"THE AEROPLANE," JULY 10, 1942.

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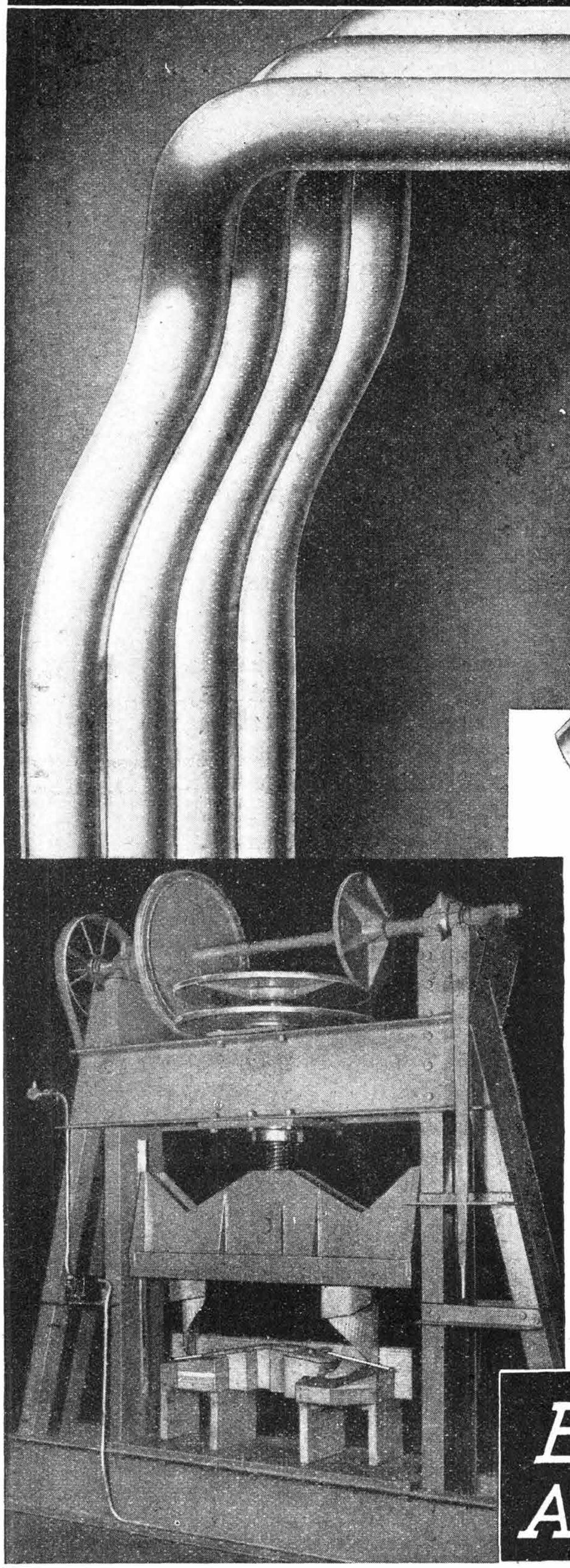
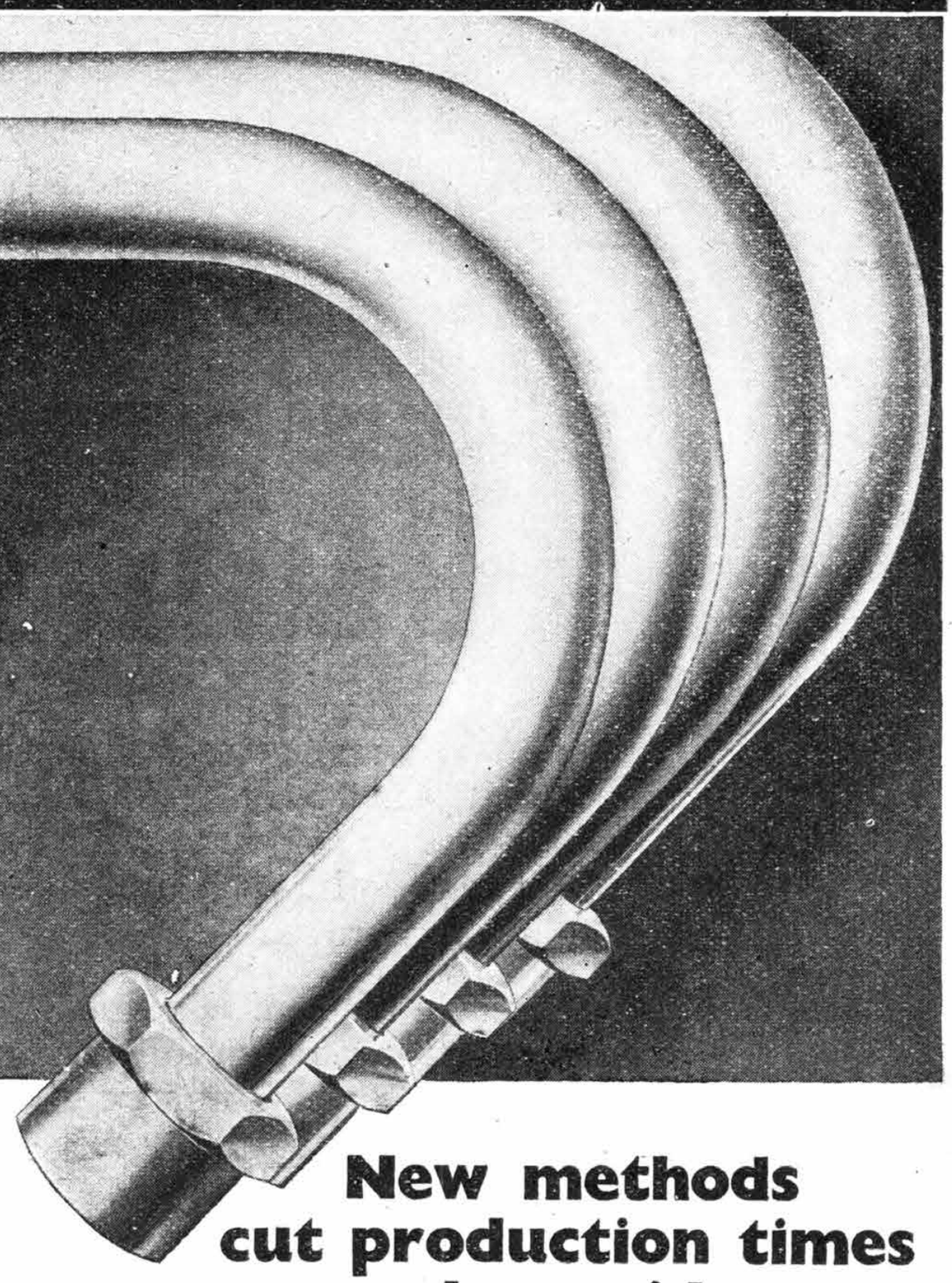
ONE SHILLING

THE AEROPLANE

THE LEADING AVIATION JOURNAL OF THE WORLD

PRECISION PIPE BENDING





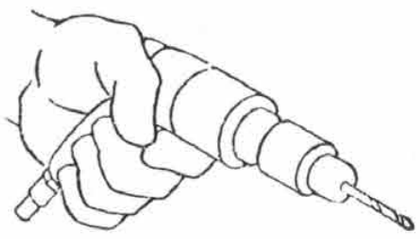
New methods cut production times and provide close interchangeability

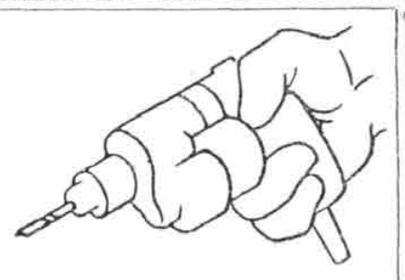
(PATENTS PENDING)

Blackburn Aircraft again pioneer workshop practice in originating and working out precision methods of pipe bending suitable for all aircraft and light engineering work. Multiple bends and complicated forms in several planes made as easily as simple bends, using semi-skilled labour. Equipment required relatively inexpensive—no tooling bottlenecks.

MAKE USE OF OUR EXPERIENCE AND PIPE BENDING FACILITIES

BLACKBURN AIRCRAFT LTD.





GUESS WHO?

IF you are a regular user of small power tools — pneumatic or electric drills and so on — you know, of course, which are the best in the world. But if you are not a user of such tools, or are only just experimenting with their use, no doubt you would be grateful to be told which are the best.

We could tell you. But the joke is (and a mighty poor joke in our view) that we aren't allowed to ! Our chief has a modesty complex which makes him blush at any statement by advertising men or salesmen suggesting that you ought to buy our tools. He makes those noises with his tongue that are written as " tut-tut-tut ". He means : " What's this ? Boasting again ! You shame me ! " Then we have to creep away and write another advertisement.

But, glory be, the boss is away ill. So here and now we tell you that there are no small power tools so good as our tools. They are made better and work better and last longer than anybody else's tools. All the best people use them. And those who don't will when they find out.

VOICE OF CONSCIENCE: *There'll be the heck of a row when the boss reads this.*

US (OR) WE : *He says he never reads advertisements. Anyway, we'll leave our name out and he'll never guess.*

VOICE OF CONSCIENCE: *O.K.*

ANONYMOUS

Specialists in Lightweight Pneumatic & Electric Portable Tools

DRILL GUNS • SCREWDRIVERS • NUTRUNNERS • SHEARS • GRINDERS • COUNTERSINKING TOOLS • BOLT MILLING TOOLS

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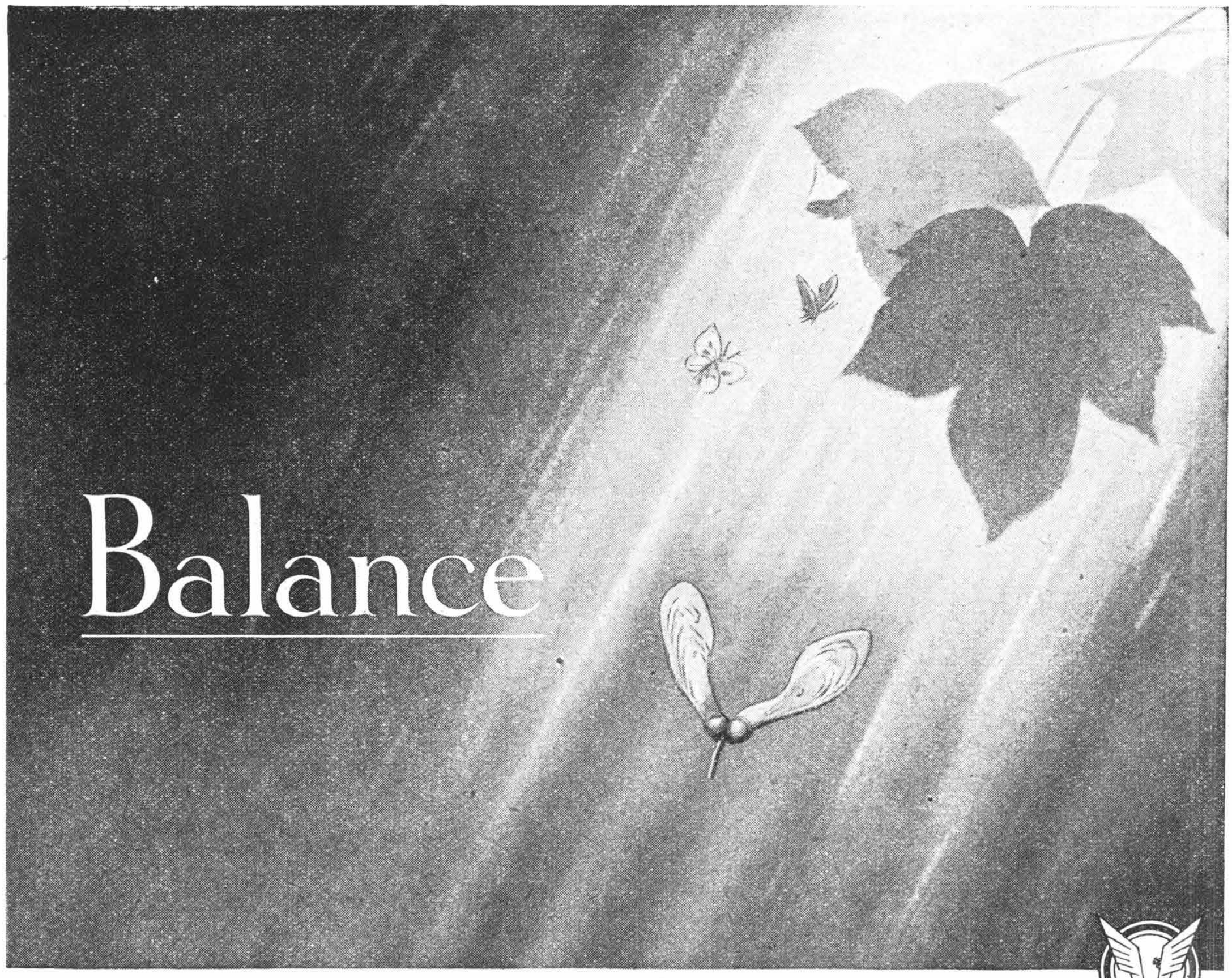
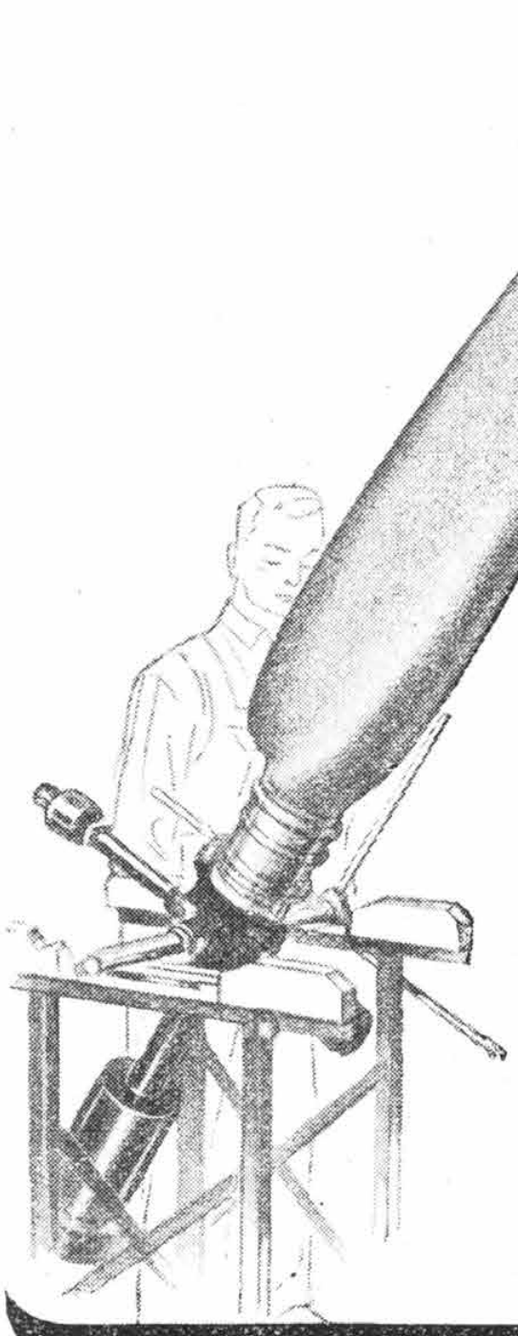


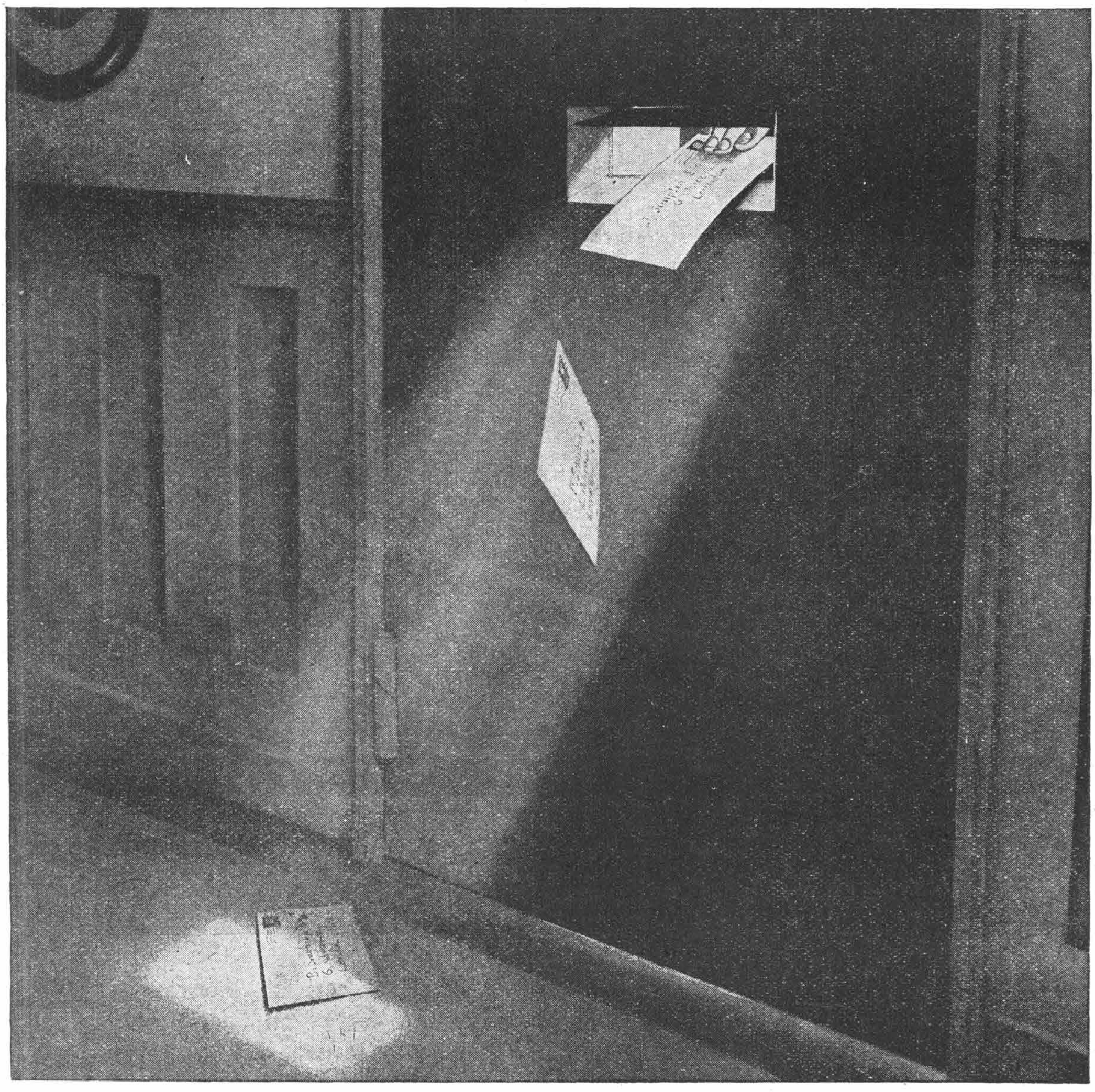


A sycamore seed. Just a natural effort at balance. By working Nature's material, wood, to the finest limits, perfect aerodynamic balance is achieved in Weybridge Propeller Blades. Wood does not fatigue like metal, and is easier and quicker to repair.

WEYBRIDGE

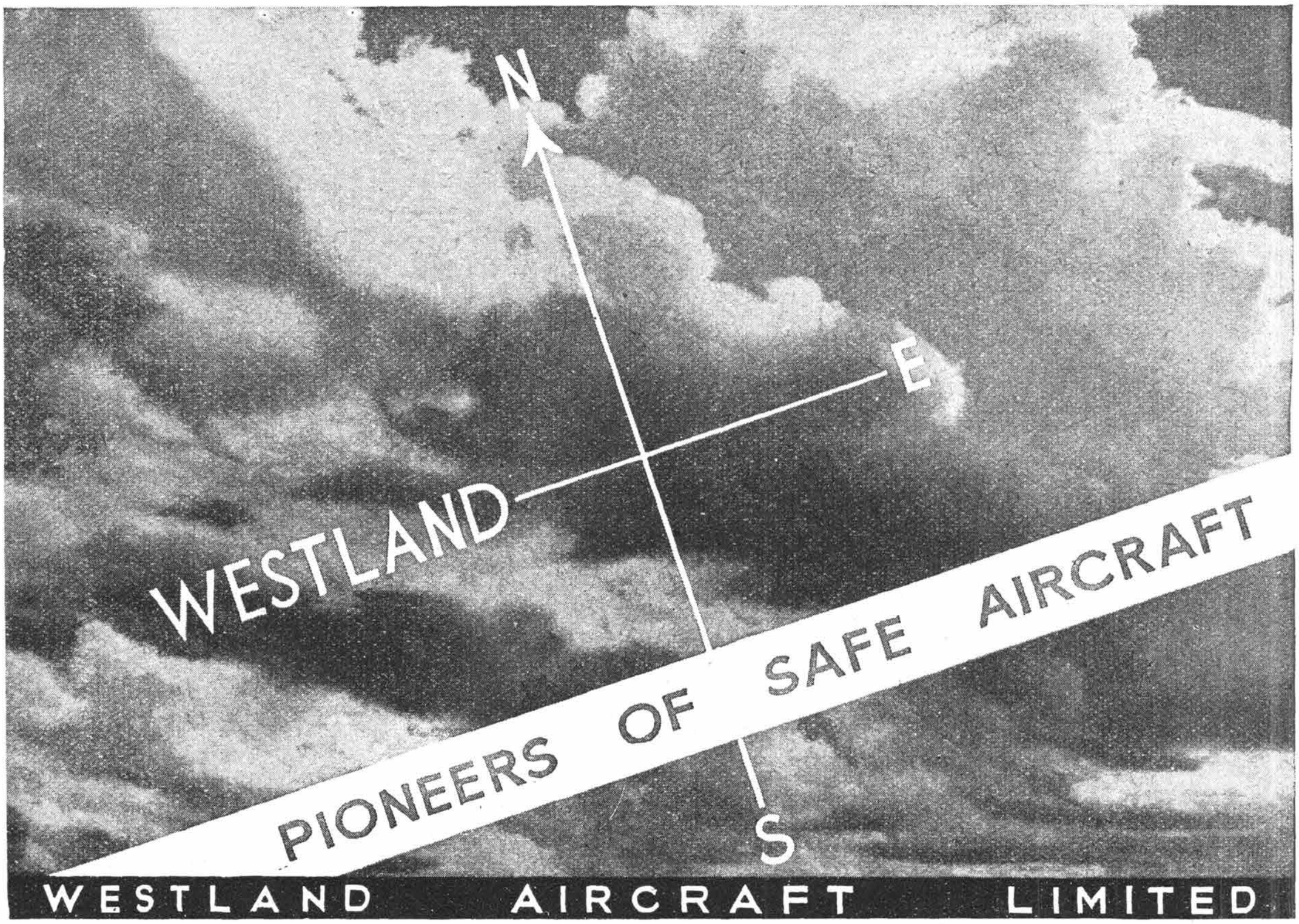
AIRCRAFT PROPELLER **BLADES**

THE AIRSCREW COMPANY LTD.



THERE'S THE POST! . . . . Train, plane, ship, car, may all have helped to bring these letters from far places, but their safe delivery at last owes thanks to the dependable anonymous hand that pushes them through the letter-box . . . . By the same token remember that many a wide-ranging transport vehicle clocks in to time day after day because unknown workers in our factory have laboured faithfully to make our plugs the trusty things they are.

AC - SPHINX SPARKING PLUG CO. LTD, DUNSTABLE



Economize IN THE COST OF LUBRICATION WITHOUT IMPERILLING EFFICIENCY

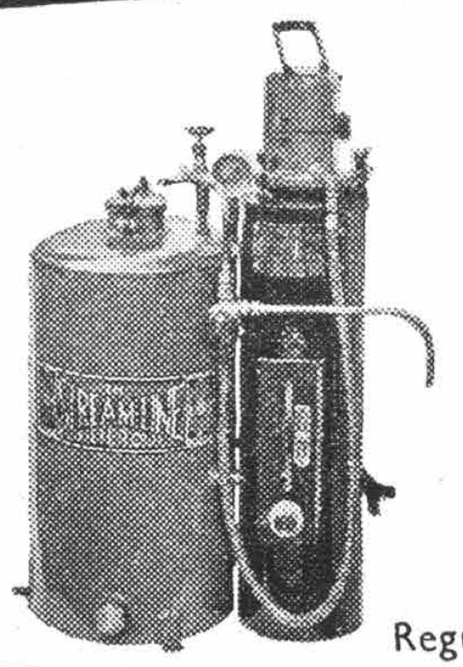
To attempt a cut in lubricating costs by the use of an inferior oil would be folly indeed, and liable to lead to expensive engine repairs.

But the use of a good oil coupled with a Stream-Line filter to keep it good ensures the best of everything—lowest lubricating cost and at the same time maximum engine performance with minimum maintenance charges.

LIMITATION OF SUPPLIES

All oil is nationally important, but for the time being filters can only be supplied to users having batches of oil of known grade sufficient to justify the size selected and having a direct use for the filtered oil.

Those unable to secure a filter at present should nevertheless save their oil. Arrangements for its disposal will be advised on request.



Regular filtration will save engine wear and economize the precious stocks of lubricating oil.

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Ask 10,000 Stream-Line users.

STREAM-LINE FILTERS LTD.
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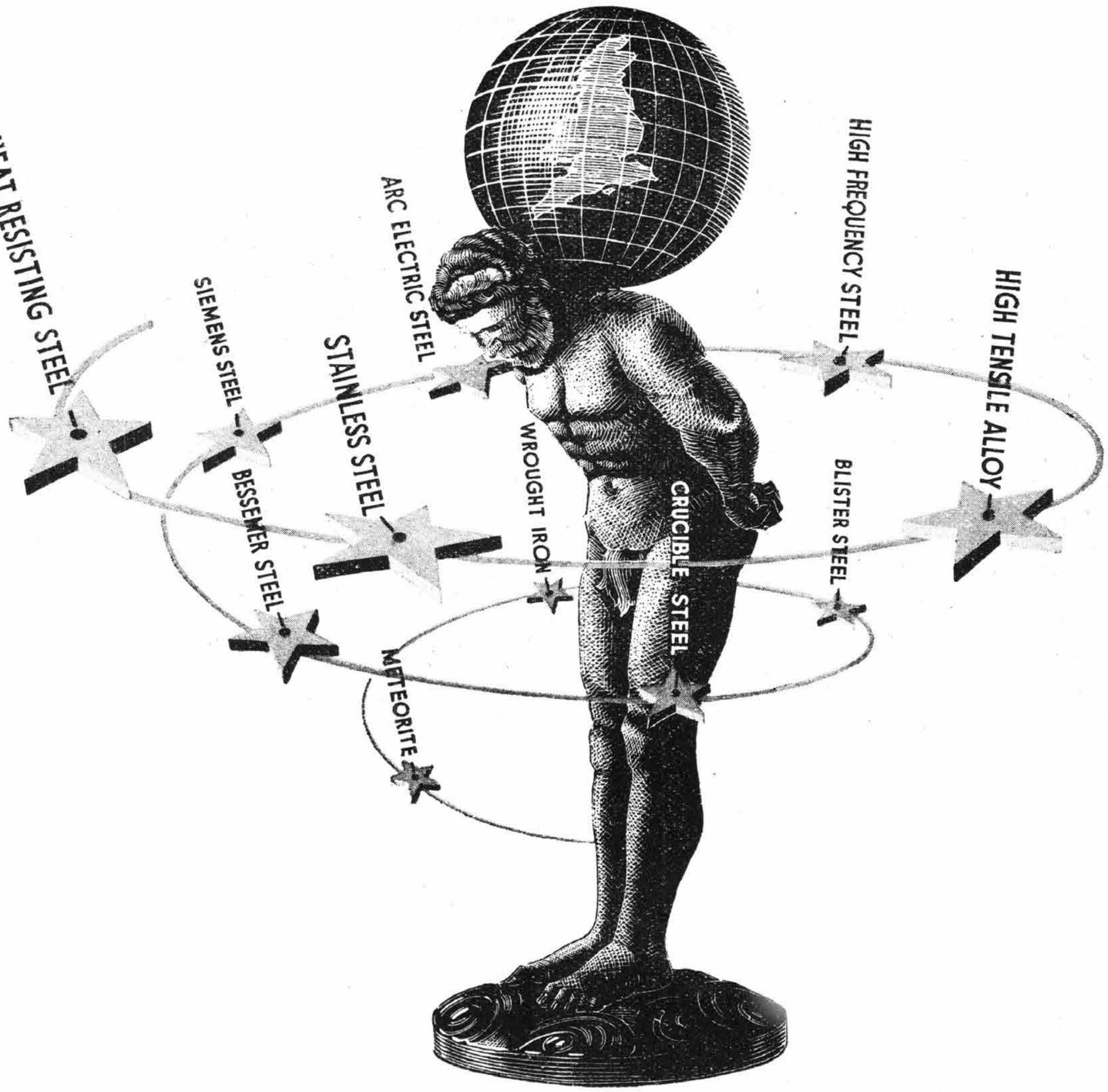
—experts in oil filtration



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History records that even before the Norman Conquest, Sheffield was a centre for Iron Smelting. Continuous development of the art produced the great metallurgical discoveries of Huntsman, Bessemer, and Siemens. On this background of epoch-making achievement came the developments of the Electric Arc Furnace, High Frequency Furnace, High Tensile Alloy Steels, Stainless Steel, and Heat-resisting Steels — all emphasising Sheffield's unchallengeable position as the world centre of Alloy Steel supremacy.

FIRTH-BROWN

RESEARCH FOR & PRODUCTION OF

SPECIAL ALLOY STEELS

THOS FIRTH & JOHN BROWN LTD

FAIREY AIRCRAFT

VOL. LXIII. No. 1624 JULY 10, 1942

THE AEROPLANE

Incorporating
Aeronautical Engineering

Edited by
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MATTERS OF MOMENT

The Coasts of the Middle Sea

NO EXPLANATIONS to account for defeat and no assurances against the repetition of failure emerged from the debate on the Libyan reverses last week. The one important revelation made by the Prime Minister was that the British were stronger in men and weapons than the enemy. The British were superior in tanks in the ratio of seven to five and in guns in the ratio of eight to five. They were not inferior in aeroplanes as the run of the air fighting showed. Mr. Churchill announced that 6,000 aeroplanes had been delivered in the Middle East during the past two years.

Members of Parliament failed to show why the bigger battalions had been beaten. If the Prime Minister knew, he kept the information to himself. Tactical deficiencies appear, in the light of the incomplete reports, to be the most likely explanation; but weapon design may have put on the tactician limitations from which he could not escape until the enemy had sacrificed some of his advantage by pressing forward too fast against the points of greatest strength. The enemy staked his early gains on the prospect of making a clean sweep and so presented the British with an immediate second chance. His General—precipitately advanced to Field Marshal and turned into a public hero—came near to justifying the professional view of him as a fine tactician and a poor strategist.

Sea Control from the Land

What Rommel was not allowed to believe was that the British could be as surely deprived of their power by penning them in the Eastern Mediterranean as by pushing them out of it. If he had set himself to cut them off from the South and East as he had already cut them off from their distant bases in the West, he might have found an easier path to the same end. Instead, he backed his luck to give him another swift success which should destroy the remainder of British armed strength in Egypt and put an end to British interference with traffic in the Mediterranean. In other words, his orders were to clear the Mediterranean Sea and not simply to create a situation from which the clearing of the Mediterranean could steadily proceed.

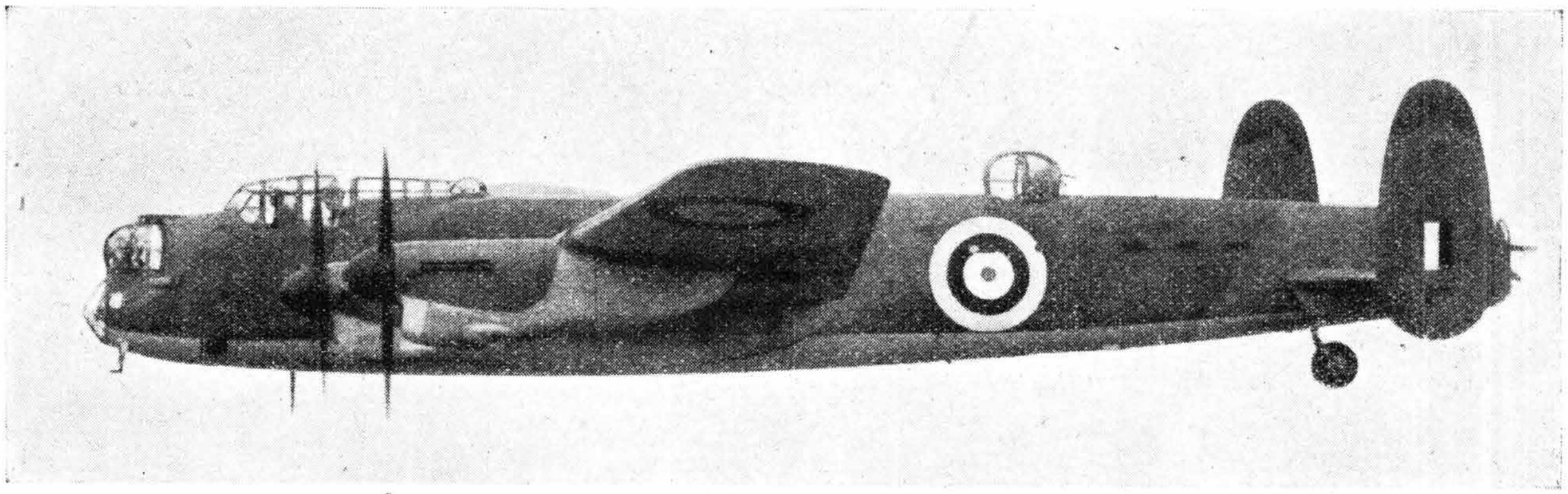
A well-tried German principle is in evidence once again. All through the War Germany has sought to substitute a combination of land power and air power for naval strength. The formula is to seize land bases and to use them as centres of air operation over the seas she wishes to sail. The dash into Norway and Denmark, the headlong rush through France to the Channel ports, the swift occupation of the Baltic States and the costly capture of Sevastopol all mark the same anxious desire to put the narrow seas into chancery. The hammering of Malta fell into the same category. It was part of the plan to prepare the Mediterranean for absorption in two halves. Rommel is charged with the task of applying the formula to the Eastern half. If he were to succeed, Spain and Vichy France between them would share the honour of "sterilising" the Western half.

Impatience and the Harder Way

German strategy in Africa is thus dictated only in part by the immediate strategy of the War and in larger part by a general strategical conception forced on Germany through her lack of sea power and her belief in the air arm. Her African army might have advanced direct on the Suez Canal. It dare not do so unless its sea communications were secure. In the German view they could not be safe while the British held Alexandria as a naval port and air bases near the coast as centres of attack against Axis shipping. Still more important, the main German forces could not develop their assault on Palestine, Iraq and Persia by the shorter route while Mediterranean coastal bases remained in the hands of the British.

Put in another way, Rommel's adherence to the coast in his march on Egypt is seen to be a sign of German impatience to get on with the bigger invasion of the Middle East. Time is pressing. The defeat of the British in Egypt would be counted of lesser significance than the starting of the sweep forward by the German right wing towards the Caucasus. Sevastopol has fallen. The German push past Kursk towards the Don has made progress. The swinging movement of that left wing towards the South is due to begin. Its plan is to shut in a half of the Russian forces and to pin them, in the Caucasus, up against a rear attack from the Persian frontier.

Germany has no interest in roundabout routes. She has no intention of shipping her troops across to Tripoli and passing them over desert roads to Suez and on by camel tracks across Arabia to the Persian Gulf. She proposes rather to use the direct path, with a shipping link under coastal protection. That path is through Syria and Iraq to the Black Sea, taking in the Mosul oil wells. British naval and air strength based on Egypt would be



THE LANCASTER.—Photographs can now be published of the Avro Lancaster, the British four-motor bomber which came into the news after the brilliant raid on Augsburg on April 17. Seven Lancasters were shot down at that time. British propaganda missed a splendid opportunity when it omitted to spread particulars of this excellent aeroplane all over the World at the time when it had bombed its way to the forefront of popular imagination.

a threat to the sea link between the Dodecanese Islands and Syria. Rommel is responsible for removing that threat. With every month the threat has grown. The rate of its expansion is becoming higher. Air traffic from the United States is now pouring into Africa by way of the Congo as well as by the British possessions in West Africa.

The slower process of blockading the British in the Eastern Mediterranean makes no appeal to the Germans in these circumstances. The small and relatively isolated base at Malta needed a lot of blockading and delayed one offensive until it was nearly too late. Having surmounted that fence, the Germans resorted to their approved programme of capturing rather than stultifying the bases. They had seen Malta reinforced from the air with the aid of sea power. They assumed that a beleaguered Canal zone could also receive help by air and could continue to be a source of danger not only to an Asiatic campaign but to their holding forces strung out on the 1,000-mile road from Tripoli.

As Mr. Churchill said, Germany made a contract with the " demon of the air," and the demon has now " taken on an engagement with a rival firm." The Germans have been feeling the weight of air attack in the battles and on their long lines and in the Mediterranean. They dare not leave air bases in Egypt to the British if they want to push on beyond Egypt. The days when they could smother air opposition by their own air power are gone. They have to attack British air strength as they attacked British naval strength by means of military occupation.

In Libya, some failure in the British military machine gave them a great start and raised hopes which led them to trust their luck along the hard road for the sake of quick results. Unfortunately for them, their victories scarcely touched British Air Power, and while the Eighth Army recovered its breath, the Air Arm struck all day and all night against the German force which had known no pause for a month.

The "Magic" of Dive Bombing

THIRTEEN out of a formation of 14 Stukas were shot down by one British fighter squadron over El Alamein on July 3. As an illustration of the dive bomber's extravagance, nothing could have been more opportune. The Prime Minister had just confessed that the Army wants dive bombers. Many Members of Parliament and several newspapers had professed to discover in the dive bomber the secret of the German victory in Libya and had reviled the Government for its failure to put dive bombers at the service of the Eighth Army. German dive bombers obliged the very next day with a demonstration of their futility in the face of air opposition.

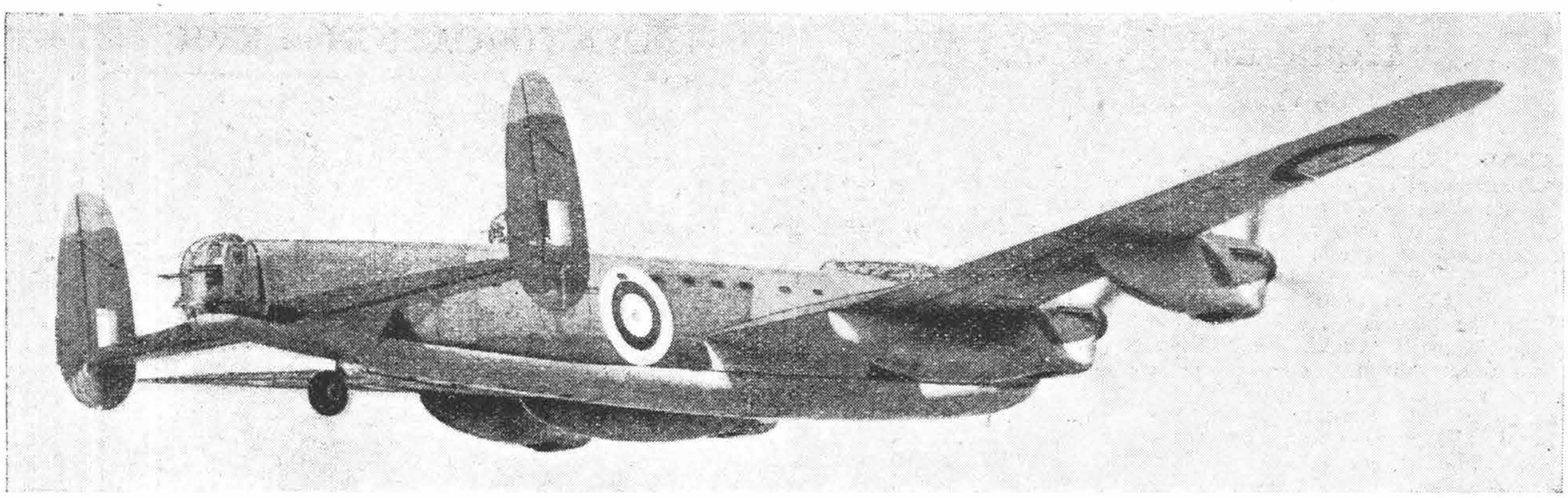
Mr. Churchill avoided giving his opinion on the value of dive bombers in land warfare. By his assertion of belief in dive bombers in sea warfare, he implied that the technique of dive bombing demands relative immunity from fighter attack and is not likely often to find a favourable set of circumstances where armies face each other. The dive bomber can play its part in siege warfare, as at Tobruk and Sevastopol, when neighbouring fighter bases have already been overrun. It can play a terrible part against a land which has no effective air defence, as in Poland and Holland; and it can be brought in to smash an army which has lost its fighter protection, as in Greece and Crete.

What the advocates of the dive bomber still fail to understand is that the military must create the circumstances in which it can be employed. They believe the dive bomber to be the finest means of destroying military resistance and shut their eyes to the crucial fact that the military machine must first have occupied all the fighter aerodromes within range or the air force must have driven the defending fighters out of the air. For this reason, the dive bomber can hardly ever be used as a defensive weapon. When a modern army stands on the defensive, it is concerned with the rapid and disconcerting movements of the enemy's tanks, guns and mobile infantry—with vehicles rather than with positions. These are targets which have to be pursued and " shot up " at close range.

A tank or infantry lorry can manœuvre so much more quickly than a ship that it is fairly safe from a direct hit by dive bombing; and the facility of manœuvre is great in the desert. Ground strafing is much better suited to the fast-moving conditions of open warfare. This is true even when an army is attacking, because the clash is usually between armoured forces in the forward areas and against well-prepared artillery positions just behind them. The dive bomber, operating against those positions, offers a splendid " no deflection " target for their anti-aircraft guns. The precision bomber and the hedge-hopping ground strafer stand a chance of achieving equal results with fewer casualties.

There was one situation in the Great War in which dive bombers might have found an ideal set of conditions. During the retreat of the Turks from Palestine through the Nablus Pass, there was an opportunity for unopposed bombing where the enemy could not disperse. Ordinary bombers choked the pass and massacred the enemy as effectively as dive bombers could have done it. And the same is likely to be true of all situations in which bombing is required. The important thing is not the kind of bomber but the preservation by air or military action of freedom for the bomber to do its work with the greatest accuracy and economy.

We lament the credulity of those who attribute miracu-



HEAVYWEIGHT.—Third of the trio of great British four-motor bombers in full production for the Second Front in Europe, the Avro Lancaster is a development of the Avro Manchester, which it closely resembles. The four motors are Rolls-Royce Merlins.

lous powers to the dive bomber. There is no mystical quality in the Stuka. There is no magic in dive bombing. The bomb will do its work if it reaches the target. It will not be able to continue to do its work for long if it has to take an aeroplane with it right down to destruction every time it makes the drop.

The R.A.F. in the Middle East

MR. CHURCHILL has sent the following telegram to Air Chief Marshal Sir Arthur Tedder, A.O., C.-in-C., Middle East Command:—

"Here at home we are all watching with enthusiasm the brilliant, supreme exertions of the Royal Air Force in the Battle now proceeding in Egypt. From every quarter the reports come in of the effect of the vital part which your officers and men are playing in the homeric struggle for the Nile Valley. The days of the Battle of Britain are being repeated far from home. We are sure you will be to our glorious Army the friend that endureth to the end."

Air Chief Marshal Sir Arthur Tedder replied:—"I send you the most sincere thanks of the Royal Air Force in the Middle East for your inspiring message. We are all resolved to strive our utmost and more to assist the Army to clear Africa of the enemy."

The Lancaster Revealed

FIRST photographs of the Avro Lancaster four-motor bomber are published this week. They show well the lines of this newest and fastest of our heavy bombers, which is probably the most efficient weight-carrying aeroplane in the World to-day.

The photographs are of the version of the Lancaster with Rolls-Royce Merlin motors. The Avro Lancaster is also in production in Great Britain and Canada with Bristol Hercules radial motors. The Lancaster is a development of the Manchester, with the same fuselage and tail unit and a slightly increased span.

Full details of the Lancaster will be released shortly.

"The Double Sting"

BRITISH fighter reinforcements for Malta have been ferried to the Mediterranean by the U.S. aircraft-carrier the "Wasp." Several journeys were made. On one occasion when the British aeroplanes had taken off from the flight deck and were over Malta they went straight into action with the enemy. This information was given on July 1 in the first communiqué to be issued by the Headquarters of the U.S. Naval Forces in Europe. The aircraft-carrier "Wasp" was the fourth vessel to be designed and built as an aircraft-carrier for the U.S. Navy and was commissioned in 1940. It normally carries 72 aeroplanes.

Incorporating the Volunteers

THE AMERICAN VOLUNTEER GROUP, which has done such excellent work in Burma and China, was disbanded and re-formed as the 23rd Pursuit Group of the U.S. Army Air Forces on July 4. It will be stationed in China. Colonel Robert L. Scott, second in command of the Burma and China section of the U.S. Army Air Forces Ferry Command, has been appointed to command the Group. This announcement was made on June 26 from the U.S. Air Forces headquarters at New Delhi.

Promotions

THE following Air Marshals of the R.A.F. have been appointed Air Chief Marshals (temporary) as from July 1: Sir Richard E. C. Peirse, C.-in-C. Air Forces in India; Sir Sholto Douglas, C.-in-C., Fighter Command; and Sir Arthur W. Tedder, C.-in-C., Middle East Command.

The A.T.C. on Parade

TEN THOUSAND cadets of the A.T.C. from 73 London Units were on parade in Hyde Park on July 5. This day had been chosen as "Thanksgiving Sunday" to mark the first 18 months of the official existence of the Air Training Corps.

The parade was followed by Divine Service, which was conducted by the Bishop of London and three Nonconformist ministers, and was attended by the Chaplain-in-Chief of the R.A.F. After the service there was a march past. The cadets were inspected by Sir Archibald Sinclair, Secretary of State for Air, the two Under-Secretaries for Air, Capt. H. H. Balfour and Lord Sherwood, Marshal of the R.A.F. Lord Trenchard, Air Chief Marshal Sir Charles Portal (Chief of the Air Staff), seven Air Marshals, including the Chiefs of the Dominion Air Forces and Mr. W. W. Wakefield M.P., Director of the A.T.C. The cadets were commanded by Air Commodore J. A. Chamier, Commandant of the A.T.C. During the parade Westland Lysanders flew overhead.

Sir Archibald Sinclair congratulated the cadets on their smartness and bearing, and said that they had started by working hard and well, and that he had heard from officers of the R.A.F., into whose squadrons cadets of the A.T.C. had gone, of the fine impression they had made. The R.A.F. had been adding to the splendid tradition established by the R.F.C. in the last War; the cadets were going into that splendid service and would be worthy of it.

Similar parades of A.T.C. cadets were held in many parts of the country and Queen Mary took the salute at the march past of cadets at Bristol. On the previous day, July 4, H.M. The King inspected a parade at Buckingham Palace of 100 sea cadets, 100 Army cadets and 100 cadets of the A.T.C.

SAVE YOUR PAPER

HOW IT'S DONE

Home-made Cirrus

By G. B. S. Errington

OUR FRIENDS the " smoke trails " seem to be condensing into print again. Before they are finally settled by the Brains' Trust some further observations may be of interest to Mr. A. Pratt, who alludes to the tip vortex plume in THE AEROPLANE of June 5. I would refer to Geoffrey de Havilland's letter in " Aeronautics " for June; in this he differentiates between the types of plume as generated by high and low-flying aeroplanes. He is well placed figuratively, potentially and kinetically to make these observations, and most will agree that plumes from fast aeroplanes are formed at great heights from the exhaust moisture condensing out, freezing up and retaining their pristine brilliance for some time, unmolested by air disturbances which are found lower down.

The Met. people will tell us that little water can be held at such heights and temperature, and the combustion products from Rolls-Merlins which now so often traverse the 30,000 feet strata, given suitable atmospheric conditions, are almost bound to leave their frozen trails of moisture, whose generation immediately behind the power units, or even the exhaust outlets has been confirmed. They stop when the throttles are closed.

Not so the wing-tip vortex, which is the result of work done on existing humidly (awful word—my own) unstable air conditions. I have had the opportunity to observe both types from aloft. but having recently indulged in a fairly extensive bout of aeronautical fandangling, have been well placed to make notes on tip vortex plumes from very close quarters, and fiddle with them in flight. Perhaps Mr. Pratt may be interested in the following:—

Wing tip vortex plumes are very different from Geoffrey de Havilland's home-made cirrus; they are not solid, may be formed down to ground level, don't last long, and their life may be measured in feet of length instead of miles. They are cylindrical clouds whose diameter varies with the wing tip section and whose density seems to vary with the speed of vortex, forward speed of wing, its loading, and the humidity of the air mass being traversed. Thus the plume/stocking/wraith/cloud generates at the extreme wing tip, and the diameter from a Whitley, for instance, is that of the distance between the aileron outboard edge and the wing tip. The Stirling and Halifax make smaller diameter, more concentrated plumes.

The plume is either completely opaque to white or, more usually, a fine cloud cylinder keeping its circular shape perfectly, more obviously influenced by bumps and tip movements.

The walls are usually some 3 ins. thick. The " port " plume appears to be rotating clockwise, and the " starboard " anti-clockwise, and both must continue to rotate, judging by the way the cylinder is maintained. It is not difficult to estimate the exact position where the tip plumes will start forming relative to a cloud. On damp days, with low cloud, vortex plumes will be formed when within some 50 feet of the cloud base, the closer the more opaque the plumes, and as the cloud base is left, so the plume fades to a faint ghost and then vanishes. They extend some hundreds of feet back on damp days, and apparently without taper, always maintaining their perfect cylindrical shape, with kinks to show air bumps. Thus a following traveller can really see the bumps coming.

Such humid areas are very local, and the plume may trail from one wing only, with no sign from the other; may be intense cloud from one, and the flimsiest stocking from the other. It is interesting how local are these humid areas; they are never far removed from existing clouds. Intense tip vortices from manœuvring aircraft may generate them away from cloud and, with high enough wing load, in clear sky.

What actually generates the plume? Tip vortex from high velocity flow, inboard above, outboard below, must give a low-pressure area inside the so-formed cylinder of rotating air—expansion-cooling-dewpoint-cloud. But why a ring of cloud from 20-30 ins. diameter? Why not solid in the expanded area? Here is a chance for the know-alls!

Most interesting is the converse; perhaps the converse of the true condensation plume, as opposed to the tip vortex plume. Whilst indulging in the very questionable pastime of fandangling in thick cloud I have been confronted by the phenomenon of a dark circular object, violently swirling in front of the windscreen. This presumed alcoholic delusion was followed by the realisation that this must be a circular cloudless tunnel, dark by comparison with the white of the refracting cloud particles. Was this the tip vortex tunnelling the cloud, or the engine and radiator heat of the leading machine condensing it out? Probably the latter, although the tunnel was remarkably circular. It was rather unusual, and others may be familiar with the feature. Does this not open up a new vista for fighter pilots? Follow the enemy into his cloud and beat up the condensed tunnel; the possibilities are endless.

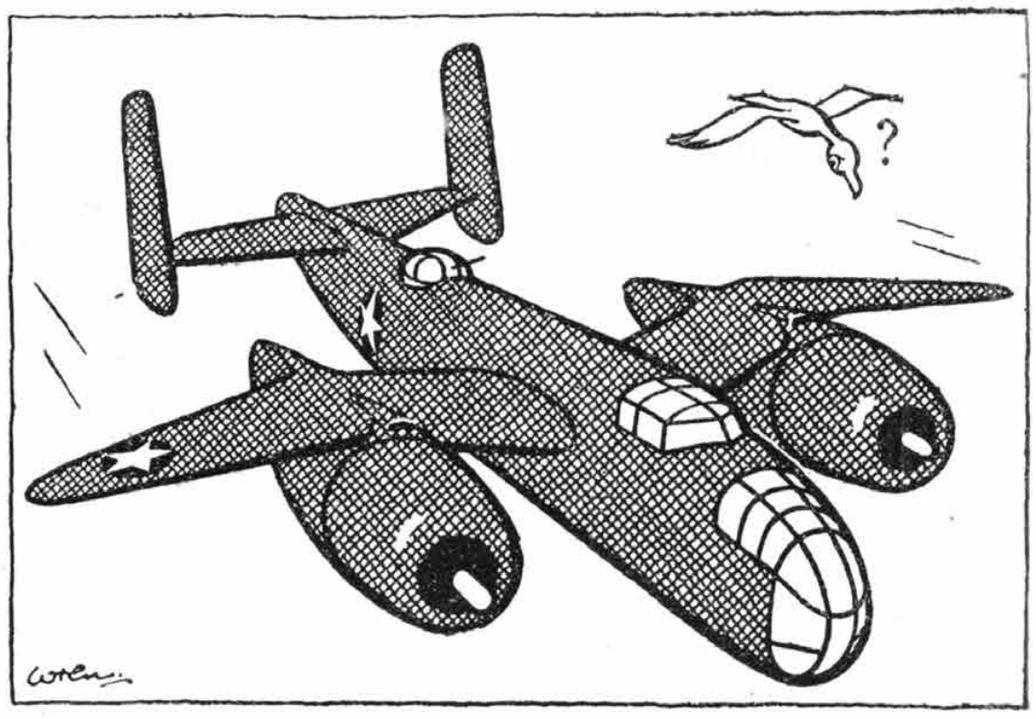
A type of airscrew tip vortex cloud may be seen momentarily on any damp day at ground level, and there is no reason why the complete wing should not produce full span temporary cloud under certain favourable, but rare conditions.

I think that the plume has come to stay, so to speak, and it would be interesting to see what the future " flying squirts " can do for us in this way—there should be some magnificent home-made cirrus in the high heavens, with equally fine cloud tunnelling at lower altitudes.

AIRDENTITIES—IX

Air Chief Marshal Sir Frederick W. Bowhill, K.C.B., C.M G., D.S.O., Air Officer Commanding-in-Chief, Ferry Command.

ODDENTIFICATION—LXVII



" M " denotes the Mitchell and (a most peculiar thing)
" M " is featured also in the strangely gull-like wing—
It left its mark on Tokyo and dimmed the Rising Sun,
It's aiding Russia's struggle, too, against the striving Hun—
Another Yank in the R.A.F., a Yank of proven worth,
Another nail in the coffin of the spoilers of the earth.

PARLIAMENT AND AIR POWER

THE PARLIAMENTARY DEBATE on Sir John Wardlaw-Milne's motion of censure against the Government produced much criticism of the War in the air. Few members showed any intelligent understanding of dive bombing. There was a great tendency to mix up dive bombing with ground strafing. Wing Commander Grant Ferris summed the matter up best when he said: "One must not confuse dive bombers with dive bombing. One can dive bomb with a number of aircraft; one can dive bomb to perfection only with a slow type such as the Ju 87, but the Ju 87 cannot be used against reasonable opposition."

Lord Beaverbrook, in the parallel debate in the House of Lords, disclosed that a great number of dive bombers had been ordered from America but that there had been delay in delivery. Lord Trenchard interjected into the debate some sound common sense, for which he is renowned.

Sir John Wardlaw-Milne complained that on June 10 of this year the Secretary of State for Air said that dive bombers had been ordered in July, 1940, and when they were received squadrons would be equipped with them. "What an answer for any Minister of the Crown to make nearly three years after we started War. What is the cause of the delay?" he asked.

Sir Roger Keyes maintained that Italy should have been knocked out after the Fleet Air Arm's raid on Taranto. He asked also what steps were taken to prevent the Scharnhorst and Gneisenau from escaping through the Channel. It was a naval responsibility since Coastal Command was now supposed to be under Admiralty control. "Did they really think that an attack by five old destroyers and a few torpedo boats and the suicide of six Swordfish aircraft was a justifiable naval operation in broad daylight against a formidable well-screened force?" [The primary object of the Navy and Air Force was to ensure that the two German ships did not get out into the Atlantic. Neither has been in action since.—ED.]

The Functions of the Dive Bomber

Mr. Lyttelton, in answer to dive bomber questions, said: "It is the opinion of commanders that a force of dive bombers could not have affected the course of the battle and that the dive bombers of the enemy were largely ineffective in the desert for the reason I have given." (Sand storms.) Mr. Lyttelton also pointed out that at Bir Hakeim and Tobruk only small forces of from 20 to 30 dive bombers were used at one time by the enemy. He did not think there was any evidence to show that the loss of Bir Hakeim resulted from the action of dive bombers. The utility of bombing in Africa lay in attacks on supply columns, but in the desert such columns could defend themselves by spreading out.

Flt. Lt. Boothby thought that the harbour of Benghazi should have been pulverised. [Benghazi harbour happens to be filled with water, which cannot be pulverised.—ED.] Later, Flt. Lt. Boothby turned to attacking the Royal Air Force. "Take the Bomber Command," he said. "They know as much about what Fighter Command is doing as if they were fighting the War in Mars. There is no real mutual co-operation or knowledge between different branches of the Services." [Many senior R.A.F. officers have held important commands in both Fighter and Bomber Commands.—ED.]

Major Heilgers and Mr. Garro Jones suggested that a few hundred heavy bombers should have been flown to Libya at the crucial time. [Bombers have to be modified for tropical flying. They also need good bases, adequate service equipment, ground crews and a proper supply of spares.—ED.]

Captain Plugge wanted armoured aeroplanes that could machine-gun troops in trenches and other types which would never come into service unless there was an Army Air Corps. He then spoke about the Fleet Air Arm. "The great range of torpedo-carrying bombers can be utilised much more actively from land bases." He said: "We sent an aircraft-carrier with small 'planes and small torpedoes to destroy the Tirpitz. Although the Tirpitz was navigating in daylight in the North Sea for over 18 hours we did not sink her. She could have been sunk if the Fleet Air Arm had had land bases for land-borne torpedo-carrying aircraft." [Torpedo-carrying aircraft did operate from shore bases to attack the Tirpitz. The weather over the North Sea was filthy and the coast of Norway covered in low clouds. Tirpitz was hit and has not been outside Trondheim Fjord since.—ED.]

Wing Commander Grant Ferris, in the most interesting speech of the debate from the aeronautical point of view said: "There is a great deal of misunderstanding, not only in this House but throughout the country, about the use to which the dive bombers can be put. There are several essentials which must be met before the dive bomber can be used with any degree of certainty and any degree of satisfaction to the Power which is using it. First of all, you must have good substantial fighter cover for your dive bombers. Secondly, there must not be substantial fighter opposition to them, or they will not be able to do their work properly.

"Thirdly, their effectiveness will be greatly minimised if there is strong, light anti-aircraft opposition to them from the ground. The House will remember a well-known figure in the Air Force, Air Commodore Basil Embry, who has thrice won the D.S.O. Just after the War broke out, when he was a Wing Commander, he escaped from a prison camp in occupied country and I met him here in company with my right hon. and gallant Friend Major G. Lloyd George. He said that he had had a conversation with a colonel in the Luftwaffe, who told him that the only reason why Germany did so well with dive bombers in France and the Low Countries was because British fighter opposition was too small to be effective and that our light 'Ack Ack' was practically negligible, with the result that the dive bombers did tremendous execution."

Dealing with the Junkers 87, Wing Commander Grant Ferris went on: "Let us see how much the Junkers 87 was used in the Battle of Britain. I have taken care to ascertain correct figures and I find that on three days 96 dive bombers were shot down by our Fighter Command over our water and this country. They were used for only a few more days. Afterwards the Germans ceased to use them simply because the cost was too great." On the subject of Bir Hakeim he said: "I can assure the House that the Free French there were not dive bombed successfully. Junkers 87 machines were used against them and all were shot down out of the sky. A certain number of Junkers 88 had to be sent for—very good general-purpose bombers and reasonably good dive bombers—to help to do the job. But as a matter of fact dive bombing was not responsible for the fall of Bir Hakeim."

Mr. Price complained that there was not enough bombing of Germany. He dealt with the excuse that bad weather interfered. "I am a farmer and have to keep my eye on the weather," he said. "I know fairly well what the weather conditions were like and I know that last Winter was not so very exceptional in the weather. We had a long period of frost but I do not remember for years a Winter when there was less fog." [Surely Mr. Price's farm does not extend over the North Sea!—ED.]

The Prime Minister, in replying to his critics, said that Malta was at one time down to a dozen fighters. For several weeks more than 600 German and Italian aircraft "streamed over in endless waves in the hope of overpowering the defences of the island fortress." A constant supply of Spitfires reached the island. The United States carrier Wasp rendered valuable service and in a message of thanks he had written: "Who says a wasp cannot sting twice?" Dealing with the dive bomber question, Mr. Churchill said: "If we had made dive bombers instead of eight-gun fighter aircraft, we might not have had the eight-gun fighter aircraft to shoot down the Ju 87s when they came over." Our bombing of Germany was going to increase and increase until "it will play a great and perfectly definite part in abridging the course of this War, in taking the strain off our Russian allies and in reducing the building and construction of submarines and other weapons of war."

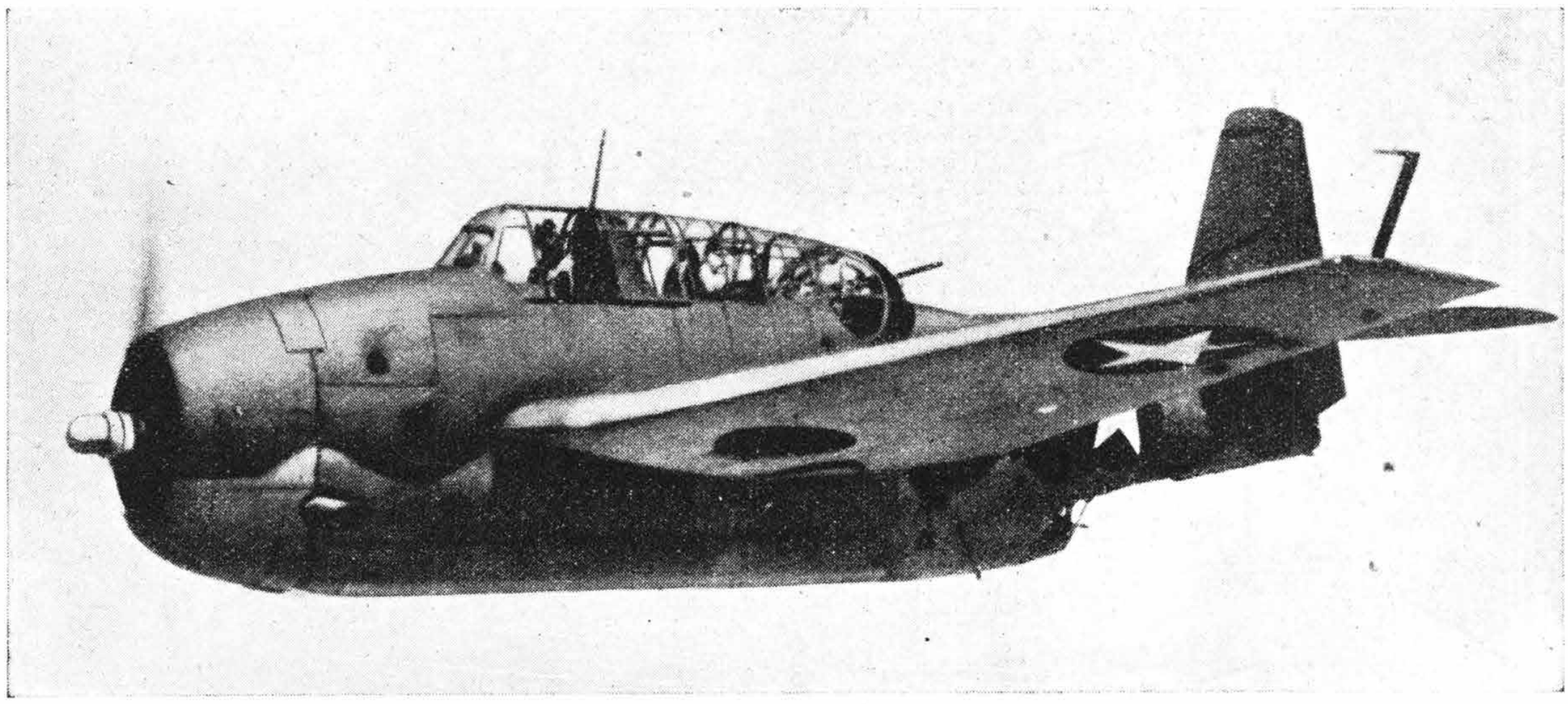
The Lords Debate

In the House of Lords Lord Trenchard brought forward several interesting points. Designers of aircraft and tanks, he argued, design for the future. If the design of present aeroplanes and tanks was inferior then it was the fault of those who had gone before, not the fault of the present Government. He went on to explain that as fighters, bombers and dive bombers could not all be produced at the same time, preference had been given to fighters and bombers. On the subject of our fighter-bombers, he said: "I cannot help feeling that our own fighter-bombers have proved of great effect against the enemy and this has been proved in the present campaign. I should not be surprised if the Germans were asking why they did not get fighter-bombers." Dealing with a well-known writer who recently said that Germany was 2,000 times as large in area as Malta and that 4,000,000 bombers would be needed to bomb Germany as intensively as Malta was bombed, Lord Trenchard said: "We do not bomb Germany; we bomb industrial centres and military objectives in Germany." He added: "There are between 50 and 60 German cities of sufficient industrial and other importance to make heavy bombing and other attacks worth while. To make a calculation by areas, the total areas of these 50-odd cities should be considered. It will then be found that the task of saturating those areas with bombs in the way in which we did saturate one of the greatest of them, Cologne, recently, is a task by no means beyond the powers of a large bombing force."

Finally, Lord Trenchard pointed out that for the first time in history a war was being fought in three dimensions. Dealing with this he said: "It is not a matter of dispute regarding the merits of one weapon as against another. The point that has to be recognised is how it will affect the whole of this War and the whole life of the British Empire in the future."

The 148th Week of

THE WAR IN THE AIR

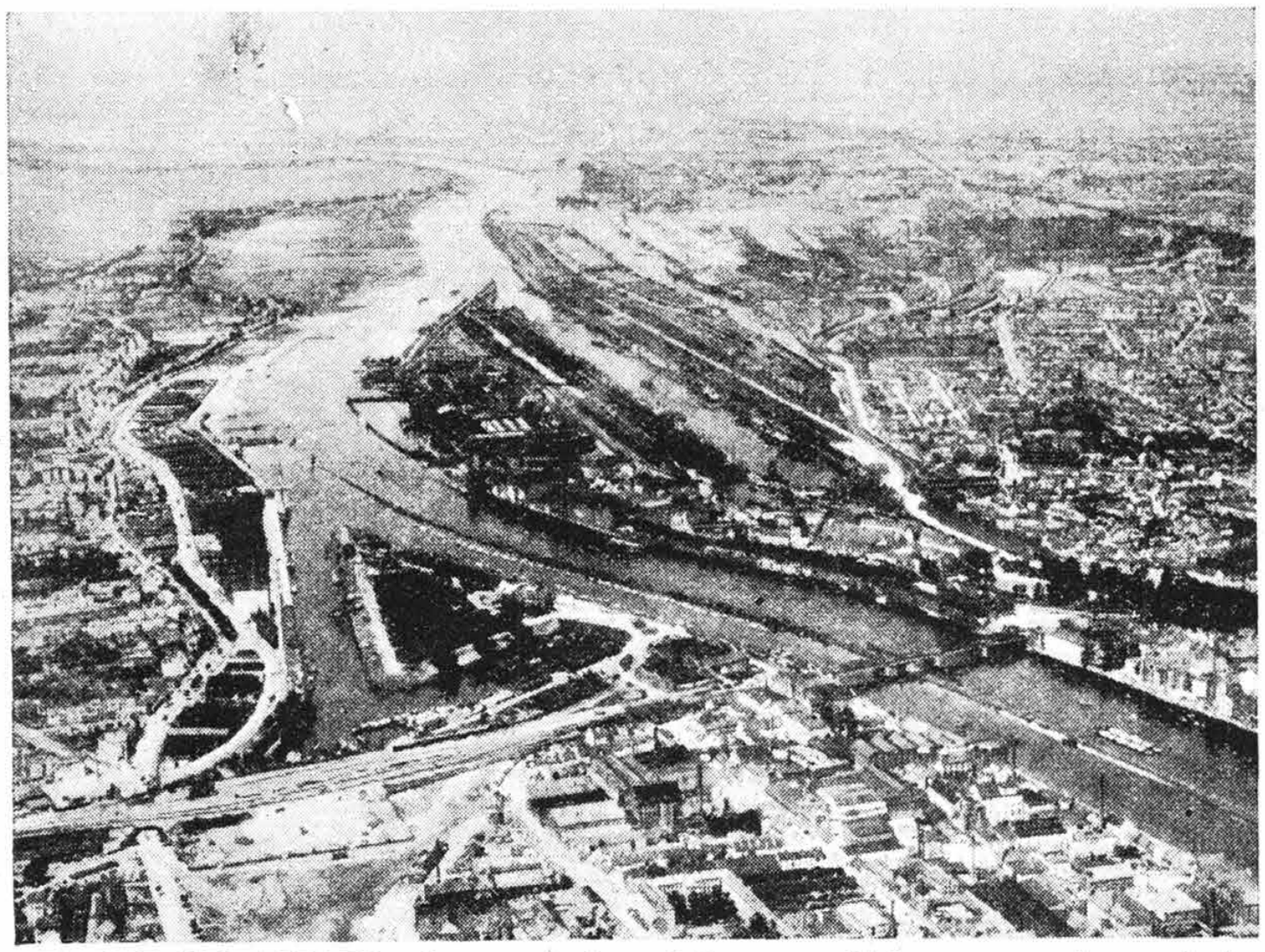


THE AVENGER.—The Grumman Avenger, which took part in the Battle of Midway Island. It can carry a 21-in. torpedo enclosed in the fuselage, or a ton of bombs. Its speed is given as more than 270 m.p.h., range as 1,400 miles, and ceiling as more than 20,000 ft.

AIR SUPPORT for the Eighth Army in Egypt has been of a quality unsurpassed in any action of the War. Day and night, fighters, bombers and fighter-bombers have swept over the area of the fight and far behind the enemy lines, clearing the air of Axis aircraft and smashing the supply columns and infantry concentrations of the enemy.

When the enemy has dared to throw in dive bombers against our forces—which he has done infrequently—they have been murdered by the air defences. If our ground equipment had been of the same relative technical quality as our air equipment we should have been in Tripoli a year ago.

The Battle for Egypt is at a transitory stage. We are on the eve of great events there, for if Rommel is held for long and his supply lines can be cut, he will find that he has over-reached himself and turned conquest into disaster. On the other hand, if our own reinforcements are much less than those of the enemy and of inferior technical quality so that he is able to break through again, then little can stop his forward progress. Yet we can hope that our present air superiority and the magnificent way in which Air Chief Marshal Sir Arthur Tedder is handling it will gain the day.



TARGET FOR ATTACK.—A general view of Bremen, which was recently attacked by the R.A.F. four times in eight nights—each time by heavy forces.

The great strategic weakness of the whole North African campaign is our inability to close the Mediterranean narrows to enemy convoys—or even to inflict crippling losses. The Navy is impotent in the Mediterranean to-day because our ships cannot operate within range of enemy shore-based aircraft. Until more bases are gained there is little hope of improvement.

A Fogged Issue

The long retreat of the Eighth Army in Africa brought up new questions on the dive bomber in the Debate on the War situation last week. Some Members of Parliament, shamefully uninformed, appear to believe that the dive bomber is the cure for all tactical ills in modern warfare. Indeed, the pressure has

become so great that the Air Ministry appears to have yielded ground, against its better judgment, and to have sought to turn the criticism by quoting the existence of orders for the Bermuda and Vengeance.

That is unfortunate, because we have neither the men nor the man-hours to waste in providing unsuitable and highly vulnerable aircraft for the quietening of the uninformed and misled. German propaganda, in proclaiming the virtues of the dive bomber and in attributing to it feats in Africa which it has never achieved, seeks to coerce us into diverting valuable production to less useful types. The enemy knows quite well that the dive bombing of German troops and supply columns is a practice which has been adequately guarded against. A different tactical method of approach will yield more satisfactory results.

The dive bomber has had its day. It proved a potent weapon against lightly armed forces when fighter opposition was negligible. Even so, it frightened rather than injured, and throughout the War, even in Poland, the casualties from dive bombing have been small. To-day, against well-equipped forces, it is a suicide weapon, and has become an object of propaganda rather than of attack.

Let us not continue to march a step behind the Germans now in building dive bombers, but, instead, leap a step ahead and concentrate on new tactical weapons of far more versatility and effect. The same engines, the same airscrews, the same equipment, and the same crews can be used for far better purposes.

The Battle of the Bottleneck

AFTER AN AMAZING RECOVERY the Eighth Army last week stood its ground at El Alamein, a bare 65 miles West of Alexandria, and stopped Rommel in his tracks. Resistance at Mersa Matruh, Fuka and El Daba had not checked the enemy's onward march, but the Qattara depression farther East narrowed the battlefield and put restraints on his powers of manœuvre.

Bunched instead of dispersed, his armour and supply vehicles presented easier targets, and the bombers, fighter-bombers and fighters whose vigorous assaults had won so little reward in the open desert began to reap a richer harvest. During the retreat they had rained down heavy blows on the enemy, but their most strenuous exertions could not make good the Eighth Army's lack of weight in artillery.

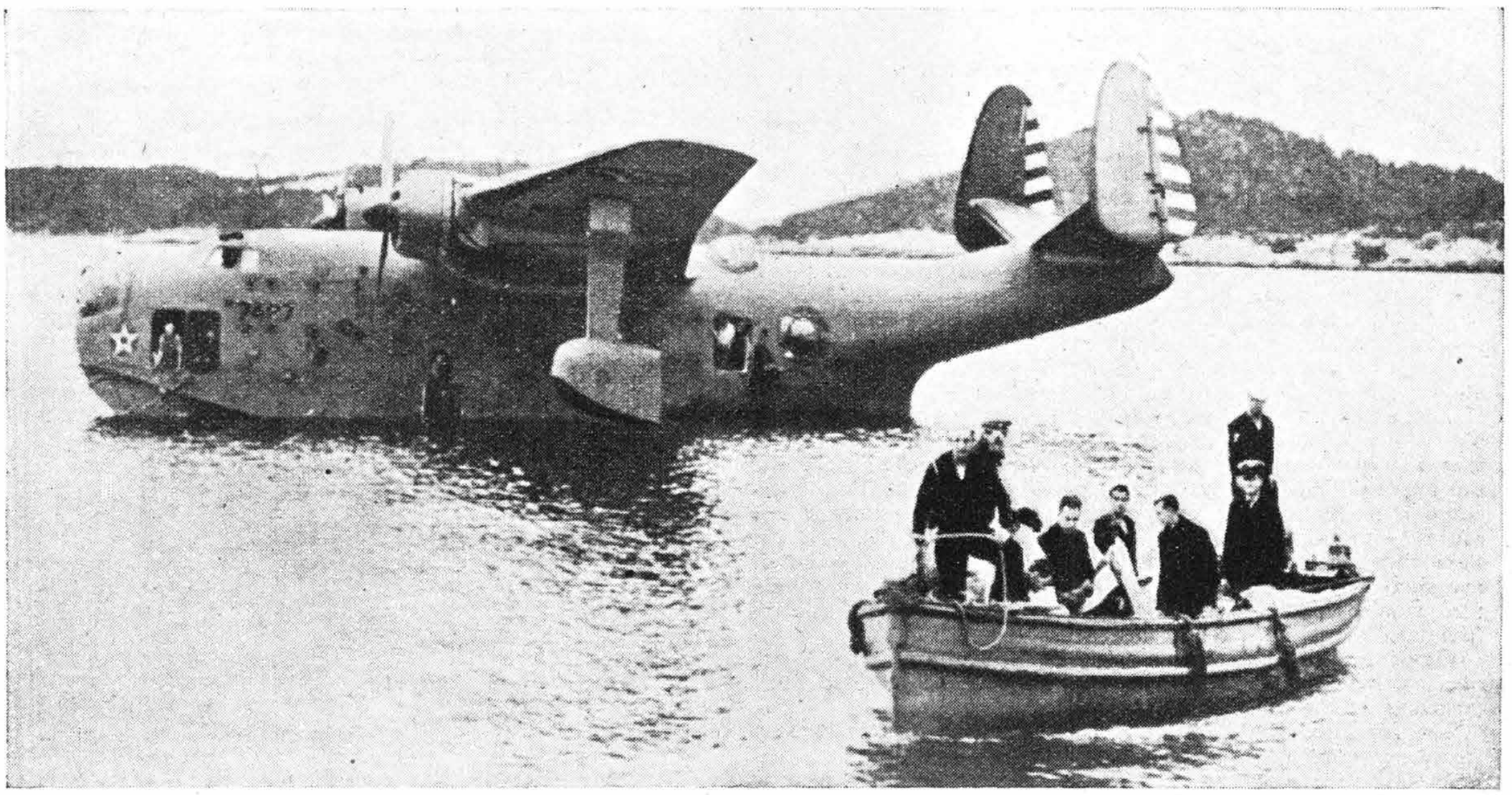
With the eastward movement checked—and they played no small part in checking it—the Imperial and American Air Forces were able to work in conditions more favourable than those they had known in the Libyan desert. They were nearer their supply depots and enjoyed a more complete maintenance service. Above all, they were strongly reinforced. Steadily they built up their strength until, at the week-end, they were hitting the enemy harder than he had ever been hit before in North Africa. Their attacks reached an "unprecedented" scale and profoundly affected the fighting below. Alone, they were often able to nip off the fingers thrust out by the enemy in his search for a weak spot in the British positions.

Rommel tried to conserve his air forces by using them sparingly, but the threat of failure and subsequent disaster obliged him to call upon the Luftwaffe and the Regia Aeronautica in greater measure. In response to his orders, more squadrons appeared over the battlefield. On one occasion a formation of 14 Junkers Ju 87s, well guarded by fighters, came to try the trick they had so often practised with success in the past, but they met a squadron of Hurricane fighters of the South African Air Force, and instead of removing the obstacles that barred the way of Rommel's tanks, were themselves removed from the sky. Thirteen were shot down and the only survivor left the scene badly damaged. The Hurricane squadron was making its first operational flight, and many of its pilots had not previously met the enemy in the air. Another squadron of Hurricanes engaged the escort.

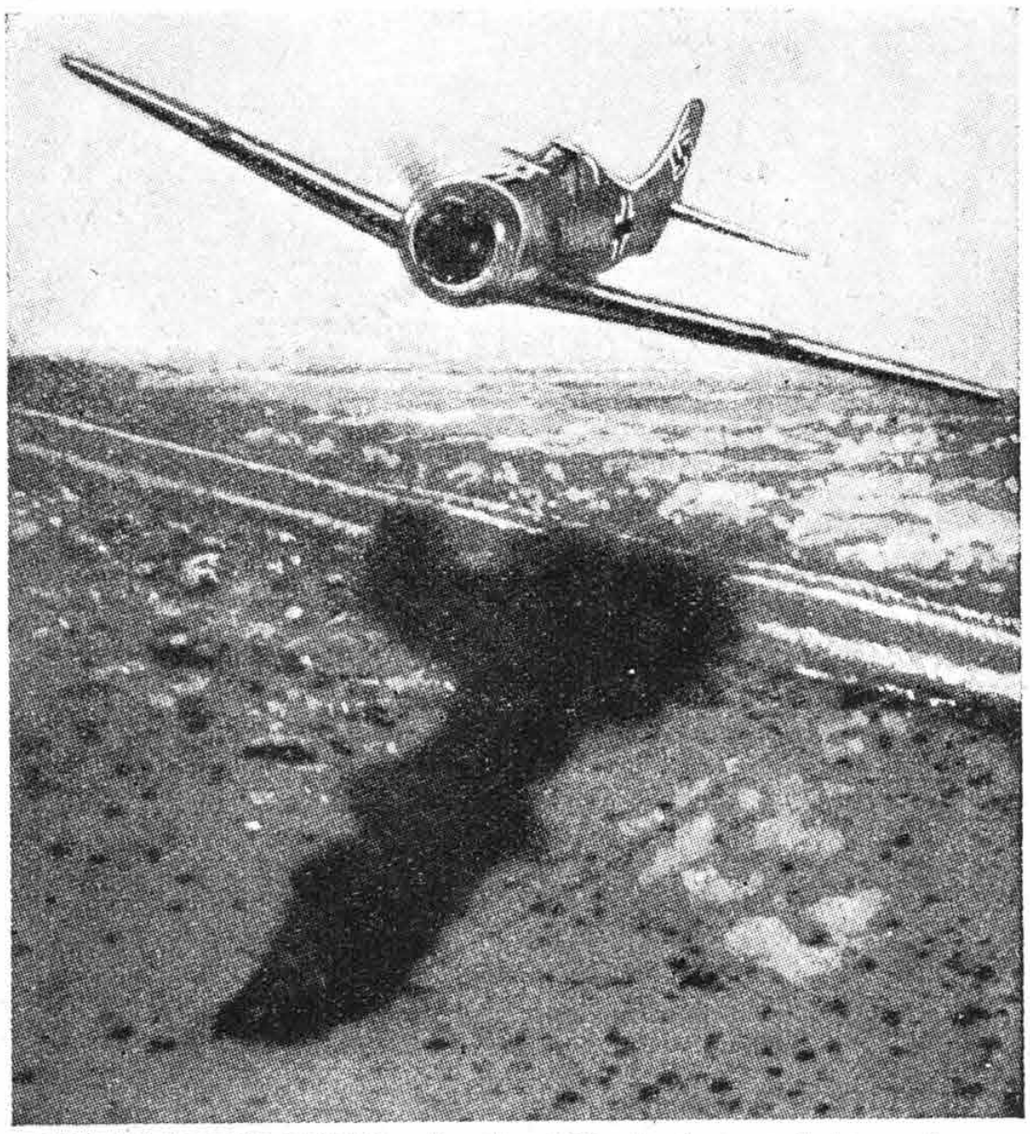
That day (July 3), 16 Stukas, seven Messerschmitt Me 109s and a Macchi C.202 were shot down in the battle area—indisputable evidence of the enemy's weakness in the air and the inferiority of dive bombers in the face of skilful opposition.

Nightfall brought the enemy no respite. No sooner had the Boston and Baltimore bombers, the Hurricane and Kittyhawk fighter-bombers, and the Beaufighter, Kittyhawk, Tomahawk, Hurricane and Spitfire fighters landed from their last daylight sorties than heavy Wellington and Liberator bombers set out. Tobruk was their especial assignation, but they also went to Benghazi and to points not far from the battle area. At Tobruk they hit a supply ship amidships. Sometimes the day bombers joined them on their shorter journeys. Never for one moment were the enemy's troops allowed rest.

Malta continued to send out its torpedo-bombers to intercept enemy transports bound for Africa, and drew upon itself a renewal of the attacks it had endured while Rommel was being restocked in readiness for his offensive. The bombers



IN SIGHT OF LAND.—Nine survivors of the torpedoed British tanker San Arcadio landing at Bermuda after their heroic rescue hundreds of miles out at sea by a Martin PBM-1 Mariner patrol boat of the U.S. Navy, which came down on the sea among waves 12 ft. high in the presence of the enemy in order to pick up the British seamen from their raft. The Commander, Lieut. J. A. Jaap, received the American D.F.C.



GROUND STRAFING.—An Fw 190 single-seat fighter above the Balbo Road, attacking a British column in Libya. If not a fake, this picture is the first indication of the Fw 190s in Africa.

torpedoed at least one enemy transport, and the operations against Malta cost the enemy no fewer than 19 aeroplanes.

Enemy raiders were also active behind the British lines, but little information was given about the extent of the damage they caused. In the early hours of July 2 they dropped some bombs on Alexandria and injured eight people. Early on the morning of the previous day, ground defences had driven off raiders which appeared over Haifa, in Palestine. In the early hours of June 29, bombs were dropped on Gibraltar by three raiders, one of which appeared to be hit. Heavier raids in the Alexandria and Suez areas at the week-end cost the enemy five bombers, all shot down by the R.A.F. night fighters.

The figures of losses of Axis and Imperial Air Forces in the Middle East which appear on page 37 have been arrived at after consultation with the Air Ministry. On July 1, the R.A.F. ceased to issue its own communiqués and the compilers of the first few joint announcements made by British headquarters in Cairo omitted details previously given.

Blasting a Route to the Caucasus

With the fall of Sevastopol imminent, the Germans began an offensive along a 160-mile front between Kursk and Kharkov. They threw into it tanks to the number of 2,000, powerful air forces, a huge weight of artillery, and masses of infantry.

In six days of the fiercest fighting yet seen on the Eastern front the Germans succeeded in gaining ground here and there. The Germans claimed to have reached the Don on July 4. At most places the Russians held their positions and at some points were able to counter-attack.

This offensive had to be fought. The Russians' restlessness during the Winter and their "forestalling" offensive in the Kharkov direction in the Spring had played havoc with German plans for a speedy drive to the Caucasus. The enemy realised that the easy gains of last year are no longer to be had, and the unparalleled ferocity of their present Kursk-Kharkov campaign is an indication of their determination to secure a safe route to the Caucasus, whatever it may cost them. At the same time, they are said to be planning a combined sea-and-air invasion of the Caucasus from the Crimea, but such an adventure would yield them small profits unless a way could be found to bring the spoils home.

Fighting also broke out suddenly in the Kalinin sector North of Moscow on July 3. Here, too, the Russians held their positions against heavy onslaughts.

The Air Forces of both sides were in action and there were many air combats. The Germans again used dive bombers on a large scale as part of the preparatory bombardment of Russian positions before the advance of the infantry, but the Russians had dug themselves in deeply and emerged only when the bombardments subsided and the infantry and tanks advanced.

When the direction of the enemy's attacks became obvious the Russians' method was to launch counter-attacks on his flanks, often causing him great loss or forcing him into hasty retreat.

The loss of Sevastopol was announced by the Russians on July 3 after the Germans had claimed its capture on July 1. The siege had lasted eight months, and in the fighting which immediately preceded its fall, the Germans are reported to have lost 150,000 officers and men, including 60,000 killed, 250 tanks, 300 aeroplanes and some 250 guns. Russian losses in the same period were put at 30 tanks, 300 guns and 77 aeroplanes.

Air losses on the Eastern Front during the week June 28-July 4 were given by the Russians as: German 380, Russian 187.

"Commando Raid" in New Guinea

Allied Forces attacked the Japanese garrison at Salamaua on the night of June 28-29. They inflicted about 60 casualties on the enemy and captured some of his equipment. Shortly afterwards, the Japanese bombed the small villages of Komaitun and Mubo, in New Guinea, thinking that these were the bases from which the raiding forces had come.

Air operations in the Australian zone continued to be on a small scale. Salamaua, Lae and Rabaul were raided several times, and a surprise attack was made on an aerodrome at Kendari, South-east of Celebes. A reconnaissance had been made over this target during the previous week. The bombers covered at least 1,700 miles on the outward and return journeys; they were probably Boeing Fortresses, Consolidated Catalinas or Liberators.

Other Allied raids involved Dilli (Portugese Timor) and Tulagi and Bougainville in the Solomon Islands. In one of the raids on Salamaua, five intercepting fighters were shot down. One Allied machine was lost through a collision with an enemy fighter. The Japanese raided Port Moresby. One of the raiders was shot down and others damaged. Three Allied fighters were lost.

In China, fierce fighting continued on the outskirts of Nancheng, which the Chinese were reported to be encircling. The Japanese claimed to have closed the 35-mile gap between Yiyang and Shangjao on the Chekiang-Kiangsi railway. On the Kiangsi front, the enemy captured the city of Ihwang, south of Linhwa. They also broke into Wuchen, on the borders of Inner Mongolia and North-east of Tuyaun.

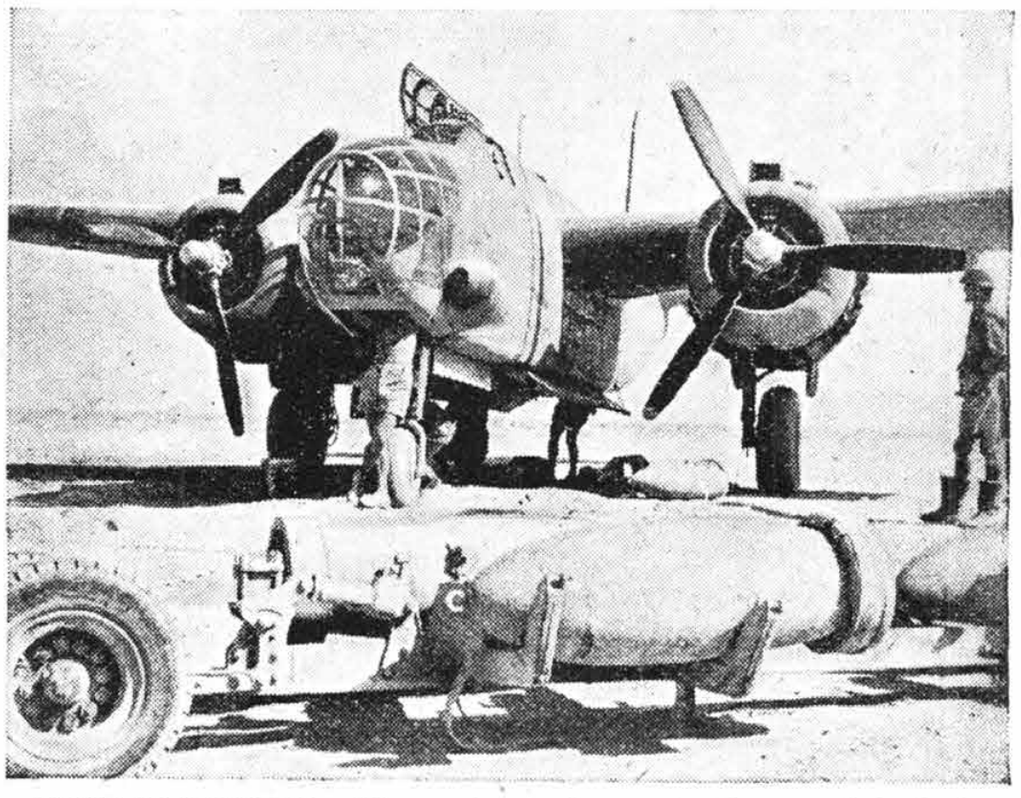
Renewed air activity was reported from China during the week. On July 1, Chinese bombers successfully raided objectives in the Hankow district. Pilots of the American Volunteer Group were also in action with their bombers and fighters on July 3, the day before they were formally absorbed into the U.S. Army Air Forces in China.

Only one raid was made by the R.A.F. against enemy positions in Burma. This was directed against a target North of Akyab, and was made on July 4.

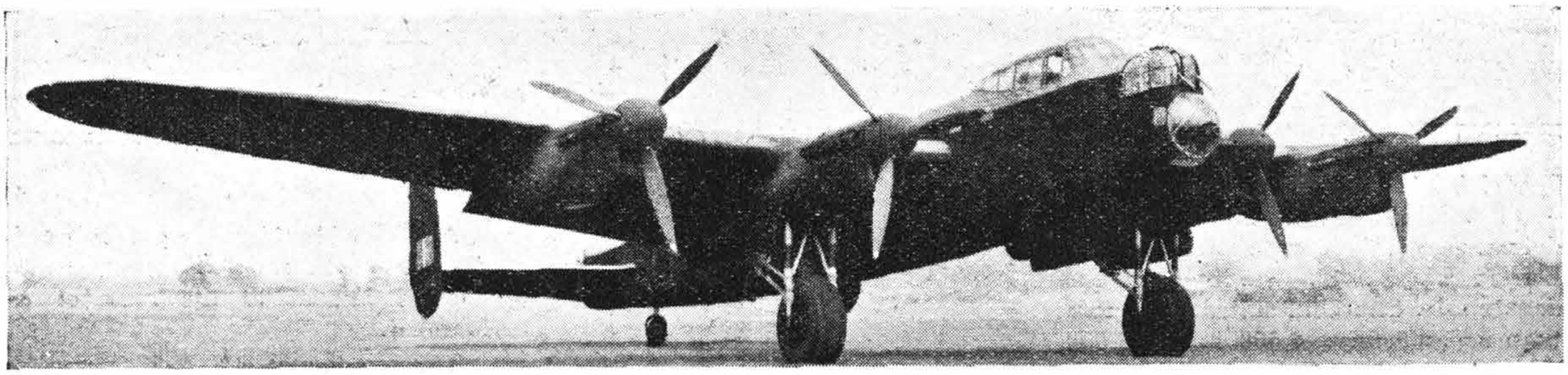
United States Army and Navy bombers continued to harass the enemy in the occupied Aleutian Islands when weather allowed. U.S. Navy aeroplanes also made a long-distance raid on the aerodrome and other targets on occupied Wake Island. The raid took the enemy by surprise, and no fighter opposition, and only weak anti-aircraft gunfire, was encountered.

Americans Begin New Offensive

The U.S. Army Air Forces in Britain celebrated Independence Day by taking part, with the R.A.F., in an unescorted day-



DESERT HEROES.—Throughout the entire hours of daylight, fighters and fighter-bombers of the Imperial Air Forces working with the Eighth Army performed amazing feats of endurance. Machines remained on the ground only to refuel and re-arm. Air crews snatched what sleep they could between ops. and sometimes went a week without a shave. Here a ground crew is seen bombing-up a Douglas Boston.



A SMASH HITTER.—The great Avro Lancaster, which has taken part in many large-scale raids on German centres of production. The Lancaster is to be distinguished from the Halifax by rounded wing-tips, taller fins and rudders, and smoother lines generally.

light bombing raid on enemy aerodromes in Holland. American crews flew six of the 12 Royal Air Force Bostons which made low-level attacks on Hamstede, Alkmaar and Valkenburg. One of the American-flown Bostons was struck by anti-aircraft gunfire and hit the ground. The pilot recovered and brought his machine safely back with the air-screw and nose of one motor shot away. The pilot was immediately awarded the Distinguished Service Cross for his remarkable feat of airmanship.

Bremen had two more heavy raids during the week, making a total of four in eight days, one of them by more than 1,000 bombers. The weather was not favourable for operations on some nights, but one or more of the Home Commands went out every night. Clouds curtailed daylight operations, but shipbuilding yards at Flensburg, in Schleswig-Holstein, were successfully bombed. A summary of the offensive operations of the Fighter, Coastal and Bomber Commands is printed below.

Enemy raids on this country were again on a small scale, but the clouds which checked the R.A.F. offensive allowed some of the raiders to make their way inland. One night it seemed that the Luftwaffe was trying to imitate the R.A.F.'s intruder operations.

Diary of the Week

Offensive Operations by Fighter, Coastal and Bomber Commands of the R.A.F. From June 28 to July 4, 1942.

Sunday, June 28

NIGHT .. Main target: St. Nazaire. Fighter Command attacked enemy aerodromes and railway objectives in occupied France and enemy shipping in Channel. One merchant ship hit and left stationary and listing One R.A.F. bomber lost. Two enemy bombers destroyed, one over Great Britain and one near its base.

Monday, June 29

DAY .. Escorted Bostons attacked railway yards at Hazebrouck. Three Focke-Wulf Fw 190 fighters shot down. Five R.A.F. fighters lost.

NIGHT .. Main target: Bremen. Enemy aerodromes in occupied territory also attacked. Intruder patrols by Fighter Command, which included attacks on enemy shipping off the French coast. Nine R.A.F. bombers lost.

Tuesday, June 30

Offensive operations cancelled.

Wednesday, July 1

NIGHT .. Aeroplanes of Coastal Command attacked enemy shipping off the Frisian Islands. One medium-sized ship was set ablaze. Intruder patrols by Fighter Command. Three enemy bombers shot down. Mines laid by Bomber Command. One aeroplane of Coastal Command lost. One enemy bomber destroyed over Great Britain.

Thursday, July 2

DAY .. Shipbuilding yards at Flensburg, in Schleswig-Holstein (near Denmark) bombed. Two bombers lost.

NIGHT .. Main target: Bremen. One enemy night fighter destroyed by a Wellington. Enemy aerodromes in the Low Countries also bombed. Enemy shipping off the Dutch coast attacked by Coastal Command. Thirteen R.A.F. bombers lost.

Friday, July 3

DAY .. Two Junkers Ju 88s destroyed over Great Britain in evening raid which caused some casualties and damage.

Saturday, July 4

DAY .. Twelve unescorted Bostons of the R.A.F., six of them flown by U.S. Army Air Forces crews, made low-level attacks on aerodromes in Holland and on ships. Two flown by American crews and one by British were lost.

GERMAN, ITALIAN AND BRITISH LOSSES—JUNE 28-JULY 4, 1942

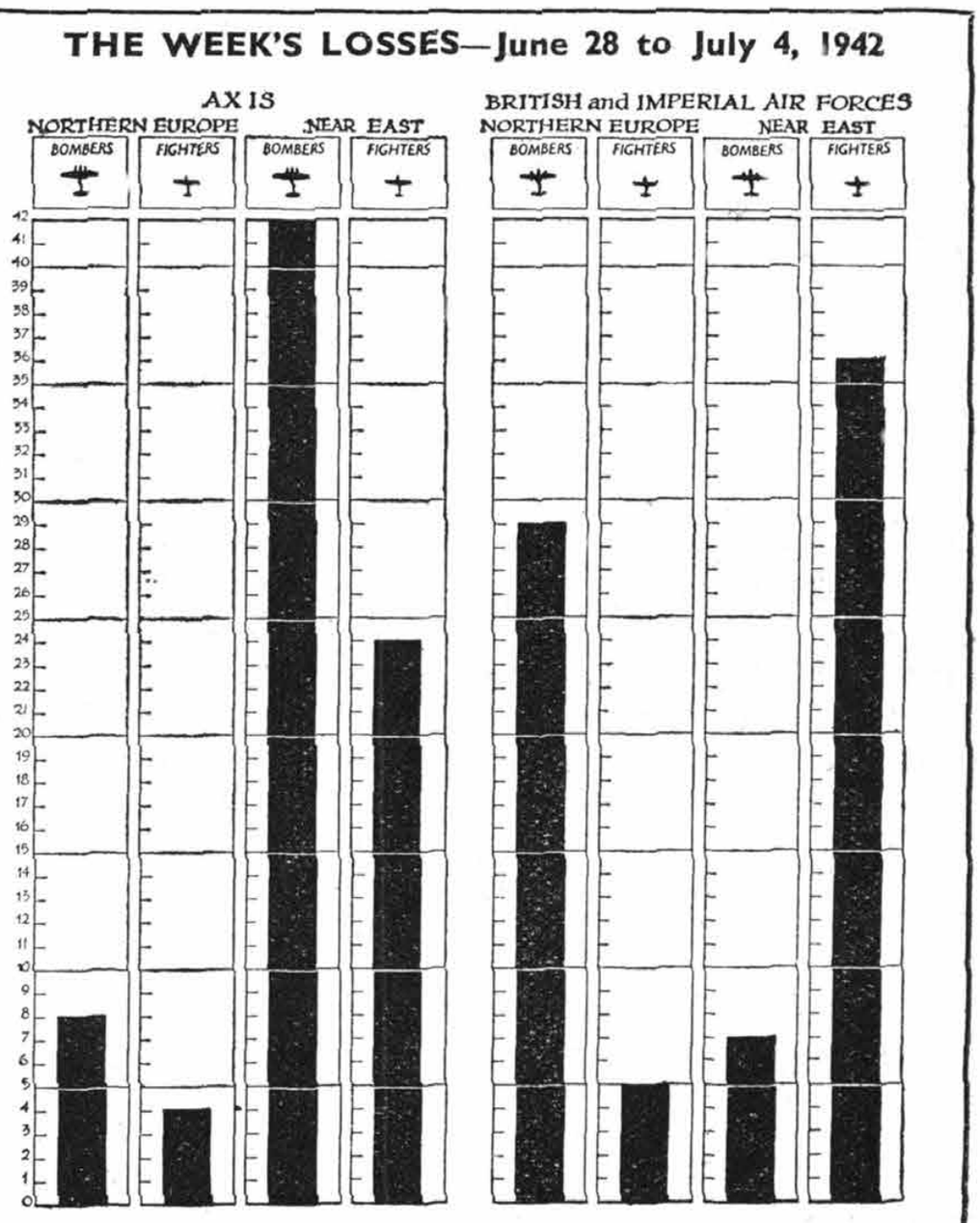
Date	Axis (N. Europe)		Axis (Near East)		R.A.F. (N. Europe)		R.A.F. (Near East)	
	Machines	Personnel	Machines	Personnel	Machines	Personnel	Machines	Personnel
28-6-42	2	8	3	10	1	6	7	10
29-6-42	3	2	2	9	14	65	2	1
30-6-42	—	—	8	20	—	—	—	—
1-7-42	4	18	8	22	1	4	5	8
2-7-42	1	2	28	50	15	90	7	15
3-7-42	2	8	17	47	—	—	12	18
4-7-42	—	—	—	—	3	9	10	15
Totals	12	38	66	158	34	174	43	67*

* Excluding 5 pilots saved.

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

	Axis Air Forces	Imperial Air Forces
Machines destroyed in combat or by A.A. gunfire	9,067	5,474
Personnel	24,418	16,430

***Excluding losses in Russia and the Far East, and American losses in all theatres.**



THE WEEK'S LOSSES AT A GLANCE.—Comparative losses in the Air War for the week June 28 to July 4, 1942, inclusive. The chart does not include aeroplanes destroyed in Russia and the Far East or those destroyed on the ground. Nor does it include U.S. Army Air Forces losses in Europe and the Near East. The figures are: Northern Europe: Axis (daylight offensive) 2 bombers; (night offensive) 6 bombers; (defence by day) 3 fighters; (defence by night) 1 fighter; British: (daylight offensive) 5 bombers and 5 fighters; (night offensive) 24 bombers. The losses in the Near East were: Axis, 42 bombers and 24 fighters; British, 7 bombers and 36 fighters. Estimated personnel losses suffered by the respective Air Forces were: Northern Europe: Axis, 38; British, 174. Near East: Axis, 158; British, 67

NEWS OF THE WEEK

THE "NO CONFIDENCE" motion in the House of Commons was defeated by 475 votes to 25 on July 2. During his speech winding up the debate, Mr. Churchill stated that more than 950,000 men, 4,500 tanks, 6,000 aircraft, nearly 5,000 pieces of artillery, 50,000 machine-guns and about 100,000 mechanised vehicles had been sent to the Middle East from this country, from the Empire and, to a lesser extent, from the U.S.A.

General Auchinleck personally assumed command of the Eighth Army in Egypt on June 25 in succession to General Ritchie. This was announced on July 1.

Sevastopol was evacuated by the Russians on July 3 after eight months' defence.

The U.S. Army Air Forces took part for the first time in offensive operations with Bomber Command of the R.A.F. on July 4. Twelve Douglas Boston IIIs of Bomber Command, of which six were manned by American crews, made a low-flying attack on enemy aerodromes in Holland early in the morning. Three Bostons, two of them flown by American crews of the U.S. Army Air Forces, failed to return. One of the American pilots, Capt. C. C. Kegelman, received the immediate award of the D.S.C. from Major-General Eisenhower, C.-in-C., U.S. Army in the European Theatre. Following this raid the first communiqué was issued by the U.S. Army in the European Theatre. Air Marshal A. T. Harris sent a message to the U.S. Army Air Forces.

Mr. Ralph P. Bell, hitherto Director of Aircraft Production in Canada, has been given the new title of Aircraft Controller with complete authority over the whole of the Canadian aircraft industry, including powers to take over factories and operate them for the Government. He has also been placed in charge of the production of gliders which the Canadian Government is considering. This announcement was made in Ottawa on July 3.

British forces were stated on June 29 to have withdrawn from Mersa Matruh. The main armoured forces were engaged in battle on the morning of July 1 West of El Alamein, 65 miles from Alexandria. Rommel retired on July 2 but the battle was joined again on the afternoon of July 3.

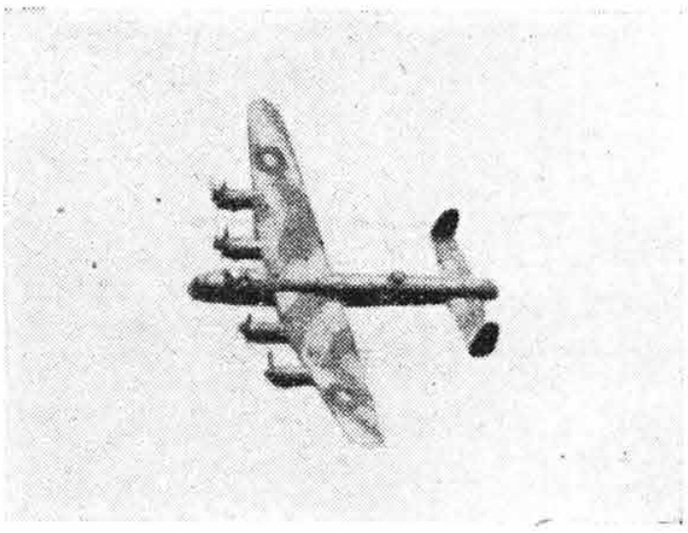
U.S. bombers bombed Wake Island on June 27, flying from Hawaii, 2,000 miles away. The official announcement of the raid was made on June 29 and stated that the bombers were Army bombers operating under Navy orders.

PRODUCTION CONTROLLER.—Mr. Alexander Dunbar, who has been appointed Controller-General at the Ministry of Aircraft Production in succession to Sir Charles Craven, now retired on medical advice.

Japanese losses in the battle of Midway Island were stated by the U.S. Navy authorities on June 29 to have included four aircraft-carriers and 275 aeroplanes.

During June the R.A.F. operated on 20 days and 23 nights and on 13 of the days and 20 of the nights Bomber Command was in operation. Sixteen attacks were made against five targets in Germany and 33 attacks were made against 17 targets in occupied territory, including 12 during the day by fighter-escorted bombers. In the Middle East 86 attacks were made against 28 targets. In Northern waters 18 ships were sunk or damaged by the R.A.F. and in the Mediterranean 14 ships were sunk or damaged. In all theatres a total of 265 enemy aircraft were destroyed during June for a loss to the R.A.F. of 422 aeroplanes.

June was the most successful month for the night intruder fighters during their 18 months of operations. Twelve German bombers were destroyed over their bases and many more were damaged.



THE LANCASTER—The World's fastest heavy bomber and its most efficient weight-carrying aeroplane.

Service

Air Vice-Marshal Harold Edwards, A.O. C.-in-C., R.C.A.F. Overseas, has been promoted to the rank of Air Marshal.

The number of R.C.A.F. Squadrons stationed in Great Britain is to be increased by 50 per cent., according to Air Marshal Harold Edwards, speaking on June 30 They will include a bomber squadron and fighter and Coastal Command squadrons manned entirely by Canadians, including ground crews. The control of all operations by the R.A.F. will not be affected. The increase is to be achieved by drafting into Canadian squadrons men from the Dominion who are at present serving in R.A.F. squadrons. In future, commissions will be granted to members of the R.C.A.F. on merit, instead of by the previous system of granting commissions to a fixed percentage of those graduating from the training courses.

An Ensign and general badge is to be presented to the Indian Air Force by the Duke of Gloucester, on behalf of the King Emperor, at a ceremonial parade in India, which will be attended by Air Chief Marshal Sir Richard Peirse, A.O.C.-in-C. India. The general badge will be coloured in gold, red and blue and will be framed in oak, with a reproduction of the Houses of Parliament as the background, and will be signed by the King Emperor.

The Indian Air Force fought its first campaign in Burma, where a squadron of Lysanders distinguished itself on reconnaissance and bomber operations.

The number of air squadrons of the R.N.Z.A.F. has been increased sevenfold since December, 1941. Squadrons of the R.N.Z.A.F. can now carry ten times the weight of bombs and sixteen times as many guns as before. These facts were given by Air Commodore Goddard, Chief of the Air Staff, on July 2. He also gave it as his opinion that, though it had never been properly appreciated, one of the most significant and important phases of the War was the forced diversion of powerful German Air Forces to Greece and Crete, thus delaying the whole German plan to attack Russia through the Ukraine. Air Commodore Goddard also said that he thought that it was essential to be offensively minded, especially in air matters.

Wing Commander G. H. Stainforth, A.F.C., a former Schneider Trophy pilot, is now serving in the Middle East. He is 44 years of age and is said to be the oldest pilot flying in that theatre of the War.

The Hawker Hurricane, termed the World's greatest fighter, has been re-vitalised. The new Hurricane II has a more powerful version of the Rolls-Royce Merlin engine and the exceptional armament of either twelve machine-guns or four cannon. The photograph shows a formation of Hurricane IIC's (the four cannon type) on patrol. [*Advt.*

News from Germany

The History of the Bv 141

DOCTOR Richard Vogt, the Chief Designer of the Blohm und Voss Aircraft Works of Hamburg, recently disclosed how he came to design the Bv 141, the asymmetrical sporting monoplane from which was developed the Bv 141B military monoplane. The conception of the Bv 141 goes back to the time when Vogt worked in Japan for the Kawasaki Aircraft Company. He wanted to build a single motor reconnaissance machine which would give the pilot an unrestricted view. He always came back to the twin-motor design, but one day had the idea of removing one motor and designing a " single-motor twin-boom aeroplane." The idea was never developed while Dr. Vogt remained in Japan.

In 1937 Vogt completed the design of an asymmetrical aeroplane, and the following year submitted it to the late Ernst Udet. According to Vogt, Udet saw its great advantages and entrusted Blohm und Voss with the building of a prototype. This was completed a year later. Shortly before the War, it successfully passed the acceptance tests of the Technical Directorate of the German Air Ministry. Udet himself flew it, and performed a whole series of aerobatics. On the outbreak of the War, Vogt began to develop the military version, which is now being supplied to operational units for reconnaissance and ground strafing. It is not being built in large numbers.

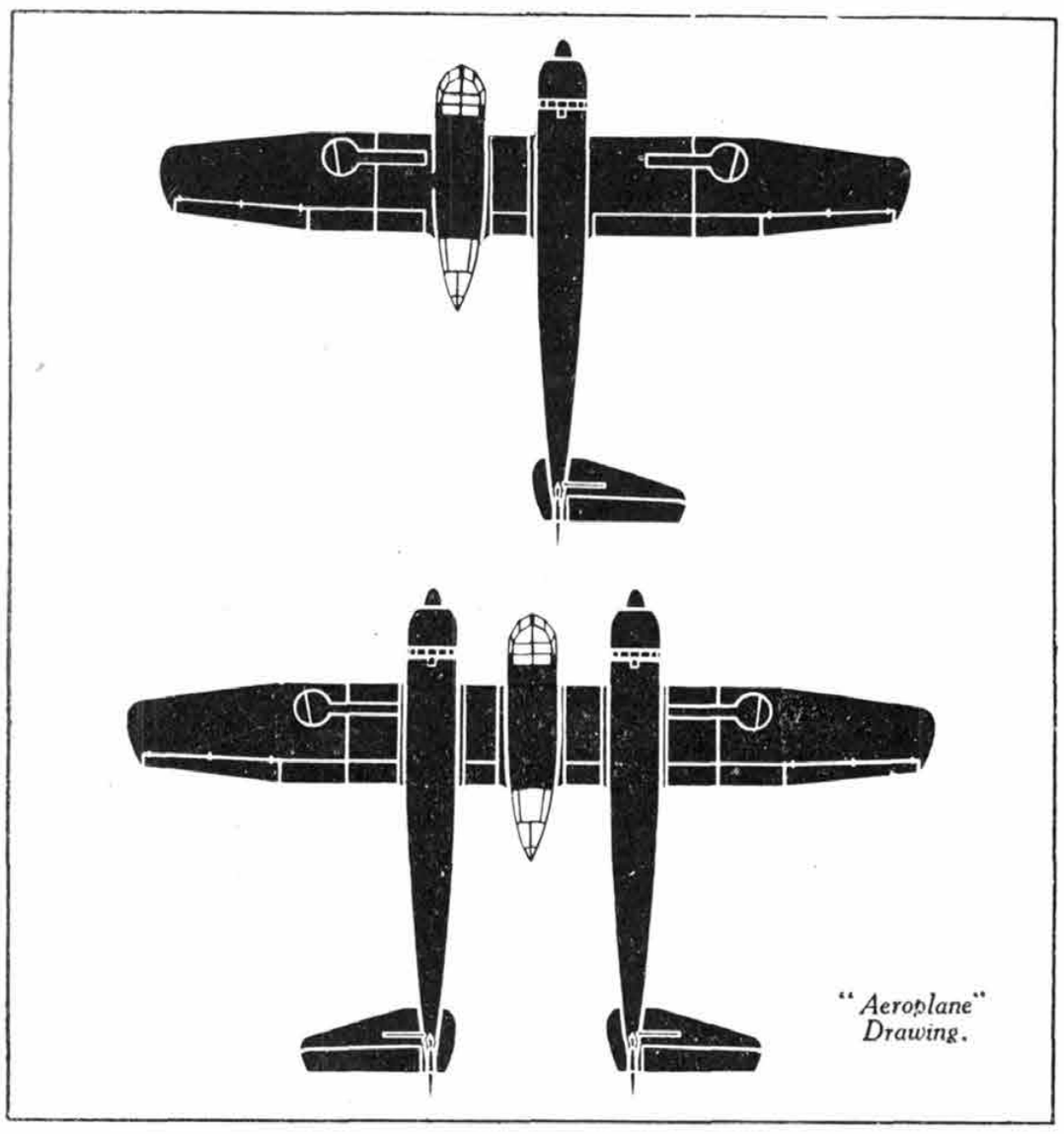
Finances of Aircraft Companies

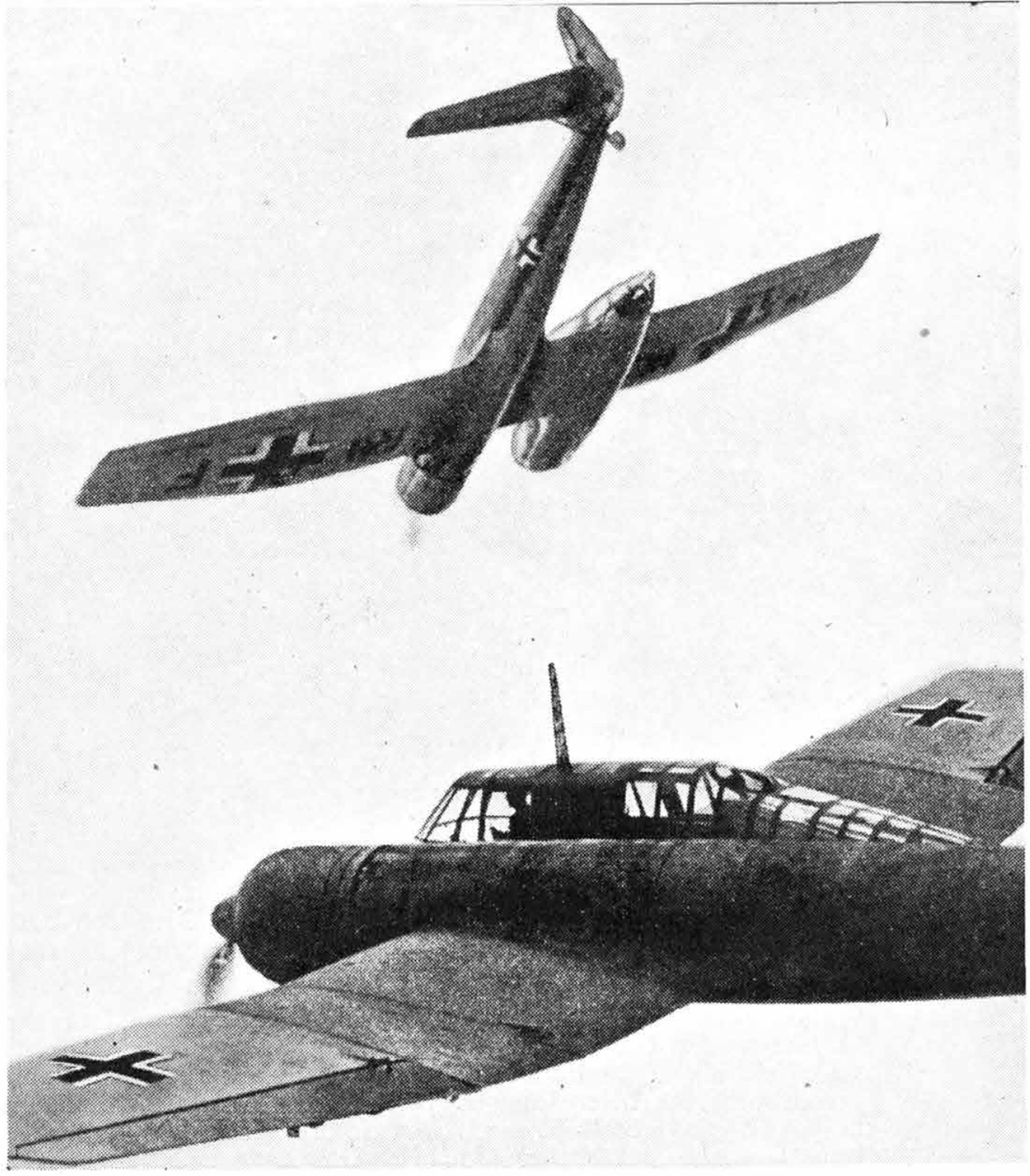
THREE private limited German aircraft companies have lately raised their total capital from twenty million marks to nearly thirty millions. Messerschmitt and Junkers, both public limited companies, have also increased their share capital, but no details have been made known.

Kesselring's Command

THE German High Command has announced that Field Marshal Kesselring has been made Commander-in-Chief in the Mediterranean. He thus takes over units of the Regia Aeronautica, as well as those of the Luftwaffe, in this area.

Kesselring directed the operations against the two Allied convoys between June 13 and 15 and was assisted by Air Generals Lörzer, Geissler, and Lieutenant-General Hoffman von Waldau. He probably had at his disposal two Air Corps stationed in Sicily and Southern Italy and one Air Division operating from Crete.





TWO OF A KIND.—A flying picture of two asymmetrical Blohm und Voss Bv 141B reconnaissance monoplanes in service with the Luftwaffe.

Lieutenant-General Hoffman von Waldau was only recently transferred to a front-line post; previously he had held important posts on the General Staff of the Luftwaffe.

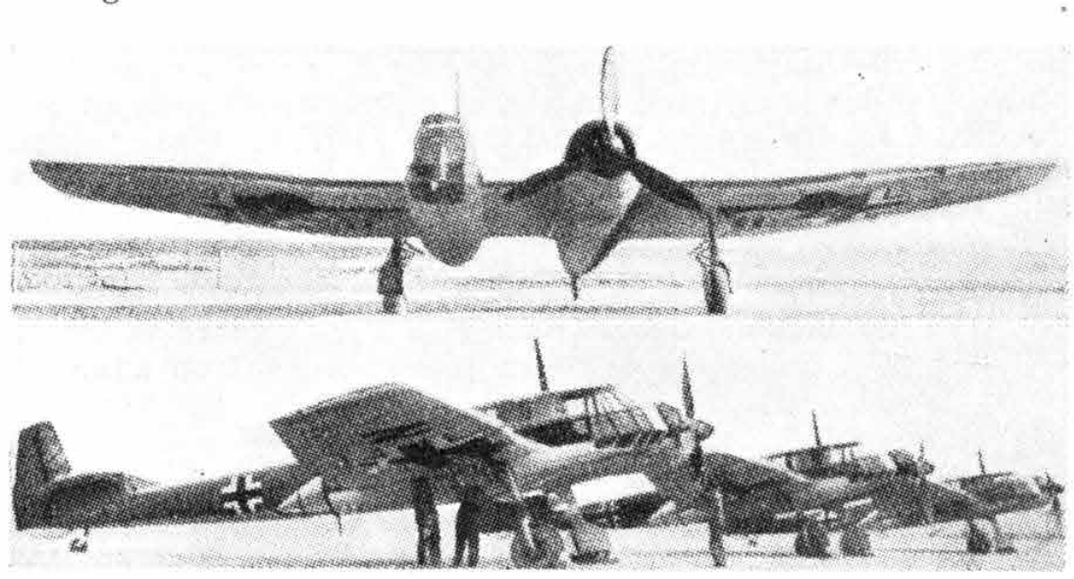
Some Bomber Statistics

THE Hindenburg Bomber Group, under the command of Colonel Hubert Kosch, claims to have dropped some 20,000 tons of bombs from the outbreak of the War up to June 11. This involved 15,840 flights totalling more than seven million miles.

Another well-known Bomber Group, the Kampfgeschwader Boelcke, of which two wings are now in Russia, announced that on June 12 it had completed 17,000 operational flights. While the Hindenburg Group specialises in long-range work, the Boelcke Group has been largely used for co-operation with ground forces.

Convoy Raiders

AT least one wing of the 30th Bomber Group has been transferred from Central Norway to the North Cape area for operations against the northern supply route to Russia. These units consist of crews experienced in dive-bombing attacks on ships, particularly at night. They fly He 111HAEs and Ju 88s (which can also be adapted for carrying torpedoes) and are protected by Me 109 squadrons, one of which, commanded by Lieutenant Carganico, claims to have shot down 500 British and Russian aeroplanes in this sector of the Eastern front. According to the Germans, Russian fighter pilots are flying MIG 23-03 single-seat fighters, which they describe as " dangerous."



DOUBLING IT UP.—Plans are in hand at the Blohm und Voss Company for two versions of the Bv 141B. One is the offset version in which the wing outboard of the nacelle is shorter than that outboard of the engine boom and the other a more normal version in which the boom is doubled although the tailplane remains split. In the double form, with a total of 3,160 h.p., the performance should be high. The photographs on the right show that the Luftwaffe has at least three Bv 141Bs. They show, too, the outward retracting undercarriage.

SELF HELP AT R.A.F. AERODROMES

["Aeroplane" photographs

R.A.F. SANDBOYS.—Airmen of a Works Squadron busy making concrete for a perimeter road on an aerodrome. The American runabout tip waggons are handy.

THE NEED for a separate civil engineering branch of the Royal Air Force has been evident for some time. In the past the bulk of the building construction work at Stations and aerodromes has been done by private contractors particularly before the days of "blitzes," when more permanent buildings were the fashion. Other allied services were usually covered by working parties from the Royal Engineers.

In view of the great dearth of civilian labour, the rapid expansion of our own air strength, and the imminent arrival of American Air Forces, the Air Council has decided to create Works Squadrons whose sole purpose will be to take over practically all the construction and repairs necessary to establish and maintain air stations and aerodromes.

Enemy attacks both in daylight and at night on our centres of air resistance indicated the need for prompt action in keeping flying grounds "airworthy." This first aid will now be a primary responsibility of the Works Flight and Squadrons.

Other tasks will include electrical installations, power house erection, drainage and the maintenance of requisitioned premises. In the School of Instruction attached to one of the first Squadrons surveyors' drawings were displayed of such involved civil engineering problems as sea-retaining walls and underground control centres. A diagram was shown of the new "blister" hangar, which may be briefly described as a geodetic Nissen hut of large dimensions for operational use with aircraft.

These few examples show the wide scope of the work with which this new branch will have to cope, but, in short, its main tasks will be to undertake extensions to existing stations, to repair them after hostile action or operational wear and tear, and to take complete charge of the planning and preparation of sites for new aerodromes or landing grounds.

Although the Squadron we visited is quite young, three major jobs were seen in full operation. A metal runway was being prepared, a perimeter road was under construction, and a bombed corner of the aerodrome was seen under rapid repair.

Bombers are still growing so in size and load capacity that a prepared take-off and landing surface is as great a requirement now as it was to commercial air transport in the period immediately before the War. Concrete runways are admirable, but are slow and costly to lay down, and inevitably put a large area of an aerodrome right out of service for flying until the work is finished. Flying training was proceeding uninterrupted at the Station, although the new track was being laid.

The flexible metal track runway is the latest solution of this problem. In 1939 the Advanced Air Striking Force found prepared runways essential, even for their comparatively light Battles and Blenheims on the indifferent French aerodromes—that is, those provided for the B.E.F. A heavy zig-zag metal track of Austrian design was put down, which was not only cumbersome, but dangerous sometimes, for it had a tendency to cock up.

The newest mat is much lighter, is easy to lay, and can be taken up and carted away with ease. An accompanying sketch gives a general idea of the details. The netting of 3-in. galvanised wire mesh is interwoven across the track with $\frac{3}{8}$-in. mild steel rods 10 ft. long and 8 ins. apart. The linking slats running lengthwise are also of mild steel and are $1\frac{1}{4}$ ins. wide by $\frac{3}{8}$ in. thick. The fish plates, which lock the whole arrangement together are about 18 ins. long and may be seen being driven home in one of the photographs. The rolls of the track are made up in 25-yard runs weighing 6 cwt.—a convenient size for porterage. The weight of these rolls and a little hand-hauling gives sufficient tension to the track longitudinally, but to obtain lateral tautness the ubiquitous bulldozer is called into service to haul on a tension bar.

The final judgment on such an aid to the most critical part of present-day flying rests with the pilots. A bad runway can be a greater menace than none at all. This light metal runway has had a good reception from the operational squadrons.

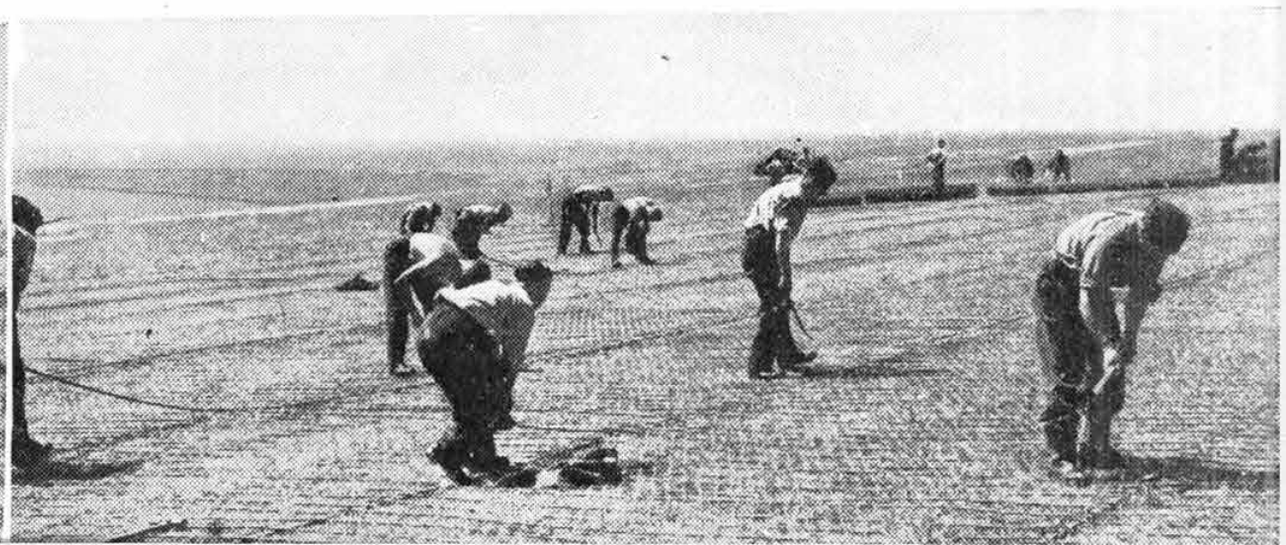
In another class of aerodrome work, a perimeter road was under construction. Running round the flying area for about two miles, this 50-ft. wide concrete ribbon is of great value for the dispersal of aircraft, transport of air crews to and from such aircraft, and of great use to Bowsers, fire-engines, ambulances, and staff cars. All who have tramped wearily across a "drome" or who have been jolted across in a jeep car will appreciate the luxury of such a road.

All the paraphernalia of civil engineering are used in this work, which is reminiscent of the peace-time scenes on arterial roads under construction. There is little need to stress the importance of the commissioned surveyor to the Works Squadron. He surveys the site, regrades the ground, and supervises the excavations. A 5-in. layer of plain concrete is superimposed on a bed of 2-in. ash, and expansion joints are put in between the concrete sections. Continuous French drains are sunk along each side of the road, with cross drains at intervals. About 75 airmen were at work on this section.

One point which might have unwittingly escaped a private contractor through lack of operational knowledge was the immediate spraying of the brilliant white surfaces after setting of the concrete, to avoid enemy air detection of new works in progress. Under private contract, a two-mile perimeter road would have cost, roughly, £40,000.

In order to illustrate the tactical advantage of having a separate Works Unit attached to an operational Station, a

LAYING THE CARPET.—(Right) A metal track runway being laid. The longitudinal slats are being threaded through the rod ends and one of the men is driving a locking fish-plate home. (Left) After a pull by the bulldozer on the straining bar, pickets are driven home to hold the edges of the track down.



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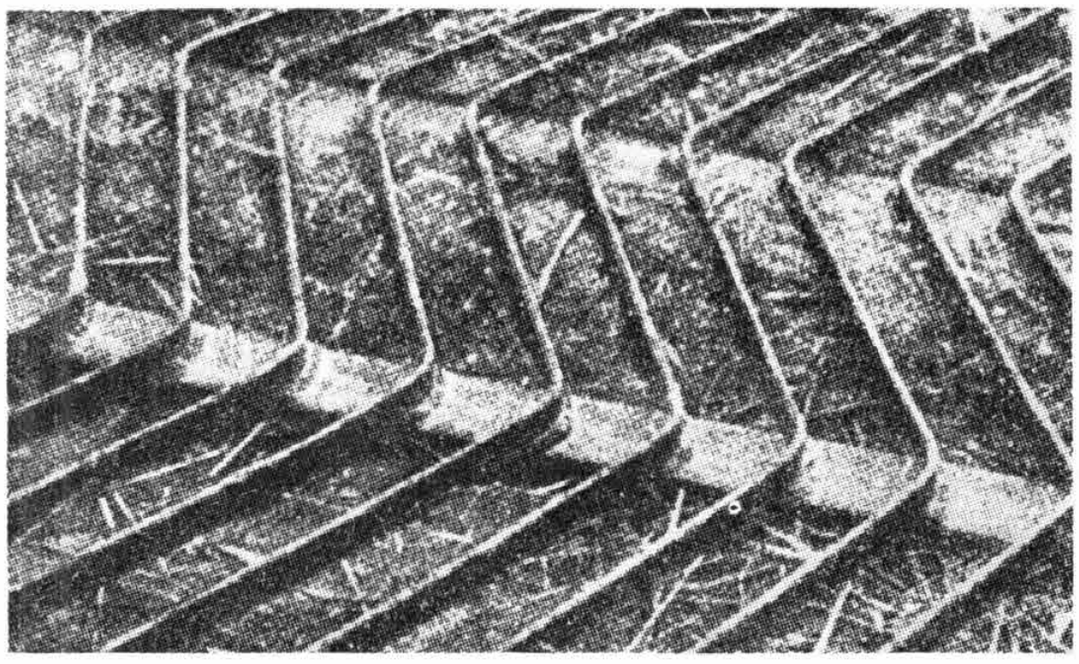
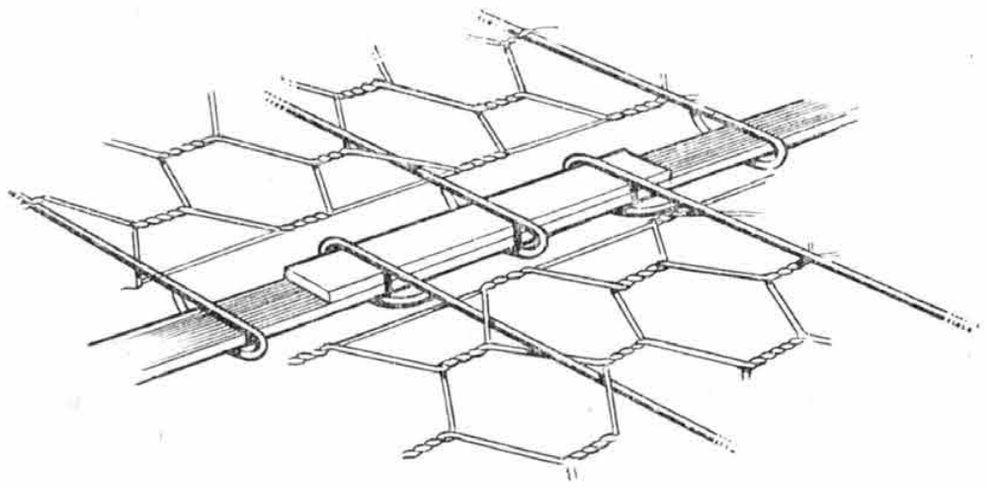
demonstration was given during our visit of the quick attention given to such bomb craters on the flying area as interfere with operations. An aerodrome pock-marked with bombs is about as much use to land-based fighters and bombers as a sinking aircraft carrier is to ship-borne aeroplanes.

Three charges, each with the approximate effect of a medium bomb, were fired, much to the temporary discomfort of the visitors. The alarm was given to the Works Squadron flying squad and motor transport quickly appeared with the advance party to mark off the damaged zone with yellow flags. Close

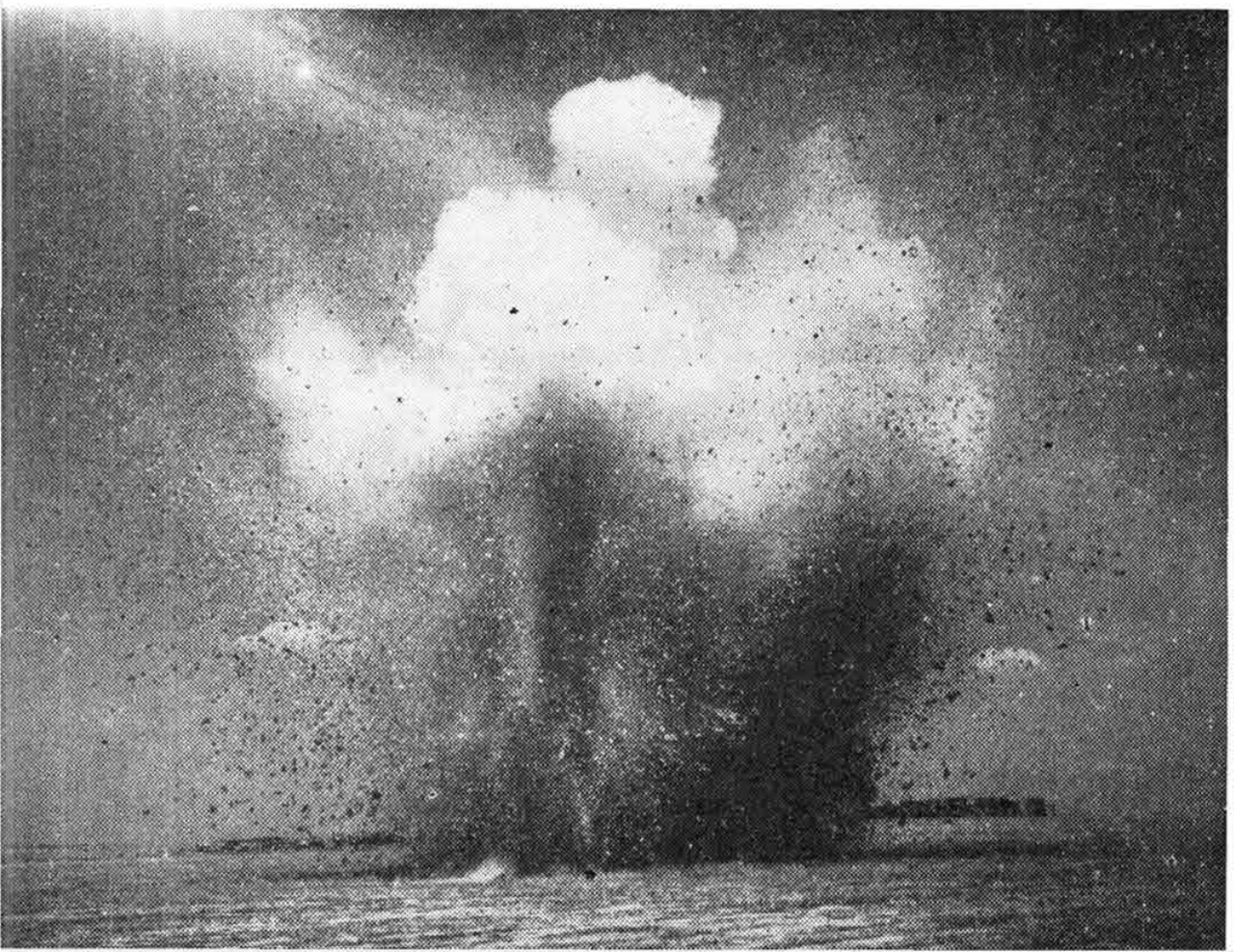




THE OLD AND THE NEW.—The first war-time runway used in France by the A.A.S.F. (above), the massive construction of which contrasts with the lighter modern design seen in the diagram (below) showing the principle of the new metal track runway.

behind a second party appeared armed with picks and shovels with which to collect the larger chunks of debris for replacement in the bottom of the craters. American tip-trucks showed mobility in getting to the area rapidly with heavy gravel ballast to consolidate the bottom. Operational experience has shown the danger to landing aircraft of loosely filled craters.

REALISM.—(Below) Charges being exploded on an aerodrome in order to reproduce the effect of hostile action. (Right, top) A bulldozer replacing the turf in positive manner. These powerful machines are invaluable for heavy work in aerodrome construction, repair and maintenance. (Right, bottom) A filled-in crater being camouflaged.



["Aeroplane" photograph

DRAINS.—Laying the French drains for a new perimeter road. A blister hangar may be seen in the background on the right.

Mechanical aid was further brought into action. Powerful bulldozers soon shoved the protruding lips of the craters back into the holes, and then showed contempt for the affair by running to and fro over the broken ground until the arrival of the motor rollers to complete the levelling off.

The final touch was given in a very short time after the explosions, when a camouflage net was spread across the freshly turned-up soil to defeat possible enemy air reconnaissance of the bombed areas.

In the broader sense this new R.A.F. service seems set for further expansion. Concrete roads will lead to concrete runways and temporary metal runways and blister hangars will, in due course, move forward with the second front.

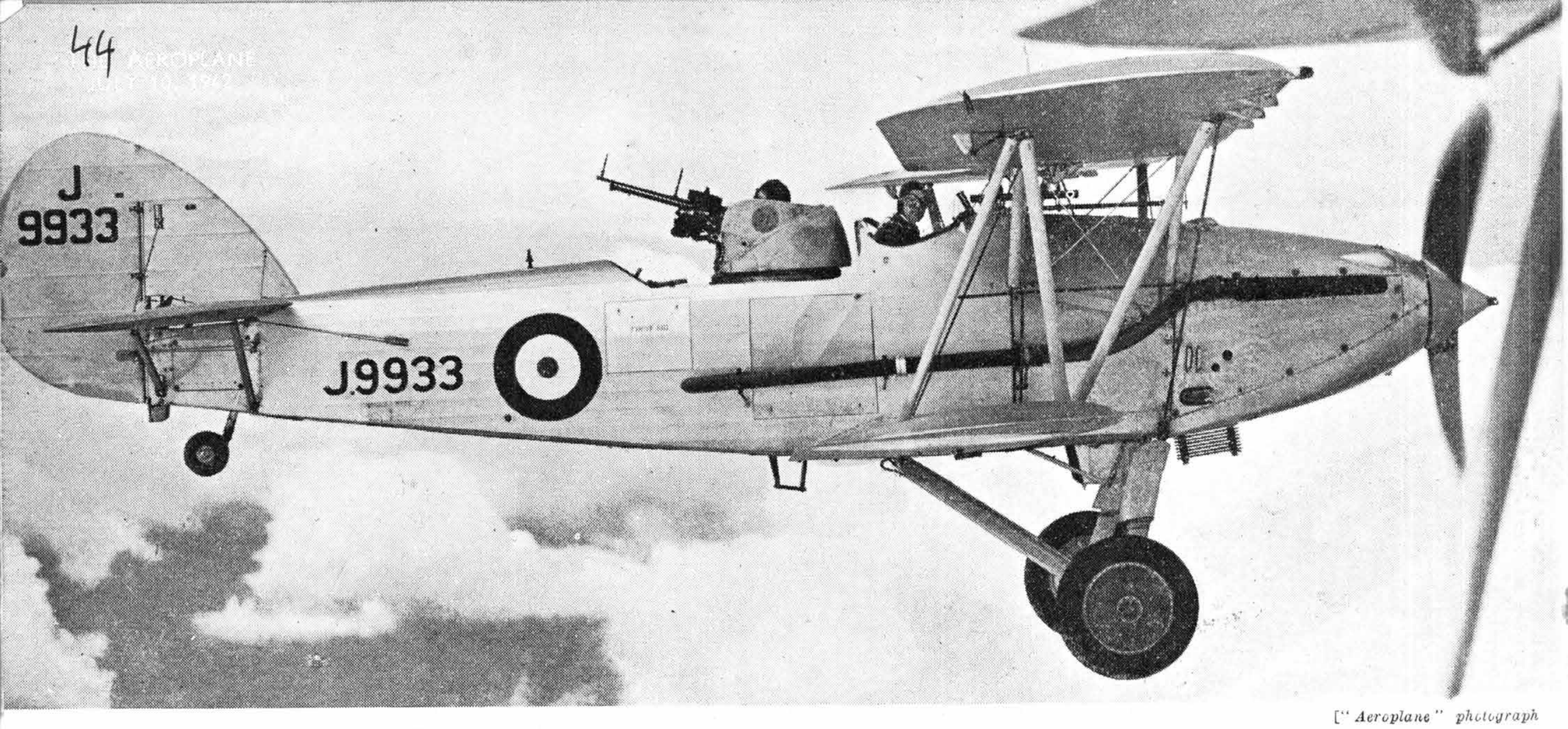
A good start has been made to provide these civil engineering experts within the R.A.F. Their quiet efficiency is reflected in the particular Works Squadron whose work we watched. The interests of such squadrons may seem to lie rather farther away from aviation than most and yet they should come to rank with the maintenance units who look after damaged aeroplanes. Squadrons will make Works Wings and one day may well form a Civil Engineering Command, somewhat in the footsteps of one of their illustrious ancestors, the Royal Engineers, who have, likewise, been sending out offshoots throughout their long history.

One of the senior officers of this Works Squadron, while contemplating the new metal runway, remarked that he had seen the Wright aeroplane take off from a prepared runway in 1909. Although it is true that aeronautical fashions move to and from one extreme to the other, as, for example, from thick wings to thin wings, and prepared runways may once more disappear with slower-landing aeroplanes, we may safely conclude that civil engineering has come to stay in the R.A.F.

Drawing by Leslie Carr. Copyright "The Aeroplane."

LANCASTERS OVER AUGSBURG

Twelve Avro Lancasters in two flights of six raided the M.A.N. Diesel engine factory at Augsburg in daylight on April 17, 1942. Four machines were lost by fighter attack on the outward journey, and three were shot down over the target after they had dropped their bombs. The results of the attack were notably successful and Squadron Leader J. D. Nettleton, who led the first formation, received the V.C. for his part in it.



["Aeroplane" photograph

HALF AN EGG.—The Frazer-Nash semi-enclosed gun turret was first test-flown in 1936 in a Hawker Demon. It mounted a single Lewis gun.

THE WEAPONS OF AIR WARFARE—VI

By Peter Brooks

IF THE ADVANCE in fighter armament has been astonishing, that of the bomber has been no less so. Indeed, in some respects it has been still more remarkable. The power-operated turret, which has taken the place of the open Scarff gun ring, has had far-reaching effects on bomber design. It is not too much to say that the "big bomber" policy which forms such a vital part of Britain's War effort to-day was made possible only by the evolution of the multi-gun turret during the past eight years.

The first power-operated turret was fitted in the nose of the Boulton and Paul Overstrand medium bomber, which appeared in 1934. This turret was of Boulton and Paul design and mounted a single Lewis gun. It was pneumatically operated.

Another form of turret was also being developed at this time by Captain A. Frazer-Nash, who had been concerned in the production of the Constantinesco synchronising gear during the 1914-18 War. The Frazer-Nash turret is hydraulically operated and was first flight-tested in a Hawker Demon two-seat fighter. It then mounted a single Lewis gun. This turret, although power-operated, was not completely enclosed. Later a number of Demon (Turret) fighters went into service with the R.A.F.

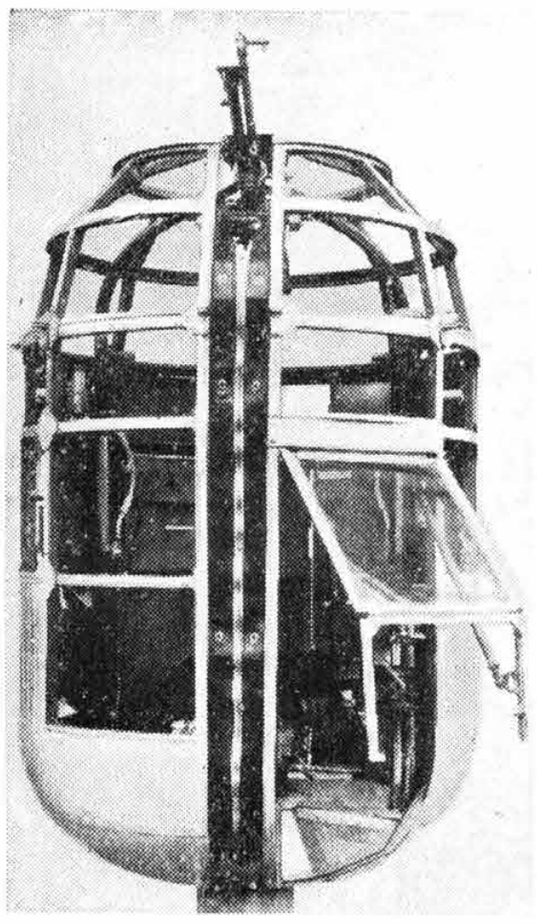
Other designs began to appear, and were installed in the prototypes of various new types of bomber. They included those on the Whitley which at first had single-gun turrets of Armstrong Whitworth design situated in nose and tail. The gun in each of these turrets was a Vickers and according to a German source seven 60-round drums were carried for each. Two Brownings were set in a "dust-bin" turret beneath the fuselage. The "dust-bin" type of turret had originally been tried on the Handley Page H.P.38 of 1930.

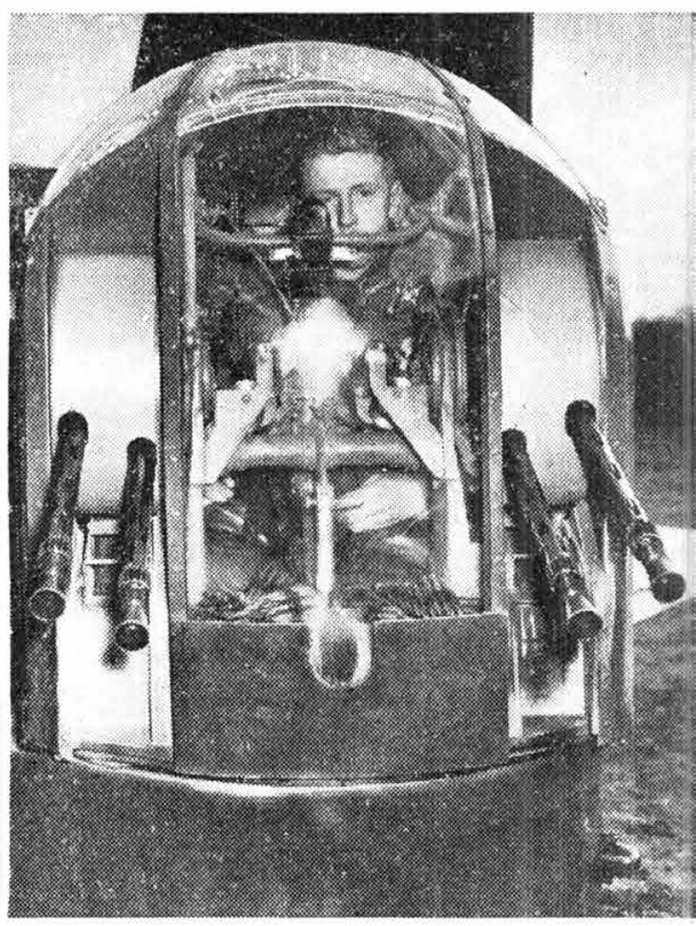
Another bomber which for a time had turrets of "home" design was the Wellington which had three twin-Browning turrets of Vickers construction. Again, according to a German report, each gun was provided with 1,000 rounds and each turret had a further spare 1,000 rounds.

Neither the Armstrong Whitworth nor the Vickers turrets proved very satisfactory, and the later versions of both the Whitley and Wellington have had turrets of Frazer-Nash design. The Whitley was given a four-gun turret behind the tail unit—the first bomber in the World to be so powerfully armed against attack from astern. Another Frazer-Nash four-gun turret appeared at about this time and was installed in the tail of the Short Sunderland flying-boat.

The Bristol Aeroplane Company also produced turrets of its own design which were tried in the prototypes of both the Blenheim and Bombay. These have been improved and developed and Bristol turrets are now used in these two types and in the Beaufort. The original Blenheim turret mounted one Vickers; it now has two guns.

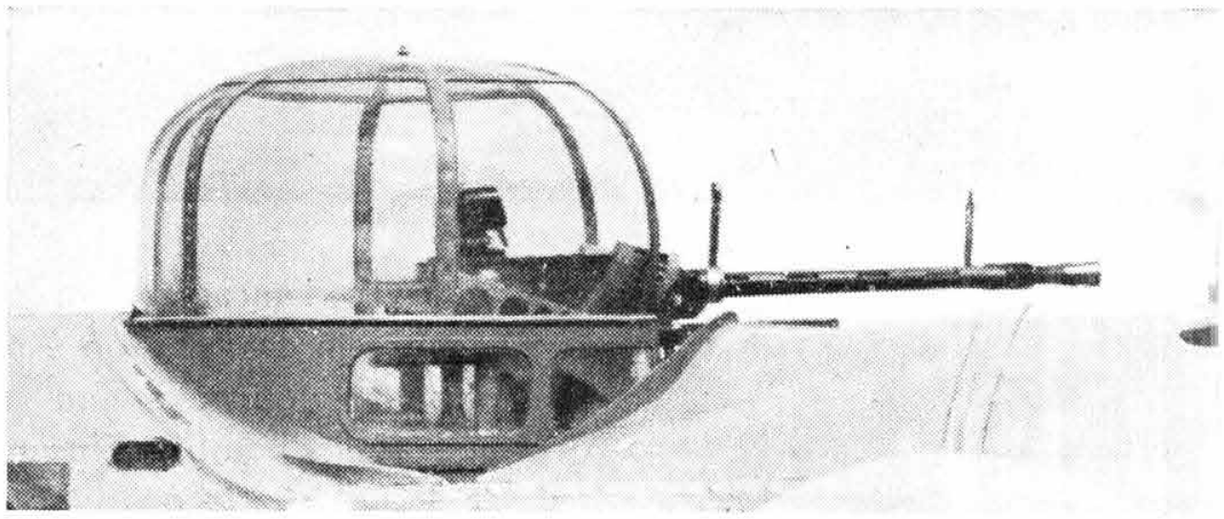
Contemporaneously, Boulton Paul Aircraft, which had produced the first power-operated gun turret in 1934, was





["Aeroplane" photographs

TURRET COMPARISONS.—The first gun turret (left) which was fitted in the nose of the Boulton Paul Overstrand in 1934, and (right) the four-gun Nash and Thompson tail turret of the Armstrong Whitworth Whitley V.



["Aeroplane" photograph

DEFENCE FROM ABOVE.—The Bristol two-gun power-operated turret on top of the fuselage of a Bristol Blenheim IVF.

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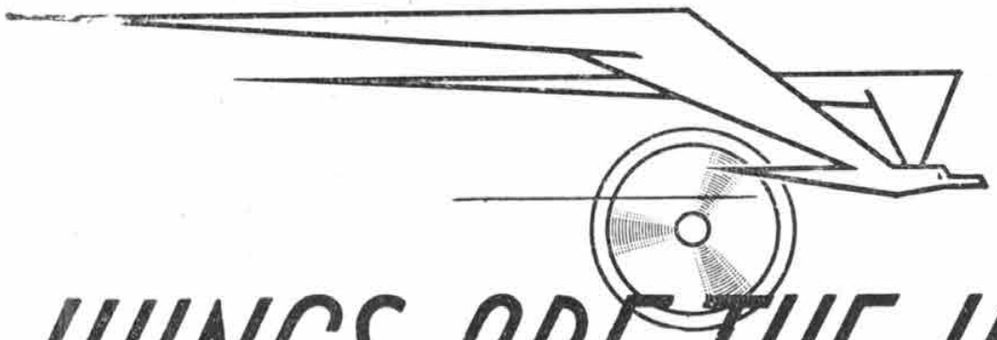

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H59

busy developing electro-hydraulically operated turrets of its own. In 1939 one of the two-gun designs of this Company fitted in the American Lockheed Hudson converted that civil transport into an efficient general reconnaissance type. Another successful B.P. turret was the compact four-gun unit of the Boulton Paul Defiant and Blackburn Roc two-seat fighters. The guns in both these turrets were Brownings.

Since the outbreak of War both Parnall Aircraft (which builds the Frazer-Nash turrets) and Boulton Paul have pressed forward with the development of turreted guns. Many new designs have been produced and are used in our great four-motor bombers. The tail turrets of our newest bombers have a fire power of 110 lb. per min.

Among important developments—the details of most of which are still secret—are the use of servo-feed motors to supply ammunition to turret guns from magazines some distance away. This device allows an almost unlimited supply of ammunition to be carried. It can be fed continuously to the guns as they are fired without any need for reloading.

Although nothing can be said at present about future developments in aircraft gun turrets, the tendency will obviously be to use bigger guns and perhaps more of them. Armour, already quite extensive on present turrets, will also be used more widely in the future.

Another form of defensive armament which has been developed parallel with the turret in recent years is the remotely controlled gun. Examples in service on British aeroplanes include those beneath the nose of the Bristol Beaufort and Blenheim IV. The German Heinkel He 111HAE bomber has a remotely-controlled gun mounted behind its tail unit.

It is interesting to note that a Vickers machine-gun was experimentally mounted to fire aft on an S.E. 5a in 1917. Although this gun was fixed its purpose was the same as the more elaborate remotely-fired movable weapons of to-day.

The big drawback to the remotely-controlled gun is the difficulty of providing adequate sighting facilities and, while this difficulty is not insuperable, it may well be that the remote gun will remain an auxiliary to the turret as at present. On the other hand, this form of armament may in time supersede the turret because of its lower drag and the greater ease with which the gunner can be protected. But whether the gunner is situated at some distance from his guns or immediately behind them he, like the other vital parts of his aeroplane, will be protected more and more by armour plate. And as the armour increases so the hitting power and calibre of the guns will have to increase with it.

Thus, in 30 years the arming of aeroplanes has already reached a position comparable with that of warships when the conflict between shell and armour started. Only the rashest of men would say where and how far developments will lead. The future alone can show that.

We have so far in this account made no mention of the various types of gun sight which have been, and are, used on aircraft guns. A few words on these important devices will not be out of place at this point.

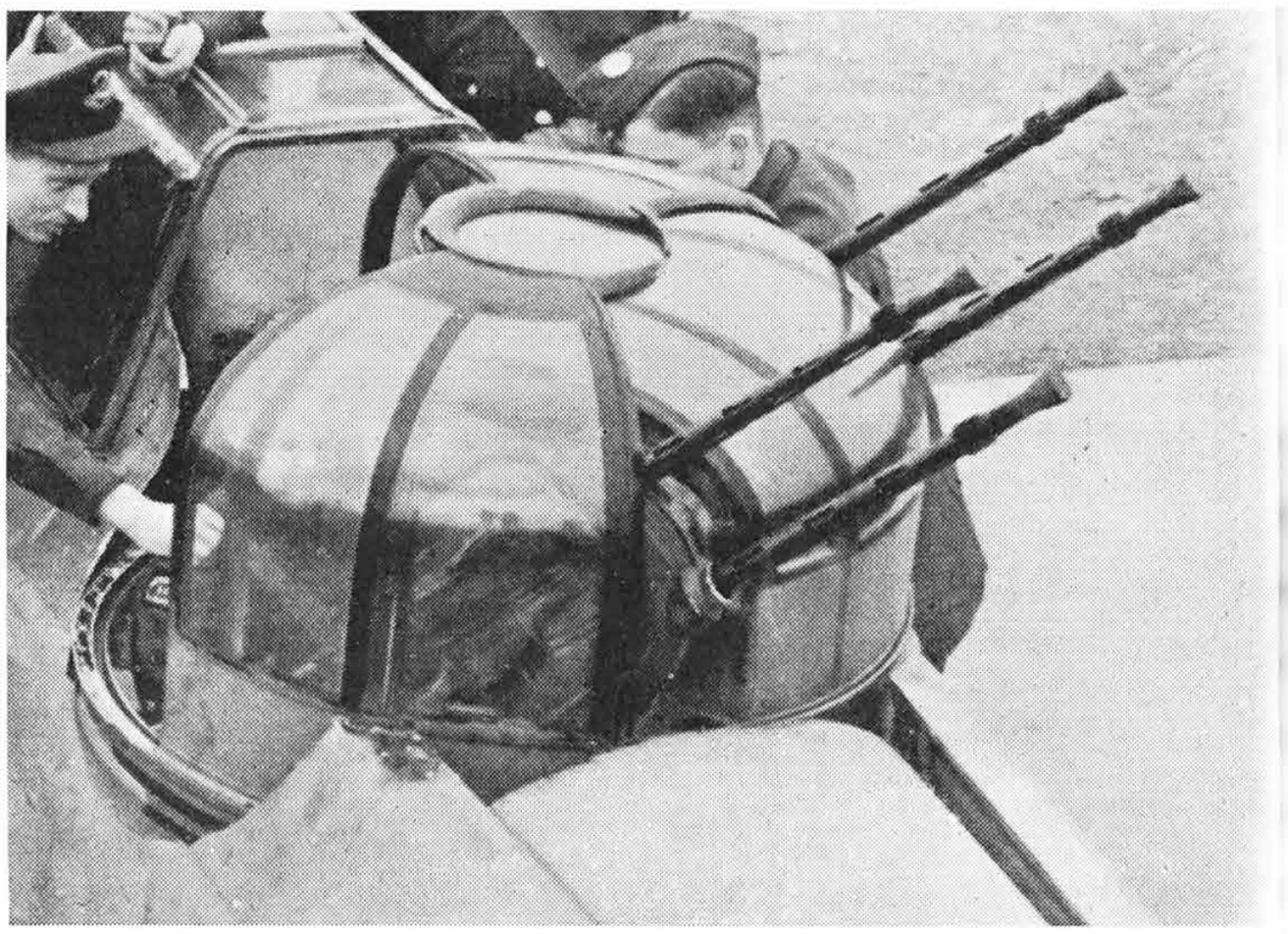
The first kind of sight to come into general use on aeroplanes was the simple " ring and bead " pattern which consisted of a metal ring with a smaller ring inside supported by radial wires as the backsight and a small bead as the foresight. The ring provided a means of estimating the deflection needed when shooting at a target crossing the sights and also helped the gunner to estimate the range. This form of sight was extensively used during the Great War both for fixed and for movable guns. Free guns were provided with a further device, known as the Norman vane foresight, which made allowance for the speed of the aeroplane on which the gun was mounted. Thus, theoretically, the ring backsight and the vane foresight used together made complete allowance for the speed of the attacking aeroplane and of its target.

The Norman foresight was fairly effective in practice at low speeds but in more recent years speed increases have rendered it obsolete and such free guns as are now in use employ the simple " ring and bead " sight.

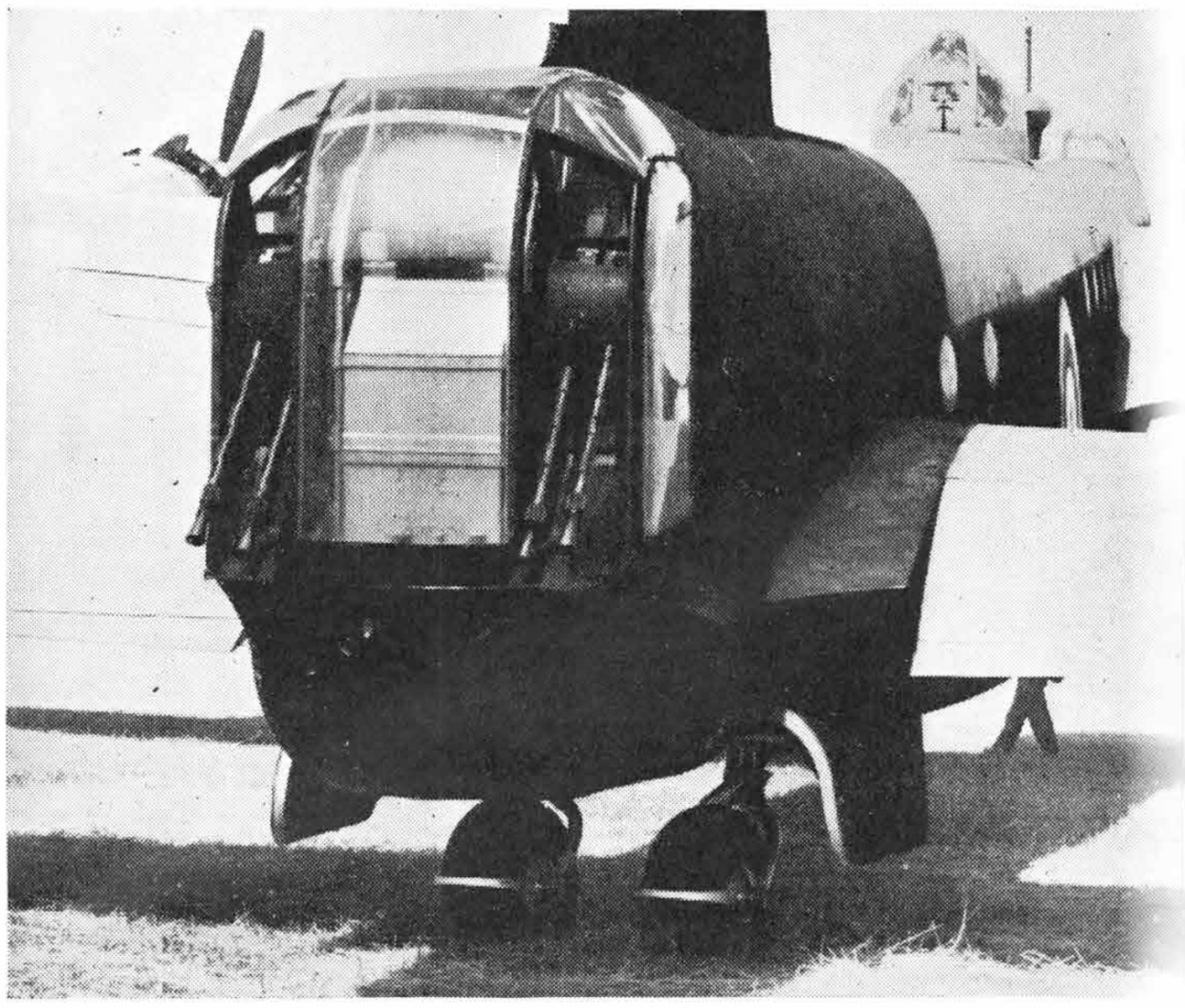
For fixed guns the Aldis tube sight was used for many years and was in fact only superseded shortly before the outbreak of the present War when the reflector sight took its place. The reflector sight, now almost universally used, is employed for both fixed and turret-mounted armament.

This brief history of the development of aircraft guns has had to be confined almost entirely to the work done in this country. In consequence, the picture as painted tends to exaggerate the importance of the part played by Great Britain. Nevertheless, it can be truly said that, with the exception of the development of the first interrupter gear, of certain early French hand-operated turrets, and of the German and French introduction of mixed cannon and machine-gun armament in fighters, this country has led the way with each new development. To-day, after 30 years of sustained effort, we can claim with every justification that our aeroplanes are better armed than those of any other nation.

BUBBLE TURRET.—The electro-hydraulically operated gun turret made by Boulton Paul Aircraft Ltd. which has been fitted to many aeroplanes and is here seen on an American Lockheed Hudson, in service with Coastal Command. This type of turret is used also on top of the Halifax II.



COMPACTNESS.—The Boulton Paul four-gun power-operated turret in the Defiant.



STING IN THE TAIL.—The latest form of power-operated gun turret made by Nash and Thompson and seen in the Stirling.

THE ROYAL AIR FORCE

The crew of a Vickers-Armstrongs Wellington bomber at dispersal point.

The Roll of Honour

THE ONE HUNDRED-AND-FORTIETH Casualty List was published by the Air Ministry on July 1. It contains 256 names of R.A.F. personnel, including those of 161 previously reported. Of these, one missing is now a prisoner, 154 missing believed killed in action or missing are now presumed killed, and six missing believed killed on active service or missing are now reported or presumed killed.

The List includes 16 killed in action, six wounded, one died of wounds, 20 missing believed killed and 23 missing. On active service nine have been killed, four wounded, three have died of wounds, and 13 have died.

The total of R.A.F. casualties officially reported since the War began is now 25,812.

The One Hundred-and-Fortieth Casualty List is:—

Killed in Action

64902 P/O M. G. Boggon.
1180651 Sgt. A. H. Edwards.
1381392 Sgt. E. C. Fiorini.
959976 Sgt. G. C. Gihl.
106136 P/O F. A. Grills.
1051654 F/Sgt. T. A. Holdsworth.
1264339 F/Sgt. D. Holmes.
923885 Sgt. M. James.
41587 S/L A. C. Jones.
928125 Sgt. J. R. P. Mann.
1331244 Sgt. J. T. Smith.
989480 Sgt. H. Taylor.

Previously Reported Missing Believed Killed in Action, Now Presumed Killed in Action

1181160 Sgt. E. J. Barrett.
1164973 F/Sgt. E. M. F. Bearcroft.
1063010 Sgt. C. R. Collinson.
812107 Sgt. R. H. Coomber.
537136 F/Sgt. B. D. Davies.
44816 P/O G. B. Dunn.
1269551 Sgt. G. D. Evenett.
979937 Sgt. A. P. Everett.
1257693 Sgt. A. J. N. Fry.
37632 S/L L. M. Gaunce, D.F.C.
76483 F/O A. T. Grieve.
987367 Sgt. A. H. Harman.
628890 F/Sgt. P. L. Hennigan, D.F.M.
1261295 Sgt. J. A. Lamb.
69434 P/O A. Y. McC. McCombe.
37476 Act. W/C R. D. B. MacFadden, D.F.C.
78357 F/O P. C. Martin.
741982 Sgt. A. G. Palmer, D.F.M.
538193 Sgt. K. M. Poole.
75730 S/L M. T. Stephens, D.F.C.
1101847 Sgt. G. L. Wincott.
69426 P/O J. Wood.

Previously Reported Missing, Now Presumed Killed in Action

63437 P/O V. M. Albrecht.
1061136 Sgt. G. Anderson.
63426 P/O I. A. N. Atchison.
808407 Sgt. R. E. Austin.
83987 F/O G. G. Bailey
940028 Sgt. J. W. Ball.
89340 P/O V. D. Beaney.
43528 F/O P. R. Bellamy.
1017894 Sgt. G. H. Brook.
1057985 Sgt. J. C. Brooks.
61045 P/O W. W. Burton.
902229 Sgt. J. P. B. Cambray.
60835 Act. F/L J. R. Campbell.
1013276 Sgt. C. V. Catherall.
46090 P/O W. H. Cheetham.
101050 P/O P. H. M. Clark.
929129 Sgt. F. G. Coulby.
64874 P/O R. Cox.
1101054 Sgt. D. E. Coyle.
961776 Sgt. R. W. Curtis.
955028 Sgt. W. P. Dales.
749575 Sgt. H. R. Davies.
1173902 Sgt. A. R. J. Dick.
955346 Sgt. E. J. Diplock.
40214 Act. S/L D. B. Drakes.
1376520 Sgt. R. F. Duggan.
982155 Sgt. D. C. Duguid.
46217 P/O R. M. East.
924110 Sgt. J. C. Edwards-Cross.
1111562 Sgt. G. A. Farmery.
744965 F/Sgt. R. S. Feakins.
565697 W.O. A. Fletcher.
1060749 Sgt. J. Forrest.
966724 L.A.C. T. J. Gordon.
1062114 Sgt. R. D. Gracie.
1176111 Sgt. A. H. Greenwood.
1178180 Sgt. A. J. B. Hallett.
1375393 Sgt. E. W. Hawkins.
41179 Act. F/L H. C. Hilton.
61296 P/O W. E. Hinchliffe.
1261971 Sgt. J. R. Hiscock.
908629 Sgt. K. W. Holbrook.
1376306 Sgt. A. C. Homes.
960947 Sgt. J. E. Horne.
1177136 Sgt. J. M. Horsley.
960339 Sgt. R. H. Huckett.
620414 Sgt. G. Hudson.
60804 Act. F/L P. R. Hughes, D.F.C.
918989 Sgt. A. E. Hyder.
1259260 Sgt. A. W. Jefferies.
942099 Sgt. H. E. Johnson.
67086 P/O K. C. Judd.
1164457 Sgt. J. H. Kay.
67653 P/O J. B. King.
1105563 Sgt. A. G. Kinnear.
627244 Sgt. N. R. Lawson.
1183310 Sgt. J. D. H. Lewis.
81642 F/L E. S. Lock, D.S.O., D.F.C.
1000335 Sgt. H. D. MacKenzie.
998292 Sgt. R. S. McKinnell.
948818 Sgt. C. B. McMullan.
914182 Sgt. T. H. C. Mahon.
751557 Sgt. H. H. Mansfield.
34243 S/L J. Mercer.
1160233 Sgt. J. H. Moody.
971521 Sgt. C. M. Morris.
1253782 Sgt. J. Morris.
1180178 Sgt. J. R. Morris.
1261532 Sgt. R. J. Morris.
45061 P/O E. G. Mounsey.
962548 Sgt. P. A. Norris.
1167139 Sgt. R. North.
613822 Sgt. A. E. Nosworthy.
1375140 Sgt. E. W. Paine.
921837 Sgt. R. N. Parker.
955962 Sgt. T. Parkinson.
927260 Sgt. R. D. Partridge.
996505 Sgt. J. W. Paul.
846567 Sgt. R. W. Platten.
41321 F/O C. C. Proby.
84901 P/O W. F. Race.
77537 F/O J. W. Renwick.
1058195 Sgt. P. V. E. Rothery.
1183356 Sgt. A. D. M. Routh.
1052303 Sgt. D. Rowley-Blake.
1183267 Sgt. R. F. Rudee.
1198669 Sgt. G. R. Ruscoe.
925659 Sgt. A. Scott.
41326 F/O P. N. Screeton.
979892 Sgt. J. C. Sheridan.
43047 P/O W. J. Sipprell.
758003 F/Sgt. W. H. M. Smith.
1101599 Sgt. D. W. Soden.
748346 Sgt. L. A. Soutar.
44231 P/O C. Stewart.
643077 Sgt. G. I. Taylor.
1006925 Sgt. A. J. Thomas.
1253304 Sgt. F. S. Thomas.
79371 F/O J. M. Tweedie.
1178755 Sgt. J. R. M. Vaisey.
611566 Sgt. H. J. Walker.
612507 F/Sgt. W. A. Watson.
1101048 Sgt. C. A. J. Webster.
61941 P/O K. E. Whalley.
1378118 Sgt. J. H. White.
970361 Sgt. A. W. Wilson.
1261700 Sgt. W. C. Wood.
913008 Sgt. T. P. Woodhouse.

Previously Reported Missing, Now Reported Killed in Action

104337 P/O B. L. F. A. Holland.

Wounded or Injured in Action

66556 P/O G. Belfield.
41596 Act. S/L D. A. J. McClure.
107488 P/O J. S. Starr.
116524 P/O A. F. Taylor.

Missing Believed Killed in Action

800585 Sgt. K. W. Barker.
1250185 Sgt. A. H. Cassam.
1162024 Sgt. R. H. Crews.
1257750 Sgt. J. O. Davies.
109923 P/O A. Downie.
104529 P/O G. P. Elliott.
942610 Sgt. C. G. Furby.
1162262 Sgt. J. J. G. Hall.
60103 Act. F/L G. R. Lane.
1251047 F/Sgt. G. E. Lawrence.
74708 F/L J. Lockhart.
969454 Sgt. W. M. Mahaffy.
114450 P/O C. H. Mardon.
1006420 Sgt. J. E. Smart.
958284 Sgt. T. Strang.
991501 Sgt. F. Swinburn.
931850 Sgt. P. F. V. Winkle.

Missing

46900 P/O F. H. A. Ashford.
971199 Sgt. D. C. Brockley.
1008481 Sgt. J. Buckley.
1108043 F/Sgt. D. Campbell.
1051595 Sgt. E. E. Fairhurst.
800615 L.A.C. W. A. Fisher.
1106543 Sgt. A. D. Gardiner.
43533 Act. F/L R. Gilliespie.
1254316 Sgt. W. E. Huggett.
77678 F/O D. E. Mileham.
1254452 Sgt. C. Moseley.
44779 Act. S/L W. M. Prothbroe.
1176864 Sgt. W. A. Roberts.
101460 P/O Le R. A. Skinner.
70631 F/L D. H. V. Smith.
1163761 Sgt. F. White.
69442 Act. F/L C. P. J. Wood, D.F.C.

Killed on Active Service

1264193 Sgt. J. C. H. Allen.
70036 S/L H. Baker.
43314 Act. F/L A. A. J. Beer.

Previously Reported Missing Believed Killed on Active Service, Now Presumed Killed on Active Service

44706 F/O A. F. Baldwyn.
945641 Sgt. W. A. Broadbear.
1261133 Sgt. F. E. Drake.
41517 Act. F/L D. K. A. Wordsworth.

Previously Reported Missing Believed Killed on Active Service, Now Reported Killed on Active Service

116701 P/O J. D. Mair.

Wounded or Injured on Active Service

108069 P/O D. G. James.
116475 P/O E. Johnson.
1064064 Sgt. L. A. S. Winterton.

Died of Wounds or Injuries Received on Active Service

119793 P/O J. S. Lindsay.

Died on Active Service

560574 W.O. W. L. Constable.
1514141 A.C.1 E. G. Fullman-Gentle.
916678 L.A.C. L. F. Gooeship.
573208 Cpl. J. R. Gowen.
1107006 L.A.C. A. A. Harris.
1115333 A.C.1 H. Pickering.
947381 L.A.C. D. R. Tilley.
11203 Sgt. W. S. Wadsworth.
549948 Cpl. W. O. Wood.

Previously Reported Missing, Now Reported Prisoner of War

60138 P/O K. B. Orr.

W.A.A.F.

Died on Active Service

420886 Cpl. F. A. Cunliffe.
442236 A.C.W.1 D. J. V. Walker.

ROYAL AUSTRALIAN AIR FORCE

Previously Reported Missing, Now Presumed Killed in Action

Aus.402102 Sgt. C. K. Herriman.
Aus.400072 Sgt. H. G Waller.
Aus.404274 Sgt. K. M. Woodhead.
Aus.404047 Sgt. G. B. Woodroffe.

Wounded or Injured in Action

Aus.404487 Sgt. T. J. O'Donohue.

Missing, Believed Killed in Action

Aus 402441 Sgt. C. R. Harper.

Missing

Aus.404932 P/O R. W. Brown.

Died of Wounds or Injuries Received on Active Service

Aus.404516 P/O J. R. Spalding.

ROYAL CANADIAN AIR FORCE

Killed in Action

R.62265 Sgt. J. J. Davenport.
R.83059 F/Sgt. B. W. Forman.
R 75097 Sgt. W. J. Marshall.
R.62957 Sgt. W. I. Meech.

Previously Reported Missing, Now Presumed Killed in Action

R.63908 Sgt. G. L. Chapman.
J. 5548 P/O J. R. E. Denkman.
J. 4777 P/O C. T. Lane.
R.54357 Sgt. C. J. F. McCrum.
R.65201 Sgt. S. J. Maclean.
R.65208 Sgt. G. F. Macleod.
R.60123 F/Sgt. W. C. Mackenzie
R.57837 Sgt. D. C. Marshall.
R.54288 Sgt. D. S. Mather.
R.56225 Sgt. S. I. C. Moulds.
R.54110 Sgt. E. J. Mutton.
R.77119 Sgt. F. Peever.
R.52075 F/Sgt. R. G. Postans.
R.58183 Sgt. A. R. Powell.
J. 15013 P/O J. G. Rogers.
R.72387 Sgt. J. G. Smith.
R.73201 Sgt. H. F. Stentiford.
R.64386 Sgt. S. G. Westbrooke.

Missing, Believed Killed in Action

R.73262 Sgt. J. R. Dow.
R.70737 Sgt. G. M. Robertson.

Missing

C.1611 F/O R. J. W. Askwith.
R.58580 F/Sgt. F. C. Austin.
R.77323 Sgt. G. J. Hardy.
R.65194 Sgt. G. M. Lantz.
R.65170 F/Sgt. G. J. Wilkie.

Killed on Active Service

R.101320 Sgt. L. L. Armour.
R.101835 Sgt. J. R. De Rzonca.
J. 6292 P/O T. G. Foley.
J. 6686 P/O H. E. Rath.
R.75165 F/Sgt. A. J. Reed

Previously Reported Missing, Now Reported Killed on Active Service

R.83904 Sgt. R. J. Jackson.

Wounded or Injured on Active Service

R.76230 Sgt. M. A. Bent.

Died of Wounds or Injuries Received on Active Service

R.78379 Sgt. W. H. E. Phillips.

Died on Active Service

J.8968 P/C G. E. Robson.

ROYAL NEW ZEALAND AIR FORCE

Previously Reported Missing, Now Presumed Killed in Action

NZ.40240 Sgt. J. Maney.

Died of Wounds or Injuries Received in Action

NZ.411929 P/O T. McR. Nicol.

SOUTH AFRICAN AIR FORCE

Wounded or Injured in Action

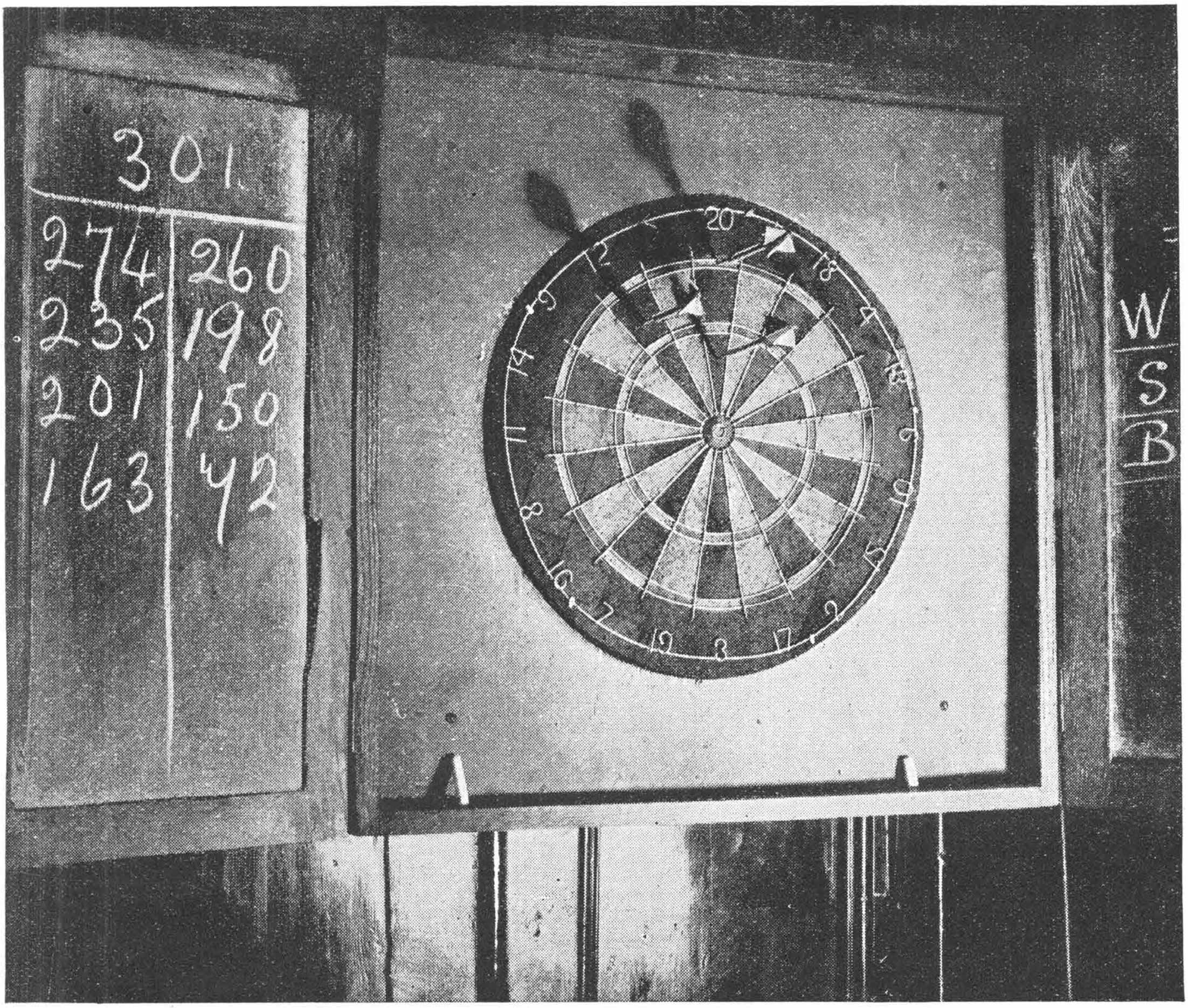
2nd Lt. G. A. Peter.

Killed on Active Service

102325 2nd Lt. P. J. Chapman.

Died on Active Service

114147 Air/Mech. L. R. Verwey.



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AUXILIARY AIR FORCE

GENERAL DUTIES BRANCH.—The notifns. of Mar 14, 1939, and Mar. 24, 1939, concern. J. G. Murray are cancelled.

ROYAL AIR FORCE REGIMENT

ROYAL AIR FORCE VOLUNTEER RESERVE.—N. G. Alexander, M C, to be Sqn. Ldr. on prob. (emergency). Jan.

WOMEN'S AUXILIARY AIR FORCE

To be Asst Sec. Offs. on prob. (emergency):—May: D. M. Ashcroft, E. M. Barber, M. F. Beretta, A. J. Brown, M. E. Clark, J. A. Coppin, L. V. E. D. De La Torre, Olwen Frederick, C. S. R. Frew, E. B. Goodwin, Kathleen Henry, C. L Kemp, P. M. Low, C. M. W A. Martin, M. L. Matley, P. A. M. Mitchell, C. I. Moodie, Mary Moore, M. S. Mortimer, Barbara Nightingale, Kathleen Noonan, P. J. Oxley, M. L. Payton, Maude Reynolds, J. G. Saunders, Beryl Simner-Jones, M. A. Smith, B. M. Steuart, Margaret Stewart, K. F. Stibbs, N. L. Vest, C. M. Kudriavtzeff, N. E. Gardiner.

Asst. Sec. (prob.) confmd. in appts.:—Dec.: A. McKnight-Kauffer. Mar.: F. E. M. Colmore, K. Harland, N. I. Hendy, M. I. Mason. Apr.: N. Gwinnet-Sharp, J. M. Andrews, J. S. Boddam-Whetham, H. J. Compton, H. M. Craven, O. M. Malet, J. M. Maule, M. G. Trevelyan, B. B Parker, K. Mc. G. Robertson, E. Talbot, K. C. F. Williamson, U. G. Wilson, K. Wooldridge, D. J. H. Greig, M. E A. Herchenroder, M. J. Watts-Russell, E. J. Phillips, O. Read, L. M. Evans, J. M. Badgery, F. E. Ball, R. Cazes, P. M. F. Cowdy, B. M. Martin, E. Francis, E. Hay, M. N. Baldey, E. A. Leathart, B. E. Legh-Smith, E. M. Potts, J. Stringer, M. C. Wilcockson, K. E. Rolfe-Rogers, J. P. Yeomans.

To resign their commns.:—Asst. Sec. Off. E. R. Howe. May.

Asst. Sec. Offs. (prob.):—Apr. D. Dowling. May: B. Rodwell, K. B. Larkin.

Air Ministry, June 9.

ROYAL AIR FORCE

GENERAL DUTIES BRANCH.—To be Plt. Offs. on prob. (emergency):—Temp. Wt. Off.: May: A. E. Stewardson. Flt. Sgts.: May: C. Y. Brownlow, E. J. Stanton. Cpl.: Nov.: A. E. Jones.

To be granted temp. commns. as Plt. Offs. on being employed with the R.A.F.:—Apr.: H. J. Case, Capt. Somerset L.I., W. A. Jack, Capt. R.A., Kenneth Chapman, Lt. R.A., Bryan Cowderoy, Lt. Foresters, D. G. Davies, Lt. R. Signals, D. F. Liddle, Lt. R. Fus., A. H. McGrady, Lt. R.A., J. H. Maxwell, Lt. Recce. Corps, G. M. Metcalf, Lt. Welch R., J. D. FitzG. Penrose, Lt. R.A., E. A. Rogers, Lt. R.A., P. E. Sheppard, Lt. Essex R., D. H. Smith, Lt. D.W.R., K. I. Andrews, 2nd Lt. Leicester R., M. A. R. Collins, 2nd Lt. R.A., Donald Cormack, 2nd Lt. R.A., W. K. Dodgson, 2nd Lt. Black Watch, J. D. Foster, 2nd Lt. R.A., F. D. Holdsworth, 2nd Lt. R.A., W. J. Lemon, 2nd Lt. R.A., H. D. Leventon, 2nd Lt. Lan. Fus., H. R. Selkirk, 2nd Lt. Rifle Bde., N. L. H. Somerset-Leeke, 2nd Lt. R.T.R., J. O. Summers, 2nd Lt. Essex R., P. J. Whitfield, 2nd Lt. Cheshire R. May: Arthur Hudson, Capt. R.A., E. M. G. Belfield, Lt. R.A., J. T. Bowering, Lt. Somerset L.I., A. S. D. Fairbairn, Lt. H.L.I. (T.A.), F. H. Foden, R. Fus., I. B. Hayes, Lt. R.A., J. R. May, Lt. R. Sussex R., J. F. A. Swan, Lt. R.A., F. G. Barber, 2nd Lt. Middx. R., L. W. Butt, 2nd Lt. Gloster R.

Plt. Offs. (prob.) confmd. in appts. and to be Flg. Offs. (war subs.):—Apr.: A. J. Scott, D.F.M. May: P. J. Crowley, E. J. Harrod (Sen. Feb. 27), R. W. Bass, A.F.M., A. Cowie, D.F.M.

Flg. Offs. to be Flt. Lts. (war subs.):—Sept.: H. W. Lamond (Sen. Aug. 4). Jan.: M. T. H. Adams, D.F.C. Mar.: T. F. O'Byrne, G. McL. Hayton, D. A. Young. Apr.: W. R. Acott, D. I. Pike, W. L. Vickerstaff, E. D. L. Lee (2nd Lt. R.A. T.A.), W. J. Scafe (2nd Lt. Devon R.). May: J. V. Verran, D.F.C., S. N. Stirk, J. T. Crossey, A. C. Sargent. June: R. F. Hunter (Sen. May 9), R. J. Brown (Sen. Apr. 25).

Plt. Off. E. R. K. Humphries (Lt. 17th Dogra R., I.A.) to be Flg. Off. (war subs.), Jan.

Plt. Off. (prob.) F. J. Chudley, D.F.M., to be Flg. Off. on prob. (war subs.). Jan.

To be transf. to the Tech. Br.:—Apr. 24, 1940: Wg. Cdr. C. B. Hughes, Wg. Cdr. C. F. Pearce, Sqn. Ldr. J. G. S. Candy, D.F.C.

TECHNICAL BRANCH.—Wt. Off. J. E. Lewis to be Plt. Off. on prob. (emergency), Dec. (Sen. Oct. 27).

Flg. Off. (prob.) R. Hill confmd. in appt. May.

Plt. Offs. (prob.) confmd. in appts. and to be Flg. Offs. (war subs.):—Feb.: D. McLean (Sen. Nov. 8), C. W. Crimmin (Sen. Nov. 13), E. V. Bowen, A. C. McCreeth (Sen. Nov. 15), W. R. Peake (Sen. Nov. 19), F. Bavin-Smith, D.F.M. (Sen. Dec. 2), E. S. Burrell (Sen. Nov 19).

Flg. Off. J. Holt to be Flt. Lt. (war subs.), Dec. (Sen. Mar. 21).

Plt. Offs. (prob.) to be Flg. Offs. on prob. (war subs.): J. T. E. Farmer, Dec. R. W. Guy, Jan.

Plt. Off. (prob.) H. J. Pearson to be Flg. Off. on prob. (war subs.), Mar. (Subs. for notifn. of Mar. 24.)

Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.):—Apr.: R. A. Montgomery (Sen. Mar. 27), F. N. Griffith (Sen. Feb. 20).

ADMINISTRATIVE AND SPECIAL DUTIES BRANCH.—To be Flg. Off. on prob. (emergency):—Wt. Off.: May: A. J. G. Perrin (Sen. Oct. 23).

To be Plt. Offs. on prob. (emergency):—Cpls.: Mar.: G. C. S. Lawton (Sen. Feb. 7). Apr.: F. G. Andrew (Sen. Feb. 8).

To be Act. Plt. Offs. on prob. (emergency):—Wt. Offs.: May: W. G. Abberley (Sen. Nov. 19), L. F. Ralls (Sen. Mar. 2). Flt. Sgts.: Apr.: R. P. Wheel (Sen. Jan. 7), C. J. Mitchell (Sen. Feb. 2), James Thompson (Sen. Feb. 16). May: E. R. Hughes (Sen. Nov. 6). Sgts.: Mar.: P. F. Varey (Sen. Nov. 3). Apr.: F. C. Stevens (Sen. Nov. 25), D. W. M. West (Sen. Jan. 28), J. T. Waddleton (Sen. Feb. 2). May: N. J. F. Hanson (Sen. Jan. 28), J. G. Parsonage (Sen. Feb. 2). Cpl.: May: H. C. Cunningham (Sen. Mar. 16).

Flg. Offs. (prob.) confmd. in appts.:—B. A. Wearing, July, 1941. W. F. B. Elwen, May, 1942.

Plt. Offs. (prob.) comfd. in appts. and to be Flg. Offs. (war subs.):—G. Rutherford, Jan. (Sen. Jan. 8). J. P. Blackmore, Feb. (Sen. Jan. 27).

Plt. Offs. (prob.) to be Flg. Offs. on prob. (war subs.):—T. F. Heward, Oct. J. A. Brooker, Feb. L. J. Perkins, Mar.

EQUIPMENT BRANCH.—Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.):—H. J. Morris, Nov. (Sen. Oct. 17). B. V. M. Birch, Apr.

ACCOUNTANT BRANCH.—To be Plt. Off. on prob. (emergency):—Ldg. Acm.: S. A. J. Young, Jan. (Sen. Dec. 25).

To be Act. Plt. Offs. on prob. (emergency):—Flt. Sgt.: D. R. Earley, Nov. (Sen. Aug. 29). Sgt.: A. T. S. Edwards, Nov. (Sen. Aug. 29).

Flg. Off. F. B. Pestell to be Flt. Lt. (temp.), Dec.

Act. Plt. Off. (prob.) J. M. Ward to be Plt. Off. (prob.), Mar.

MEDICAL BRANCH.—Wt. Off. David Corbett to be Flg. Off. (Qr.-Mr.) on prob. (emergency), Mar. (Sen. Dec. 30).

DENTAL BRANCH.—Mrs. U. G. Karran, L.D.S., R.C.S., to be Dental Off. (emergency) with the relative rank of Flg. Off. for employment with the R.A.F., May.

PRINCESS MARY'S ROYAL AIR FORCE NURSING SERVICE

Sisters to resign their appts.:—Miss E. M. Wright, May. Miss Edith Hall, June.

RESERVE OF AIR FORCE OFFICERS

GENERAL DUTIES BRANCH.—W. E. P. Gibbon to be Plt. Off. in class CC, May.

Flt. Lt. W. D. Adams to be Sqn. Ldr. (temp.), Mar.

Plt. Off. R. Mitchell is granted the rank of Flt. Lt. in class CC, Apr.

Flt. Lts. to be transf. to the Admin. and Spec. Duties Br.:—J. S. Williams, May. C. H. Williams, May.

Flt. Lt. J. C. Halahan, C.B.E., A.F.C., relinquishes his commn. in class CC on cessation of duty, June 1.

ADMINISTRATIVE AND SPECIAL DUTIES BRANCH.—Flg. Off. A. C. Meredith (since promoted) is transf. to the Tech. Br., Apr. 24, 1940.

ROYAL AIR FORCE VOLUNTEER RESERVE

GENERAL DUTIES BRANCH.—To be Plt. Offs. (emergency):—Feb.: A. F. Birley, W. M. Burnside, F. S. McWhirter, J. R. Pennington, R. W. F. Sampson, E. R. Millington, J. G. Curtis, I. G. E. Davidson, H. S. Grimes, A. MacD. Henderson, Guy Lansdell, A. H. B. C. Salaman, J. H. Stephens. Mar.: D. H. Upsher, Arthur Wallace, J. P. Hope, R. S. Loxton. Apr.: M. W. P. Smith. Wt. Offs.: May: S. V. Holloway, J. C. W. Parrott, R. E. B. Sargent. Temp. Wt. Offs.: Feb.: T. R. W. Froud, D. H. Hallett. Mar.: E. A. Boyce. May: J. R. J. Belson, G. B. Lamb. Flt. Sgts.: Feb.: P. D. Wright, J. K. Birley, R. I. McClellan. Mar.: Eric Swaine, H. S. Grimsey, T. H. Bates. May: T. M. Attwood, F. R. Busby, H. A. Davis, J. H. Deall, James Flint, G.M., D.F.M., A. McM. Gillies, G. H. Hartley, W. H. B. Hiles, A. M. Hill, H. K. Hughes, R. F. Jessop, D.F.M., J. F. Luing, J. E. Partridge, O. W. Rees, H. L. Thorne, Kenneth Wolstenholme, Ronald Wood, N. W. Kemp, S. C. Kent, L. F. Willetts, J. T. Smith, H. N. Walters. Temp. Flt. Sgts.: Mar.: W. N. Gardiner. May: J. B. Harrop, A. A. Webster, Jack Blyth, D.F.M. Sgts.: Sept.: L. G. O. Smith. Nov.: D. J. Dines, A. T. Martens, W. D. Burditt, D. W. R. Hill, R. M. Shardlow, J. G. Spalton. Dec.: J. D. Hassell, C. T. Hicks. Jan.: George Crowe, Alan Haworth, H. S. Hobday, J. W. Marshall, T. W. Osborn, John Segar, M. H. Hewes, J. E. Evenden, Richard Filson-Young, H. B. Kelly. Feb.: A. G. R. Kayll, D. J. Clarke, L. W. Martin, F. K. Randall, Ernest Greaves, S. R. Green, Hyme Landau, V. R. Matthews, G. L. Sellars, O. C. Horton, R. N. Dagnall, L. C. Ardern, D. W. Balshaw, D. N. Bryceson, Basil Champneys, B. R. Dodd. Mar.: J. C. L. Telford, W. R. McKay, J. B. Aris, J. B. McConway, E. R. Stannard, H. P. Steel, R. F. Wells, R. C. Wood, E. R. Herrald, R. B. Hope, F. T. Keeping, J. A. Kneale, J. G. Larking, R. L. Lulham, C. B. McGhee, Peter Mace, R. F. H. Martin, J. T. A. May, A. D. Mercer, John Overton, F. A. S. Patterson, P. B. Percival, R. F. Pye, B. F. Simonds, R. I. W. Smith, F. A. Wimbush, Cyril Goulborn, N. S. Green, A. P. Hammond-Hunt, T. M. Horsfall, P. A. Kennedy, H. R. Locker-Marsh, N. G. Lussignea, E. J. Milne, K. I. Pearson, G. W. Rimell, G. J. Rix, C L. Sancha, A. A. Shrimpton, A. D. Sommerville, A. G. Woods, S. N. Chilton, I B. Scott, F. J. Adams, H. R. Bairsto, A. P. Douglas, H. C. Eyre, R. M. Harris, J. M. Hadow, R. D. Hodgkins, P. J. Hugo, F. H. Jenkins, W. J. Massey, A. M. Peake, P. P. Hague, D. J. Mason, A. W. Townsend, A. D. C. Jenkins, H. V. Perry, I. A. S. Gibson, T. S. Haynes, George Hogarth, H. K. Humphreys, Douglas Hunter, S. R. James, E. A. J. Jenkins, D. H. Johnson, Cecil Jolly, W. A. Lindsay, N. D. Mackertich, Kenneth Macvicar, W. A. P. Manser, A. W. Manson, P. R. Mellor, A. P. Mellows, A. M. Michie, R. R. Monk, John Penman, P. C. Price, H. C. Holmes, H. W. Larkins, D. S. Pinks. Apr.: A. G. G. Machin, G. R. Baker, J. E. Brook, B. V. H. Tweedie, George Reid, Cuthbert Holford. May: K. L. W. Craddock, S. E. Esler, Leonard Gatrill, Howard Handley, R. P. Harvey, B. E. J. Hawkins, C. M. Hood, J. L. H. Howard, O. H. E. Jones, Sidney Kaye, A. L. Lazenby, W. E. McCullough, J. J. R. Macnamara, J. D. Miller, T. E. Needs, A. M. Raffael, A. D. Reynolds, Stanley Robinson, I. C. B. Slade, E. A. Smith, Roy Taylor, K. T. White, Jack Whittle, G. H. Whyte, A. R. Winter, V. G. J. Agutter, Noble Baird, P. J. Blanchard, T. B. A. Boughton, F. N. Bower, C. E. Broad, P. L. Clayton, John Corcoran, Charles Harkness, Stanley Fowler, R. L. M. Maxwell, E. S. Nicoll, J. H. Robson. Cpls.: Mar.: F. J. Starkie, H. W. Leach. Ldg. Acm.: Nov.: J. E. Turnbull. Dec.: J. W. Bray. Jan.: Robert Adams, M. J. Steward, A. L. Campbell, P. B. Finlay. Feb.: G. P. Lewis, P. C. Stevens, Edmund Wright, P. C. Granger, Michael Allanson, J. A. Brignell, G. F. Deakin, A. N. Green, G. M. Jordan, G. A. Turner, T. W. Baptie, Frank Hilton. Mar.: E. M. Carne, D. C. Evans, H. G. Paskey, Bruin Tammes, H. A. Clark, L. A. Booth, Denis Booth, I. D. Ferguson, A. A. Creamer, John Gwyther, J. E. Hunter, R. W. Davey, A. E. Beer, G. H. Berry, F. J. Dempsey, P. W. Dormon, E. L. D. Drake, J. A. Fawdon, C. E. Foy, N. E. Geere, M. K. Gordon, G. F. L. Hopkinson, J. T. Hutton, A. B. Kidson, R. A. Kitson, D. G. Shepherd, D. A. Simmonds, W. R. Simpson, R. G. Smith, W. G. E. Sterry, W. H. Talbot, H. A. B. Baker, M. D. Engel, Eric Fishwick, W. F. M. Holman, L. S. Laughton, J. K. Matthews, D. F. Page, C. G. Robinson, A. H. Stanley. Apr.: R. W. Flack, H. L. Morgan, R. S. A. Neat, C. J. Daly, A. G. Frandsen, D. J. Hopson, J. C. W. Simpson, F. E. Callaghan, L. G. Davis. May: John Benson, K. R. Bingham, A. E. Bransgrove.

OUT OF THE FIGHT.—These photographs, taken from German papers, are said to be of R.A.F. prisoners who were shot down during an attack on the Prinz Eugen, and were picked up and taken on board the cruiser.

Plt. Offs. (prob.) confmd. in appts. and to be Flg. Offs. on prob. (war subs.):—Sept.: T. M. Robinson (Sen. Aug. 31). Dec.: G. Kidd (Sen. Nov. 24). Jan.: E. S. Dawson, R. R. Orchard. Feb.: A. W. Carvell, W. A. Staniland. Mar.: R. H. Harwood, B. St. J. Inglis, G. F. Tredwell, E. Seidelin, J. H. Menary. Apr.: A. G. Woodhall, J. A. Esler, L. L. Whitaker, J. Fenwick-Webb (Sen. Mar. 7), L. J. Pinion, H. G. Pilling, A. B. Smith, D. A. Hamilton, N. E. Winch. May. W. J. H. Tucker, J. McGill (Sen. Feb. 27) B. A. C. Richards, A. B. G. Barclay, R. E. Lowe, C. T. Viney, J. D. Bolton, P. L. R. Williams, J. M. Randall, S. Wareing, J. H. Shaw, C. Longden, L. A. Parr.

Flg. Offs. to be Flt. Lts. (war subs.):—Feb.: F. Brookes, H. P. Aiken. Mar.: B. Green, A. E. V. Oliver, R. D. Taylor. Apr.: R. W. House, J. McCrory, J. C. Bowman. May: I. T. G. Stewart. June: G. R. Rawlings.

Flg. Off. B. H. Pollitt to be Flt. Lt. (war subs.), Apr. (Subs. for notifn. May 19.)

Flg. Off. C. H. Kippen transf. to the Admin. and Spec. Duties Br., May 15.

Plt. Off. R. J. Armstrong takes rank and precedence as if his appt. as Plt. Off. bore date Oct. Reduction from Mar.

Flg. Off. C. S. Davis, D.F.C., relinquishes his commn. on appt. to a commn. in the R.A.A.F., June 1.

Plt. Off. (prob.) M. C. H. Boustead relinquishes his commn. on account of ill-health, May 28.

TECHNICAL BRANCH.—To be Act. Plt. Offs. on prob. (emergency):—Feb.: J. E. Pickin. Apr.: W. G. Lord, W. C. Marsden, T. A. Stuart.

Plt. Off. (prob.) J. R. Burges confmd. in appt. Sept.

Plt. Offs. (prob.) confmd. in appts. and to be Flg. Offs. (war subs.):—W. P. Gibb. Feb. (Sen. Jan. 17). W. T. Brown. Mar.

Plt. Off. (prob.) H. E. Byram confmd. in appt. July, and to be Flg Off. (war subs.). Oct.

Plt. Off. (prob.) W. M. Boswell is confmd. in appt., July, and to be Flg. Off. (war subs.) Nov.

Plt. Off. (prob.) D. A. Cowlett is confmd. in appt., Aug., and to be Flg. Off. (war subs.). Dec.

Plt. Off. (prob.) R. T. Parry is confmd. in appt., Aug., and to be Flg Off. (war subs.). Jan.

Plt. Off. (prob.) C. H. Frampton is confmd. in appt., Dec., and to be Flg. Off. (war subs.). Feb.

Plt. Off. (prob.) M. I. Forsyth-Grant is confmd. in appt., Aug., and to be Flg. Off. (war subs.). Feb.

Plt. Off. (prob.) D. C. Bax is confmd. in appt., Aug., and to be Flg. Off. (war subs.) Mar.

Plt. Off. (prob.) C. S. Odams is confmd. in appt. Oct., and to be Flg. Off. (war subs.). Mar.

Plt. Off. (prob.) P. J. Marsh is confmd. in appt., Sept., and to be Flg. Off. (war subs.). Apr.

Plt. Off. (prob.) R. F. D. Collin is confmd. in appt., Nov., and to be Flg. Off. (war subs.). June.

Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.): Nov.: R. J. C. Willey. Dec.: E. V. Jacobs, D. O. Thornhill, C. B. B. Wood. Feb.: F. A. Lilly, J. R. Cromwell-Morgan. Apr.: L. Berryman, A. Brickell, R. W. Curzon, E. Downes, J. F. Ford, P. H. Hutchinson, H. P. Tritton, T. F. Westgate, L. C. Hall, F. A. Hitchcock, W. B. Pearce, J. F. Collins, J. O. Falconar, H. E. W. Hall, R. Winnard, R. C. Boxall, F. R. R. Jones, A. G. Preston, H. P. H. Owen (Sen. Mar. 10). May: F. L. King (Sen. Apr. 3).

Act. Plt. Off. (prob.) J. H. Lucas is transf. to the Admin. and Spec. Duties Br. Apr. 24. (Subs. for notifn. of Mar. 24.)

BALLOON BRANCH.—Plt. Offs. (prob.) to be confmd. in appts. and to be Flg. Offs. (war subs.): Apr.: S. H. Erickson (Sen. Mar. 27), D. H. Le Marchant (Sen. Mar. 10). May: J. S. Stokes (Sen. Apr. 18), D. Bone (Sen. Apr. 22), A. Scott (Sen. Apr. 22). G. D. Faulkner (Sen. Apr. 18), J. A. Medcalf (Sen. Apr. 24), D. W. Kelk (Sen. Apr. 18), C. L. Peachey (Sen. May 8).

Act. Plt. Off. (prob.) R. G. Oliver to be Plt. Off. (prob.). Jan. (Subs. for notifn. of Apr. 7.)

AMENDMENT.—In notifn. of May 12 concern. R. A. Cotterell, for Flg. Off. read Flt. Lt.

ADMINISTRATIVE AND SPECIAL DUTIES BRANCH.—To be Plt. Offs. on prob. (emergency):—Sgts.: Apr.: C. F. Field (Sen. Mar. 6), G. I. A. Moes (Sen. Apr. 18). Cpls.: Feb.: Thomas Roper (Sen. Jan. 7). Mar.: D. E. Stuart (Sen. Feb. 12). Ldg. Acm.: Mar.: Frank Bennett (Sen. Feb. 8), A. J. A. Walker (Sen. Feb. 8).

To be Act. Plt. Offs. on prob. (emergency):—Apr.: Merlyn Rees. May: J. G. Allan, C. E. Bramhall, L. H. J. Daniels, D. F. B. Drew, R. F. Ford, J. L. Goddard, N. H. Gosden, Philip Jenkins, D. P. Liddle, F. W. McGaw, M. MacL. Myles, B. M. P. O'Hea, W. L. Page, E. G. B. Poole, Livingstone Rae, F. H. A. Riceman, G. K. Ringer, John Scott, Wilfred Scrivens, M. M. Wilkie, N. F. Wilkinson, E. H. P. Wilson, R. H. S. Campbell, A. J. Chesham, A. R. Jones. Wt. Off.: Apr.: G. T. Mundell (Sen. Mar 13). Flt. Sgts.: Apr.: Maurice Holdsworth (Sen. Jan. 5), A. V. Albertini (Sen. Mar. 13). May: H. S. Turner (Sen. Mar. 9). Sgts.: Oct.: C. H. Stacey (Sen. July 28). Feb.: R. W. Jones (Sen. Dec. 4). Apr.: J. A. R. Stevenson (Sen. Dec. 2), G. E. Priddle (Sen. Jan. 5), S. R. Sarginson (Sen. Jan. 8), I. F. B. Parker (Sen. Jan. 13), R. D. George (Sen. Feb. 16). May: H. T. Cobley (Sen. Jan. 2), E. G. S. Farrer (Sen. Jan. 13), J. P. Thuillier (Sen. Feb. 2). L. H. Willson (Sen. Sept. 17), E. W. Hanks (Sen. Nov. 6), H. L. Webb (Sen. Nov. 14), D. M. C. Manifold (Sen. Nov. 17), R. E. Gray (Sen. Dec. 5), Gerald Salter (Sen. Mar. 23), R. W. Bouts (Sen. Mar. 30), D. H. Coleman (Sen. Apr. 2), E. H. Towner (Sen. Apr. 13). Cpls.: Aug.: W. G. Bishop, M.M. (Sen. June 23). Oct.: K. G. Gray (Sen. July 23). Apr.: P. E. Elam (Sen. July 2). May: A. M. Posgate (Sen. Sept. 29), J. D. Twidale (Sen. Nov. 26), G. H. Campling (Sen. Dec. 10), W. G. T. Morgan (Sen. Jan. 2), George Bullock (Sen. Mar. 5), A. S. E. Dale (Sen. Mar. 31), A. H. Dowse (Sen. Mar. 31), L. A. Simmons (Sen. Sept. 22), D. R. Byfield (Sen. Apr. 1). Ldg. Acm.: Apr.: John McFarlane (Sen. Mar. 2). May: H. A. Coates (Sen. Dec. 5), Edmund Saville (Sen. Dec. 31), E. G. Stapel, E. W. Perrin (Sen. Jan. 2), A. J. E. Williams (Sen. Jan. 27), Leonard Hawkins (Sen. Feb. 3), Arthur Phillips (Sen. Mar. 18). L. E. Brown (Sen. July 28), G. B. Reynolds (Sen. Dec. 1), A. K. Halsey (Sen. Dec. 6), G. H. Dury (Sen. Mar. 6). Acm. 1st Cl.: Apr.: R. H. J. Brailsford (Sen. Mar. 2). May: G. W. Strang (Sen. Feb. 2), S. H. Pyke (Sen. Feb. 2). T. A. Reading (Sen. Feb. 2), F. W. Andreoli (Sen. Dec. 11), W. H. J. Frost (Sen. Mar. 31), J. M. W. Johnston (Sen. Apr. 2). Acm. 2nd Cl.: Oct.: I. H. Parke (Sen. Aug. 13), E. J. Gardner (Sen. Aug. 13), J. C. F. Thompson (Sen. July 30). Nov.: H. P. Kay (Sen. Oct. 14). Mar.: M. S. Hall (Sen. Feb. 20). May: W. L. V. Caldwell (Sen. Dec. 13), D. D. Browning (Sen. Jan. 28), E. G. H. Huddlestone (Sen. Jan. 28), J. H. Rigg (Sen. Feb. 16), E. J. Everdell (Sen. Mar. 13), M. F. Perkins (Sen. Mar. 16), R. E. Brill (Sen. Mar. 30), L. G. Gardner (Sen. Mar. 30), M. I. Davies (Sen. Apr. 13).

A. S. Fletcher is granted an hon. commn. as Wg. Cdr. May 7.

Flg. Offs. (prob.) confmd. in appts.:—Jan.: C. H. Webb, M.C., B. B. Wicksteed. Feb.: C. C. Davies, W. Francis, F. C. Chichester, M. E. L. Mallowan, J. G. Paterson, M.V.O., D. A. C. Dewdney.

Flt. Lt. (prob.) H. A. Meredith, M.B.E., is confmd. in appt. Jan.

Plt. Off. (prob.) J. McLaren confmd. in appt. and to be Flg. Off. (war subs.). May.

Plt. Off. (prob.) confmd. in appts. and to be Flg. Offs. (war subs.):—Nov.: M. A. A. Kirkpatrick, C. V. Nyren. Dec.: W. E. Myhill. Jan.: D. Munro, A. L. Jones, D. Wilkie (Sen. Dec. 23), H. G. Litchfield (Sen. Dec. 23), F. A. Thompson, C. B. Wright, A. Ivimey, N. H. Wooding, J. A. Stripe, T. C. Moore, P. Roger, C. S. Hill, H. D. Lyon, D. R. Lorimer-Thomas. Feb.: F. W. Blank, C. G. Graham, R. J. Le Grand, J. H. Bairstow, C. E. Dell, E. R. Bishop, L. L. Aslin, R. Leaning, H. M. Siewert, J. M. Billane, A. J. Silver, E. K. Rayner, H. N. Ries, W. Goodyear, A. T. Richardson, B. P. J. Feeny H. Greenwood, W. J. Massam, A. N. Simmons (Sen. Jan. 30), P. H. Mayne, R. H. F. Butcher (Sen. Nov. 11), W. V. Noble, J. A. Carney-Smith, J. H. Gorman, H. G. R. March, C. L. Rubens, E. J. St. L. Strachey. Mar.: E. W. O. Martin, R. M. Marsh, E. C. Pittam, D.C.M. (Sen. Feb. 4), H. N. C. Smith. Apr.: W. V. Cardew. May: D. G. West, J. Jenny, H. J. Longinotto.

Plt. Off. (prob.) D. F. Woods is confmd. in appt., Jan., and to be Flg. Off. (war subs.) Jan. (Sen. Dec. 10.)

Plt. Off. (prob.) G. V. A. Seccombe-Hett confmd. in appt., Jan., and to be Flg. Off. (war subs.). Feb. (Sen. Dec. 23.)

Plt. Off. (prob.) R. H. Clover confmd. in appt., Jan., and to be Flg. Off. (war subs.). Feb. (Sen. Jan. 21.)

Plt. Off. (prob.) D. L. Sherborne confmd. in appt., Mar., and to be Flg. Off. (war subs.). Apr. (Sen. Mar. 8.)

Plt. Off. (prob.) J. W. Wilson confmd. in appt., Feb., and to be Flg. Off. (war subs.) Apr. (Sen. Mar. 31.)

Plt. Off. (prob.) G. East confmd. in appt., Mar., and to be Flg. Off. (war subs.). Apr. (Sen. Mar. 28.)

Flg. Offs. to be Flt. Lts. (temp.):—Mar.: W. Y. Craig, E. S. Adamson, J. C. Kilkenny.

Plt. Offs. (prob.) to be Flg. Offs. (on prob.) (war subs.):—Feb.: W. M. Hawes, W. G. Eason.

Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.):—July: H. R. Bartlett, F. T. Cleary, R. A. Fremlin, E. C. Gain, F. Hains, J. A. Henderson, H. V. Higby, R. T. Hood, G. F. Johnston, D. M. S. Matheson, C. D. Rath, F. D. Short, S. J. Smith, F. H. Southey, T. J. Thorp, N. M. Wilson, E. G. Wood. Aug.: G. S. Ainsworth, L. De V. Burford, H. R. Cameron-Waller, K. M. Canvin, J. B. Dowell, H. B. C. Evans, A. H. Greenham, C. B. Hansen, D. W. E. King, L. G. McDermott, N. MacDougal W. F. McEgan, J. P. Mardling, A. Maurer, A. W. Middleditch, T. Mottram, J. M. Nash, W. W. Prentice, R. C. Pybus, A. L. Roe, H. L. Storey, G. D. Thompson, R. P. E. Webster, A. S. Norris, J. L. Phillips. May: F. W. Turner (Sen. May 3). June: H. G. E. Stening (Sen. May 9), J. D. D. Watt (Sen. Apr. 12), F. Walker (Sen. Jan. 25), T. C. Thomas (Sen. Apr. 3), H. H. Houghton (Sen. Apr. 7), F. R. Preece, H. Walker, W. G. Tanner (Sen. May 11), R. Hadwin, A. R. Jackson, M. F. Perrins, R. E. Saunders, W. T. Savage, P. T. Saunders (Sen. May 12).

Plt. Off. (prob.) T. C. L. Brown confmd. in appt. and to be Flg. Off. (war subs.). Apr. (Subs. for notifn. of May 19.)

Act. Plt. Off. (prob.) B. Williams to be Plt. Off. (prob.). Dec. (Sen. Oct. 7.) (Subs. for notifn. of Dec. 23.)

Flg. Off. A. P. Dyke relinquishes the rank of Flg. Off. at his own request and is transf. to the Gen. Duties Br. in the rank of Plt. Off. Dec. 21.

Plt. Offs. (prob.) to be transf. to the Tech. Br.:—Mar.: E. T. R. Cook. Apr.: S. C. Burch.

Flg. Off. H. E. Jones is transf. to the Legal Br. and granted the rank of Flt. Lt. Mar.

Plt. Offs. relinquish their commns. on appt. to commns. in the R.A.A.F. June 30: J. Grainger, E. H. Goodger, J. P. Gloster, W. Grandison, H. V. Davies, W. A. Fraser, C. H. Keon-Cohen, E. R. Henning, I. Linden-Romer, F. O'Sullivan, K. B. Ready, G. S. C. Williams.

To relinquish their commns. on account of ill-health and retain their ranks:—May 28: Flg. Off. L. Courtier-Dutton, Plt. Off. R. T. Torrens.

To relinquish their commns. on account of ill-health:—May 28: Plt. Off. L. R. S. Williams, Plt. Off. G. Taylor, Plt. Off. (prob.) G. R. Holland.

Act. Plt. Off. (prob.) G. H. Johnson-Taylor, June.

Flt. Lt. S. S. Hayne, D.S.O., resigns his commn. and retains the rank of Sqn. Ldr., May 29.

Flg. Off. A. E. Fournier resigns his commn. and retains the rank of Flt. Lt., May 29.

Flg. Off. T. B. Olive, M.C., resigns his commn. and retains his rank, May 24.

Flg. Off. C. W. Mallinson resigns his commn., May 17.

The commns. of the folg. Plt. Offs. (prob.) are terminated:—May: A. G. Hargreave, J. Low, D. C. M. Oliver, S. F. Raymond.

The notifn. of June 13 concern. Wt. Off. W. F. B. Elwen should have appeared under the heading of R.A.F.V.R. and not R.A.F.

The notifn. of Apr. 7 concern. Act. Plt. Off. E. M. Woodward is cancelled.

The notifn. of May 19 concern. Act. Plt. Off. D. H. M. Gould is cancelled.

AMENDMENTS.—In notifn. of Feb. 24, for L. A. G. Morris read L. A. G. Morriss.

In notifn. of May 5, for R. A. Alton read R. A. Altson.

In the notifn. of Feb. 24 concern. Plt. Off. J. R. Ashwell-Cooke, for 1941 read 1942.

TRAINING BRANCH.—To resign their commns.:—Act. Plt. Offs.:—May: G. J. Harter, W. N. Herd, G. E. C. Quartermaine. Act. Plt. Off. (prob.):—H. E. Light.

AMENDMENT.—In notifns. of May 23 concern. A. W. Atkinson and V. B. Coster, for Apr. read Mar.

In notifn. of June 6 concern. J. C. Cooper, for Apr. read Mar.

In notifn. of June 13 concern. D. M. Lindsay, for Mar. read Feb.

In notifn. of Jan. 27, for A. Macpherson-Rait read A. Macpherson-Rait, M.B.E.

Officers of the Training Branch are not required to serve an initial period on probation, and notifications regarding the commissioning of such officers are amended accordingly.

EQUIPMENT BRANCH.—Plt. Off. (prob.) P. B. L. Falk confmd. in appt., Jan., and to be Flg. Off. (war subs.), Mar.

Plt. Off. (prob.) F. J. West confmd. in appt., Jan., and to be Flg. Off. (war subs.), Apr.

Plt. Off. (prob.) D. W. Burgess confmd. in appt., Feb., and to be Flg. Off. (war subs.), May.

Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.):—Oct.: H. M. Hodson. Mar.: D. K. S. Wallace. Apr.: G. E. W. Cracknell, J. F. Robertson, L. J. Tyler, N. E. Garfield, C. F. Carreck, A. Maclean, A. E. Buxton, H. L. Brown, A. Andrews, H. H. Shaddick, G. Jeffrey. May: R. H. Turner, R. D. Carter, E. H. Lanser, R. J. Bowdrey, E. W. Rumfitt, E. W. Isard, C. Sharp, R. E. Allwood, T. J. F. Staines, R. T. Edwards, J. Levi, F. P. T. Macdonald, J. T. Maxwell, E. J. Douglas, C. H. H. Phipps-Hunt.

Act. Plt. Off. J. G. Baddeley relinquishes his commn. on appt. to a commn. in the R.A.A.F., June 30.

Plt. Off. (prob.) R. W. Newby relinquishes his commn. on account of ill-health, June 2.

The commns. of the folg. Act. Plt. Offs. (prob.) are terminated:—May: E. C. Parsons, R. B. Brock.

ACCOUNTANT BRANCH.—Plt. Off. (prob.) E. Barnett confmd. in appt., Feb., and to be Flg. Off. (war subs.), Apr.

Plt. Off. (prob.) B. A. Draper confmd. in appt., Mar., and to be Flg. Off. (war subs.), May.

Plt. Offs. (prob.) confmd. in appts., Mar., and to be Flg. Offs. (war subs.), May:—H. E. M. Forman, R. A. J. Murison (sen. Apr. 16).

Flg. Off. E. C. White to be Flt. Lt. (temp.), Mar.

Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.):—Feb.: H. G. Brain, E. J. Corke, E. A. C. Harris, W. H. Pickard, M. L. R. Regan, R. F. L. Smith, E. E. Watteau, S. K. Williams, F. L. Wright, T. J. Matthews. Apr.: R. H. Osborne, R. S. Wilson, F. G. O'Hanlow, G. N. Hardy, W. L. Cruickshank, H. C. Sandy.

MEDICAL BRANCH.—To be Flt. Lts. (emergency):—Apr.: M. C. G. Israels, M.D., Ch.B., M.R.C.P. May: Thomas Parkinson, M.D., M.R.C.P., M.R.C.S.; M. W. Robinson, M.R.C.S., L.R.C.P., D.P.M.; R. C. Walch, M.R.C.S., L.R.C.P., D.A.

To be Flg. Offs. (emergency):—May: G. H. Ellidge, M.B., Ch.B., D.R.C.O.G.; G. W. Forrest, M.B., Ch.B.; P. A. S. Hargrove, M.R.C.S., L.R.C.P.; R. F. Matthews, M.R.C.S., L.R.C.P.; D. S. Munsell, M.B., Ch.B.; J. J. McNair, M.B., Ch.B.; J. G. Napier, M.B., Ch.B.; M. G. Pearson, M.B., Ch.B.; H. G. Wolskel, M.R.C.S., L.R.C.P., D.R.C.O.G.

Flg. Offs. to be Flt. Lts. (war subs.):—Jan.: A. M. F. Batty, M.R.C.S., L.R.C.P. Mar.: R. W. S. Marshall, M.B., B.Ch. Apr.: E. L. Graff, M.S., B.Chir., M.R.C.S., L.R.C.P. May: R. W. G. Grindlay, M.B., Ch.B.; W. N. Crow, M.B., Ch.B.; W. Harris, M.R.C.S., L.R.C.P.

Flt. Lt. G. E. Hesketh, M.D., Ch.B., M.R.C.S., L.R.C.P., resigns his commn., June 1.

AMENDMENTS.—In notifn. of May 5 concern. the list of officers commencing with G. S. Andrews and ending with A. G. Waters, for April, 1941, read Apr., 1942.

In notifn. of May 12, for Q. Buchan read A. Buchan.

DENTAL BRANCH.—To be Flg. Offs. (emergency):—May: Maxwell Barber, L.D.S.; G. H. Leatherman, L.D.S.; R. S. Rimmer, L.D.S.; R. H. Robertson, L.D.S.; I. C. L. Wren, L.D.S.

Flg. Offs. to be Flt. Lts. (war subs.):—I. W. Ross, L.D.S., Dec. K. S. Bacon, L.D.S., Mar. H. S. R. Sarson, H.D.D., May.

CHAPLAINS BRANCH.—To be Chaplains (emergency) with the relative rank of Sqn. Ldr.:—Apr.: The Rev. D. R. Green, B.A., The Rev. W. T. Boyd, The Rev. T. L. Cox, The Rev. Daniel Nicholas. May: The Rev. Trefor Williams, B.A., The Rev. K. J. Holt, B.D.

AUXILIARY AIR FORCE

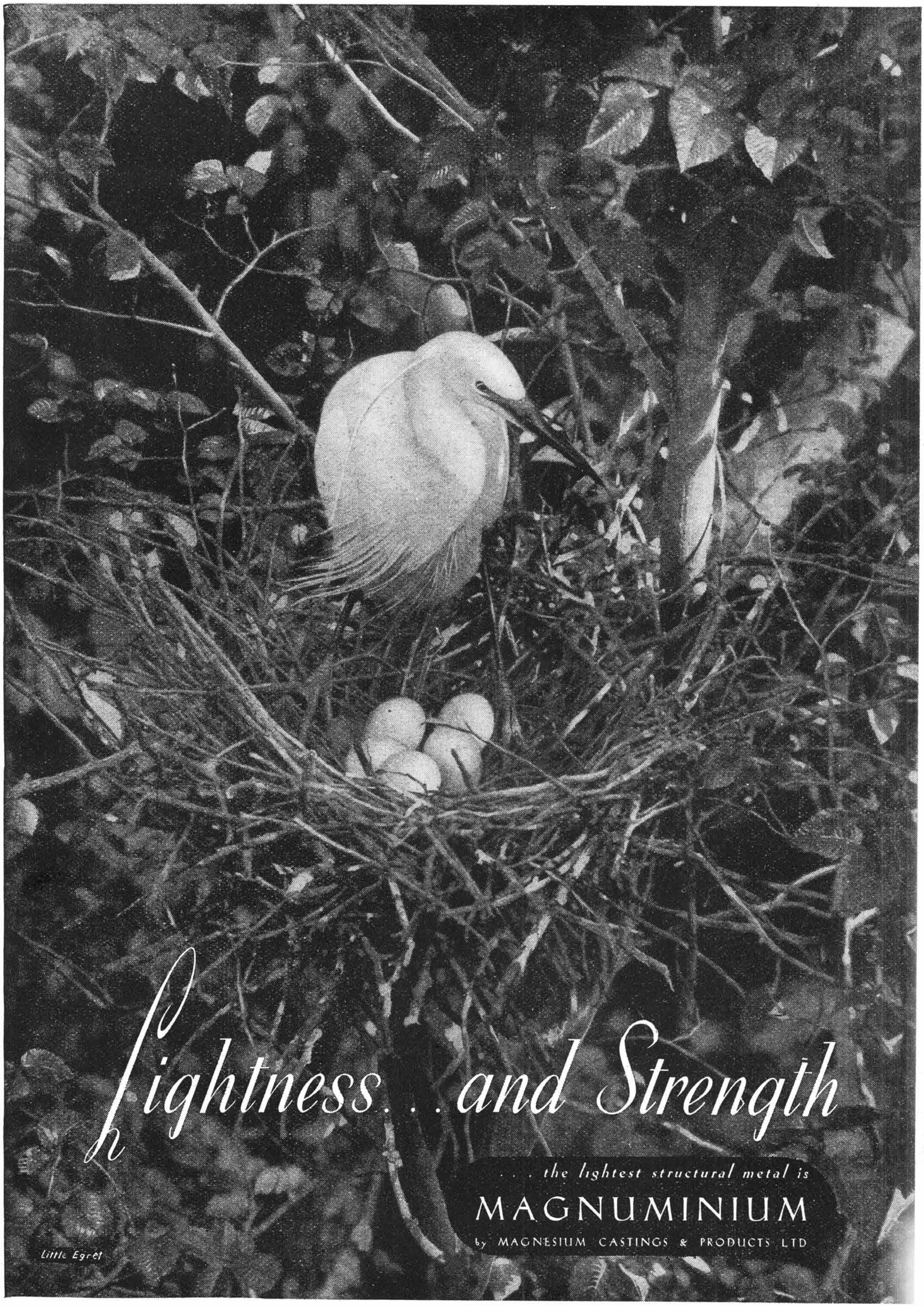
GENERAL DUTIES BRANCH.—No. 611 Squadron:—Sqn. Ldr. G. L. Pilkington is appointed hon. Air Cdre., June 9.

BALLOON BRANCH.—Flt. Lt. W. S. Pattinson resigns his commn. and retains his rank, May 26.

ADMINISTRATIVE AND SPECIAL DUTIES BRANCH.—Flg. Off. A. Wallace to be Flt. Lt. (temp.), Mar.

AMENDMENT.—In notifns. of Oct. 14 and Dec. 30 concern. F. T. R. Kempster, for Flt. Lt. read Sqn. Ldr.

(The rest of the appointments under this date will be published next week.)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Putting Things Together Again

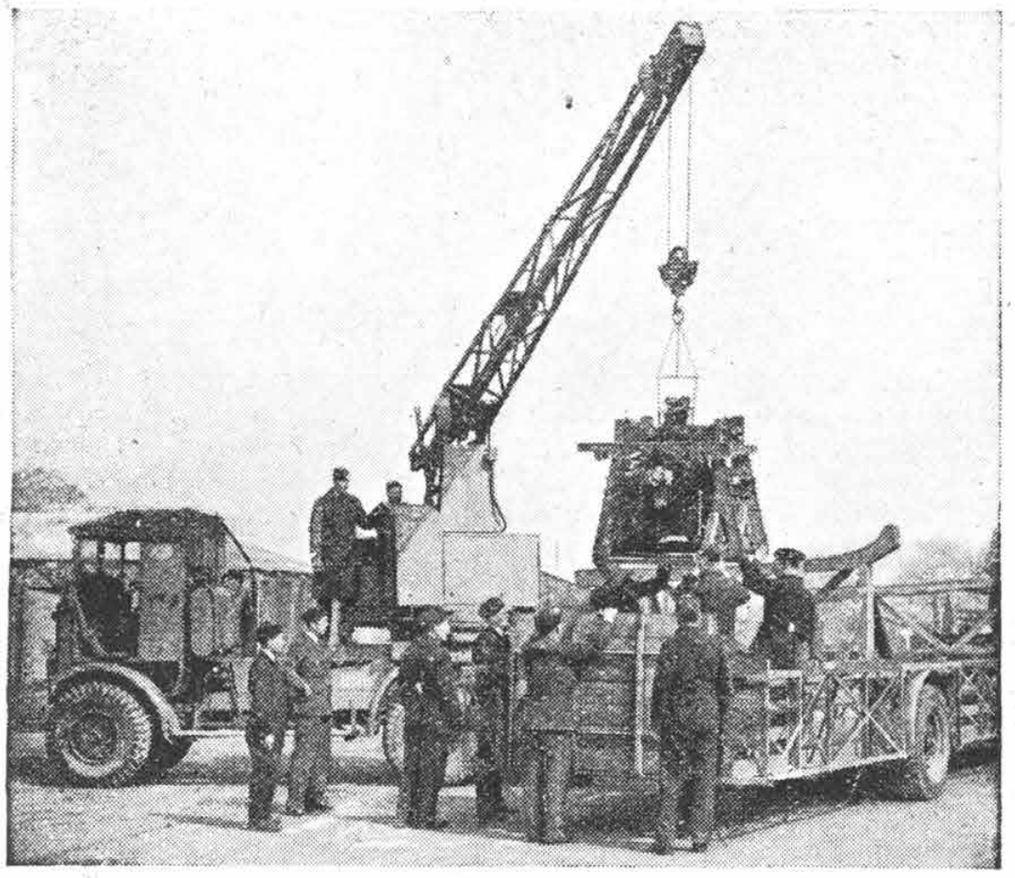
IN THE PAST little limelight has been given to the work of the R.A.F. Salvage Units, those sections of the Royal Air Force that, in effect, give the Service new aeroplanes for old. Throughout the War, and particularly since the Battle of Britain, they have been doing invaluable work in picking up pieces of crashed aircraft, putting them together and enabling them to take the air again in one guise or another. Following the somewhat mysterious rule governing such things, aeroplanes if they crash have an unhappy knack of doing so in extraordinarily remote or awkward places, but all over the country stretches a network of salvage establishments and no matter how isolated the spot where the crash takes place it is within the bounds of some unit's area. That unit must take the responsibility for the collection of the machine and must act with all possible speed so that no time is wasted in returning the repaired machine to its station or sending salvaged components to replenisn stocks in store depots.

Civilian, Army or R.A.F. casualty services generally lose no time in going to the assistance of any personnel who may need attention. Meanwhile the nearest R.A.F. Station is responsible for examining the crashed machine and for sending a casualty signal which is speedily transmitted to the appropriate Salvage Unit for the area. An engineer officer is detailed to inspect the damage and he decides the aeroplane's ultimate fate. It may be suitable only for reducing to spares and scrap metal, or it may be repairable either in a workshop or where it rests.

Crash parties usually consist of fitters (airframe), fitters (engine), flight mechanics, sheet metal workers and carpenters in the charge of an N.C.O. salvage specialist. Equipment to tackle any make or type of aeroplane is standing ready at the depot so that the party can go into immediate action. They pick up the appropriate tool kits, board a transport vehicle and go to the site of the crash. Wide use is made of a simple type of gantry capable of lifting two tons and adequate for loading the smaller types. Larger types normally need powerful mobile cranes. Not infrequently the transport vehicle has to be left at a point some distance from the scene of the crash, and the party completes the journey on foot. If an R.A.F. Station is near the scene of the crash the men will be accommodated there for the time being; otherwise, civilian billets are arranged in the neighbourhood.

On one occasion an aeroplane crashed on a peak in the North of England. The mountain side was covered with snow and ice and leaving out the question of salvage the ascent and descent would have tested the toughest climber. In these circumstances, the rescued components had to be carried down one by one, and the job proved long as well as arduous. Another time, a heavy bomber made an awkward landing on wild moorland high in the Welsh hills. A survey showed that by the use of sleds some parts could be towed to a track if only motive power could be found. The local War Agricultural Executive Committee lent a crawler-type tractor, but before the job was complete this machine became bogged and the crash party had to engage in drainage work before it could continue salvage operations.

Members of crash parties are familiar with all the machines with which they are likely to deal. They can thus handle them without adding to the damage already done. Whether the machine has to be broken up, sent for repair or repaired on the spot has already been decided, and on arrival the crash party know precisely what action to take. If it is not a matter of repairs on the site, they dismantle the aeroplane by the approved methods, removing all Service items of equipment for return to the Salvage Unit's depot.



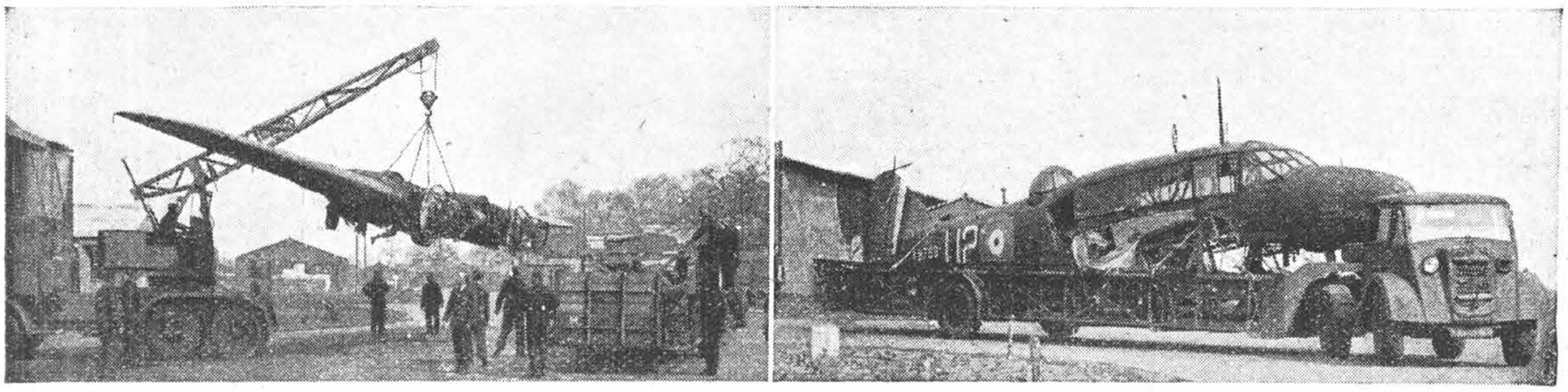
TO RISE AGAIN.—The Armstrong Siddeley Cheetah motor of a crashed Avro Anson, now mounted on a stand and being lowered on to a low-loader trailer by a mobile crane in readiness for transport to a repair depot.

If the aeroplane is being returned to civilian contractors or the manufacturers for repair, notification will have been sent to those concerned and similar information will have been forwarded to the unit to which the machine belonged. At the salvage depot, further vehicles are provided with trestles and stands of the correct type on which to load the fuselage and other parts of the machine. For most salvage work 60-ft. articulated vehicles are used. Some are of normal platform height, but low-loaders are employed extensively. The latter are particularly valuable in keeping down the over-all height of big loads. Ordinary lorries, short-wheelbase, high- and low-loaders, are also used.

With the help of gantries or mobile cranes the aircraft for repair will be carefully loaded on to these vehicles. Where exceptionally high or wide loads have to be transported, arrangements are made with civil and military police for a route which avoids low bridges or other obstructions. On such occasions the transport is usually escorted by a motor-cyclist from the Corps of Military Police who is responsible for warning other traffic on the road.

On arrival at the works the aeroplane is inspected by the A.I.D. and a list made of the necessary repairs. When an aeroplane goes to the contractor's or other repair depôt, the log book giving its history is sent along so that the repairs made to it may also be entered. When the work is finished the A.I.D. inspects it, and if no flaws or omissions are found, authority is issued for the machine's return to service.

Where the aeroplane is damaged beyond repair the wreckage is taken to the Salvage Unit's depot, there to be broken up into components and spares or reduced to scrap. Serviceable items are carefully removed and recorded and they are put into stores, but the scrap is forwarded to a metal recovery depot at which the bits and pieces are divided up into their respective groups. Nothing is useless to the Salvage Units and they retrieve every fragment of every crash they can reach which promises to give further service in some form or other. When they are not rescuing damaged aeroplanes they fill their spare time by doing maintenance work on the aeroplanes of operational squadrons or training schools. They are never idle.



UP AND AWAY.—(Left) The wings of a crashed Avro Anson, with engine mountings intact, being loaded on to a low-loader trailer, on which the motors are already in position for transport. (Right) The Anson fuselage is carried away to the repair depot on a second low-loader.

AIR TRANSPORT

Air Lines in the U.S.A.

CONTRARY to the reports of the past eight weeks, the air lines of the U.S.A. have not been " taken over " by the U.S. Army in the literal meaning of those words. Instead, the whole of the commercial air transport fleet of the U.S.A. has been placed on a war basis and is to be divided and used in three separate ways.

These are:—About one-third of the fleet is to be transferred to the U.S. Army Air Forces; approximately 70 machines are to be converted by the air lines for freight carrying and are to be operated by the air lines under contract to the Air Service Command, and the remaining 165 aeroplanes will continue to be owned and operated by the air lines but will be considered as always available for emergency military missions.

All routes and services not considered essential to the war programme will be stopped and all air travel will be on a strict priority basis. The official announcement stated that all persons who could travel by train were to do so except in an emergency and that because an individual was a member of the Armed Forces or was engaged in war work would not, in itself, entitle him to use air transport.

According to " American Aviation " of June 1, the new order has reduced the daily aeroplane miles of the scheduled air services by 45 per cent. The suspended services are all short and local, and the main routes are operating fewer schedules. One of the first results of the changes on the air services was announced by Eastern Air Lines, which cancelled 21 " merry-go-round " services between New York and Washington, reducing its schedules to eight round trips daily, four to Miami and four to Atlanta. Two of the latter continue on to Brownsville and San Antonio.

All luxury features are being eliminated from the air line equipment to increase the payload. Meals are no longer served in the air; only light refreshments. The sleeper services at night have been suspended and the Douglas DST sleeper aeroplanes used on these services are all being converted for freight carrying. Priority passengers have preference over payload, and freight takes precedence over mail.

Again, according to " American Aviation," a suggestion has been made that smaller aeroplanes should be used for carrying air mail on the shorter routes and the Government is said to favour the idea.

The smaller air line companies are said to have been left in some cases with only one or two aeroplanes, but each air line can still run at least a skeleton service.

Of the 165 aeroplanes left to the air lines all except 10 are Douglas DC-3s. The ten are Lockheeds. The companies have been warned that they may have to release more equipment.

American Military Transport

A NEW ORGANISATION has been set up by the U.S. Army to provide air transport for its military operations throughout the World. The Ferry Command has been consolidated with Air Transport Operations and Brigadier-General H. L. George, O.C., Ferry Command, now commands the new organisation.

Brig.-General George is reported to have said that commercial air lines, including Pan American Airways, which is already at the disposal of the U.S. Army, will be used wherever practicable, but that the military transport system will operate wherever it is needed for military purposes.

Many air line pilots and crews have joined the Ferry Command and the Air Service Command, and trained air line personnel is expected to be used for many Army transport operations.

The Crew of the Bristol

THE CREW of the Boeing 314-A flying-boat of British Airways, the Bristol, in which Mr. Churchill flew to the U.S.A. and back, was:—Capn. J. C. Kelly Rogers, O.B.E., in command; Capns. A. C. Loraine and J. S. Shakespeare; First Officer R. Needham; Navigating Officer H. H. Jauncey; Engineer Officers R. N. R. Godfrey and D. H. Donaldson; Radio Officers L. E. Mitchell and D. T. Roberts; Purser R. T. Gloag; and Stewards A. J. Carter and V. E. Mills. On the return journey the Purser was H. F. Good and the Stewards were E. W. Smith and V. A. Partridge.

On the outward journey the Bristol was in the air for 27 hours, which is believed to be a duration record for a commercial flying-boat.

A Well-earned Honour

CAPTAIN DAVID BARCLAY, Chief Pilot of Scottish Airways, Ltd., was appointed an M.B.E. in His Majesty's Birthday Honours. This recognition of his services to British internal air transport, especially in Northern parts, will be welcomed by all who know Capn. Barclay, and everyone interested in the internal lines.

Capn. Barclay is an ex-R.A.F. officer who served for some time in Iraq and first began flying the air routes in Scotland in 1934, when he joined Mr. John Sword's company, Midland and Scottish Air Ferries. Later he joined Northern and Scottish Airways, which was formed late in 1934 and took over the routes formerly operated by Mr. Sword. Capn. Barclay was appointed Chief Pilot to Northern and Scottish Airways in October, 1935, and retained that position when the Company merged with Highland Airways in 1938 to form Scottish Airways, Ltd.

He has had no need to sing his own praises in Scotland. The whole land knew of the work he did in establishing the air ambulance service for dwellers in remote Scottish islands. Many isolated districts had reason to be thankful for his survey flights which preceded the preparation of new aerodromes and brought the newest form of transport to people who had seen little improvement in their communications for generations. The Scottish routes are as busy in war-time as ever they were and nave done much work for the Services. Capn. Barclay continues to fly the routes he knows so well—a modest and efficient figure in Scotland's latest revolution.

Increased Services to the Yukon

SIX SERVICES a week in each direction have been operated between Vancouver and Whitehorse, Yukon, since April 1 by Yukon Southern Air Transport, one of the C.P.R. Air Services. On May 11 the three services a week between Edmonton and Whitehorse were also increased to six.

Connections are made at Vancouver with the United Air Lines services to Seattle and at Edmonton with Trans-Canada Air Lines. The flying time from Vancouver to Whitehorse is eight hours and traffic between Canada, the U.S.A. and Alaska is increasing steadily. Yukon Southern has been informed by the Canadian Government that when Trans-Canada Air Lines begins operating to the Yukon later this year the present services must stop.

Renfrew Riches

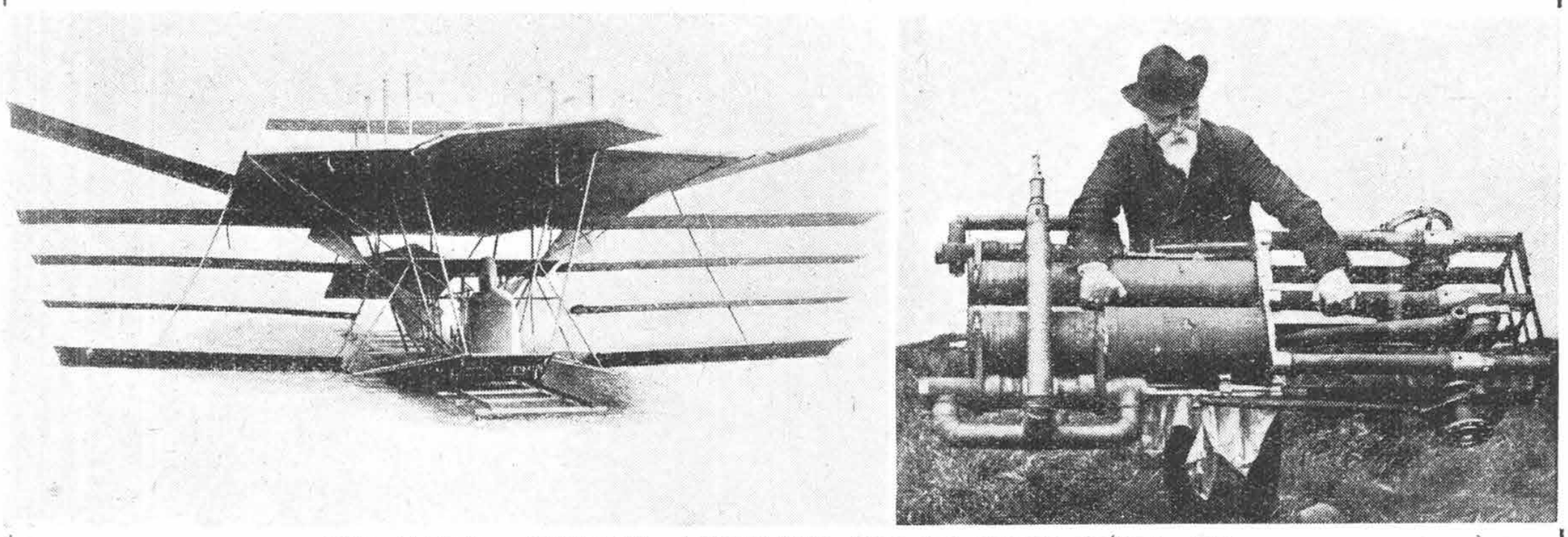
AT THE Fourteenth Ordinary General Meeting of the Scottish Flying Club, Ltd., on June 24, Mr. G. F. Luke, the Chairman, presented a report which will be envied by many another club.

The report is for the year ended Nov. 30, 1941, at which time the Establishment Fund stood at £18,977. More than £16,000 has been invested in Government stock and cash in hand amounts to £899. Mr. Luke said that the Club was in an extremely healthy condition and in a strong position to start again after the War.

Eighty per cent. of the members of the Club are in the Services, many with the R.A.F., and the names of 10 who have been killed on active service were read at the meeting.

This is the fourth and most satisfactory financial report to be received from the flying clubs, so far. The Norfolk and Norwich Aero Club reported early this year that it had more than £5,300 with which to resume operations after the War. The Leicestershire Aero Club reported £3,776 in hand, and the Newcastle-upon-Tyne Aero Club has £7,000 invested in Government securities as well as a useful cash balance in hand. The Scottish Flying Club's report is opulent.

SIDELIGHTS FROM THE PAST—XXX



THE MAXIM "CAPTIVE" AEROPLANE AND ITS STEAM BOILER—1894.

THE FIRST heavier-than-air machine to lift a human being off the ground was designed and built by Sir Hiram S. Maxim, whose success was the result of many years of careful study and experiment. Had a suitable motor been available for his tests his name might now stand in history where the names of the Wright Brothers stand.

He became interested in aeronautics in 1856 and spent some years studying the theory of airscrews and lifting surfaces. In 1872 he began drawings for a helicopter, but, in 1889, or thereabouts, he began to build an aeroplane of "orthodox" design—if such a term is permissible—after experimenting with airscrews and aerofoils. Realising that he knew nothing about controlling a machine in flight, he built his with the intention of obtaining information about the lift of surfaces and the efficiency of his power units in full-scale experiment and not for an attempt at free flight.

A steel rail track 1,800 ft. long was laid down for the machine to run on, and to prevent it from taking-off there was another safety rail on each side of and above the main track, under which four wheels fixed on outriggers were engaged, so holding the machine captive.

The Maxim aeroplane had a central plane 50 ft. wide with two small planes 27 ft. long attached to it on each side, giving a total span of 104 ft. Two more small planes were fixed underneath. There were fore and aft horizontal rudders, and altogether the machine had a total supporting area of 4,000 sq. ft. The framework was of metal tube.

Two compound steam engines, designed by Maxim to develop about 180 h.p. each at a steam pressure of 320 lb. per sq. in., drove two airscrews of 17 ft. 11 ins. diameter. The boiler, of the water-tube type, weighed about 1,000 lb. and the total weight with 600 lb. of water, benzolene fuel and three passengers was about 8,000 lb.—a loading of 2 lb. per sq. ft. The engines were mounted on a platform attached to the framework of the machine.

The first trial of the machine was made in 1894 with a steam pressure of 150 lb. per sq. in. None of the wheels left the track. A second trial, made with steam at 240 lb. pressure, resulted in the machine vibrating between the upper and lower tracks with practically no weight on the lower steel rails.

Preparations were made for a third trial and the machine was tied up to a dynamometer while the engines were run with steam pressure up to 310 lb. per sq. in. With this pressure a screw thrust of 2,100 lb. was indicated.

On July 31, 1894, the third trial was made with steam at 320 lb. per sq. in. Sir Hiram Maxim's own account of this momentous trial, from one of his own books, is:—"The machine was lifted clear of the lower rails and all of the top wheels were fully engaged on the upper track when about 600 ft. had been covered. The speed rapidly increased, and when 900 ft. had been covered, one of the rear axle-trees, which were of 2-in. steel tubing, doubled up and set the rear end of the machine completely free . . . . The rear end being set free, raised considerably above the track and swayed. At about 1,000 ft. the left forward wheel also got clear of the upper track, and shortly afterwards the right forward wheel tore up about 100 ft. of the upper track. Steam was at once shut off, and the machine sank directly to the earth, embedding the wheels in the soft turf without leaving any other marks—showing most conclusively that the machine was completely suspended in the air before it settled to the earth . . . . The total lifting effect upon the machine must have been at least 10,000 lb."

Thus ended the experiments with the first Maxim machine. In 1909 Maxim built another at the Gun Works, Crayford, which operated on a circular track in the grounds attached to the works, but this time he built a four-cylinder petrol motor which developed about 80 h.p.

The 1894 experiments with the first Maxim machine were made at Baldwyn's Park, near Dartford, Kent. Sir Hiram Maxim's book "My Life" states that the machine "under full pressure of steam would lift off the track after running about 300 ft. and in order to stop it I had an elaborate arrangement at the end of the track"

A delightful story is told by Sir Hiram of the visit of the Prince of Wales (later King George V) attended by Admiral Sir Edmund Commerell to see and "fly" in the machine. "The machine bounded forward (under full pressure) with very great rapidity. The Admiral became frightened and said 'Slow up!' The Prince retorted 'Let her go for all she's worth!' and I did."

This is believed to have been King George V's only "flight" in an aeroplane.

The photographs above show, left, the first Maxim aeroplane of 1894 on its rails; and right, Sir Hiram Maxim and the boiler for his compound steam engine.

SPORTING MEMORIES—XCVII

The Avro Commodore—1934.

THE FIRST Avro Commodore, G-ACNT, made its appearance at Heston on May 24,, 1934. It was the Avro Type 641 and was developed from the Tutor, but was intended for the private owner or for commercial operation

The Commodore was a luxuriously finished and upholstered four-five seat cabin biplane, finished and arranged like a saloon motorcar. The two front seats were adjustable and had dual control and the deep rear seat had room for two or three persons. It was powered by one 240 h.p. Armstrong Siddeley Lynx IVc motor and had a top speed of 130 m.p.h. In appearance the Commodore bore a marked resemblance to the American Waco.

At least one Avro Commodore is still flying.

AEROPLANES OF THE JAPANESE ARMY AND NAVY AIR FORCES—IX

THE NAKAJIMA NAVY S-97

(One 750 h.p. Nakajima motor)

TYPE.—Fighter.

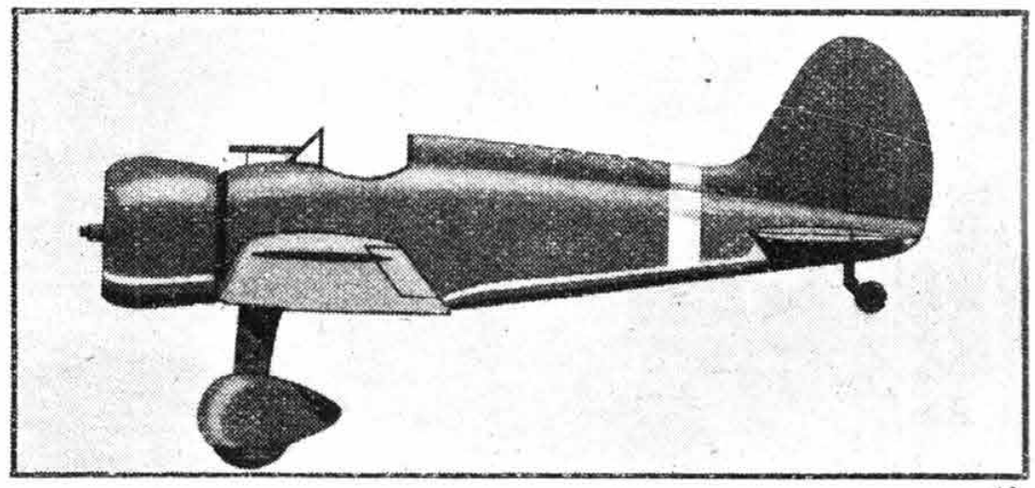
CREW.—One.

ARMAMENT.—Three fixed forward-firing machine-guns.

DIMENSIONS.—Span, 35 ft. 6 ins.; length, 25 ft. 7 ins.; height, 7 ft. 0 in.; Wing area, 160 sq. ft.

WEIGHT.—Loaded, 4,300 lb.

PERFORMANCE.—Max. speed, 270 m.p.h. at 15,000 ft.; range, 460 miles at 233 m.p.h.; service ceiling, 32,000 ft. Made by Nakajima Hikoki Kabushiki Kaisha (Nakajima Aircraft Co. Ltd.) at Ohta, Gumma-ken.



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THE NAKAJIMA NAVY SKT-97

(One 750 h.p. Nakajima motor)

TYPE.—Fighter reconnaissance floatplane.

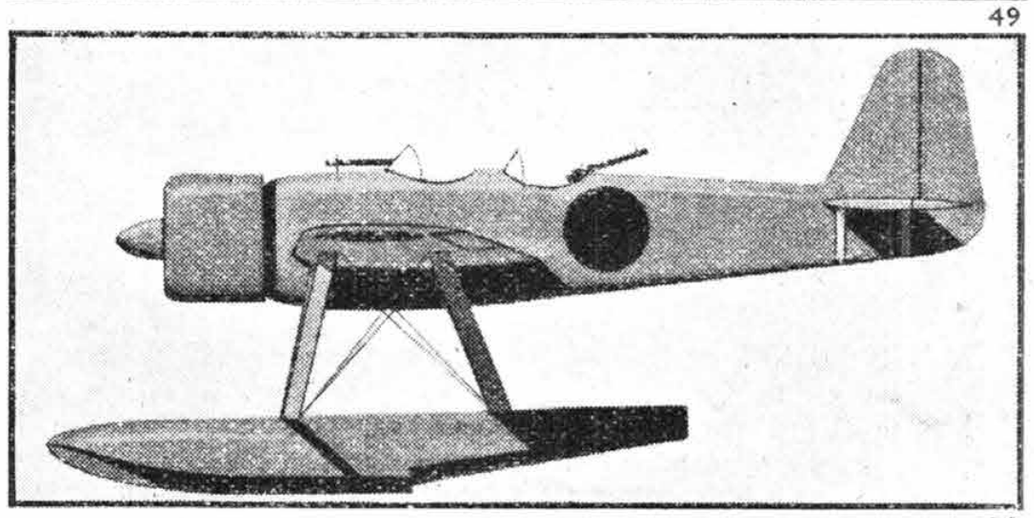
CREW.—Two.

ARMAMENT.—Two forward-firing and two rear machine-guns.

DIMENSIONS.—Span, 36 ft. 9½ ins.; length, 33 ft. 6 ins.; height, 11 ft. 5 ins.; wing area, 185 sq. ft.

WEIGHT.—Loaded. 5,300 lb.

PERFORMANCE.—Max. speed, 220 m.p.h. at 13,000 ft.; range, 325 miles at 190 m.p.h.; service ceiling, 27,000 ft. Made by Nakajima Hikoki Kabushiki Kaisha (Nakajima Aircraft Co. Ltd.) at Ohta, Gumma-ken.



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THE NAKAJIMA NAVY G-97-2

(One 700 h.p. Hikari motor)

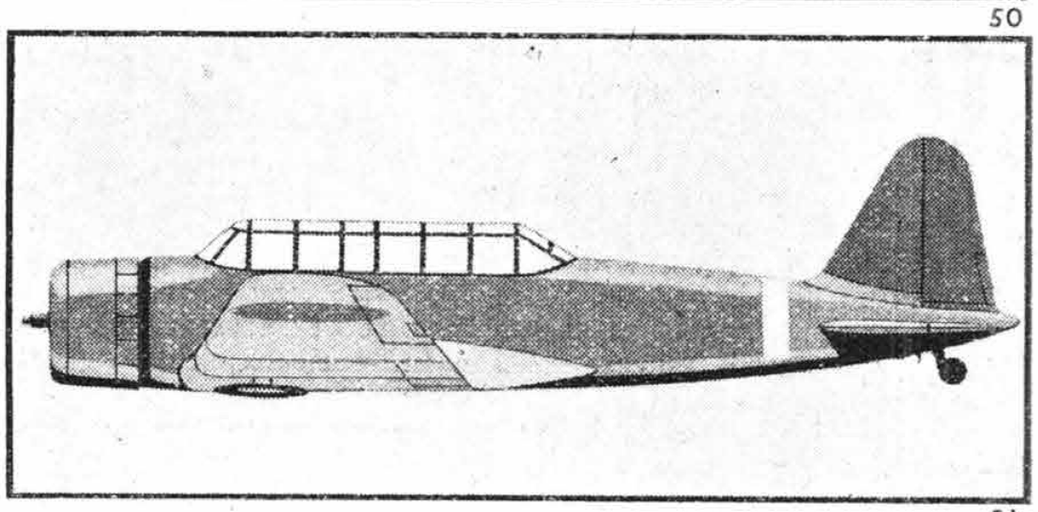
TYPE.—Torpedo-bomber.

CREW.—Two to three.

ARMAMENT.—Two fixed forward-firing machine-guns and one or two movable rear machine-guns.

DIMENSIONS.—Span, 51 ft. 2 ins.; length, 34 ft. 6 ins. No other details available for publication.

Made by Nakajima Hikoki Kabushiki Kaisha (Nakajima Aircraft Co. Ltd.) at Ohta, Gumma-ken, to the same specification as the Mitsubishi Navy G-97-1



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THE NAKAJIMA A.T.

(Two 460 h.p. Nakajima Kotobuki IIB motors)

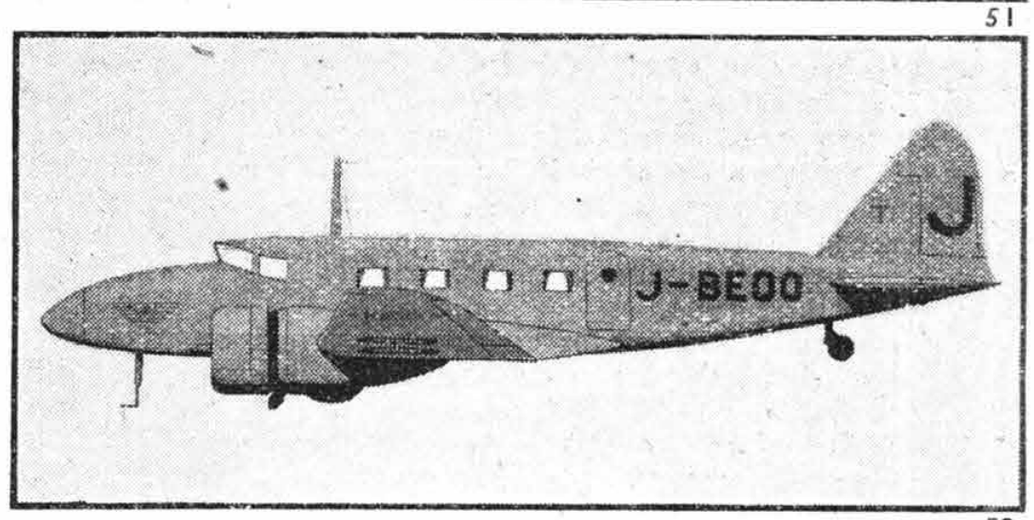
TYPE.—Civil transport.

CREW.—Two and eight passengers.

DIMENSIONS.—Span, 65 ft. 4 ins.; length, 50 ft. 0 in.; height, 13 ft. 7 ins.

WEIGHTS.—Empty, 7,656 lb.; loaded, 10,736 lb.

PERFORMANCE.—Max. speed, 230 m.p.h.; range, 1,520 miles at 217 m.p.h. Made by Nakajima Hikoki Kabushiki Kaisha (Nakajima Aircraft Co. Ltd.) at Ohta, Gumma-ken.



52

THE N.K.K. T.K.3

(Two 450 h.p. Nakajima Kotobuki III motors)

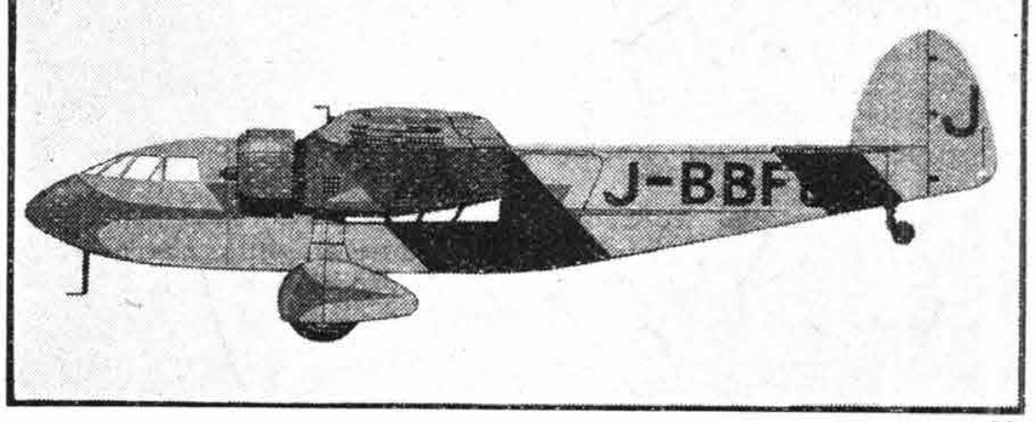
TYPE.—Civil transport.

CREW.—Three and eight passengers.

DIMENSIONS.—Span, 55 ft. 8½ ins.; length, 39 ft. 6 ins.; height, 10 ft. 0 in.

WEIGHTS.—Empty, 5,940 lb.; loaded, 9,020 lb.

PERFORMANCE.—Max. speed, 205 m.p.h.; range 527 miles at 174 m.p.h. Made by Nippon Kokyo Kogyo Kabushiki Kaisha (Japan Aviation Engineering Co. Ltd.) at Hiratsuka, Kanagawa Prefecture.



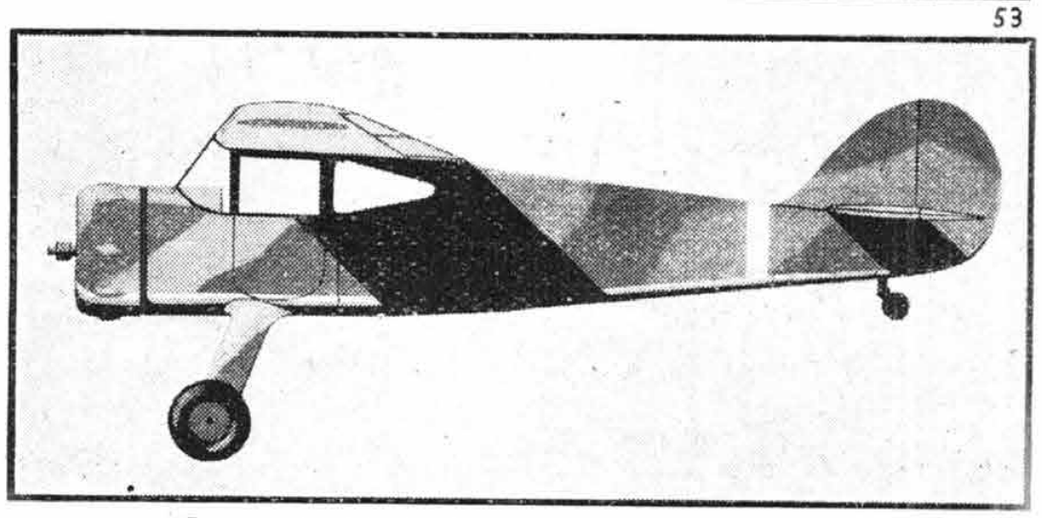
53

THE OSAKA ARMY RK-97

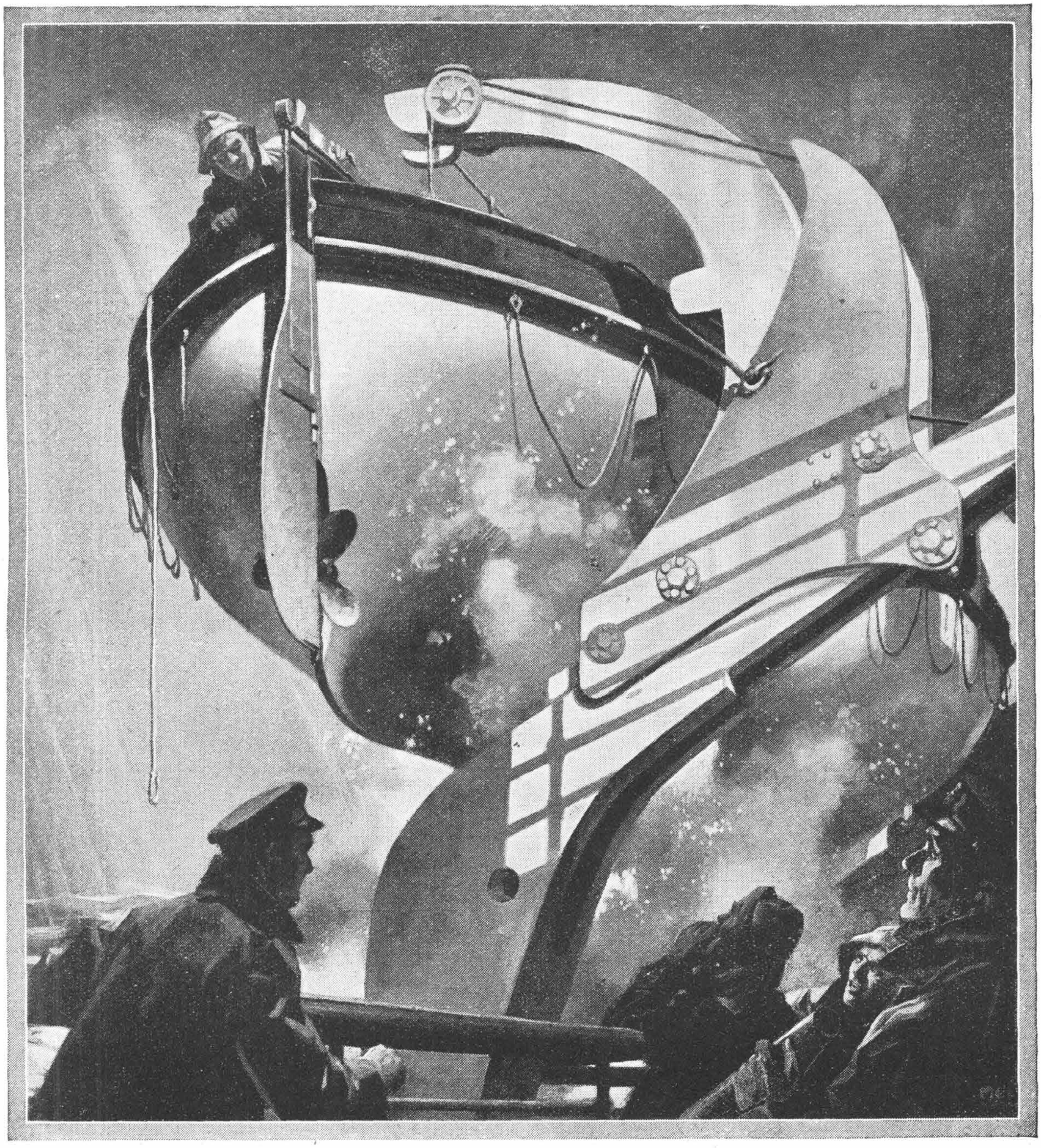
TYPE.—Army Co-operation.

CREW.—Probably three.

DIMENSIONS.—Span, 34 ft. 0 in.; length 25 ft. 9 ins.; height, 10 ft. 6 ins. No other details available for publication.



(Drawings by John H. Stroud. Copyright "The Aeroplane.") 54



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Before the war, considerable progress had been made in the use of aluminium in marine construction. Lifeboats, davits, superstructure and equipment were being produced from specially developed corrosion-resisting aluminium alloys notable for their lightness and great strength. The high strength-weight ratios of these alloys helped naval architects to solve the fundamental problem of reducing weight without sacrificing strength or safety. Research, which produced in aluminium alloys the properties necessary for such vital duty, has enabled the metal to meet the most stringent requirements for wartime uses. This work, now diverted to current applications, continues. Government contractors using aluminium are invited to discuss their problems with our Research and Development Department.

NORTHERN ALUMINIUM COMPANY, LIMITED • HEAD OFFICE: BANBURY, OXFORDSHIRE

FORTHCOMING EVENTS

July 12.—**Shirley.**—R.O.C.C. Branch 2 (Shirley).—Meeting at Shirley. 10.00 hrs.
July 12.—**Bishop's Stortford.**—R.O.C.C. Branch 21 (Bishop's Stortford).—Meeting at Heckerill Training College.—14.45 hrs.
July 12.—**Boroughbridge.**—R.O.C.C. Branch 25 (Boroughbridge).—Meeting at Crown Hotel.—10.15 hrs.
July 12.—**Hornchurch.**—R.O.C.C. Branch 40 (Orsett).—Meeting at Hornchurch.—15.00 hrs.
July 12.—**Backbarrow.**—R.O.C.C. Branch 83 (Furness).—Meeting at Seven Valley Central School.—14.30 hrs.
July 12.—**Richmond, Yorks.**—R.O.C.C. Branch 91 (Northallerton).—Meeting at Richmond, Yorks.—10.30 hrs.
July 12.—**Leven.**—R.O.C.C. Branch 140 (Leven).—Meeting at Earl Haig Club.—16.30 hrs.
July 12.—**Hatfield.**—S.C. No. 4 (Hatfield).—Meeting at Hatfield.—15.00 hrs.
July 12.—**Watford.**—S.C. No. 118 (Watford).—Meeting at Watford Public Library.—10.30 hrs.
July 13.—**Ealing.**—S.C. No. 111 (Ealing).—Meeting at Drayton Manor School, Drayton Bridge Road, Hanwell.—19.30 hrs.
July 15.—**Blackpool.**—S.C. No. 2 (Blackpool).—Meeting at Talbot Road Police Station.—19.15 hrs.
July 15.—**Newcastle.**—S.C. No. 272 (Tyneside).—Meeting at the Crows' Nest Hotel, Haymarket.—19.00 hrs.
July 16.—**East Ham.**—S.C. No. 99 (Barking).—Meeting at A.R.P. Training Centre, High Street.—19.00 hrs.
July 16.—**Doncaster.**—S.C. No. 106 (Doncaster).—Meeting at Trades Hall, North Bridge.—19.15 hrs.

New Appointments

MR. ANSON C. McKIM has been appointed Deputy U.K. Representative of the Canadian Department of Munitions and Supply, which, under the U.K. Representative, Mr. C. A. Banks, has for two years handled the supply of components not produced in Canada, technical data, drawings, and qualified personnel which have passed from this country to Canada. The services of Mr. McKim have been made available by Canadian Industries, Ltd., associated with Imperial Chemical Industries. He was formerly attached to the British Purchasing Commission and then to the Washington Office of the Department of Munitions and Supply.

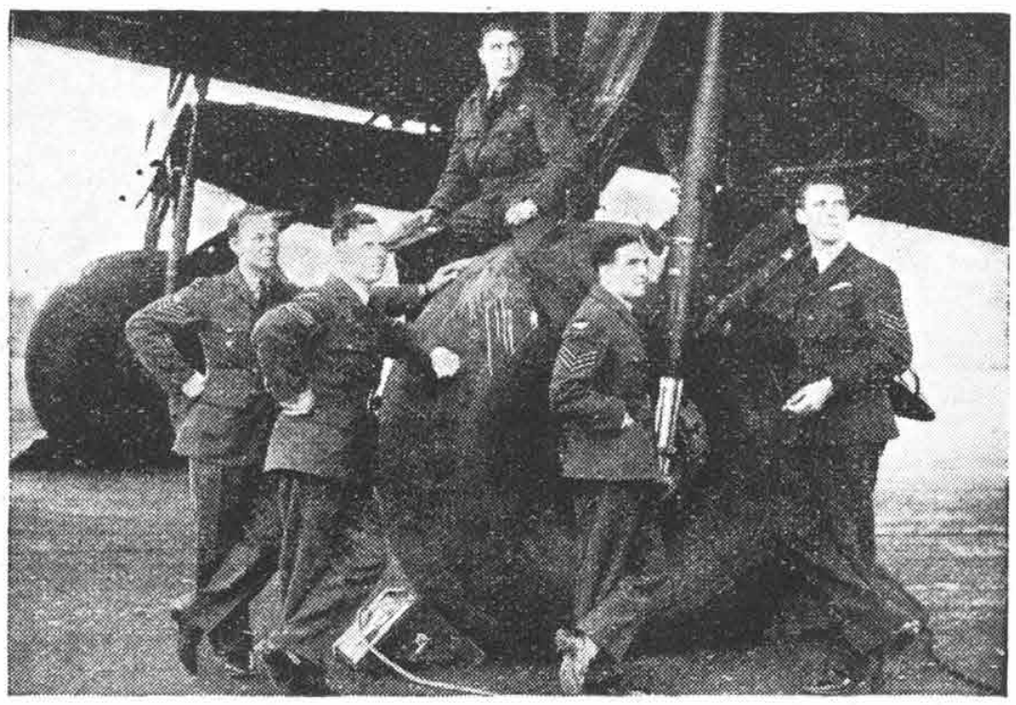
Company Notices

NEW COMPANIES

Kanga Models, Ltd.—Private co. Reg. June 27. Cap. £1,000 in 1,000 shares of £1. To acquire the business of a model aeroplane maker and retailer carried on by Mrs. Eileen M. J. McQueen at Colonnade Passage, New St., Birmingham. Permanent Dirs.: Mrs. Eileen M. J. McQueen, Alexander F. Dabell, Francis H. Pickering and Chas. Dabell. Solrs.: F. A. Greenwood and Co., 16, Temple St., Birmingham.

MORTGAGES AND CHARGES

Alpha-Zeeta (Engineers), Ltd., Feltham, Mdx.—Debenture, charged on the company's undertaking and property, including uncalled capital, dated June 4, 1942, to secure £350. Holder: Mrs. Gertie Bell, 34, Portsmouth Road, Kingston-on-Thames.



STIRLING CREW.—Five of the crew of the Short Stirling, which shot down three German fighters on the way back from the raid on Bremen on June 27. At the time of the combat one motor was out of action, radio and electrical equipment had been destroyed, the rear gunner killed and the radio operator wounded. Two two-motor fighters attacked over the Dutch frontier. One was shot down and the other driven off. Near the coast two Me 109s attacked. The front gunner, who was giving first aid to the radio operator, ran to his guns and opened fire while hanging half out of the turret and shot down one fighter, while the navigator held his legs to steady him. The other Messerschmitt was shot down by the midships gunner. The second starboard motor caught fire as the Stirling circled the home aerodrome, but the flames were put out before it landed. In the picture, from left to right, are Flt. Sergt. J. T. C. Waddicar (Midships Gunner) Sergt. A. O'Hara (Observer), Sergt. R. Watson, (2nd Wireless Operator/Air Gunner), Sergt. J. N. C. Prosser (Flt. Engineer) and Sergt. F. Griggs (Pilot). The 1st Wireless Operator/Air Gunner was Sergt. W. Wildey, and the Rear Gunner, Sergt. H. A. W. Sewell. A week later, a Vickers Armstrongs Wellington shot down another German night fighter while taking part in the fourth heavy raid to be made on Bremen by the R.A.F. in eight days.

PERSONAL NOTICES

BIRTHS

Barnett.—On June 25, at Scarborough, to Mary (*née* Morgan), wife of Ronald Barnett, R.A.F.V.R.—a son.
Bingham.—On June 24, at Fulmer, to Marjory (*née* Cawood), wife of Plt. Off. R. L. Bingham, R.A.F.V.R.—a son.
Bolton.—On June 25, at Leeds, to Jean (*née* Smith), wife of Plt. Off. F. Bolton, R.A.F.—a son.
Burdon-Cooper.—On June 27, at Stanmore, to Anna, wife of Sqdn. Ldr. R. H. Burdon-Cooper—a son.
Clarke.—On June 27, at East Sheen, to Barbara (*née* Ridley), wife of R. N. Clarke, R.A.F.V.R.—a daughter.
Cliff.—On June 30, at North Berwick, to Violet (*née* Supple), wife of Flt. Lt. Leslie Cliff, R.A.F.V.R.—a daughter.
Drummond.—On June 15, in Cairo, to Lala (*née* Drake-Brockman), wife of Air Marshal R. M. Drummond, C.B., R.A.F.—a daughter.
Fenn.—On June 29, at Norwich, to Dorothy, wife of Plt. Off. L. H. Fenn—a son.
Gordon.—On June 25, at Ulverston, to Mary, wife of Sqdn. Ldr. J. A. Gordon, R.A.F.—a son.
Hedgecoe.—On June 26, at Brookmans Park, to Sheila, wife of Flg. Off. Edward Hedgecoe—a daughter.
Hordern.—On June 23, at Bowden, Alberta, Canada to Vivien (*née* Chance), wife of Flt. Lt. P. C. Hordern, R.A.F.—a daughter.
Jack.—On June 28, at Eastbourne, to Margaret (*née* Field), wife of Flt Lt. A. H. Jack—a daughter.
James.—On June 29, at Northampton, to Monica (*née* Carter), wife of Flg. Off. D. C. James, R.A.F.V.R.—a son.
MacDougall.—On June 26, in London, to Ruth (*née* Jenkins), wife of Flg. Off. J. L. MacDougall, R.A.F.V.R.—a daughter.
Mallet.—On June 29, at Torquay, to Pamela (*née* Brown), wife of Flt. Lt. M. B. Mallet, R.A.F.—a son.
Manwaring.—On June 30, at Norwich, to Betty (*née* Rout), wife of Plt. Off. R. G. Manwaring, R.A.F.—a daughter.
Marcou.—On June 18, at Dundee, to Joyce (*née* Quarington), wife of Sqdn. Ldr. H. F. Marcou—a son.
Marlow.—On June 20, at Gwelo, S. Rhodesia, to Jean (*née* Anderson), wife of Wng. Cmdr. H. W. Marlow, A.F.C., R.A.F.—a daughter.
Marwick.—On June 30, at Farnham to Sheila (*née* Swayne), wife of Flg. Off. D. K. Marwick, R.A.F.V.R.—a son.
O'Neill-Roe.—On June 27, at Fulmer, to Nancy, wife of Lt. (A) E. J. O. O'Neill-Roe, R.N.—a son.
Raphael.—On June 24, at Alton, to Lorna, wife of Flt. Lt. W. G. Raphael, R.N.Z.A.F.—a son.
Smith-Rewse.—On June 30, at Beaconsfield, to Jean (*née* Daniell), wife of Wng. Cmdr. Brian Smith-Rewse, R.A.F.—a daughter.
Stone.—On June 28, at Limavady, N. Ireland, to Doris (*née* Montague Bell), wife of Grp. Capt. R. A. B. Stone, R.A.F.—a daughter.
Taylor.—On June 29, at Milton, to Paddy, wife of Sqdn. Ldr. B. A. Taylor, R.A.F.V.R.—a daughter.
Thomas.—On June 28, at Filton, to Honor (*née* Maddox), wife of Flt. Lt. R. B. Thomas, R.A.F.—a daughter.
Thompson.—On May 5, at Edinburgh, to Joan (*née* Booth), wife of Lt. (A) O. S. Thompson, R.N.V.R.—a daughter.
Watson.—On June 28, at Bristol, to Joan (*née* Worrall), wife of Flt. Lt. L. O. Watson—a daughter.
Wilson.—On June 29, at Edinburgh, to Aymee (*née* Robertson), wife of the late Sqdn. Ldr. Drummond Wilson, R.A.F. (killed on operations in Apl.)—a son.

FORTHCOMING MARRIAGES

Birkett—Alston.—The engagement is announced between Sqdn. Ldr. Dennis Birkett, R.A.F., eldest son of Mr. and Mrs. J. M. Birkett, of Teddington, and A/S/O Clarisse Kathleen Alston, W.A.A.F., only child of the late Capt. R. G. F. Alston and Mrs. Alston, of Wotton-under-Edge, Glos.
Henwood-Welsh.—The engagement is announced between Sub-Lt. P. G. Henwood, R.N.V.R.(S.A.), only son of Mr. and Mrs. Norman Henwood, of Durban, to S/O Priscilla M. Welsh, W.A.A.F., only daughter of Capt. and Mrs. S. F. A. Welsh, of Buckingham.
Levy—Hantwurcel.—The engagement is announced between Stanley Levy, R.A.F., youngest son of the late Mr. S. Levy and Mrs. Levy, of Mildenhall Road, N.E., and Ninetta Hantwurcel, elder daughter of Mr. and Mrs. Hantwurcel, of London.
Pearson—Bennett.—The engagement is announced between Lt. (A) R. B. Pearson, R.N., F.A.A., eldest son of Mr. and Mrs. V. B. Pearson, of Marske-by-the-Sea, Yorks, and Hilary Diana Bennett, W.R.N.S., youngest daughter of Mr. and Mrs. H. Bennett, of Fawley, Hants.
Price—Kitching.—The engagement is announced between Sgt. G. P. Price, R.A.F. (prisoner of war), elder son of Mr. G. P. Price, of Horsham, and the late Mrs Price, and Patricia, youngest daughter of the late Mr. and Mrs. Arthur Kitching, of Pickering.
Russell Ridgeway—Scott-Paine.—The engagement is announced between Plt. Off. Edward Russell Ridgeway, R.A.F.V.R., son of Mr. and Mrs. Russell Ridgeway, of Bulawayo, Rhodesia, and Elizabeth Scott-Paine, second daughter of Mrs. Scott-Paine, of Bulawayo, and Mr. H. Scott-Paine, of Hythe, Hampshire.
Sayer—Bros.—The engagement is announced, and the marriage will take place shortly, between Sub-Lt. (A) J. D. Sayer, R.N.V.R., second son of Mr. and Mrs. G. R. Sayer, of Wimbledon (late of Hong-Kong), and Louise Mary Bros, only daughter of the late Rev. H. K. Bros., of Shabbington, Bucks, and Mrs. Bros., of St. Andrews, Fife.
Slack—Jones.—The engagement is announced of Sqdn. Ldr. N. W. Slack, A.A.F., son of Mr. and Mrs. W. H. Slack, of North Ferriby, E. Yorks, to F/O Evelyn Jones, W.A.A.F., daughter of Mr. and Mrs. F. R. Jones, of Penarth, Glam.
Thompson—Duff.—The engagement is announced between Flt. Lt. C. B. Thompson, R.A.F., of Rugby, only son of the late Mr. and Mrs. C. W. A. Thompson, and Shirra, only daughter of Mr. and Mrs. R. J. Duff, of West Wittering, Sussex (formerly of Bombay).
Thompson—Henderson.—The engagement is announced, and the wedding will take place on Sept. 21, at St. Fillans, between Plt. Off. W. F. Thompson, R.A.F.V.R., son of Mr. and Mrs. Thomas Thompson, of Shap, Westmorland, and Elspeth Baxter, youngest daughter of Mr. and Mrs. W. R. Henderson, of Muthill, Perthshire, and St. Fillans.
Webb—Bailey.—The engagement is announced between Act. Sqdn. Ldr. G. S. H. Webb, D.S.C., only son of the late Mr. R. G. Webb, and Mrs. Webb, of London, and Francis M. A. Bailey, only daughter of Mr. and Mrs. G. E. Bailey, of Hale, Cheshire.

MARRIAGES

Couch—Catling.—On June 20, at Digswell, Flg. Off. A. B. Couch, R.A.F.V.R., of St. Albans, to Valerie Catling, of Welwyn.
Devey—Farnhill.—On June 27, at Hambleden, Sqdn. Ldr. H. D. G. Devey, elder son of Major and Mrs. H. W. Devey, of Rio Tinto, Spain, and Pressall, Lancs, to Mrs. Farnhill, elder daughter of the late Mr. Thomas and Mrs. Richmond, of St. Andrews.
King—Davey.—On June 27, at Harrow-on-the-Hill, Flg. Off. G. H. King, R.A.F.V.R., to Betty Rita Davey.
Nordon—Marshall.—On June 27, at Aldenham, Plt. Off. Keith Nordon, R.A.F.V.R., elder son of Mr. and Mrs. C. L. Nordon, to Nesta, daughter of Capt. and Mrs. Stanley Marshall.
Osborne—Dean.—On June 26, at Chesham Bois, Flt. Sgt. R. D. Osborne, R.A.F.V.R., only son of Mr. and Mrs. Osborne, of Paignton, to Kathleen Mary Dean, eldest daughter of Mr and Mrs. Vernon Dean, of Chesham Bois.
Skey—Trounson.—On June 15, in London, Sqdn. Ldr. L. W. Skey, D.F.C., R.A.F., only son of Mr. and Mrs. H. F. Skey, of Toronto, and Joan Elizabeth Trounson, only child of Mr. and Mrs. L. J. Tremayne, of Camborne, Cornwall.
Suckling—Silberbauer.—On June 20, at Cape Town, Flt. Lt. P. V. Suckling, M.B., B.S., London, son of the late Dr. J. J. Suckling, of Rushlake Green, and Mrs. Suckling, to Mary Esther, daughter of Major and Mrs. Silberbauer, of Kenilworth, Cape Town.
Swinerd—Williams.—On June 29, at Finchley, Lt. W. D. Swinerd, R.N.V.R., of Hove, to A/S/O Olwyn Mollie Williams, W.A.A.F., of Finchley, and Rangoon.

CORRESPONDENCE

Scrap Heap for our Airmen

IT HAS JUST come to my ears how some of our splendid Sergeant Pilots are being reduced to the ranks and have had their Wings taken away, because they have lost their nerve after a number of raids on Germany and being shot down.

This appears to be the beginning of a repetition of what happened to some of them in the last War. We shall find them selling vacuum cleaners and washing machines from door to door next, when they have saved an ungrateful country

If some of the nit-wits and armchair critics (who spout a lot of uninformed rubbish in Parliament, and try to make our Churchill's job a lot more difficult than it need be, and sicken our splendid men in Egypt, who are doing their damndest for us) would devote some of their energies in seeing that our boys get a fair deal, they would be doing something really useful.

The tests which our Pilots have to undergo, before they are even accepted for training, are such that they must be supermen and the cream of our race. Then their training, before they are really first class, must be at least 12 months or two years, and costs about £10,000 before they are allowed to go on real active service.

Those loud-mouthed critics who talk so glibly about dive bombers ought to be made to fly them themselves. The risk of being shot down and killed in a dive bomber is about 1,000 times greater than in anything else, except perhaps " trench-strafing," on which so many of our magnificently brave pilots were wasted in the last War. Isn't it far wiser to employ our highly skilled super-men as pilots of big bombers to drop really big bombs from a more or less safe height, which can do 10 times more damage to the Hun than all the death-trap " dive bombers "? Surely the experts of our marvellous Air Force must know best what they want, and we should devote all our energies to giving them what they really want more quickly.

Why are the Huns so short of first-class pilots now? Merely because their leaders have wasted all their best in this same foolish stunt of " dive bombing."

Please excuse my warmth on these points, but as an old R.F.C. and R.A.F. Officer I really do know what I am talking about. CLEMENT HIRTZEL (Major).

Medals and Distinctions

THE D.F.M. and D.F.C. are forms of public recognition for the same equivalent act of gallantry and so as not to confuse public opinion with difference of value (as these two awards are obviously doing) there should definitely be only one award.

Whether a Member of Parliament be street cleaner or professor, he is still known as an M.P.—in the same way, if some award is to be given for an act of gallantry, rank must have nothing to do with the award; this must be determined purely by the act itself.

The above subject may on the surface appear trivial, but to me, as a Colonial, it typifies my impression of the Mother Country as a tired old lady wallowing in a confused state of class consciousness. IAN CUNNINGHAM.

Those Dive Bombers

AFTER THE BATTLE for Tobruk Rommel sent a congratulatory message to his Stuka squadrons. They had, he said, decided the battle. That is the answer to your argument against the dive bomber.

A Luftwaffe reporter broadcasting from Africa claimed that the A.A. fire was overwhelmed. That is the answer to your argument about no-deflection A.A. fire.

Personally, I am getting a little tired of reading that the weapon which has played such a large part in the succession of German victories is no good.

It is said that dive bombers are only effective when you have aerial supremacy. We had aerial supremacy in Libya, but no dive bombers. The Germans achieved local supremacy for a short period, threw in their dive bombers with devastating results. They use the right weapon at the right time. We prefer to skim over the ground and miss the target or fly at a great height, solve mathematical puzzles, set complicated instruments and hope for the best. C. E. T. MAGUIRE.

[German propaganda is being cunningly used to boost the dive bomber in an attempt to make us divert some of our production to them. In fact, few dive bombers were used by the enemy in Libya and when they were they were shot out of the sky as in the 13-nil victory on July 3. The Stukas would never have had their chance at Tobruk if the 88 mm. guns had not first dealt with the British armour. To hold in reserve a type of aeroplane which can serve only one purpose and can only operate when there is no air opposition is wasteful. When the British can fight the enemy on equal terms on the ground, precision and low-level bombing will do everything a dive bomber can do and more besides.—ED.]

Uncle Tom Cobleigh and All

THE DEFEAT suffered by the United Nations in Libya comes as a timely jolt to the optimism given voice to by politicians, Press or people during past months. All the excuses put forward to excuse previous reverses cannot be put forward this time, and this fact is all to the good if only the lessons of the defeat are taken real notice of and acted upon without any delay. Two points seem to need attention. First, the use of bomber strength in those theatres of war where it can produce the best results, and moreover where the most consistent use of it can be made. Secondly the real need for standardisation of all classes of arms and armament. The inherent difficulties of repair, service and replacement of the multiplicity of aircraft is better forgotten than even imagined. Shipping is reported to be an important war factor. Surely shipping space could be saved by the concentration of the United Nations upon similar weapons. It is hard to believe that in Great Britain only no less than three, and possibly more, different types of heavy bomber are being constructed in the third year of a total war; whereas the best of the batch could and should be made by all factories engaged in the manufacture of heavy bombers.

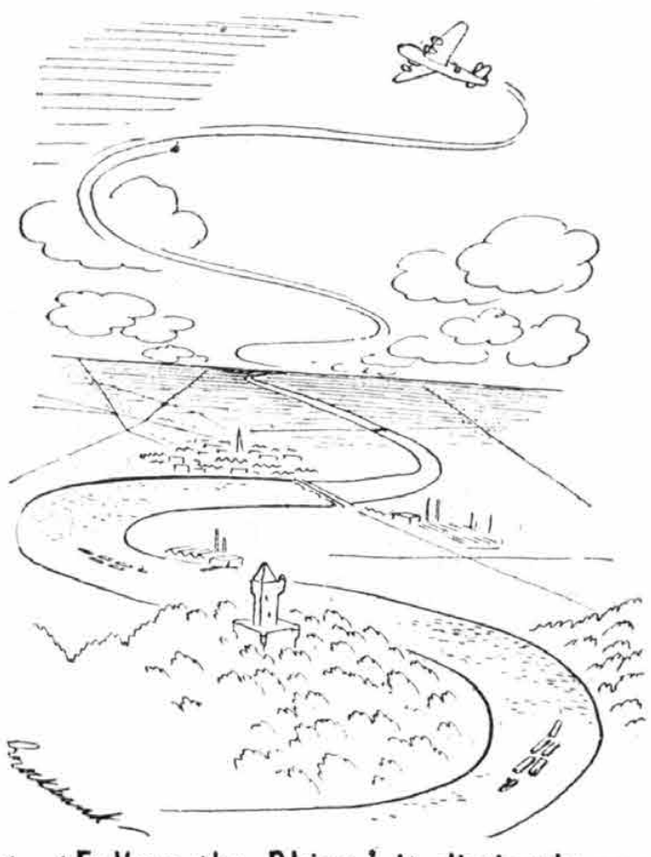
The Sweep of Nathaniel Gubbins might say: " Cor chase my Aunt Fanny with a Mark I tank, a Mark II tank, a Churchill tank, a Honey tank, a Grant tank, a Crusader tank, also a Hurricane fighter, a Spitfire fighter, and Tomahawk fighter, a Kittyhawk fighter and a Liberator bomber, a Fortress bomber, a Stirling bomber, a Halifax bomber, a Lancaster bomber and Uncle Tom Cobleigh and all!" PHILIP ADDIS.

Non-Military Targets

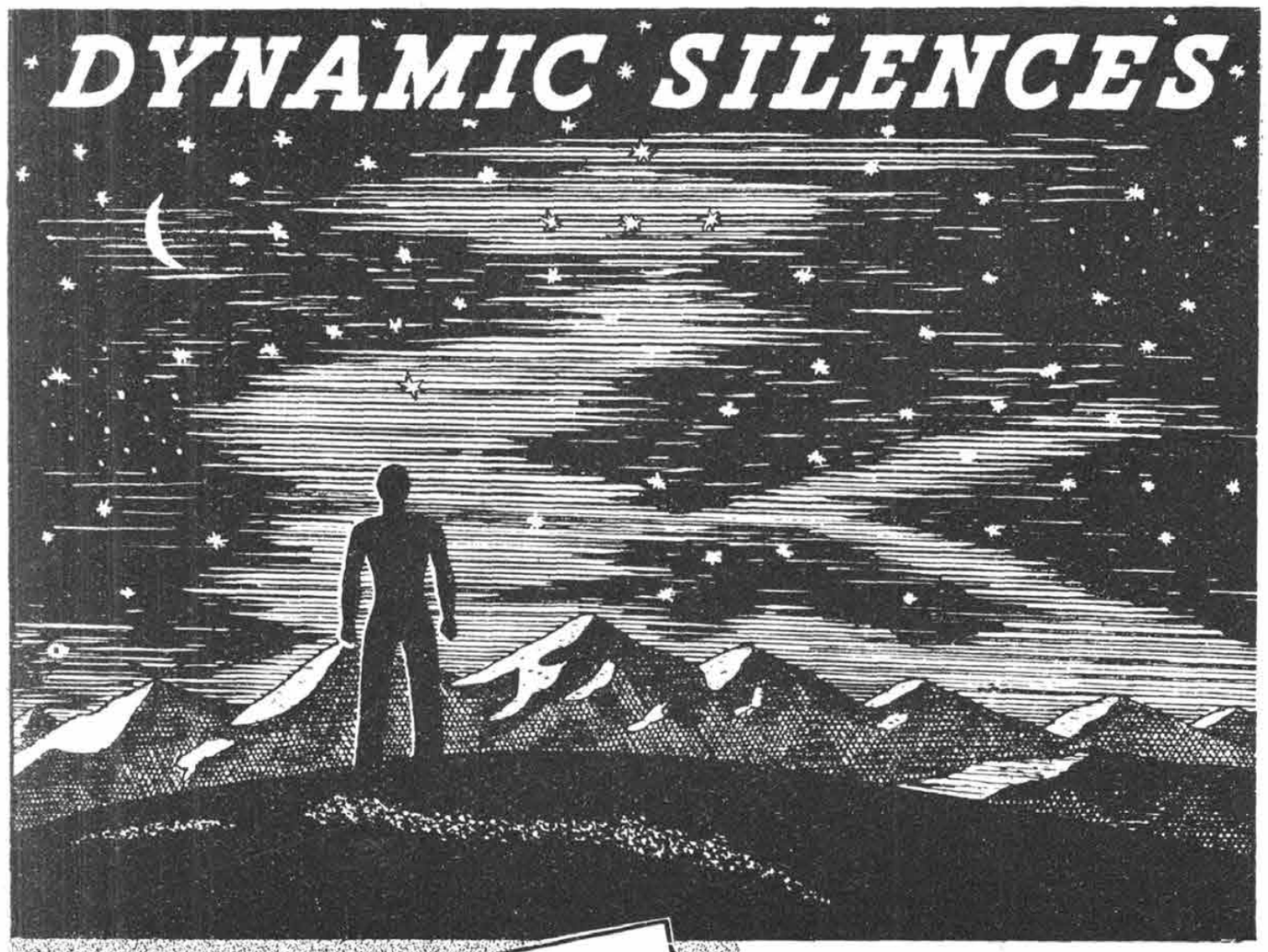
IN a recent speech to the Royal Empire Society an M.P. expressed the hope that in the next raid on Tokyo a bomb or two might be dropped on the Imperial Palace. He did not seem to be aware that General Doolittle's report of the first raid stated that the U.S. flyers deliberately refrained from such action. One would like to know why.

If a precedent be required, we have the deliberate attacks on Buckingham Palace. Seeing that the Japs regard their Emperor as a divinity, surely the destruction of his palace and possibly himself might have a tremendous effect on the moral of the Japanese people, and might even undermine the authority of the military clique at present in power. If so, what a wasted opportunity on the part of our American friends; and if we and they are going to pull our punches in this fashion, surely the War will merely be prolonged, if nothing worse. ANGLO-AMERICAN.

There was an omission in the footnote dealing with the Cub and Typhoon aero-motors in the last issue of THE AEROPLANE. The Avro Aldershot prototype and the first batch produced were powered with the 650 h.p. Rolls-Royce Condor. The aeroplane was then chosen for experiments with the higher-powered motors as we stated.



" —'Follow the Rhine,' it distinctly says "



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High speeds in the Universe do not result in increased noisiness—as in the case of a Man's efforts. But then Nature works with plastic, and therefore resilient, materials as opposed to the hard unyielding metals used by Men

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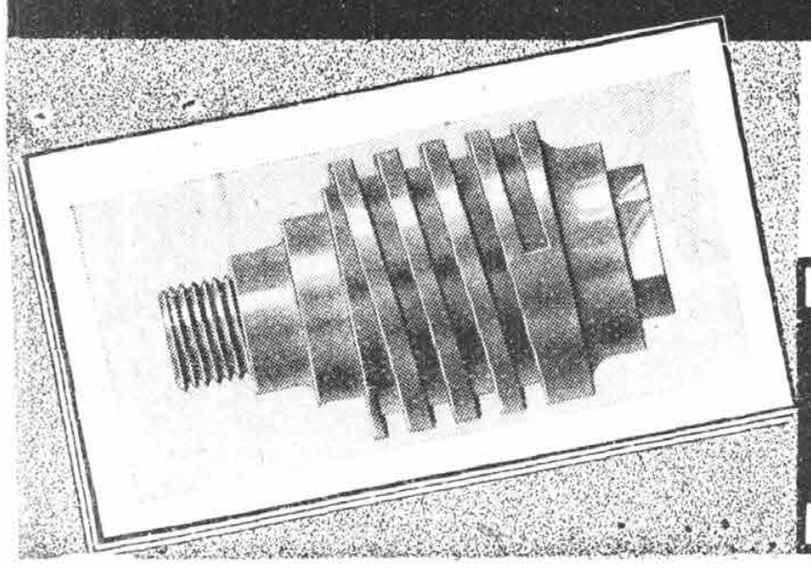

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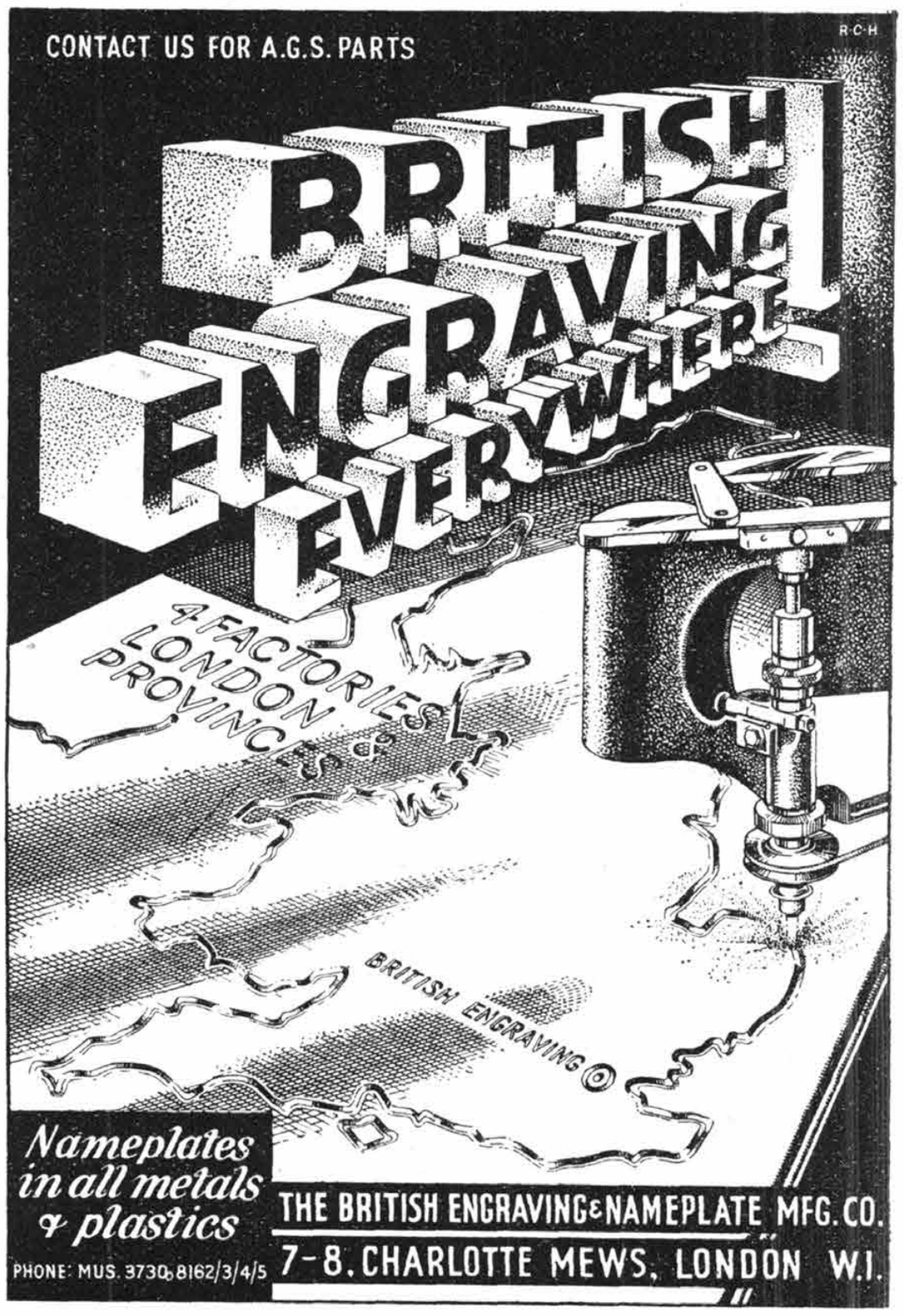

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The

SHORT STIRLING HEAVY BOMBER

— manœuverable enough to tackle a fighter

THE DAILY TELEGRAPH A

BREMEN RAIDER BEATS FIGHTERS

SHOT 3 DOWN, HIT SEA, HOME SAFE

After taking part in Saturday night's big raid on Bremen a four-engined Stirling bomber landed at its base early yesterday with only its two port engines running, its rear gunner dead, its wireless operator wounded, and all its electrical apparatus and radio out of action.

But, in addition to dropping its bombs on the target, it had shot down three out of five night-fighters which had attacked it.

While on the return journey over the Dutch-German border it was first attacked by two twin-engined night-fighters. It was here that the rear gunner was killed, the wireless operator wounded, the radio and electrical equipment destroyed and one of the two starboard engines put out of action, but one of the night-fighters was shot down by a burst of fire from the Stirling's mid-upper turret.

SCRAMBLE TO TURRET

Over the Dutch coast two Me. 109s attacked. The front gunner, who was giving first aid to the wireless operator, dashed to his guns and opened fire while hanging half in and half out of the turret.

The navigator held his legs to steady the gunner, who succeeded in shooting both enemy 'planes into the sea.

A few minutes later another Me. 109 attacked, but was driven off.

By this time the machine was temporarily out of control and diving towards the sea. The pilot managed to pull out of a dive a few feet above the waves, but the tail of the 'plane hit the water.

He managed to keep the 'plane going and gradually regained height.

SHORT BROTHERS