values were worked out from the expressions: $M_n = \frac{WL}{10n^2}$ and $M_s = \frac{WL}{12n^2}$ (see Fig 2).
7	0.00204	0.00170	
8	0.00159	0.00130	

FIG. 2.

CONTINUOUS BEAM WITH MORE THAN 5 EQUAL SPANS.



## CONTINUOUS BEAMS

These fixing moments can be expressed in terms of  $W$  and  $L$  as before, by introducing  $n$  = the number of spans, so that the fixing moment at B ( $M_b$ ) =  $\frac{1}{10} \frac{WL}{n^2}$  and at all intermediate supports such as C ( $M_c$ ) =  $\frac{1}{12} \frac{WL}{n^2}$ .

The values of the coefficients for 6, 7 and 8 spans are set down in Table I, together with those given earlier for 2 to 5 spans, the values being plotted against  $n$  in Fig. 3.

The reactions  $R_a$ ,  $R_b$  and  $R_c$  at A, B and C respectively, expressed in terms of  $\frac{W}{n}$ , are worked out below by taking moments about B, C and D, and values of the coefficients for  $n = 2$  to 8 inclusive appear in Table II and are plotted against  $n$  in Fig. 4.

Reaction at A ( $R_a$ )

By moments about B,

$$R_a \cdot \frac{L}{n} - \frac{w}{2} \left( \frac{L}{n} \right)^2 + M_b = 0$$

$$R_a \cdot \frac{L}{n} = \frac{WL}{2n^2} - \frac{WL}{10n^2}$$

$$R_a = .40 \frac{W}{n}$$

Reaction at B ( $R_b$ )

By moments about C,

$$R_b \cdot \frac{L}{n} + R_a \cdot \frac{2L}{n} - \frac{w}{2} \left( \frac{2L}{n} \right)^2 + M_c = 0$$

$$R_b \cdot \frac{L}{n} = \frac{2WL}{n^2} - \frac{WL}{12n^2} - .80 \frac{WL}{n^2}$$

$$R_b = 1.117 \frac{W}{n}$$

Reaction at C ( $R_c$ )

By moments about D,

$$R_a \times \frac{3L}{n} + R_b \times \frac{2L}{n} + R_c \times \frac{L}{n} - \frac{w}{2} \left( \frac{3L}{n} \right)^2 - M_d = 0$$

$$.40 \frac{W}{n} \times \frac{3L}{n} + 1.117 \frac{W}{n} \times \frac{2L}{n} + R_c \cdot \frac{L}{n} = \frac{9WL}{2n^2} - \frac{WL}{12n^2}$$

$$R_c = \frac{9W}{2n} - \frac{W}{12n} - 1.20 \frac{W}{n} - 2.234 \frac{W}{n}$$

$$R_c = .984 \frac{W}{n}$$

TABLE II

No. of Spans $n$	Coefficients of Reactions			Remarks
	$R_a$	$R_b$	$R_c$	
2	0.1875	0.625		These values were taken from Fig. 1.
3	0.133	0.367		
4	0.098	0.286	0.232	
5	0.079	0.220	0.195	These values were worked out from the expressions above.
6	0.0668	0.186	0.164	
7	0.0571	0.159	0.140	
8	0.0500	0.139	0.123	

FIG. 3.

CONTINUOUS BEAMS.  
FIXING MOMENT COEFFICIENTS,  
FOR DIFFERENT NUMBER OF SPANS.

FIXING MOMENT = COEFFICIENT  $\times$  WL  
WHERE W = TOTAL UNIFORMLY DISTRIBUTED LOAD ON BEAM,  
AND L = OVERALL LENGTH.

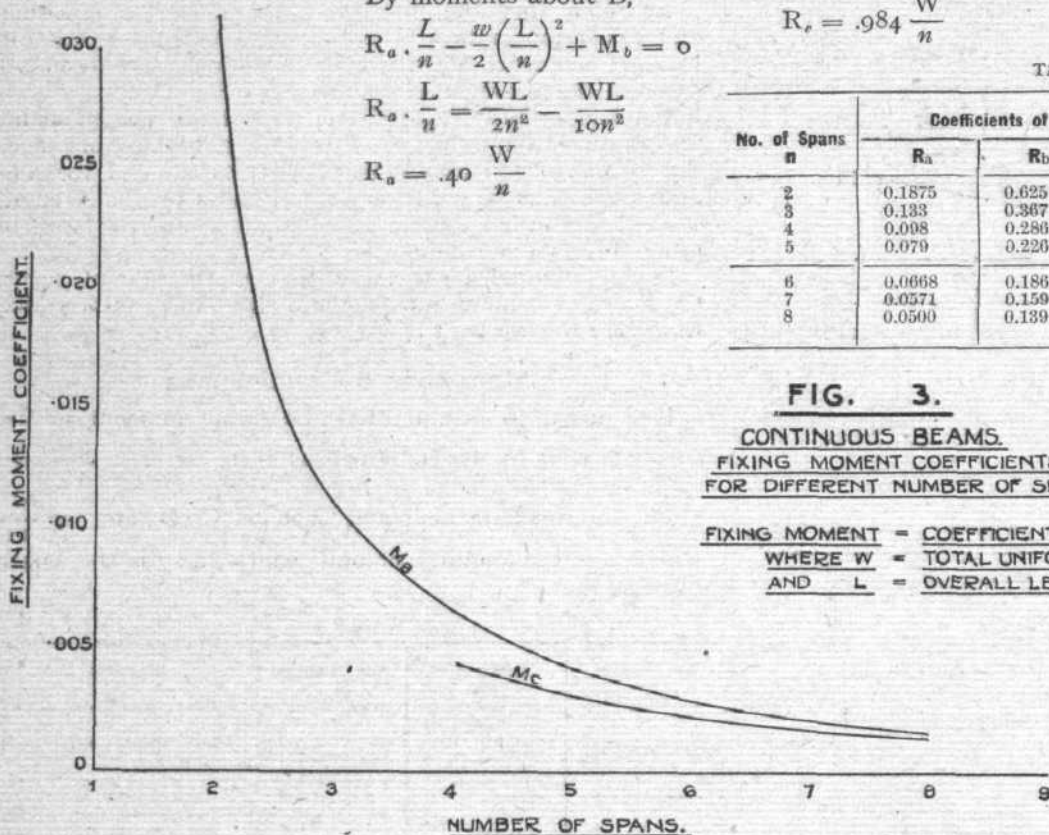
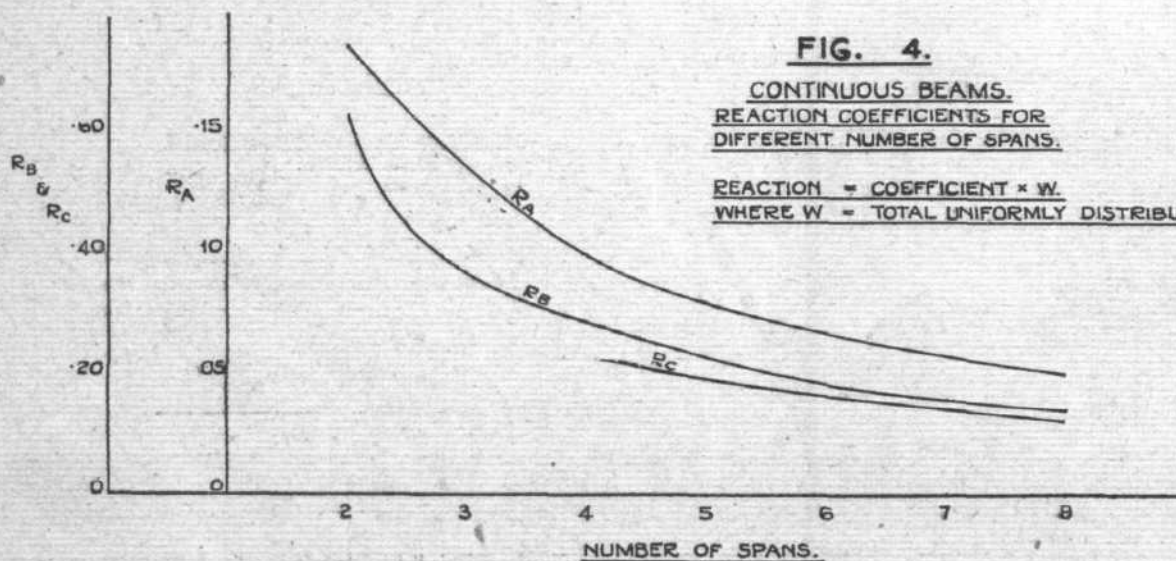


FIG. 4.

CONTINUOUS BEAMS.  
REACTION COEFFICIENTS FOR  
DIFFERENT NUMBER OF SPANS.

REACTION = COEFFICIENT  $\times$  W  
WHERE W = TOTAL UNIFORMLY DISTRIBUTED LOAD ON BEAM.





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## CONTINUOUS BEAMS

## Two Unequal Spans

Let one span be less than half the overall span ( $L$ ) of the beam and equal in length to  $KL$ , where  $K$  is a convenient constant, as shown in Fig. 5.

UNIFORMLY LOADED CONTINUOUS BEAM  
OVER 2 SPANS.

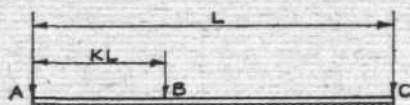
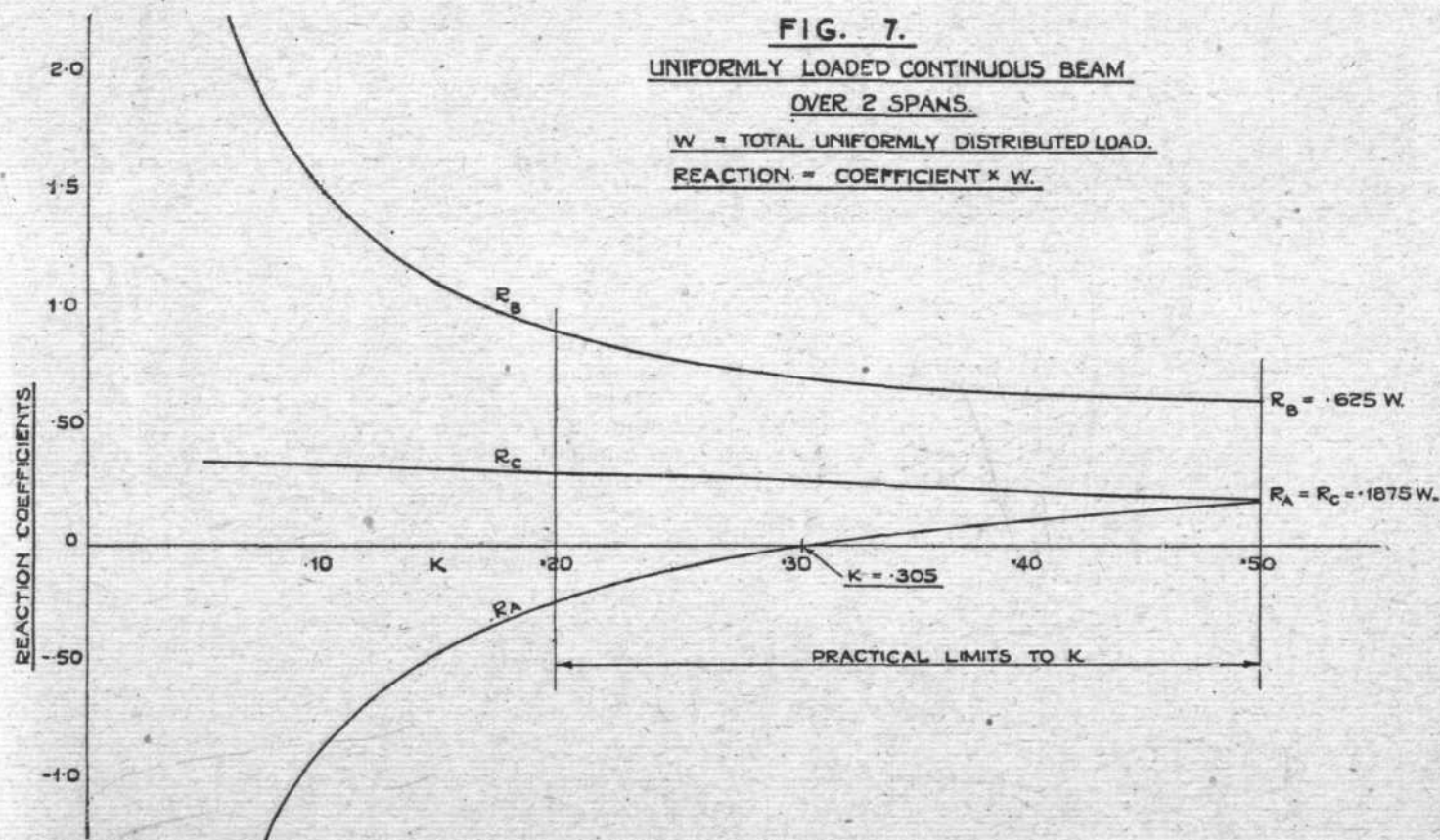
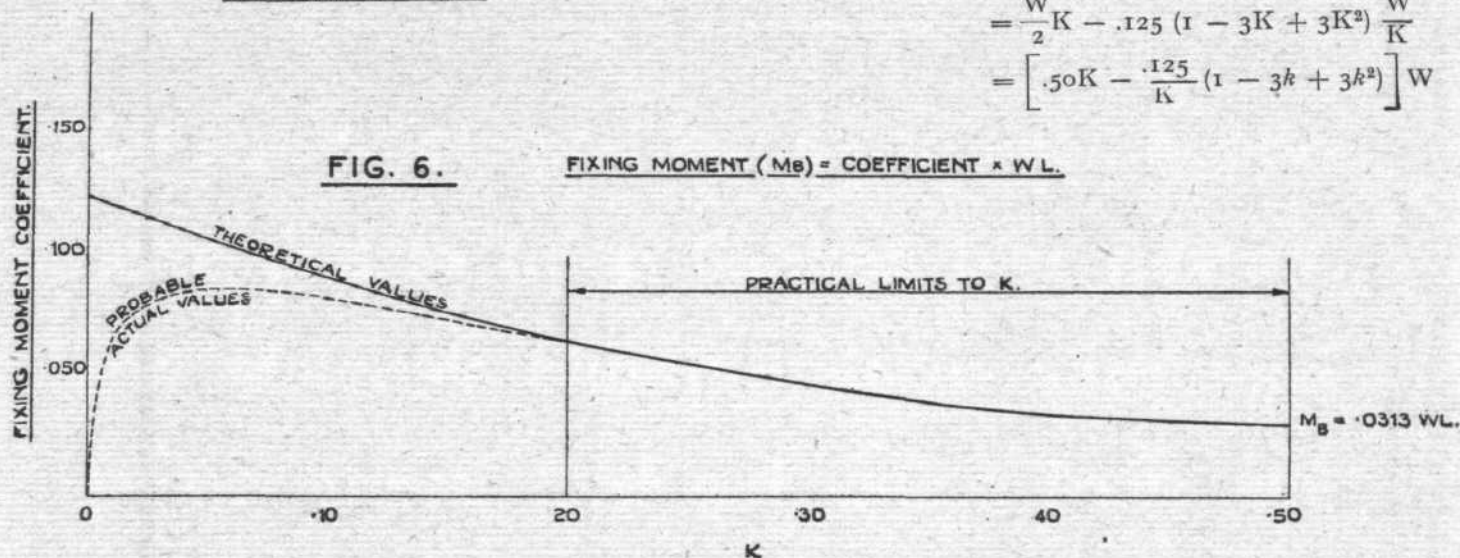


FIG. 5.

$w$  = UNIFORMLY DISTRIBUTED LOAD.  
 $W$  = TOTAL UNIFORMLY DISTRIBUTED LOAD.  
 $L$  = OVERALL SPAN.



Then, by the Theorem of Three Moments, the Fixing Moment ( $M_b$ ) at B is such that:—

$$2M_b \cdot L = \frac{wL^3}{4} (K^3 + (1 - K)^3)$$

$$M_b = \frac{WL}{8} (1 - 3K + 3K^2) = .125 (1 - 3K + 3K^2) WL$$

We can give  $K$  various values up to .50 and so find the coefficients of  $M_b$ , and this has been done in Table III and the values of  $M_b$  plotted against  $K$  in Fig. 6.

Reaction at A ( $R_a$ )

By moments about B,

$$R_a \cdot KL + M_b = \frac{w}{2} (KL)^2$$

$$R_a = \frac{w}{2} \cdot KL - \frac{M_b}{KL}$$

$$= \frac{W}{2} K - .125 (1 - 3K + 3K^2) \frac{W}{K}$$

$$= \left[ .50K - \frac{.125}{K} (1 - 3K + 3K^2) \right] W$$

## CONTINUOUS BEAMS

As  $K$  decreases,  $R_a$  will change in sign and, at one value of  $K$ ,  $R_a$  will be zero. The value of  $K$  at which this happens is obtained by equating the above expression to zero, whereupon  $K = .305$ .

Reaction at B ( $R_b$ )

By moments about C,

$$R_b(1-K)L + R_a \cdot L = \frac{WL^2}{2}$$

$$R_b = \frac{1}{(1-K)} (.50W - R_a)$$

Reaction at C ( $R_c$ )

$R_c = W[1 - (R_a + R_b)]$ , due regard being paid to the sign of  $R_a$ .

Values of the coefficients of  $R_a$ ,  $R_b$ , and  $R_c$  appear in Table III and are plotted against  $K$  in Fig. 7.

NOTE.—If, in the expression for  $M_b$  developed above, a value of  $K = 0$  is substituted, B coincides with A, and  $M_b = 0.125 WL$ . This clearly cannot be the case for a beam of span  $L$  simply supported at each end, and the probable explanation is that, as  $K$  approaches zero and becomes infinitely small, the reactions  $R_a$  and  $R_b$  become infinitely large (as will be seen from Fig. 7), so that the supports A and B, deflect and cause a change of slope of the beam at B, thus decreasing the moment at this point.

The most probable shape of the fixing moment curve, therefore, will be somewhat after the fashion of the one shown dotted in Fig. 6.

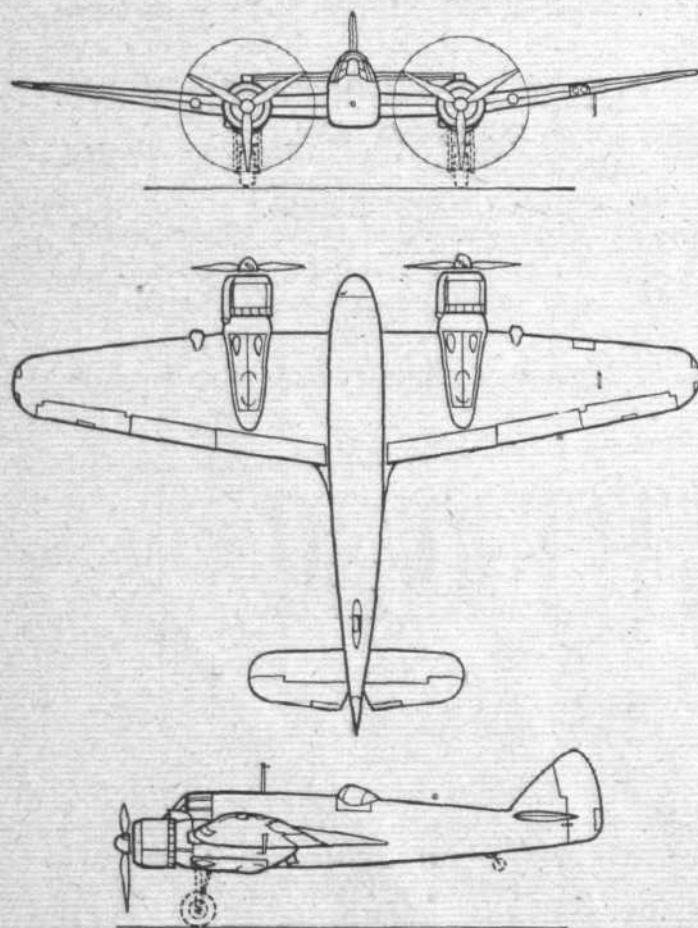
The matter is of purely academic interest really, since  $K$  in practice would rarely be less than 0.20 and the curves of Fig. 6 and Fig. 7 would therefore have to be used only over the range from  $K = 0.20$  to  $K = 0.50$ .

TABLE III

K	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10	0.05	0
$1 - 3k + 3k^2$	0.25	0.2575	0.2800	0.3175	0.3700	0.4375	0.52	0.6175	0.73	0.8575	1.0
Coeff. of $M_b$ $= 0.125(1 - 3k + 3k^2)$	0.0313	0.0322	0.035	0.0397	0.0473	0.0547	0.065	0.0772	0.0914	0.1071	0.125
0.50 K	0.2500	0.2250	0.200	0.1750	0.1500	0.1250	0.100	0.0750	0.0500	0.025	—
$0.125(1 - 3k + 3k^2)$	0.0625	0.0716	0.0875	0.1132	0.1580	0.2188	0.325	0.5140	0.9140	2.142	—
K	0.1875	0.1534	0.1125	0.0618	—0.008	—0.0938	—0.225	—0.4390	—0.8640	—2.117	—
Coeff. of $R_a$	0.3125	0.3466	0.3875	0.4382	0.5080	0.5938	0.725	0.8990	1.3640	2.617	—
0.50—coeff. of $R_a$ (1—K)	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	—
Coeff. of $R_b$	0.625	0.63	0.646	0.674	0.726	0.792	0.906	1.102	1.518	2.75	—
Coeff. of $R_c$	0.1875	0.2166	0.2415	0.2642	0.282	0.3018	0.319	0.337	0.346	0.361	—

## TWIN-ENGINEED INTERCEPTOR

A SET of photographs published in our issue of June 5 gave a good idea of the Bristol Beaufighter. This machine, developed from the Beaufort bomber described and illustrated by us on June 12, has been designed for use as an interceptor fighter by day or by night, and, although it has not been in service for very many months, it has already done excellent work.



The Beaufighter carries a formidable armament, and its two Bristol Taurus engines endow it with a performance which renders it as useful for daytime work as for the interception and destruction of night raiders. At the same time it must obviously be docile enough to be landed at night.

General arrangement drawings of the Beaufort were published in our June 12 description. These may be compared with those of the Beaufighter on this page. The "raised deck" of the bomber, terminating in a gun turret at the back, has been suppressed, and instead one finds a turret which projects above the deck in front of it as well as that behind it.

Owing to the different function which the Beaufighter has to perform, the nose is much shorter than that of the Beaufort, being in fact behind the airscrews. The plan forms of wings and tail are seen to be identical in the two machines, and the "family resemblance" extends to the tail fin and rudder.

Finally, it may be recalled that the Taurus is a 14-cylinder, double-row radial air-cooled engine of the sleeve-valve type. In the Beaufighter, as in the Beaufort, these engines are housed in very close-fitting cowls of low drag. The actual engine nacelles are slightly different from those of the Beaufort, and are presumably even better streamlined with a view to getting the maximum performance.

## Flight Chart of U.S.A. Aircraft

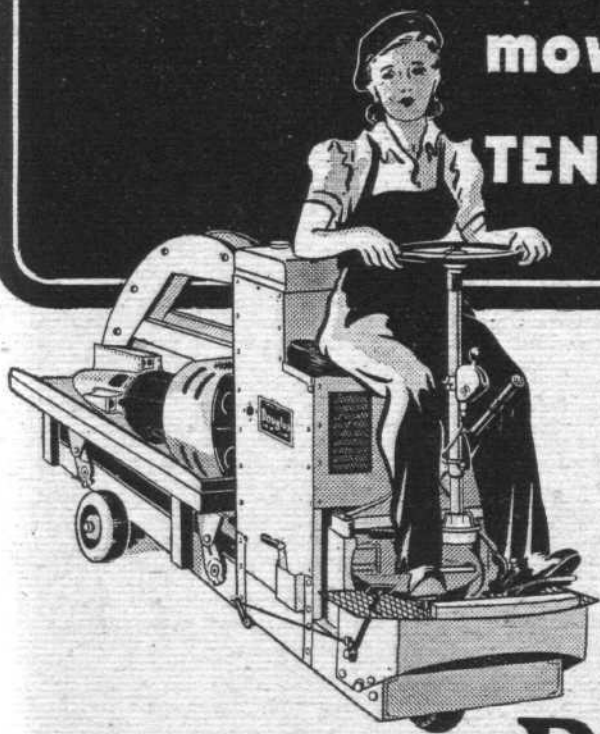
AMERICAN aircraft has now been added to the series of Flight identification charts which have proved so useful. The new chart, which is on card for wall hanging, measures 22½ ins. x 14½ ins., and includes twenty-one different types of aircraft in use by the Royal Air Force and Fleet Air Arm. For ease of reference the types are sub-divided into four sections: (a) Single-seater fighters, (b) two-seater dive bombers, (c) heavy bombers, and (d) flying boats, and their British names quoted. Copies of the chart may be obtained from Flight, Dorset House, Stamford Street, S.E.1, at 1s. 3d. each, plus 6d. postage on one copy and sevenpence postage on two copies.



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# Service Aviation



## Royal Air Force and Fleet Air Arm News and Announcements

### W.A.A.F. Want Recruits

**WOMEN** of the 1917 class who registered under the National Service Acts on Saturday last will find plenty of opportunities for service in the Women's Auxiliary Air Force. A constant flow of 2,000 recruits a week is needed.

There are now 27 trades in the W.A.A.F. and these will soon be increased to 48, so that there is scope for women of all types, skilled or unskilled. Women of the right stamp with a good education can be enrolled for immediate training as radio operators or special duties clerks. Other trades in which there are plenty of vacancies for women without special qualifications are: Clerks for general duties or accounts, aircraft hands for general duties, or as waitresses, orderlies and cooks. In these trades there is at present no waiting period after acceptance.

Motor drivers are still wanted. Applicants need not know how to drive. Those accepted will be taught to drive staff cars or light vans.

Any woman who registered on Saturday last who thinks of serving in the W.A.A.F. can obtain full information as to conditions and pay at Victory House, Kingsway, London, W.C.2, or at any combined recruiting centre.

### Awards

**THE KING** has been graciously pleased to approve the following awards in recognition of gallantry displayed in flying operations against the enemy:—

#### BAR TO THE DISTINGUISHED FLYING CROSS.

Act. Sqn. Ldr. H. P. PLEASANCE, D.F.C., No. 25 Sqn.—This flight commander has performed magnificent work in the course of night flying operations. His skill and keenness in these duties have enabled him to destroy three and damage a further two enemy aircraft. He has set a splendid example.

#### DISTINGUISHED FLYING CROSS.

Act. Sqn. Ldr. C. A. PRITCHARD, A.A.F., No. 600 Sqn.—This officer has displayed considerable skill as a night fighter pilot. His untiring devotion to duty, combined with great persistence and determination in his attacks against the enemy, has enabled him to destroy at least two and damage a further three of their aircraft at night. His example has been a source of encouragement to his fellow-pilots.

#### DISTINGUISHED FLYING MEDAL.

Sgt. B. CANNON, No. 604 Sqn.—This sergeant has been continuously engaged on operational flying since August, 1940. He has taken part in the destruction of at least three enemy aircraft at night.

Sgt. N. H. GUTHRIE, A.A.F., No. 604 Sqn.—Since the outbreak of war this sergeant has been employed on fighting operations both by day and night. In night operations in which he has taken part two enemy aircraft have been destroyed and a further four damaged.

Sgt. J. HOPEWELL, No. 151 Sqn.—This airman has been employed on day and night fighting operations, often under difficult weather conditions. During day operations he has destroyed at least five enemy aircraft. Sgt. Hopewell has shown courage and determination, and has set an excellent example.

Flt. Sgt. R. H. LOVEITT, R.A.F.V.R., No. 42 Sqn.—One night in June, 1941, this airman was the pilot of one of a formation of Beauforts which carried out a torpedo attack against a pocket battleship, screened by five destroyers, sailing off the south-west coast of Norway.

After maintaining close formation for over two hours in most difficult conditions, Flt. Sgt. Loveitt came out of low rain cloud near the enemy force. He skillfully manoeuvred his aircraft, and dropped his torpedo from inside the destroyer screen, scoring a direct hit on the battleship. The execution of this brilliant attack was so sudden that the enemy was taken completely by surprise. On another occasion, whilst on convoy escort, this airman destroyed an enemy aircraft. He has shown the greatest courage and efficiency.



**ALL DOLLED UP:** This Catalina pilot's girl-friend won't mind the baby doll he takes with him on patrol. Look carefully and you'll see the mascot dangling near his left shoulder.

**AWARDS** to officers and crew of the *Illustrious* "for great courage and devotion to duty in the face of enemy air attack" have been announced. They are as follows:—

D.S.O.—Cdr. G. S. TUCK; Surgeon Cdr. J. J. KEVIL; Rev. H. M. LLOYD, R.N.V.R.

D.S.C.—Lt. Cdr. (E) H. A. MARTIN; Mr. F. A. HEYES, Warrant Mechanician; Mr. L. E. GUTTRIDGE, Warrant Shipwright.

Conspicuous Gallantry Medal.—Chief Petty Offr. W. A. LEAMAN, who, while in charge of a repair party, was wounded in the face and leg and burnt, but carried on and fought a fire on deck until he could no longer stand. Petty Offr. F. LARGE, whose courage and determination in the face of danger was an inspiration to his shipmates, "and who, in a brave company, was yet remarkable for his bravery."

D.S.M.—Chief Ordnance Artificer T. SKIDMORE; Chief Stokers J. HURD and C. LAKEY; Sick Berth Chief Petty Offr. A. H. WEEKS; Shipwright First Class R. A. ROACH; Sgt. H. S. BEAVEN (Royal Marines); Act. Leadg. Seaman C. T. BOYD; Temp. Act. Leadg. Seaman F. G. STALLARD; Act. Leadg. Stoker F. C. DAVIES; Boy First Class H. PRICE.

### Roll of Honour

#### AIR MINISTRY CASUALTY COMMUNIQUE No. 72.

**THE** Air Ministry regrets to announce the following casualties on various dates. The next of kin have been informed.

**KILLED IN ACTION (WHILE FLYING IN OPERATIONS AGAINST THE ENEMY).**—Sgt. C. P. A. Bury; Sgt. H. M. Cox; Sgt. T. Fullarton; Sgt. M. E. Gardiner; Sgt. V. D. Huggett; Sgt. P. Jarvis; Sgt. H. H. Jennings; Sgt. R. J. Keeper; F/O. J. B. Le Cavalier; Sgt. E. A. Lloyd; Sgt. G. McLaren; Sgt. L. Mitchell; Sgt. V. E. Pereira; L.A/C. R. D. R. Schofield; Sgt. R. A. Smithers; Act. Flt. Lt. L. W. Stevens; Sgt. E. J. Street; Sgt. G. W. Swanbo; Sgt. D. W. Thomas; Sgt. H. C. S. Thomas; P/O. P. J. A. Thompson; Sgt. G. E. Towe; Flt. Sgt. E. B. Wilcox; Sgt. V. J. Wingfield.

**PREVIOUSLY REPORTED KILLED ON ACTIVE SERVICE, NOW REPORTED KILLED IN ACTION.**—Sgt. J. B. Clarke; Sgt. P. Green; Sgt. A. J. Roberts; Act. Sqn. Ldr. S. A. F. Robertson; Sgt. E. V. Seymour; Sgt. G. M. Short.

**PREVIOUSLY REPORTED MISSING BELIEVED KILLED IN ACTION, NOW PRESUMED KILLED IN ACTION.**—Sgt. H. H. Adair; Sgt. R. E. Andrews; A/C.1 K. W. Beavis; Sgt. W. J. Chamberlain; Sgt. J. H. Collops; Sgt. E. J. Coult; F/O. W. F. Crosse; Sgt. J. W. C. Gibson; Sgt. J. D. Green; Sgt. T. W. Hawxby; Sgt. D. A. G. Matthews; Sgt. J. G. W. Maybury; F/O. R. D. Perkins; P/O. P. E. Renniker; Sgt. M. S. Ross; Sgt. F. C. Roy; P/O. T. H. Scorrer; Sgt. G. H. Stubbins; L.A/C. M. E. Towe; P/O. H. C. P. Turney.

**PREVIOUSLY REPORTED MISSING, NOW PRESUMED KILLED IN ACTION.**—Sgt. L. Ball; P/O. R. C. Beale; Sgt. R. J. Brading; P/O. M. R. Braun; P/O. C. G. Broome; F/O. A. Bulmer;

Sgt. A. D. Cameron; Cpl. D. B. Carter; P/O. G. I. Cherrington; Sgt. F. Corbett; Sgt. J. W. B. Craig; Sgt. W. W. Crooks; Act. Flt. Lt. E. L. Cullimore; Sgt. E. Dawes; Sgt. B. N. Dingle; Act. Flt. Lt. D. H. Edwards; F/O. S. M. Farries; Act. Wing Cdr. K. F. Ferguson; L.A/C. R. Fletcher; Sgt. W. Fraser; Sgt. K. C. Friend; Sgt. B. T. M. Fulton; P/O. H. G. Gilbert; Sgt. A. J. Giles; Sgt. H. G. Gledhill; Act. Sgt. S. C. Grant; Sgt. A. J. Green; Sgt. J. Greig; Sgt. J. A. Grocott; L.A/C. L. C. M. Hale; Sgt. F. Harris; Sgt. J. W. Harris; Sgt. G. Herdman; P/O. J. H. Horan; Sgt. K. R. Humphrey; Sgt. D. S. Imber; Sgt. T. G. S. Jarman; Sgt. A. J. Jerritt; F/O. C. F. Kendall; Sgt. H. C. Loadman; Flt. Sgt. E. H. Loid; Sgt. J. E. McCormick; Sgt. N. MacDonald; F/O. K. I. MacKenzie; Sgt. J. G. C. MacNair; Sgt. A. C. Martin; Sgt. T. H. Mellon; Sqn. Ldr. G. L. Menzies; Flt. Lt. J. S. D. Miles; L.A/C. R. V. Minton; Act. Flt. Lt. A. F. Mudie; Sgt. J. J. O. Nanson; L.A/C. B. E. Nicholas; Sgt. D. I. Pallett; Sgt. R. C. Parker; Sgt. W. I. S. Patrick; Sgt. A. J. Pennington; Sgt. W. H. Pontin; Sgt. H. W. Pritchard; P/O. L. C. Quick; P/O. R. A. Rhodes; Sgt. P. H. Richmond; Sgt. C. S. Rogers; Flt. Lt. D. J. Rogers; Sgt. A. Roscoe; Sgt. R. F. Rose; Sgt. E. L. Satterfield; Sgt. F. A. Sibley; Sgt. G. A. Stamp, D.F.M.; Flt. Lt. D. G. Stanley; Sgt. D. G. B. Steel; A/C.1 T. A. Thomas; Sgt. N. W. G. Thompson; Sgt. H. F. Thorndyke; A/C.2 H. J. Twinn; Sgt. N. Tyson; P/O. D. W. Wakeford; Sgt. F. D. Walter; Sgt. A. Watson; Sgt. D. W. Wait; Sgt. C. Wessels; Sgt. B. N. Westhorp; Sgt. K. F. Weston; Sgt. L. A. White, D.F.M.; P/O. L. G. Williams; Sgt. G. R. Wilson; Sgt. A. Woodburn; Sgt. W. Wylie.

**PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED IN ACTION.**—Sgt. N. Morrison.

**WOUNDED OR INJURED IN ACTION.**—Sgt. C. G. Cave; Sgt. J. T. Cuthbertson; P/O. A. S. Dredge; Sgt. C. W. Harper; P/O. F. J. Hogan; P/O. R. A. Innes; Sgt. D. W. Isherwood; Sgt. A. A. O'Leary; Sgt. O. P. J. Richards; Sgt. M. F. J. Scollin; Sgt. H. A. Seth; F/O. E. B. Smith; Sgt. R. T. Towers; Sgt. B. C. Walmsley; F/O. T. J. Warner; L.A/C. E. T. Willacy.

**DIED OF WOUNDS OR INJURIES RECEIVED IN ACTION.**—L.A/C. P. J. Condry; P/O. E. S. Dawson; Sgt. L. A. Forty; Sqn. Ldr. J. P. D. Gethin, D.F.C.; Flt. Sgt. H. R. Hibbs, D.F.M.; P/O. H. W. E. Lane; P/O. E. R. Phillips.

**PREVIOUSLY REPORTED DIED OF WOUNDS OR INJURIES RECEIVED ON ACTIVE SERVICE, NOW REPORTED DIED OF WOUNDS OR INJURIES RECEIVED IN ACTION.**—Sgt. F. B. White.

**PREVIOUSLY REPORTED MISSING, NOW REPORTED DIED OF WOUNDS OR INJURIES RECEIVED IN ACTION.**—P/O. J. C. Mallon.

**PREVIOUSLY REPORTED PRISONER OF WAR, NOW REPORTED DIED OF WOUNDS OR INJURIES RECEIVED IN ACTION.**—Flt. Sgt. T. W. Bowles; P/O. B. B. Witty.

**MISSING, BELIEVED KILLED IN ACTION.**—Sgt. J. Anderson; Sgt. R. J. Austin; Sgt. P. H. Beckett; Sgt. C. R. Burch; Sgt. W. E. Burrell; Sgt. K. P.



Collins; Wing Cdr. W. E. Coope; Sgt. W. G. H. Dauncey; Flt. Lt. G. M. Fairbairn; P/O. J. N. Fisher; Sgt. D. Fletcher; Sgt. J. Hall; P/O. P. J. Higgins; Sgt. E. B. Inman; Sgt. J. A. Keates; Sgt. S. W. Kemp; P/O. R. M. A. Lakin; P/O. D. Martin; Sgt. J. B. Murray; P/O. C. F. Page; Sgt. C. B. Parris; P/O. R. C. Rendle; Sgt. W. Russell; P/O. G. G. Sharp; P/O. W. P. Strickland; Sgt. H. C. Tuckwell.

**MISSING.**—Sgt. G. R. Adams; Sgt. J. S. Allsopp; Sgt. J. Anderson; Sgt. D. N. Banks; Sgt. T. Beattie; Sgt. K. C. Belton; P/O. J. W. Best; Act. Wing Cdr. I. W. Braye, D.F.C.; A/C.2 S. F. Browning; Sgt. J. Butler; Sgt. W. Calver; P/O. G. B. Chapman; Sgt. D. Chappell; P/O. L. E. H. Cooper; Sgt. S. C. Cordy; Sgt. T. W. A. Crane; Sgt. S. Dawson; Sgt. O. J. Dee; Sgt. J. A. Donovan; Sgt. S. A. Du Plessis; Sgt. H. W. Easton; Act. Sqn. Ldr. F. L. H. Eddison; Sgt. W. R. Faulkner; P/O. J. O. Fenton; Sgt. H. Fraser; Sgt. M. C. Fuller; Sgt. R. J. Garlish; P/O. J. A. T. Garrould; Sgt. R. G. Gilmore; P/O. B. A. Godsmark; Sgt. G. K. Grainger; Sgt. K. Gray; Sgt. G. E. Green; Sgt. G. A. Hadaway; Flt. Lt. A. C. H. Haines; Sgt. J. A. Harris; Act. Flt. Lt. A. E. Hill; F/O. P. S. Hirst; Sgt. J. E. Hodges; Sgt. J. Holt; Sgt. N. W. Hoskins; Sgt. W. Hunter; Sgt. J. Hutchinson; P/O. P. L. V. Hunt; Sgt. M. G. Jackson; Sgt. R. H. Johnson; P/O. R. F. Johnson; P/O. H. P. G. Jones; Sgt. R. S. L. Keemer; P/O. S. M. Kolendorski; Sgt. J. G. Leslie; P/O. R. H. Lickmann; Sgt. F. T. Luscombe; Sgt. J. H. McGowan; Act. Flt. Lt. Sir R. A. MacRobert; Bart.; Sgt. D. I. McWatt; Sgt. J. McK. McWilliam; Sgt. N. R. Macmillan; Sgt. E. D. Maddison; Sgt. W. C. P. Martin; Act. Sqn. Ldr. G. O. Mills; Sgt. S. K. Mills; Sgt. A. Morris; Sgt. A. C. North; Sgt. E. Oakes; Sgt. W. W. Oakley; Sgt. S. Parr; Sgt. C. Paton; Sgt. E. R. Payton; Sgt. K. C. Peck; Sgt. N. B. Pell; P/O. M. S. Prouddock; Sgt. J. A. U. Quitzow; P/O. J. K. C. Ralston; P/O. R. A. Richards; Sgt. T. K. Riley; Act. Sqn. Ldr. A. S. Q. Robina; Flt. Lt. A. M. Ross; Sgt. H. G. Sharp; P/O. C. E. J. Rushbrooke; Sgt. A. P. Smith; Act. Sqn. Ldr. D. A. Smith; Sgt. E. E. J. Snutch; Sgt. A. Soppitt; Sgt. K. Tait; P/O. R. J. Tearle; Sgt. N. H. Thomas; Sgt. J. E. Thompson; Sgt. O. B. Thompson; Sgt. A. Turner; P/O. P. J. Vincent; Sgt. A. L. Walker; Sgt. E. N. Webb; Sgt. H. Whelan; Sgt. K. J. Wille; P/O. C. G. L. Williams; D.F.M.; P/O. R. J. W. Williams; Sgt. A. F. Wilson.

**PREVIOUSLY REPORTED PRISONER OF WAR, NOW REPORTED MISSING.**—P/O. C. B. Jordan.

**MISSING, BELIEVED KILLED ON ACTIVE SERVICE (WHILE ENGAGED IN NON-OPERATIONAL FLYING DUTIES, OR ON THE GROUND THROUGH ENEMY ACTION).**—Sgt. G. C. Allenby; Sgt. W. L. Brown; L.A./C. E. S. Coppellstone; Sgt. E. K. Dawson; Sgt. B. Halbert; P/O. W. Jones; Sgt. T. Morgan; A/C.2 B. S. Owens; A/C.2 J. L. F. Stedman; L.A./C. M. Swain.

**KILLED ON ACTIVE SERVICE.**—Cpl. G. A. Acton; L.A./C. J. A. Ashley; Sgt. F. Ashworth; Sgt. K. Bamber; A/C.2 J. Bates; Sgt. G. L. M. Bayly; Sgt. J. T. Berridge; A/C.2 F. Billingham; Flt. Sgt. J. Bishop; A/C.2 J. Booth; A/C.1 P. Brember; A/C.2 A. S. Broad; P/O. J. T. Brown; P/O. R. Bruce; L.A./C. E. Buckley; A/C.2 L. C. Burgess; L.A./C. G. J. Burkle; L.A./C. A. S. Butcher; P/O. G. R. Butcher; A/C.2 D. W. Cadman; Sgt. W. A. Campbell; Cpl. V. C. Chittock; Sgt. K. W. Coates; Sgt. R. Cowan; Sgt. H. Crawford; A/C.2 M. P. Cross; Sgt. R. Davies; A/C.2 R. Dawson; Sgt. J. D. Duffy; L.A./C. C. S. Ferguson; L.A./C. M. G. Fernau; L.A./C. K. B. N. R. Fischer; Sgt. E. M. R. Fleming; Sgt. K. C. Gemmell; L.A./C. W. R. Glover; Sgt. P. R. Gordon; Sgt. R. L. R. Halbert; P/O. W. A. M. Halley; Sgt. J. F. Harrison; Sgt. D. A. Heggie; Sgt. M. J. Hopkins; Sgt. A. W. Hughes; P/O. R. W. S. Inge; P/O. E. Jackson; L.A./C. W. S. D. James; L.A./C. S. W. Jennings; Sgt. C. Jones; A/C.2 T. Kane; L.A./C. G. W. Kates; Sgt. J. Lambert; P/O. H. R. Lanchester; L.A./C. D. Layton; P/O. B. E. Lymbery; A/C.2 M. Lynch; A/C.2 A. Lyon; Sgt. H. A. R. McBurney; Sgt. E. A. Martin; Sgt. W. L. Martin; A/C.2 J. Metcalfe; P/O. J. F. Minett; L.A./C. H. E. Minor; L.A./C. N. A. Moore; L.A./C. R. H. Morgan; P/O. G. R. Mould; Sgt. J. L. Newton; F/O. R. H. Nicolson; A/C.1 S. Port; Sgt. L. W. Pryor; P/O. J. B. Ranson; Sgt. H. Rhodes; D.F.M.; L.A./C. B. H. Richards; A/C.1 J. D. Richards; A/C.2 R. Robson; Flt. Sgt. H. D. Rowe; A/C.1 P. M. Rowland; P/O. R. E. Seares; L.A./C. P. H. Shepherd; P/O. C. N. Small; Sgt. O. N. Stromberg; Sgt. R. F. Tatnell; P/O. W. L. Thers; P/O. J. L. Van Breda; A/C.1 R. K. Warren; Cpl. W. J. N. Warren; P/O. D. M. Weston; Cpl. E. Wickett; Sgt. I. H. Wiskar; L.A./C. C. H. Wyld; L.A./C. S. K. Yeomans.

**PREVIOUSLY REPORTED MISSING, BELIEVED KILLED IN ACTION, NOW PRESUMED KILLED ON ACTIVE SERVICE.**—P/O. E. W. J. Monk; Sgt. E. Powell.

**PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED ON ACTIVE SERVICE.**—L.A./C. F. W. E. M. Morrison.

**WOUNDED OR INJURED ON ACTIVE SERVICE.**—Sgt. R. R. Adams; A/C.2 J. Barritt; A/C.2 G. J. Brown; A/C.2 L. W. Brown; A/C.2 H. W. Canfield; A/C.2 F. Coates; A/C.1 W. R. Collinson; A/C.1 E. Harvey; L.A./C. J. H. Heard; Sgt. J. Hemingway; Sgt. J. McIl. Hutchison; A/C.1 W. J. Jeffs; L.A./C. G. L. Jones; A/C.1 P. H. Jones; A/C.2 O. Judge; A/C.2 H. L. Leedham; A/C.2 F. W. Lovatt; L.A./C. H. McNutt; A/C.1 J. C. Matthews; L.A./C. A. E. Moore; A/C.2 S. Murray; Cpl. G. F. C. Pankow; A/C.2 W. N. Peto; Cpl. S. B. Rapley; A/C.2 A. Reid; A/C.2 G. R. Richmond; A/C.1 G. H. Skegg; A/C.2 G. H. Stewart; L.A./C. W. E. Williams.

**DIED OF WOUNDS OR INJURIES RECEIVED ON ACTIVE SERVICE.**—L.A./C. A. B. Birrell; Cpl. W. Cummings; A/C.2 A. Dale; Cpl. L. R. Greenfield; Sgt. R. J. Harris; L.A./C. R. G. Keenan; Sgt. A. MacVicar; Sgt. R. G. Mew; P/O. J. A. Nisbet; A/C.2 F. H. Porter.

**DIED ON ACTIVE SERVICE.**—A/C.2 A. J. Baldock; Cpl. G. C. A. Barham; A/C.2 L. Beddoe; Cpl. J. W. Beevor; Sgt. L. O. T. Bollen; A/C.2 E. C. Bryant; L.A./C. H. V. Caren; A/C.2 F. Charlton; A/C.1 T. C. Chatfield; Act. F/O. L. Currie; A/C.1 A. F. Dean; P/O. Sir C. A. De Bathie; Bart.; A/C.2 W. C. Dodds; A/C.1 N. Draycott; L.A./C. C. W. Duddle; W/O. A. Figg; P/O. C. H. Fuller; A/C.2 R. Garland; L.A./C. F. Glaisher; Sgt. W. H. Glover; A/C.2 G. W. Gooddy; Sgt. W. R. Govett; A/C.2 A. Hadlum; A/C.1 A. T. Johnson; A/C.2 J. P. Leonard; A/C.2 E. J. Lock; W/O. S. G. McCane; A/C.2 G. A. Maiden; A/C.2 J. Morrison; A/C.1 W. G. Redhead; A/C.2 P. E. Spice; A/C.2 P. S. Story; A/C.2 J. E. Thompson; Sgt. M. J. S. Walsh; P/O. R. B. Watkins; A/C.2 B. William; A/C.1 W. R. Williams.

## Royal Australian Air Force

**KILLED IN ACTION.**—P/O. W. R. Phillips.  
**MISSING.**—Sgt. A. McB. Kerr; Flt. Lt. R. A. Cackley; P/O. D. K. Oak-Rhind.

## Royal Canadian Air Force

**KILLED IN ACTION.**—P/O. D. W. Owen.  
**KILLED ON ACTIVE SERVICE.**—Sgt. W. K. Clarke; Sgt. A. R. Ferrier; L.A./C. D. E. Paul; P/O. A. M. Saunders; Sgt. W. F. Webber.  
**WOUNDED OR INJURED ON ACTIVE SERVICE.**—Sgt. R. L. Marwick.

## Royal New Zealand Air Force

**KILLED IN ACTION.**—Sgt. A. C. Mee; Sgt. D. L. Nola; Sgt. J. G. Wilson.  
**DIED OF WOUNDS OR INJURIES RECEIVED IN ACTION.**—Sgt. E. F. Gannaway.

## Prisoners of War

**NEXT-OF-KIN**, if able to identify these men from the information published, are requested to advise the Casualty Branches of the Services concerned, forwarding Regimental or any other details.

The following is the latest list of British prisoners of war as received from German sources:—

Sqn. Ldr. MacDonald, 8, Cadogan Court, Draycott Avenue, London.

Sgt. J. R. Harvey, 16, Edley Road, Handsworth Wood, Birmingham.

Sgt. G. G. Patterson, 34, Laurinton Place, Edinburgh.

Sgt. L. Pattinson, Bishop Auckland, Co. Durham.

Sgt. S. T. Parkins, 36, Cross Check House, Wandsworth Road, London.

Sgt. A. Gibbard, Durrantfield, Kenilworth.

P/O. H. Paterson, Wood Lea, 5, Fox Street, Greenock, Renfrewshire.

P/O. G. K. Gilson, 102, Seaton Road, Yeovil, Somerset.

## The Gazette

## Royal Air Force Volunteer Reserve

(Continued from page 438 of our issue of June 26th, 1941.)

### Equipment Branch.

Cpl. G. W. Cooper is granted a commn. for dura. as Act. P/O. on probn. (May 23).

The follg. P/Os. on probn. are confmd. in their appts. as from Apr. 2 and promoted to war subvise. rank of P/O. as from the dates stated:—(May 15) J. W. Clegg, B. A. C. Duncan, S. Goatcher, G. T. Homball, K. C. H. Horne, W. M. Lloyd, E. J. Milner; (May 15) L. Wilk.

The follg. Act. P/Os. on probn. are graded as P/Os. on probn.:—(May 2) G. E. C. Grimes, O. F. S. Murry.

### Accountant Branch.

P/O. J. Eames is granted war subvise. rank of F/O. (April 26).

The follg. Act. P/Os. on probn. are graded as P/Os. on probn.:—(Mar. 7) H. Landin; (May 10) B. A. Draper, H. L. Turk, G. P. Thomas.

### Medical Branch.

The follg. F/Os. are promoted to war subvise. rank of Flt. Lt.:—(Mar. 19) J. M. MacCormack, M.B., Ch.B.; (Apr. 2) A. O'Connor, M.B., Ch.B.; (Apr. 16) I. H. Taylor, M.B., Ch.B.; J. S. Wood, L.M.S.S.A.; (Apr. 23) B. H. Goodrich, M.R.C.S., I.R.C.P.; G. A. Scott, M.B., Ch.B., M.R.C.P.; (Apr. 30) S. Bender, M.B., Ch.B., D.R.C.O.G.; (May 7) D. G. Evans, M.B., B.S.; (May 21) A. H. Thomson, M.R.C.S., L.R.C.P., F.R.C.S.(E).

The follg. F/Os. are promoted to war subvise. rank of Flt. Lt.:—(Apr. 23) J. F. J. Hickey, M.B., Ch.B.; E. W. Melvin, M.B., Ch.B. (Substd. for notifi. of May 23.)

### Dental Branch.

F/O. H. C. Killey is promoted to war subvise. rank of Flt. Lt. (Jan. 2).

## Auxiliary Air Force

### General Duties Branch.

Act. P/O. on probn. C. D. Pain is confmd. in his appt. and graded as P/O. (Oct. 30, 1939). (Substd. for notifi. of July 23, 1940, Feb. 14.)

The follg. P/Os. are promoted to war subvise. rank of F/O.:—(Oct. 30, 1940) C. D. Pain; (Apr. 11) P. B. Doory.

## SERVICE AVIATION

## Auxiliary Air Force Reserve of Officers

### General Duties Branch.

F/O. F. W. Hancock is promoted to war subvise. rank of Flt. Lt. (June 5).

## Women's Auxiliary Air Force

The follg. are appointed Assist. S/Os.:—(May 30) A/CW.1 V. T. Bowyer, A/CW.2 M. S. Garland, A/CW.1 M. C. Lindsay, A/CW.1 G. E. Mitchell, Sgt. J. E. Morrah; (May 31) A/CW.1 P. Davies, A/CW.1 D. L. Gaisford, Cpl. L. I. E. Higson, Cpl. E. Jacobs, Cpl. S. H. Kent, A/CW.2 A. M. Masters, Cpl. M. H. Miller, A/CW.1 O. M. N. Owen, A/CW.1 B. M. Sage, A/CW.2 E. P. M. Westbury, A/CW.2 M. I. Wright; (June 2) Sen. Sgt. Lady L. M. M. Ashley Cooper, Cpl. G. F. Baker, Cpl. P. M. Baxter, Sgt. E. D. D. Box, Cpl. M. H. Braun, Sen. Sgt. B. A. Brook, A/CW.1 B. C. Bullard, A/CW.2 M. S. B. Clifford, Cpl. R. Crawshaw Jones, Sgt. V. H. Dudley Ryder, A/CW.2 M. E. Guest, A/CW.2 B. Harris, Sgt. E. M. Harrison, Cpl. J. I. Hedges, A/CW.2 M. D. Jones, Sen. Sgt. E. B. McLaren, Sgt. F. A. May, A/CW.1 O. V. L. Milbank, A/CW.1 P. M. Murray, Cpl. O. V. Roberts, Sen. Sgt. B. C. Robinson, A/CW.1 M. Y. Setterfield, A/CW.2 J. Seymour, A/CW.1 J. C. Sharp, Cpl. F. M. Smith, Cpl. J. M. C. Smith, A/CW.1 The Hon. E. Stevenson, Sen. Sgt. E. M. Strang, A/CW.1 H. J. Stredder.

The follg. Assist. S/Os. relinquish their appts.:—(Mar. 9) P. L. Smith; (May 24) M. I. M. Woodhall.

Assist. S/O. A. M. Woollam relinquished her appt. on account of ill-health (May 27).

## The Gazette Royal Air Force

Air Ministry,  
June 20, 1941.

### General Duties Branch.

The follg. are granted commns. for dura. as P/Os. on probn.:—Flt. Sgt.: (May 15) A. A. Emery, D.F.M. Sgts.: (Apr. 26) J. H. Clarke, A. G. E. Dixon, R. G. Gilmore, L. H. Monlton; (May 6) J. A. P. Drummond, D.F.M.; (May 15) L. V. Harcourt; (May 19) G. S. McGaw; (May 22) H. J. Rayner, F. M. Burton, F. A. W. Coles; (May 26) F. B. Moss. Temp. Sgt.: (May 16) A. D. Coldicott, D.F.M. Cpl.: (May 19) R. A. Cooper. L.A./C.: H. F. E. Gedge.

F/O. on probn. W. J. Methven is confmd. in his appt. and promoted to war subvise. rank of Flt. Lt. (Apr. 1).

The follg. P/Os. on probn. are confmd. in their appts. and promoted to war subvise. rank of F/O.:—(Feb. 18) R. A. Plumb; (Apr. 1) L. H. Day, D.F.C.; J. Findlay, A. W. Hall, E. D. McLe. Higham, J. A. Jarvis, P. P. W. Sands, F. E. Slade, H. C. Smith, H. A. Steele, W. J. Uprichard, D.F.C.; (Apr. 20) D. Q. W. Tracy; (May 1) A. H. Humphrey, D.F.C.; (June 12) G. A. Watt; (June 13) R. Bailey, L. G. Bull, S. D. Harvey, L. G. James; (June 14) N. S. C. Chapman, G. A. L. Elliot, D.F.C., E. V. Asplin, E. A. Jewiss; (June 15) L. R. C. Russell, D. J. Donaldson, J. H. Lowes, G. E. Lillywhite, C. H. Richardson, D.F.C.; (June 16) C. N. O'Brien; (June 17) J. Irueman, E. P. S. Booker, H. E. Harries, R. R. Keller, L. Wakelin, L. J. T. West, A. P. Blackwell, B. R. Hall; (June 18) R. Middleton; (June 19) K. S. Smith; (June 20) C. Holdway, L. D. Wilson, B. B. W. Howe.

The follg. promotions are made with effect from June 1:—Sqn. Ldr. to be Wing Cdr. (temp.): H. P. Broad, D.F.C. Flt. Lt. to be Sqn. Ldr. (temp.): W. H. R. N. Newton-Howes.

The follg. F/Os. are promoted to war subvise. rank of Flt. Lt.:—(July 6, 1940) W. P. F. Treacy; (Sept. 2, 1940) F. C. Tracey (Capt. R.A.O.C.); (Sept. 3, 1940) D. E. Shaw (ret.); (Feb. 12) A. O. Roberts; (Feb. 16) E. G. Rands; (Apr. 7) K. D. Bruce, G. L. Cheshire, D.S.O., D.F.C., M. H. Constable-Maxwell; (Apr. 12) H. C. G. Wilcox; (Apr. 16) R. J. Willits; (Apr. 23) H. E. Broadsmith; (Apr. 25) P. J. Dundee; (Apr. 27) L. E. Chambers, F. P. Joyce, S. A. D. Pike; (May 6) R. M. Cox; (May 23) J. R. Grant; (May 25) R. J. Allanson, F. O. Barrett, D. F. W. Darling, H. J. Fish, D. R. M. Frostick, A. E. Newitt, H. P. Patten, A. H. C. Roberts, P. F. T. Wakeford; (May 27) G. G. L. Rattigan, A. E. Slocombe; (May 29) G. G. Fleming, D.F.C., P. E. Dodson, D. A. Garner, E. F. Sall, A. R. Skinner, M. A. L. Williams; (June 6) H. F. Marcon.

The follg. P/Os. are promoted to war subvise. rank of F/O.:—(Nov. 18, 1940) A. J. Rippon, H. K. Ralph; (Apr. 6) D. J. Spence; (Apr. 7) R. H. Hansen; (Apr. 20) D. F. Benbow, A. Hindley, H. Paynter, F. W. F. S. Russell, C. R. Bush, R. A. E. Milton; (Apr. 27) R. R. Briscoe; (Apr. 29) R. W. Hardcastle, R. A. Lenton; (May 4) J. H. D. Keates; (May 9) T. P. S. Johnson; (May 11) D. W. Hunt; (May 14) W. M. W. Fowler; (May 17) R. S. Gaskell; (May 18) A. N. R. L. Appleford, G. O. H. Birchall, C. E. Dewar, W. H. Dimmock, G. J. M. Hart, W. S. Longhurst, F. R. W. Palmer, E. F. Publicover, J. W. Rae, J. M. Rumsey, I. A. Slaughter, J. F. L. Walker, J. T. Crossey, E. D. Osborn, A. M. Todd.

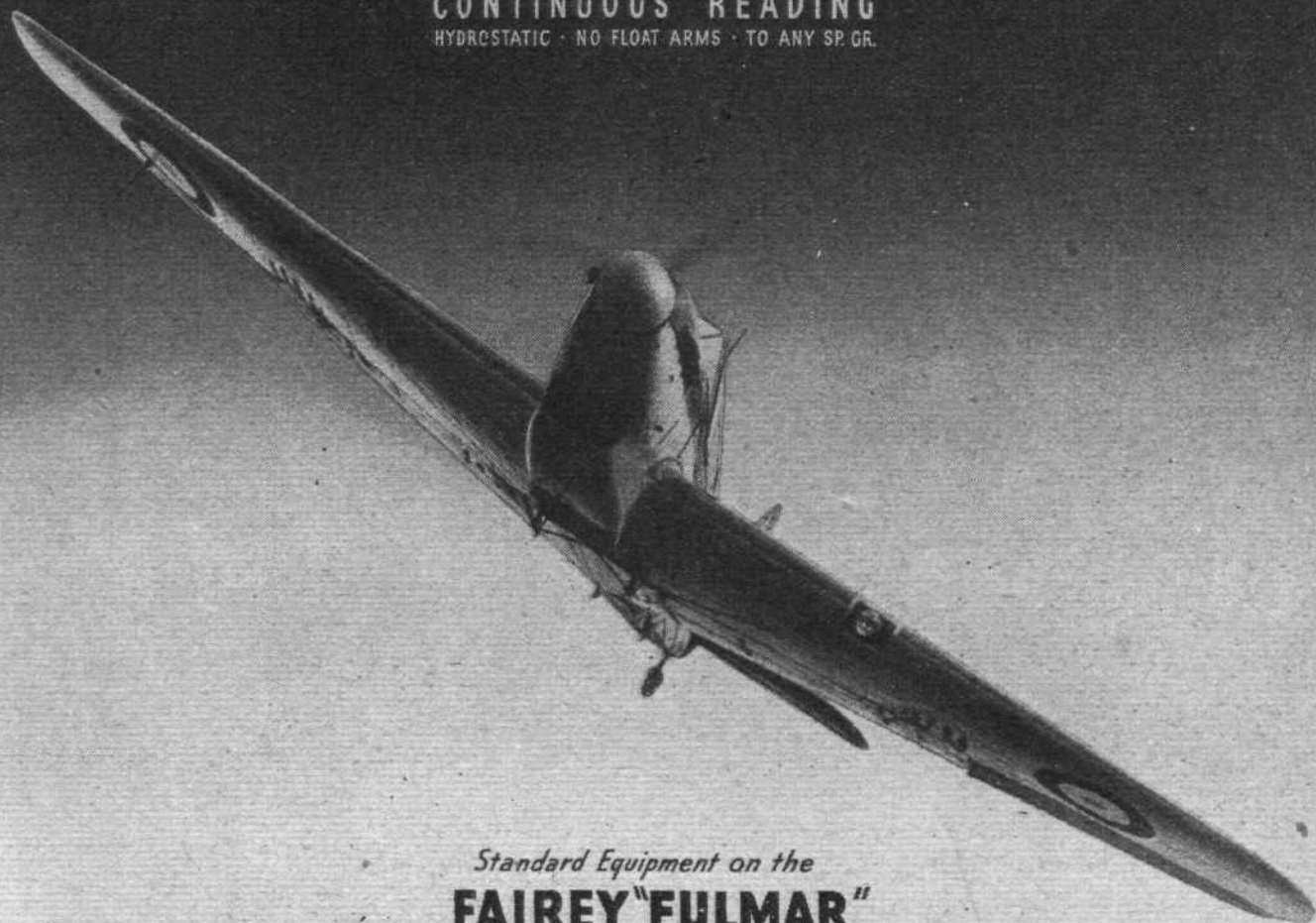
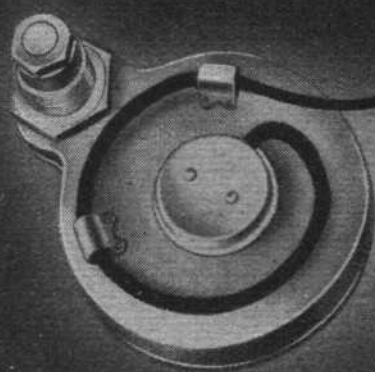


# K.D.G.

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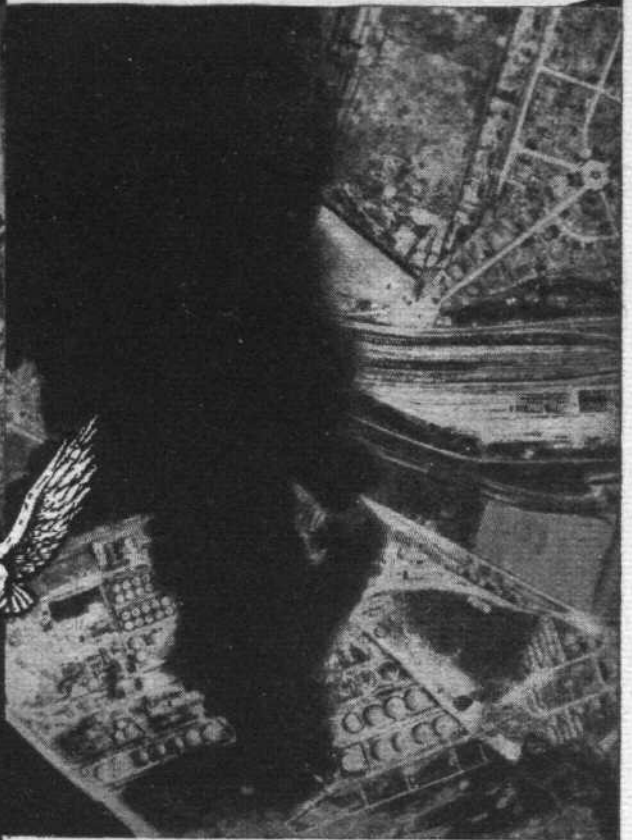
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# In Peace... and War...



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## SERVICE AVIATION

R. A. Ullman, E. L. West; (May 20) A. T. Darling, E. R. Edmunds, T. L. Hogg, G. H. A. Wellum; (May 24) A. G. H. Lindell; (May 25) G. McKenzie, A. K. Ogilvie; (May 30) J. Winter; (June 16) G. R. Pushman.

The folg. P/Os. on probn. are promoted to war subvte. rank of F/O. on probn.:—(May 1) J. M. Whitwell, A.F.M.; (May 15) F. J. Poulter.

Air Comdre. C. R. Carr, C.B.E., D.F.C., A.F.C., is granted act. rank of Air Vice-Marshal (May 24).

The folg. are transf'd. to Technical Branch (Apr. 24, 1940):—Grp. Capt.: V. H. Tait, O.B.E. Sqn. Ldr.: W. D. Disbrey.

Grp. Capt. J. W. Woodhouse, D.S.O., M.C., is placed on retired list at own request (June 8).

The folg. P/Os. relinquish their temp. comms. on return to Army duty:—(May 5) R. W. Ware, Lt. R.E.; (May 6) J. R. Frenneaux, 2nd Lt.; The Green Howards, T. W. Palmer, 2nd Lt.; E. Lan. R.; (May 16) A. M. C. Wigan, Lt.; C. Gds.; (May 21) R. S. Smith, 2nd Lt., R.E.; (May 25) E. R. P. Milne, Lt., S. Lan. R.

The comms. of P/O. on probn. W. H. Sheen is terminated on cessation of duty (June 1).

The notifs. of Feb. 14 concerning the folg. P/Os. are cancelled:—S. G. Esson, C. B. Jordan.

The notfn. of Feb. 21 concerning P/O. H. S. P. Williams is cancelled.

The notfn. of Mar. 14 concerning F/O. W. N. Gray is cancelled.

The notfn. of Mar. 14 concerning P/O. P. C. Gaylard is cancelled.

The notfn. of Apr. 11 concerning P/O. on probn. C. S. Greenaway is cancelled.

The notfn. of May 30 concerning P/O. J. D. Siddall is cancelled.

## Errata.

In notfn. of Mar. 7, P/O. J. T. W. Parnell, should have appeared under heading "Administrative and Special Duties Branch" and not "General Duties Branch."

## Technical Branch.

The folg. are granted comms. for durn. as F/Os. on probn.:—W/Os.: (Apr. 6) E. V. Osmond; (May 26) J. E. Munden; (June 1) H. S. Brewer; (May 2) F. L. Marshall; (May 15) F. W. Avery. As P/Os. on probn.:—W/Os.: (May 19, Sen. Dec. 20, 1941) H. S. King; (May 26) R. H. Boulton; (June 1) C. Lobley. Flt. Sgts.: (May 7) C. W. Bates; (May 20) P. S. Hall. As Act. P/Os. on probn.:—Flt. Sgts.: (May 15) H. A. Wareham; (May 16) L. M. Jenkins.

The folg. promotions are made with effect from June 1:—Grp. Capt. to be Air Comdre. (temp.): K. M. St. C. G. Leask, M.C. Grp. Capt. (temp.) to be Air Comdre. (temp.): E. D. Davis, O.B.E. Flt. Lt. to be Sqn. Ldr. (temp.): F. F. S. Mattingley.

The folg. F/Os. are promoted to war subvte. rank of Flt. Lt.:—(Apr. 6) W. G. B. Marsh; (May 19) B. J. Abraham; (May 26) A. J. Shimmons.

The folg. P/Os. on probn. are promoted to war subvte. rank of F/O. on probn.:—(May 1) S. F. King; (May 15) R. W. Sutton.

## Administrative and Special Duties Branch.

The folg. are granted comms. for durn. as F/Os. on probn.:—W/Os.: (May 16) T. E. Jones; (May 26) A. G. Hammond; (May 29) C. F. Glenn. As P/O. on probn.:—Temp. W/Os.: (May 20) N. T. Luce. Flt. Sgt.: (May 13) W. H. Emmett. Sgt.: G. A. Herlihy. As Act. P/Os. on probn.:—Flt. Sgt.: (May 16) C. J. Commons. Sgt.: R. A. Gates. Cpl.: (May 30) A. G. C. Bossy.

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war subvte. rank of F/O.:—(May 29) A. H. C. Plunkett; (May 30) W. H. J. Daw; (May 31) J. C. Ford; (June 8) W. C. Putt.

The folg. Act. P/Os. on probn. are graded as P/Os. on probn.: (May 16) E. C. Millett, B. Dill. P/O. T. D. Atkinson, M.C., is granted war subvte. rank of F/O. (May 7).

The folg. P/Os. on probn. are promoted to war subvte. rank of F/O. on probn.:—(May 1) E. G. Slaney; (June 1) R. S. Blackman.

The folg. are transf'd. to Technical Branch (Mar. 28):—F/O. on probn.: H. T. Harman. P/O. on probn.: G. Goodsell.

## Equipment Branch.

P/O. on probn. A. Yates is confmd. in his appt. and promoted to war subvte. rank of F/O. (Apr. 3).

P/O. on probn. S. Green is promoted to war subvte. rank of F/O. on probn. (May 1).

## Accountant Branch.

P/O. E. A. Jones is granted war subvte. rank of F/O. (May 12).

The folg. P/Os. on probn. are promoted to war subvte. rank of F/O. on probn.:—(Mar. 1) J. E. Towlson; (May 1) B. L. Green.

## Medical Branch.

## Errata.

The notifs. of May 30 concerning Flt. Lt. L. M. Corbet, M.B., B.S., and C. F. R. Briggs, M.B., B.S., M.R.C.S., L.R.C.P., should have appeared under heading "R.A.F.O." and not "R.A.F."

## Princess Mary's Royal Air Force Nursing Service

The folg. Sisters resign their appts.:—(Apr. 3) Miss C. A. J. Wheeler; (June 16) Miss F. M. Crocker.

## Royal Air Force Reserve

## RESERVE OF AIR FORCE OFFICERS.

## General Duties Branch.

Wing Cdr. F. W. Winterbotham is granted rank of Grp. Capt. (June 3).

The folg. F/Os. are promoted to war subvte. rank of Flt. Lt.:—(May 4) A. J. Hagger; (June 5) D. H. Duder.

F/O. R. A. C. Brie is granted war subvte. rank of Flt. Lt. (Oct. 10, 1940).

## Administrative and Special Duties Branch.

Sqn. Ldr. W. R. S. Humphreys is transf'd. to Technical Branch (Apr. 24, 1940).

## Royal Air Force Volunteer Reserve

## General Duties Branch.

The folg. are granted comms. for durn. as F/Os.:—(May 12) C. J. Moore. As P/Os. on probn.:—(May 5) C. D. S. I. McDevitte. Sgts.: (Apr. 9) G. C. Wright; (Apr. 26) L. W. Bangley.

S. F. Champion, G. W. Garton, M. E. Leng; (May 1) A. W. Camp; (May 15) L. T. Glover.

L. O. Barnett, C. B. Ordish; (May 16) W. B. Oliver; (May 17) L. H. Hayden, D.F.M., V. H. C.

Hodgson, C. A. Oscroft; (May 18) H. G. Bownas; (May 22) V. F. Lauderdale, J. H. Morphet;

(May 27) R. A. Jarvis, R. C. G. Rosevear, D.F.M., F. A. Southon. L.A./C.: (Apr. 6) N. L. Shove;

(Apr. 27) J. F. Ashton; (May 6) C. J. Lofthouse; (May 8) W. R. Bloyce, F. W. Buckland, J. A. Bus-

bridge, W. R. Butterfield, G. R. Crackanthorp, H. J. Hopkins, R. P. Johnson, R. H. Langdon

Davies, R. G. Lewis, C. N. Maynard, D. G. Newman, H. W. Pickstone, B. Thirle; (May 15) H. L.

Brown, J. F. Fisher, I. G. Forrester-Paton, D. F. Hutt, A. E. Lloyd, T. G. Macintyre, W. R. Meth-

ven, N. D. Nimmo, J. M. Randall, K. H. N. Rumbow, W. A. Wise; (May 17) G. F. Georgeson;

(May 18) P. Eastman, A. D. Moore, R. R. Reynolds, J. H. Shaw, F. Simpson, E. Wakefield,

H. Walter, R. Boothman, K. O. Judd, R. A. Simpson, H. E. Walker, B. R. S. Williams, R. F.

Cambridge, M. W. Grierson Jackson, A. J. Hay, R. S. Hobbs, B. A. H. Newton, E. B. Radbould,

N. J. Sharpe, H. A. Tyrrell; (May 19) R. G. Allen, G. R. Austin, G. D. Binsted, C. R. Jarred, W.

Mulhern, L. N. Stein, N. S. Wilson, R. Wright; (May 25) H. W. Cowan, A. J. Jones. A/C/2:

(Apr. 10) N. J. Stabb. As Act. P/Os. on probn.:—(May 9) H. W. MacKelvie; (May 30) A. C. Mel-

ville.

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war subvte. rank of F/O.:—(Feb. 1) C. C. Nilson; (Mar. 24) D. C. Howe;

(Apr. 1) E. J. F. Harrington; (Apr. 7) F. M. Addington, W. A. K. Carr, A. G. Sheppard, E. B. Smith; (Apr. 17) J. E. Thompson; (Apr. 28) D. R. Bird; (Apr. 29) D. G. Astington; (May 5) H. J. Broxup, H. Capstick, E. S. Hewson, C. L. N. Johnson, F. Martin, P. N. Negretti, C. L. Turner;

(May 12) J. R. Barry, D. T. Downer, A. A. Halley, J. K. Ross, V. G. Grylls, D.F.C.; (May 15) F. S. Davies; (May 19) F. Brown, R. Eidsforth, R. G. Fowles, M. Jacoby; (May 26) K. M. Carver, R. S. Don, I. T. G. Stewart; (June 14) H. F. Breakspear; (June 17) H. C. Barson, R. Reid; (June 19) H. D. Rankin.

P/O. on probn. B. Green is confmd. in his appt. (Dec. 30, 1940) and promoted to war subvte. rank of F/O. (Mar. 2).

P/O. on probn. E. A. M. Sack is confmd. in his appt. (Jan. 13) and promoted to war subvte. rank of F/O. (Mar. 2).

P/O. on probn. J. S. Kirkman is confmd. in his appt. (Mar. 9) and promoted to war subvte. rank of F/O. (Apr. 22).

The folg. P/Os. on probn. are confmd. in their appts. (Mar. 16) and promoted to war subvte. rank of F/O.:—(May 4) L. D. Jeremy, S. P. Watkins.

P/O. on probn. R. T. Harding is confmd. in his appt. (Mar. 26) and promoted to war subvte. rank of F/O. (May 4).

P/O. on probn. A. T. S. Macfadden is confmd. in his appt. (Mar. 15) and promoted to war subvte. rank of F/O. (May 10).

P/O. on probn. J. W. Whittington is confmd. in his appt. (Apr. 20) and promoted to war subvte. rank of F/O. (May 13).

The folg. P/Os. on probn. are confmd. in their appts. (Mar. 26) and promoted to war subvte. rank of F/O.:—(May 15) M. H. Pinder, R. T. Sheppard.

The folg. P/Os. on probn. are confmd. in their appts. (Apr. 20) and promoted to war subvte. rank of F/O.:—(May 15) L. G. Dennis, A. D. Light, H. E. P. Williams.

P/O. on probn. L. J. Davies is confmd. in his appt. (Mar. 29) and promoted to war subvte. rank of F/O. (May 16).

P/O. on probn. E. S. Judd is confmd. in his appt. (Feb. 3) and promoted to war subvte. rank of F/O. (June 1).

P/O. on probn. F. G. Paisley is confmd. in his appt. (Apr. 12) and promoted to war subvte. rank of F/O. (June 1).

P/O. on probn. J. H. White is confmd. in his appt. (Apr. 1) and granted war subvte. rank of F/O. (Feb. 6). (Substd. for notfn. of May 2.)

The folg. Act. P/Os. on probn. are graded as P/Os. on probn.:—(Aug. 26, 1940) F. C. Jorin; (Aug. 28, 1940) N. Thom; (Sept. 23, 1940) G. L. C. Beattie, C. Campbell, H. A. Clinton, H. R. Crombie, J. M. Dobson, E. C. Elder, J. A. O. Grieves, R. A. Haig, L. H. Harrell, W. C. Neath, C. I. Pearce, R. D. Quas, W. F. Race, T. M. Rattigan, E. A. Stoney, E. G. de T. Symons, G. W. Ward, J. Warren, M. F. Williams, P. F. B. Bluet; (Sept. 26, 1940) H. Storry; (Oct. 23, 1940) P. A. Dalton, C. E. B. Jones, M. R. Sarkies, B. C. Meiklerd, J. R. Thomson, J. L. Thorley.

The folg. F/Os. are promoted to war subvte. rank of Flt. Lt.:—(Apr. 20) D. I. Graham; (May 4) A. J. Douch; (May 8) H. B. Verity; (June 1) P. R. Crompton, D.F.C.

The folg. P/Os. are promoted to war subvte. rank of F/O.:—(Jan. 20) G. R. A. McG. Johnston; (May 9) J. R. Anderson, R. S. Chisholm, J. W. Sievers, R. H. Strang.

The folg. are transf'd. to Technical Branch:—(Apr. 21)—F/O.: I. S. Haggie. P/O. on probn.: R. E. W. Harland.

The folg. P/Os. on probn. are transf'd. to Administrative and Special Duties Branch:—(June 5) M. C. Corner; (June 6) T. D. Condy.

P/O. on probn. D. C. Tufnell relinquishes his comms. on account of ill-health (June 20).

## Technical Branch.

The folg. are granted comms. for durn. as Act. P/Os. on probn.:—(May 16) W. F. Coulshed, S. G. Lendon, A. K. Mercer, J. Morgan, C. B. Proudlove, T. V. Sheppard, J. C. S. Stuart; (May 23) W. Hartley, J. O. Hawdon, T. G. Hicks, H. E. Hoare, E. Procter, F. Roston, G. M. Staniland, L. S. Wills, L.A./C.; (May 16) G. G. Harrison.

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war subvte. rank of F/O.:—(May 3) H. D. Wells; (May 4) F. E. Gutteridge, A. R. Harvey, L. A. G. Satterly, D. M. J. Tyre; (May 10) T. G. Crowder; (May 11) A. S. Carr, G. L. Holway, M. R. Mandviwalla, C. E. Wellings; (May 18) H. T. Chandler, W. T. Sanderson; (May 25) J. F. Archard, J. W. Hunt, M. H. Mauffe, R. E. Smith, A. F. F. West; (May 31) P. Bailey, G. S. Bosworth, W. H. Garnett, K. M. Smith.

Act. P/O. on probn. J. C. Aldred is graded as P/O. on probn. (Sept. 1, 1940).

## Balloon Branch.

The folg. are granted comms. for durn. as P/Os. on probn.:—Sgt.: (May 29) A. McRae. Cpl.: (May 12) P. D. Stone; (May 14) G. D. Faulkner; (May 26) R. G. Hine; (May 28) O. N. White, F. E. Summers.

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war subvte. rank of F/O.:—(Apr. 1) M. J. Fenwick; (Apr. 29) W. R. Lush; (May 28) E. W. Claydon; (June 11) W. F. R. Dickinson, J. W. Pritchard.

## Administrative and Special Duties Branch.

The folg. are granted comms. for durn. as P/Os. on probn.:—(Oct. 22, 1940) Lt.-Col. G. M. Sorley, O.B.E. (R.A.R.O.). (Substd. for notfn. of Feb. 21.); (Nov. 30, 1940) T. E. Winslow. (Substd. for notfn. of Jan. 3); (Feb. 11) D. D. Maynard; (Mar. 21) R. B. Hamilton; (Mar. 28) G. Black; (Apr. 26) C. J. Epilre; (May 3) H. H. Role; (May 15) D. H.



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Warner; (May 16) C. F. G. Bass, H. Bates, R. W. Beer, J. C. F. G. Bentley, L. A. Bowden, E. H. Brown, W. J. Butler, J. D. Campbell, E. Colchester, F. Crossley, J. F. Crowley, A. B. Dennistoun-Sword, A. Dew, A. M. Dickinson, C. M. Feagard, C. W. Fletcher, F. B. Fuller, T. V. Harbry, H. W. Haynes, J. G. Hobbs, J. Jenny, G. K. Lancaster, T. A. Marchesi, J. McGrath, J. L. Montrose, L. W. H. Moore, C. J. Morley, C. L. Moyes, E. C. Norfolk, W. J. Offord, C. R. Orr, R. Owen, W. Patrick, G. L. Phillips, A. R. Pugh, M. G. Radcliffe, G. G. Revell, J. E. Richards, C. C. Richers, E. S. Simmons, R. D. L. Sleight, J. M. H. Slot, H. F. Small, R. W. Spencer, D. F. Spink, M. R. E. Swanwick, G. F. Tighe, E. H. Tripp, W. H. Ward, J. A. H. Way, R. O. Williams, D.F.C., W. E. Woodward; (May 17) J. P. Flood; (May 23) H. S. Buchier, R. Brooks, A. P. Browne, C. Buckley, E. C. Bulmer, D. Chisholm, J. C. Dibble, F. J. Edwards, D. D. Elliott-Smith, B. Fowler, C. V. Frost, R. A. Fry, C. C. Garnett, F. J. Hallett, E. G. Heath, R. V. Kennard, C. H. W. Kitchener, G. E. Lacey, H. J. Longinotto, W. M. Mills, C. T. Newhouse, C. W. Palmer, E. A. Paul, N. D. Peard, S. F. J. R. Perry, G. Richards, L. F. Ridden, J. F. Roberts, C. W. Rosam, F. L. Russell, W. M. E. Sager, R. J. Salisbury, G. H. Simmons, J. D. Solomon, H. J. Strachan, A. R. Symmons; E. B. Thomas, W. A. Wakeling, G. B. Warner, H. F. Watson, V. Wendel, S. H. White, R. M. Williams, T. C. Worsley, T. H. Wright; (May 26) C. W. Phillips; (May 27) A. L. MacMillan, J. L. Marshall, A. D. McDowall; (May 30) C. R. V. Harris; (June 3) W. G. Bevan, E. O. Brown, L. T. Dale, E. Essame, E. L. K. Fordham, H. Harbour, C. E. Loveman, F. C. Mills, T. T. Muir, N. H. Munn, L. J. Neville, H. Taylor, A. J. Wolfendale. Cpl.: (May 26) G. P. Rayner. L.A.C.: (May 24) B. E. P. Sadler. As Act. P/Os on probn.:—Flt. Sgt.: (30th May) G. J. Frost. Sgt.: A. Barrie. Cpls.: F. B. J. Champion, B. B. Calcutt, L.A.C.: (May 16) E. King; (May 30) A. L. Dunn, C. H. Challenor, S. Renney, D. T. Harrison-Sleap. A/C.1: (May 16) N. E. Humphreys, J. M. Wheeler; (May 30) R. J. Jenkyn. A/C.2: (May 16) J. B. T. H. Bigland, R. Clegg, M. F. Taylor; (May 30) R. C. Burke, G. H. Blackburn, G. E. Moody, R. D. Watson, R. G. W. Wing, A. Y. Hill, W. Alexander, R. C. Manley, A. H. Barber, R. B. K. Hawkins.

The folg. are granted hon. comms. as P/Os:—(May 7) H. A. Cliff, H. J. C. Cotton, A. W. Stone.

The folg. P/Os on probn. are confmd. in their appts. and promoted to war subvte. rank of F/O:—(Apr. 15) R. E. Page; (Apr. 17) J. E. Storey; (Apr. 18) T. A. Wiese; (Apr. 19) B. M. Kemp-Gee; R. E. Pilkington; (Apr. 22) N. D. L. Gavin; (May 1) H. W. McGowan; (May 4) D. Q. Bagalkot, D. W. Densham, F. L. Fletcher, A. G. Dunton; (May 5) J. N. B. France; (May 6) C. R. Gibbs, J. Wicks, L. G. Williams; (May 8) F. C. Dixon, G. W. Traylor; (May 9) J. R. Budd; (May 11) H. E. Hammond; (May 13) E. H. Tyson; (May 14) G. W. McNaught, M. C. Badcock, J. H. E. Craster, H. G. Gauntlett, D. M. Goodbody, D. L. H. Price, S. P. St. C. Raymond, G. L. Bateman, T. A. Carr, J. R. Hatchett, F. R. Lovell, A. Nuttall, E. Steward-Anderson, E. B. Gauge; (May 17) D. A. W. Batchelor; (May 18) A. F. Crouch, E. G. Evans, J. D. Cooper; (May 20) S. R. Orski; (May 21) F. E. Atkins; (May 27) A. P. German-Ribon, R. H. Lyne; (May 29) H. F. Bath; (June 3) E. F. Dixon; (June 5) R. C. Blow, G. C. Laws; (June 6) R. C. Swaney; (June 10) J. Holland, N. Vincent, C. H. Grosse; (June 14) R. F. S. Patchin, J. A. F. Dalgety; (June 15) W. Taylor, H. J. Downing; (June 16) C. S. Draper; (June 17) J. X. Hunt; (June 18) A. E. Thomas.

P/O on probn. R. N. Wyse is confmd. in his appt. Mar. 9 and promoted to war subvte. rank of F/O. (Apr. 20).

P/O on probn. H. S. Linthwaite is confmd. in his appt. Mar. 15 and promoted to war subvte. rank of F/O. (May 13).

The folg. Act. P/Os on probn. are graded as P/Os on probn.:—(Apr. 11) F. G. Baker; (Apr. 18) G. East, J. H. Beeton; (May 2) T. Hamilton, T. E. Turnbull, A. F. Armstrong, G. T. Bell, J. Durbin, W. Strachan, C. H. Craig.

P/O H. G. Tomkins is promoted to war subvte. rank of F/O. (June 10).

P/O R. B. Viner is promoted to war subvte. rank of F/O. (Dec. 8, 1940). (Substd. for notifi. of Jan. 14).

The folg. P/Os are granted war subvte. rank of F/O:—(Jan. 3) F. J. Lyons; (Nov. 9, 1940) R. H. Sharp, D.F.C.; (Apr. 12) J. C. Walter; (May 27) D. R. Baylis.

P/O on probn. A. C. Colebrook is granted war subvte. rank of F/O on probn. (Jan. 1) and confmd. in his appt. (May 11).

P/O on probn. A. P. Pitel is granted war subvte. rank of F/O on probn. (Feb. 9) and confmd. in his appt. (June 17).

P/O on probn. H. M. Cotterill is granted war subvte. rank of F/O on probn. (Feb. 16) and confmd. in his appt. (June 11).

The folg. are transfd. to General Duties Branch:—Flt. Lt.: (Nov. 18, 1940) A. W. Wood. P/O.: (Dec. 16, 1940) M. C. M. Peters. P/O on probn.: (May 11) J. S. Wreford.

The folg. are transfd. to Technical Branch:—Flt. Lts.: (Apr. 24, 1940) W. G. Kentfield, J. N. Eastcott. P/Os on probn.: (Nov. 11, 1940) A. R. Harvey; (Nov. 25, 1940) J. W. Keefer; (Feb. 1) P. R. M. Barker; (Mar. 8) F. Johnson; (Apr. 21) F. S. Fay, J. H. Fisher, T. Frame-Thomson, R. E. F. Gardner, A. F. R. Hatfield, S. Helmy, D. G. Hurley, W. J. Hamilton, H. S. Hays; (Apr. 23) W. H. Jewell; (May 7) G. H. B. Gough, E. H. Harvey-George; (May 16) E. J. Black; (May 23) D. J. T. Henderson.

P/O. D. McN. Livingstone relinquishes his commn. on appt. to Chaplain's Branch of R.A.F.V.R. (Apr. 1).

Flt. Lt. L. H. P. Walsh relinquishes his commn. on cessation of duty (June 9).

The folg. relinquish their commns. on account of ill-health (June 17):—Flt. Lt.: Sir R. J. F. Chance. P/O on probn.: F. G. Phillips.

The folg. resign their commns.:—P/Os: (May 28) R. W. F. Dunning; (June 1) D. J. Hall, H. M. Leapman; (June 5) F. G. Hopkins. P/O on probn.: (June 8) C. A. Edgell.

The commn. of P/O on probn. J. Ray is terminated on cessation of duty (June 6).

W. T. Norman relinquishes his hon. commn. on cessation of duty (May 29).

#### Erratum.

The notifi. of Mar. 21 concerning P/O. H. R. Bunn should have appeared under heading of "R.A.F." and not "R.A.F.V.R."

#### Meteorological Branch.

The folg. are granted hon. comms. as F/Os:—(May 7) K. V. W. Nicholls, N. M. Wilson.

#### Training Branch.

The folg. are granted commns. for durn. as Act. P/Os on probn.:—(Feb. 1) L. Carter, H. A. Costigan, R. Cussins, M. N. Dickson, H. Edwards, W. E. Harold, F. T. Monk, G. E. Morris, R. J. Newman, W. Pollard, H. C. Pearce, G. E. C. Quartermaine, J. B. Shrewsbury, H. L. Traherne, W. E. Ward, E. E. Wilby, J. S. Winks; (Feb. 5) G. F. Chapple, W. L. F. Down; (Feb. 7) W. J. Lewis, W. J. Pritchard; (Feb. 11) C. H. Dearing; (Feb. 14) A. R. Workman; (Feb. 15) P. T. Smith; (Feb. 18) J. W. Large, A. W. Pettley, S. E. Pond, H. L. Thompson, S. C. Wilson, N. A. York-Lodge; (Feb. 19) C. B. R. Fleming, R. E. Gilmour, G. G. C. Sumption; (Feb. 21) A. Bell, F. G. L. Heyes; (Feb. 22) J. Hudson; (Feb. 23) N. C. Jones; (Feb. 24) C. Early, E. D. Phare; (Feb. 25) T. C. C. Adam, R. J. Bastin, H. K. Spoonley, A. C. Stanley, C. L. Willis; (Feb. 26) J. L. Brewin; (Feb. 28) C. M. Bethune; (Mar. 1) W. T. Bassett, R. B. Collins, M. S. Lewin, G. Sylvester-Smith; (Mar. 3) R. A. Collier, B. S. Johnson, F. L. G. Smith; (Mar. 4) E. H. Boyd, A. E. Collingwood-Hall, G. B. Dickie, A. T. Harrison; (Mar. 5) J. S. Meldon, H. V. Tooley; (Mar. 6) E. A. Barlow, T. Fletcher, C. C. Unwin; (Mar. 7) A. Brierley, J. S. Gaukroger, J. Mackereth; (Mar. 8) W. H. Carpenter, B. E. Clark, R. M. D. Grange; (Mar. 9) J. Malone; (Mar. 10) A. G. Burness, A. G. Harris; (Mar. 11) P. P. O'Brien; (Mar. 12) J. H. Cubberley, H. T. Williams; (Mar. 13) T. Dunn, G. G. Henderson, A. N. Potter; (Mar. 14) B. G. Porter; (Mar. 15) R. Brown, A. Cutter, G. S. Lee, W. H. Williams; (Mar. 17) J. L. Nightingale, G. D. Warren, M.B.E.; (Mar. 18) J. Mailer, A. Waterson, D. J. Williams; (Mar. 19) M. D. Allen, R. B. Evans, J. N. Rushton; (Mar. 20) J. H. Bailey, C. A. Beck, G. C. D. Fuller, G. A. Holmes, L. H. Rowe, D.F.M., A. Sharp; (Mar. 24) H. J. H. Dyer, J. D. Edwards, J. Fishwick, A. H. Hunt, E. J. C. Large, W. T. Scales; (Mar. 25) G. H. W. Beattie, R. R. Gowland, W. Hall, F. W. Hopes, A. L. O'Loughlin, F. L. Pearce, T. A. Prickett, E. R. Thomas, W. Watson; (Mar. 26) F. J. Bush, H. F. Gibson, H. Lamb, F. Mitchell; (Mar. 27) R. Bolton-King, W. W. Bond, E. Denne, C. F. Lloyd, W. J. Sambrook, J. M. A. Waggott, D. W. Webster; (Mar. 28) R. I. Davies, G. S. Dean, B. M. Evans, S. Jones, D.F.C., E. L. Morgan, H. B. Murdoch, W. H. Rogers; (Mar. 29) A. Jackaman; (Mar. 30) L. N. Stagg; (Mar. 31) F. H. Dormer, C. E. M. Pysan, A. Heathcote, W. J. Hodgetts, W. Shaw; (Apr. 1) B. Cavanagh, A. Martin, L. S. Palmer, C. T. Stroud; (Apr. 2) L. S. Brand, E. A. Coates, G. N. Draper, W. J. Gower, W. G. R. Loughery, F. R. W. Pratt, E. Price, P. G. Watkins, D. Wheldon; (Apr. 3) W. J. V. Aveston, A. J. Norris, J. D. Tully; (Apr. 4) A. Shephard; (Apr. 5) S. T. Bonham, H. Breckell, H. W. Fenn, H. M. Geldard, W. A. Gibbon, H. G. Greg, F. Newsome, M.C., W. F. Ransford, G. C. Wright; (Apr. 7) L. H. Angell, J. F. Baird, N. Ellis, L. M. Main, C. S. Trapp, R. Wallace; (Apr. 8) J. D. Chittleburgh, J. H. Fussell, H. Sill, G. S. Thomson, W. T. Towler; (Apr. 9) A. T. Bennett, A. S. Dobson, A. Graves, J. Kelly, J. H. Marsden, A. R. Mellor; (Apr. 10) J. N. L. Brice, B. Evans, F. H. Graham, A. C. V. Hosmer, B. A. Pead, A. Terrible, H. P. T. Walsh; (Apr. 11) T. Davies, H. G. Reed; (Apr. 12) J. P. Ferriman, G. F. Underhay; (Apr. 13) C. M. E. Mardling; (Apr. 15) F. Binns, A. Cook, G. C. Stretton; (Apr. 16) R. M. Bruce, R. Hall, R. Scott, S. M. B. Thompson; (Apr. 17) F. W. Sellwood; (Apr. 18) W. E. Cockburn; (Apr. 21) A. L. Doyle, T. Elkins, C. B. Gylford, W. H. James, R. G. Johnson, J. W. Mason, L. R. Middleton, J. McC. Rollo, W. H. Shepherd, G. T. Stowe, C. W. Telford; (Apr. 22) M. Coleman, F. Freeman, H. S. Vaughan, D. E. G. White; (Apr. 23) R. G. Chaytor, W. H. R. Davies; (Apr. 24) A. D. Cammack, H. E. Hatto, J. Lawther; (Apr. 27) C. R. Hedge; (Apr. 29) D. H. Greatwood, G. E. Thomas; (May 1) W. A. Sewell; (May 3) W. T. Craig; (May 5) G. C. P. Brown, J. Johnstone; (May 10) C. B. Hill; (May 15) B. Farr, W. R. Nunn, G. A. Simpson; (May 16) R. Pearce, J. W. Toft; (May 17) C. P. W. Baldock, S. C. Blunt; (May 21) B. E. Greenway; (May 26) S. J. Barton, F. E. Steffens.

#### Equipment Branch.

Sgt. B. W. E. Churchill is granted a commn. for durn. as P/O on probn. (Apr. 22).

P/O on probn. W. E. S. Archdale is confmd. in his appt. (Nov. 21, 1940) and promoted to war subvte. rank of F/O. (Apr. 16).

The folg. P/Os on probn. are confmd. in their

## SERVICE AVIATION

appts. (Apr. 2) and promoted to war subvte. rank of F/O:—(May 13) S. L. Baket, B. E. J. McSweeney, J. P. Usher.

The folg. P/Os on probn. are confmd. in their appts. and promoted to war subvte. rank of F/O:—(May 22) K. A. Afford, J. B. Barnes.

The folg. Act. P/Os on probn. are graded as P/Os on probn.:—(Nov. 4, 1940) R. Vredenburg; (Mar. 7) P. J. Scott-Allen; (May 16) J. H. Neep, H. C. O'Dell, G. Poulton, C. D. Rothwell, R. Watson.

#### Accountant Branch.

The folg. are granted commns. for durn. as F/O on probn.:—W.O.: (May 9) H. R. Saunders, As P/O on probn.:—Cpl.: (Apr. 18) R. S. Mapp.

Act. P/O on probn. L. D. Parnell is graded as P/O on probn. (Mar. 29).

#### Medical Branch.

The folg. are granted commns. for durn. (May 13) as Flt. Lts.:—A. Radcliffe, M.B., Ch.B., F.R.C.S., D.L.O.; R. J. Twort, M.B., Ch.B., M.R.C.P. (Lon.); M.R.C.P. (Ed.); As F/Os:—H. Paterson, M.B., Ch.B.; T. A. H. Adkins, M.B., B.S., L.M.S.S.A.; J. Allan, L.R.C.P. and S., L.R.F.P.S.; I. R. C. Batchelor, M.B., Ch.B.; G. A. Beck, M.B., B.S., M.R.C.S., L.R.C.P.; H. Brash, M.B., Ch.B.; R. W. Grayburn, M.B., B.S.; W. Harris, M.R.C.S., L.R.C.P.; R. L. Hill, L.R.C.P. and S., L.R.F.P.S.; I. D. Macintyre, M.B., Ch.B.; D. G. B. Richards, M.B., Ch.B., M.R.C.S., L.R.C.P.; S. M. Rigg, M.B., Ch.B.; G. O. Rosevinger, M.B., B.S.; E. W. Somerville, M.B., B.Ch.; A. McL. Thomson, M.B., Ch.B.; A. McL. Turnbull, M.B., Ch.B.; H. E. Walker, M.B., Ch.B.; E. A. Wallis, L.R.C.P. and S., L.R.F.P.S.; R. J. S. Wilson, M.B., B.Ch.

The folg. F/Os are promoted to war subvte. rank of Flt. Lt.:—(Mar. 12) H. G. Magill, M.B., B.Ch.; (Apr. 9) A. Robinson, M.B., Ch.B.; (Apr. 16) B. E. Finch, M.R.C.S., L.R.C.P.; (May 14) R. E. McKenzie, M.B., Ch.B.; C. E. Tait, L.R.C.P. and S.; (May 21) J. M. McBride, M.B., Ch.B.; (May 28) H. R. E. Wallis, M.B., B.Ch., M.R.C.S., L.R.C.P.; (June 4) M. Walton, M.B., B.S., D.P.H., B.Hy.

F/O S. R. Warren, M.B., Ch.B., relinquishes his commn. on account of ill-health (June 19).

#### Dental Branch.

The folg. are granted commns. for durn. as F/Os:—(May 13) N. A. Burnett, L.D.S.; H. E. Clark, L.D.S.; B. M. Cox, L.D.S.; K. C. Dixon, L.D.S.; D. G. Dowie, L.D.S.; D. A. Hamilton-Ritchie, L.D.S.; G. H. Leck, L.D.S.; W. C. McGhee, L.D.S.; S. Phillips, L.D.S.; G. F. Power, L.D.S.; (May 23) G. A. Edwards, H.D.D., L.D.S.; R. E. Eyles, L.D.S.; W. H. Hudson, L.D.S.; J. B. Karan, L.D.S.; G. H. Mason, B.D.S.; G. A. Reilly, L.D.S.; E. P. Whittaker, L.D.S.; A. N. Wight, L.D.S.

F/O C. M. Beales, L.D.S., is promoted to war subvte. rank of Flt. Lt. (June 11).

#### Chaplain's Branch.

The folg. are granted commns. for durn. with relative rank of Sqn. Ldr.:—(Feb. 1) Rev. A. Attard; (May 12) Rev. J. V. H. Rees; (May 13) Rev. R. B. Birmingham, Rev. H. McCalman, B.A.; (May 15) Rev. J. J. Hooper, B.D., Rev. M. Womack, Rev. C. W. Mann, M.A., Rev. H. Hilliard, M.A.; (May 20) Rev. E. Every, B.A., Rev. C. Dunn, Rev. F. F. Komlosy; (Apr. 1) Rev. D. McN. Livingstone, M.A.

#### Legal Branch.

The folg. Flt. Lts. are promoted to rank of Sqn. Ldr. (temp.) with effect from dates stated:—(Mar. 15) O. C. Barnett; (Apr. 1) C. M. White, H. Elam, C. H. Duveen, W. Gorman, K.C., W. M. Andrew, H. J. Casey, M.C.

## Auxiliary Air Force

### General Duties Branch.

The folg. P/Os are promoted to war subvte. rank of F/O:—(May 10) R. P. Drummond; (May 27) L. Mackintosh.

#### Balloon Branch.

Flt. Lt. B. de L. Cazenove is transfd. to Administrative and Special Duties Branch (June 1)

## Auxiliary Air Force Reserve of Officers

### General Duties Branch.

P/O H. St. J. Coghan is promoted to war subvte. rank of F/O. (June 7).

## Women's Auxiliary Air Force

The folg. are apptd. Assist. S/Os:—(June 7) A/CW.1 K. E. Ashley, A/CW.1 J. M. Blank, Cpl. H. M. A. Crawford, A/CW.2 E. F. Fail, Cpl. A. L. C. Ferguson, Cpl. N. A. F. E. Harper, A/CW.1 E. M. McPoland, Cpl. J. M. Pritchard, Cpl. C. M. Rowe, A/CW.1 S. J. H. Squair, A/CW.1 J. B. Tones, A/CW.2 F. B. Whitby, A/CW.2 A. Whitfield, A/CW.2 M. J. F. Williams, A/CW.2 J. B. Winder.

The folg. Assist. S/Os relinquish their appts.:—(Nov. 29, 1940) M. L. Bernard; (Jan. 31) J. de V. Madden; (Mar. 17) R. H. Price; (Mar. 18) B. W. M. Prendergast; (May 16) J. E. de Belle-roche; (May 21) M. M. Prosser; (May 29) A. M. Fowles; (June 8) L. A. M. Day; (June 10) L. M. Martin Barr.



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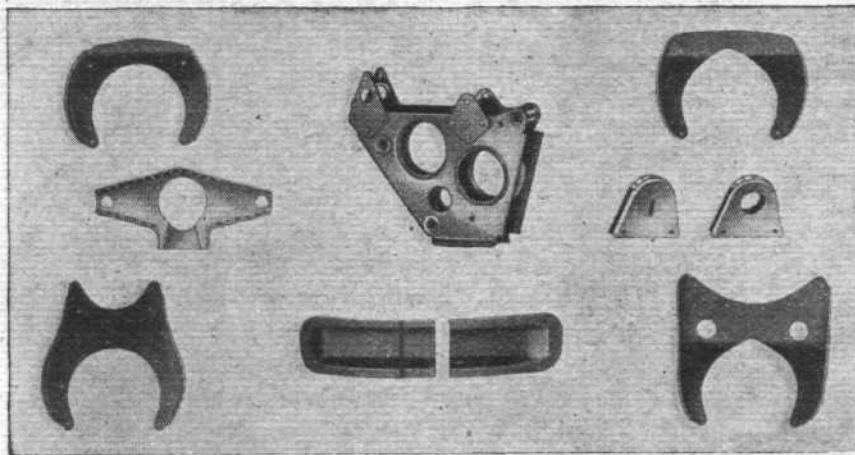
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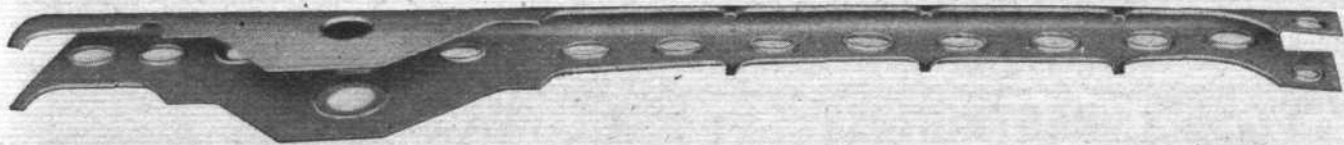


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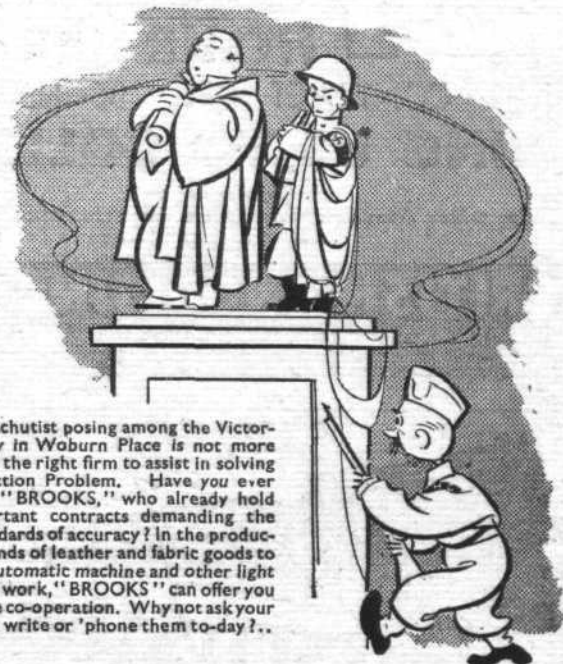


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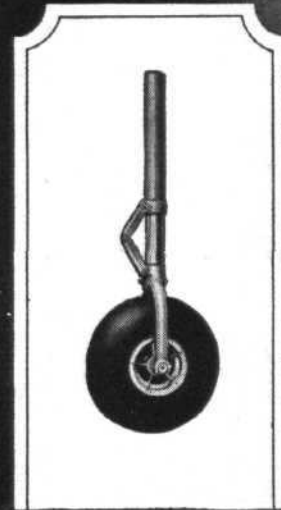
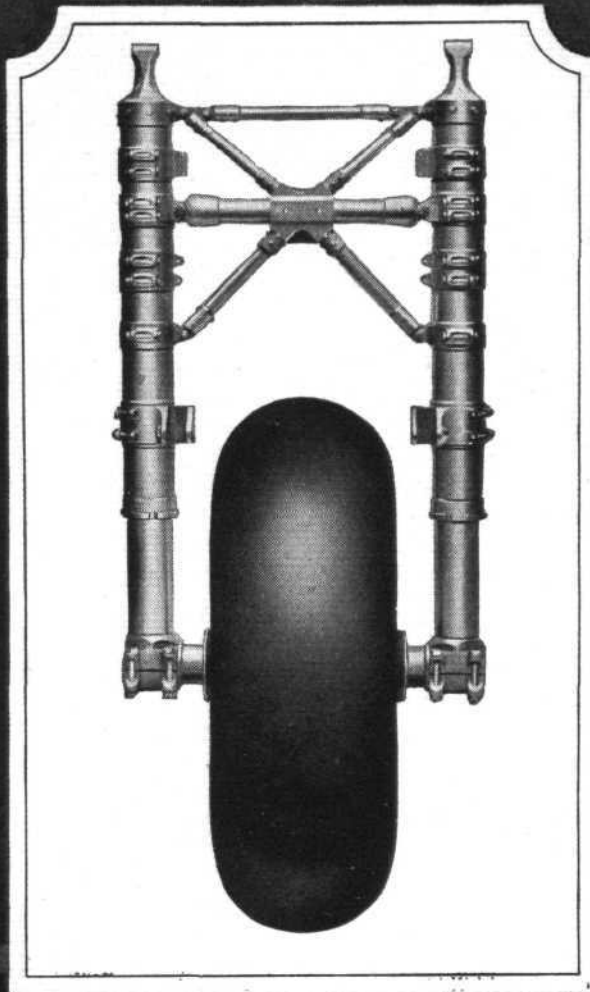


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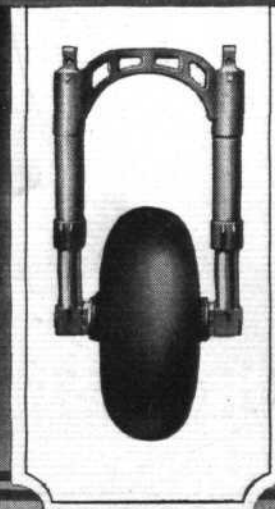
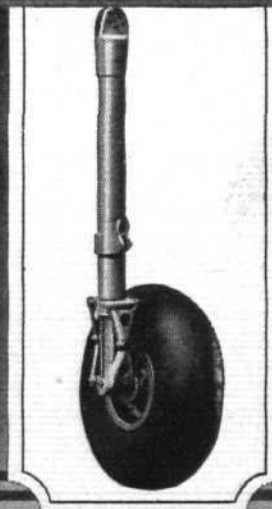
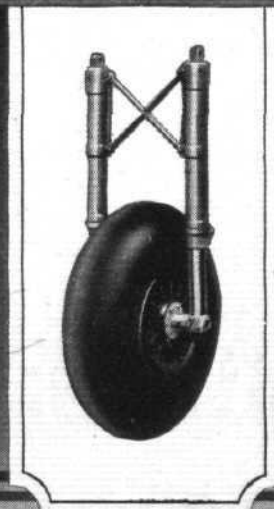
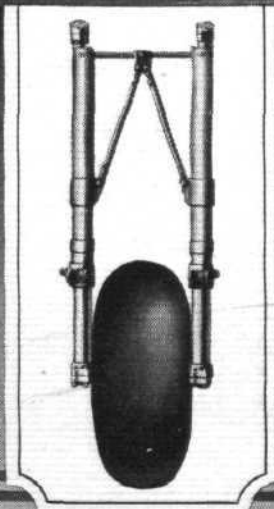
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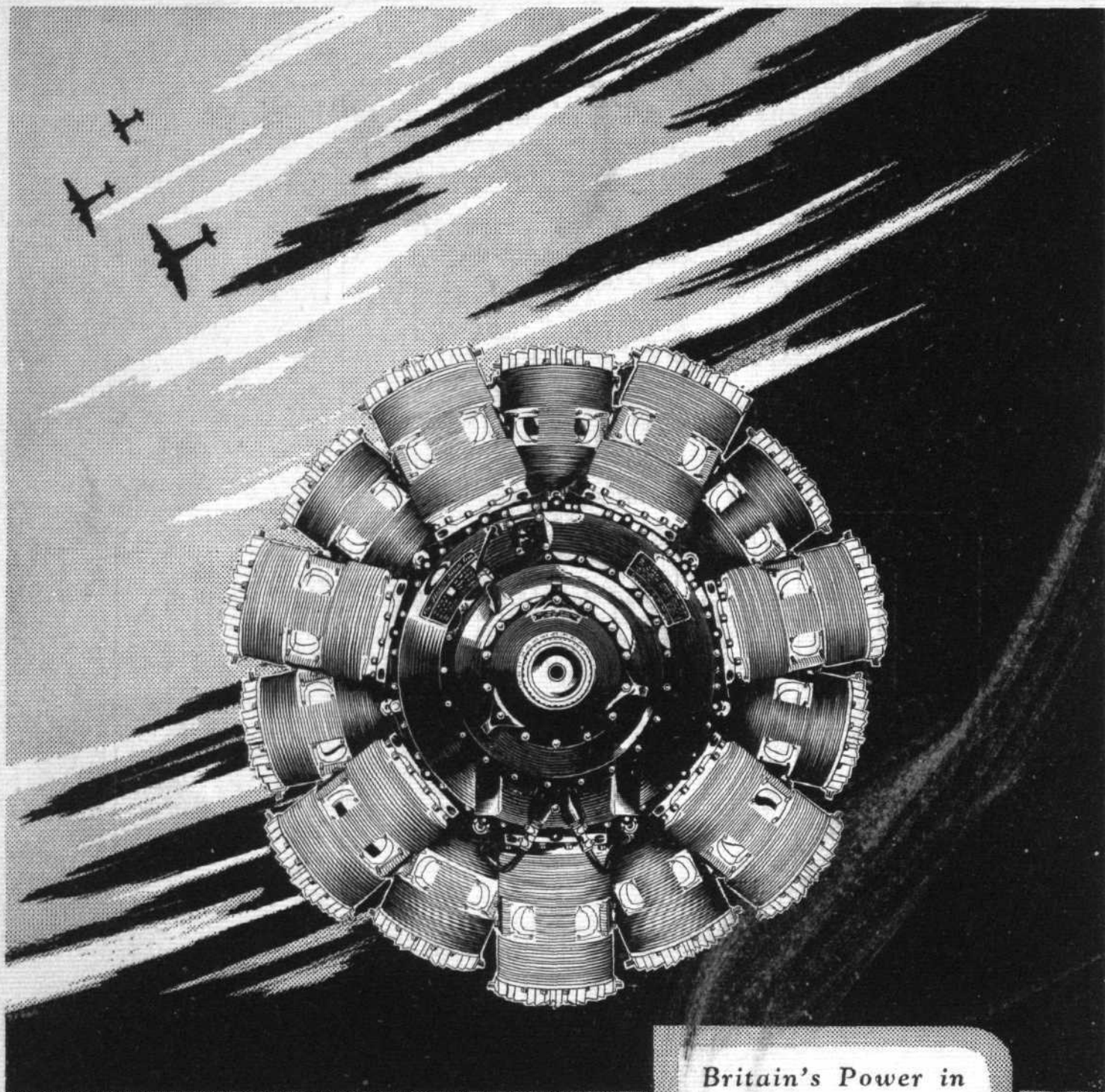


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