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Civil Aviation for Civilisation

LAST WEEK we published an article on the present position and future policy of civil air transport by Major K. M. Beaumont, who is an acknowledged authority on this subject. In the two preceding issues the case for and against the operation of air lines by the shipping and other interested companies was discussed. The leading article on Oct. 22 gave our own views on air transport and they have been very little changed by what has been written and spoken since in Parliament, in the Press and elsewhere.

There is a consensus of opinion that some new authority should be set up in this country to regulate British air transport. Some international authority will also be required which we hope will be able to prevent cut-throat competition between nations. The Dominions would presumably be represented on the British authority which Major Beaumont calls the A.B.C.—We prefer Air Board of Control to his Aerial Board of Control. In the same way the A.B.C. should be represented on the international authority. In our opinion, however, these authorities can only be advisory. We hope that the representatives will be so influential that their governments will seldom, if ever, disagree with their recommendations but no democratic government will allow its representative to make major decisions. Full agreement was said to have been reached on all the points which were discussed at the recent Empire Air Conference, but no report can be issued until it has been approved by the Home and Dominion Governments. No Dominion Government could be expected to allow its representative to decide a question such as whether it should or should not be allowed to run an external air line.

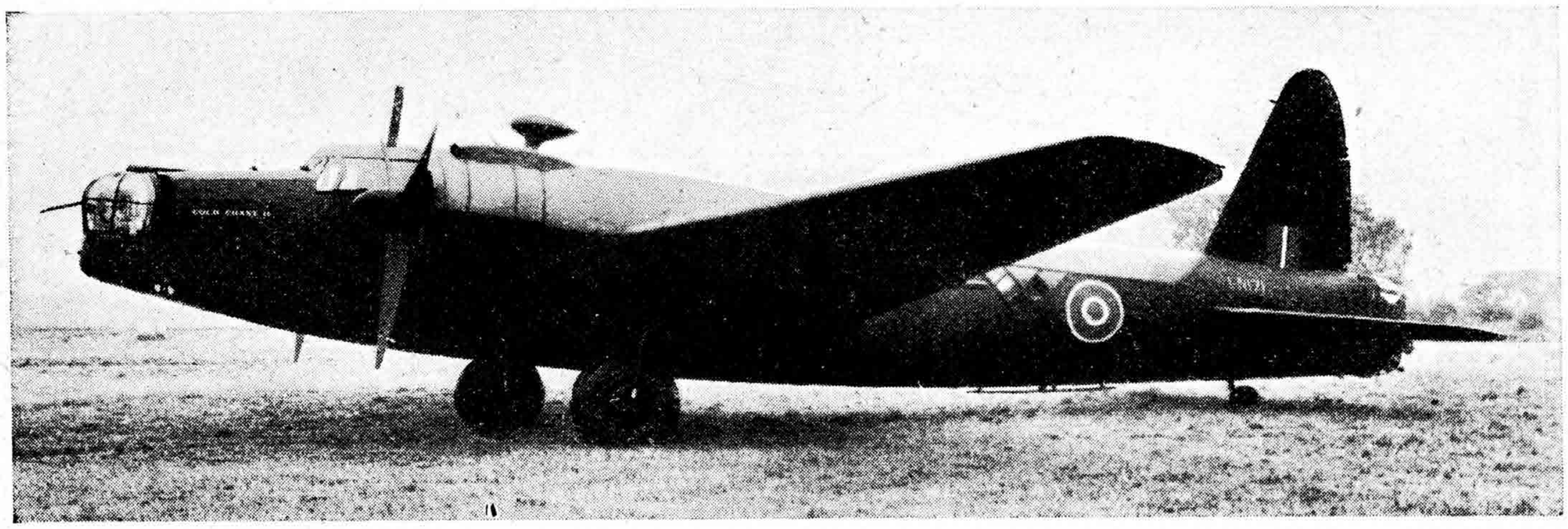
On the question of subsidies we were taken to task by Major Beaumont in a letter which we published on Nov. 12 for challenging the slogan "Civil aviation must fly by itself." In his view the public will be prepared to pay a fair price for the carriage of mails, freight, and passengers by air commensurate with their arrival being speedier than by other means of transport. Thus air transport will quite soon pay its way. We fully agree, but, as we said before, it is not necessarily the best patronised air line which will be of the greatest benefit to the community. Some lines which cannot hope to become a paying proposition for years may be of far greater value to the Empire than others which can pay their way almost from the start. Governments must be prepared to pay air transport contractors for services rendered but subsidies should not be used to bolster up inefficient concerns merely for the sake of national prestige.

Opinion in this country definitely favours private enterprise for air transport as opposed to government monopoly. Yet each of the Dominion representatives with whom we have discussed the matter has been certain that his government intends to use one "chosen instrument" immediately on cessation of hostilities in Europe. Transport Command of the Royal Air Force will then presumably be fully employed in maintaining services for the reconstruction of Europe and prosecuting the war with Japan. It may, however, be possible to release British Overseas Airways Corporation from some of the work which it is now doing to supplement that of Transport Command and to allow it to start essential Empire air services. B.O.A.C. now has to rely almost entirely upon aircraft and personnel which can be spared from the R.A.F. That condition will continue in the immediate post-War period and no other concern will be in a position to operate an air line at once even though all possible preparations have been made beforehand. This Country, therefore, will be obliged to use one "chosen instrument" at the start, but it is to be hoped that quite soon other concerns will be in a position to take over some of the routes from B.O.A.C.

Leading shipping companies have recently taken legal steps to enable them to operate air lines. We believe they will find more difficulty than they anticipate, for air transport requires specialised knowledge. Air transport would probably be more efficient in the hands of those whose interest was only in the air. But shipping and other companies will no doubt be able to procure the services of persons with experience of air transport and will soon overcome their initial difficulties. We hope that in time this will once more become a free country and there should be no objection in principle to any concern operating an air line provided it can do so efficiently.

We agree with Major Beaumont that the Air Ministry should be relieved of the control of civil air transport as soon as is practicable. In view of the dependence of B.O.A.C. on the R.A.F. at the present time this will not be advisable during the War or in the immediate post-War period. When it does become possible to divorce air transport from the Air Ministry it should not become a mere branch of the Ministry of Transport. There it would probably have to contend with an outlook even more pedestrian than that of which the Air Ministry is often accused. On the other hand, a new ministry is likely in the first instance to be staffed by throw-outs-from other government departments and that might be fatal to the future of British air transport. Civil air transport should, therefore, remain under Air Ministry control until such time as it becomes possible to form a separate government department which is strong enough to carry weight with the Treasury and to exert that influence which will be so important to the future cohesion of the British Empire.

MATTERS OF MOMENT



GIFT FROM THE GOLD COAST.—A Vickers-Armstrongs Wellington with Bristol Hercules motors. Presented by the people of the Gold Coast, this Wellington bears the name Gold Coast II.

The Influence of Aviation on Shipbuilding

GREAT BRITAIN will probably require eight to ten million tons gross of new merchant shipping after the War. This, in itself, presents a problem of some magnitude, in a country with a maximum output under favourable conditions of 2,000,000 tons annually. Yet the shipowner is not only concerned with this aspect of how and when he will get his new vessels—that is troublesome enough—but he has first to decide the types of ships he will build and the machinery to install, bearing in mind that they must last 20 to 25 years and any mistakes he makes will live with him for that time.

No British shipowner would dare to attempt to solve his post-War problems without taking into consideration the profound influence which the aeroplane will have on sea transport, and which will automatically reflect on the classes of ships which the shipbuilding industry will be called upon to produce. Thus, the newest of our large industries will exert a powerful influence over one of the oldest in the country.

Some of the changes which will ensue seem obvious; others are less clear. There will probably be no more passenger liners of the " Queen Mary " class, because with the cream of their traffic taken away from them by the aeroplane little economic justification remains for spending £7,000,000 in the case of the " Queen Mary " or £11,000,000 for the " Normandie " on the building of one ship.

On the other hand, although the passenger in a hurry will inevitably go by air, it is not over-optimistic to believe that in the coming world far larger numbers of people will travel than in pre-War days, and that even more passenger ship accommodation will be needed if fares are not too high. The moderate-sized, moderate-speed vessel, cheap to build and cheap to run, will be the popular type, ranging from about 15,000 tons to 30,000 tons gross (according to the service on which it is engaged), and with a speed of from 20 to 25 knots.

In line with this development and largely under the same influence, we may anticipate the adoption of the cargo-passenger liner on a greatly increasing scale. During the past 20 years speeds of cargo liners (vessels which travel on a regular route to schedule dates as against the wandering tramp ship) have been steadily mounting, and have risen from 12 knots up to 16 knots and even 18 knots

If we go a step farther, raise the speed to 20 knots, and provide comfortable passenger accommodation, we have a good combination ship capable of carrying from 8,000 to 12,000 tons of cargo and anything between 50 to 200 passengers, with the greatest economy, and at a speed consistent with all requirements, except for the passenger to whom the shortest possible passage is a vital consideration. With this simpler class of vessel, fares will be reasonable and sea travel will be correspondingly encouraged.

Not only will types of ships be thus fundamentally modified under the impact of aviation, but the realm of the marine engine builder probably will be invaded. A quarter of a century ago, when the Diesel engine impressed itself on the unhurried and, perhaps, somewhat reluctant shipowner, it was a heavy, slow-running unit direct-coupled to the propeller shaft; and so it has remained in this country. There are now signs of changes, in which the aero-motor industry may possibly play a part.

In America, high-speed Diesel engines totalling 12,000,000 h.p. are being or have recently been built for installation in Naval vessels of varying types. The engines run at a speed of about 720 r.p.m. and drive the propellers through electric transmission or gearing. A great saving of weight results, and as there are other advantages, shipowners are naturally considering whether this development cannot be translated into the sphere of merchant ships.

Aero-motor builders and designers have an unparalled experience in the production of high-speed internal-combustion engines, and the equipment of their factories for such manufacture is unequalled throughout all industry. Those factories will have a potential capacity far greater than can be absorbed by all the aeroplanes needed under conditions of peace, and the Aero-motor Industry may ask whether it should not concern itself with this newer development for the supply of high-speed marine engines if the demand arises. Nothing revolutionary is involved, for the cylinder size in a 12,000 b.h.p. high-speed Diesel installation in American vessels is not greatly in excess of that of some of the modern aeroplane motors. Naturally, research work would be needed for the production of a Diesel instead of a petrol type, but will the aero-motor builder not be forced to develop along these lines even in his own sphere?

Inevitably, the future of aviation will be interwoven with that of shipping. But it is also possible that the aircraft and shipbuilding industries may become more closely associated in the coming years.

"Airways for Peace"

THE FOLLOWING is extracted from " Foreign Affairs " for October, and is part of an article by Dr. Edward P. Warner, F.R.Ae.S., Vice-Chairman of the Civil Aeronautics Board of the U.S.A., on " Airways for Peace ":—

The United States and Great Britain are likely to be the leaders in the development of international air transportation. Russia and China have great tasks ahead in building up air communications within their own vast territories. So do most of the British Dominions and the principal nations of South America But while all these states will be conducting international operations to some extent, and sundry European states also, a very large proportion of the World's long-range international air line operations will be carried on under the American or British flag.

For that and other reasons, the relations of Great Britain and the United States in this field need special consideration. What are the interests of each? And where may they conflict?

Both countries have a tradition of advocating the free use of the air. Whenever there has been an occasion for a formal declaration of principle, both have stood for removing restrictions and enlarging opportunities. With that background, they ought to agree easily to extend to each other on a reciprocal basis the right of innocent passage and the right to stop for refuelling. Both will gain more by such an agreement than by a policy of mutual exclusion. Both peoples are travellers by temperament, and in both countries many persons look forward eagerly to opportunities for swifter and more convenient movement by air.

Each nation has great ambitions in the air. Aside from the general intangibles of national pride, and from the bear-

ing which the possession of air transport facilities has on security and trade, the mainspring of American interest in this connection is the eagerness of American youth to find a place in aviation. The same situation obviously exists in Britain. There it is supplemented by considerations of imperial unity, however, and by the necessity of depending upon the revenues of carrier services, both sea and air, to adjust the British balance of payments.

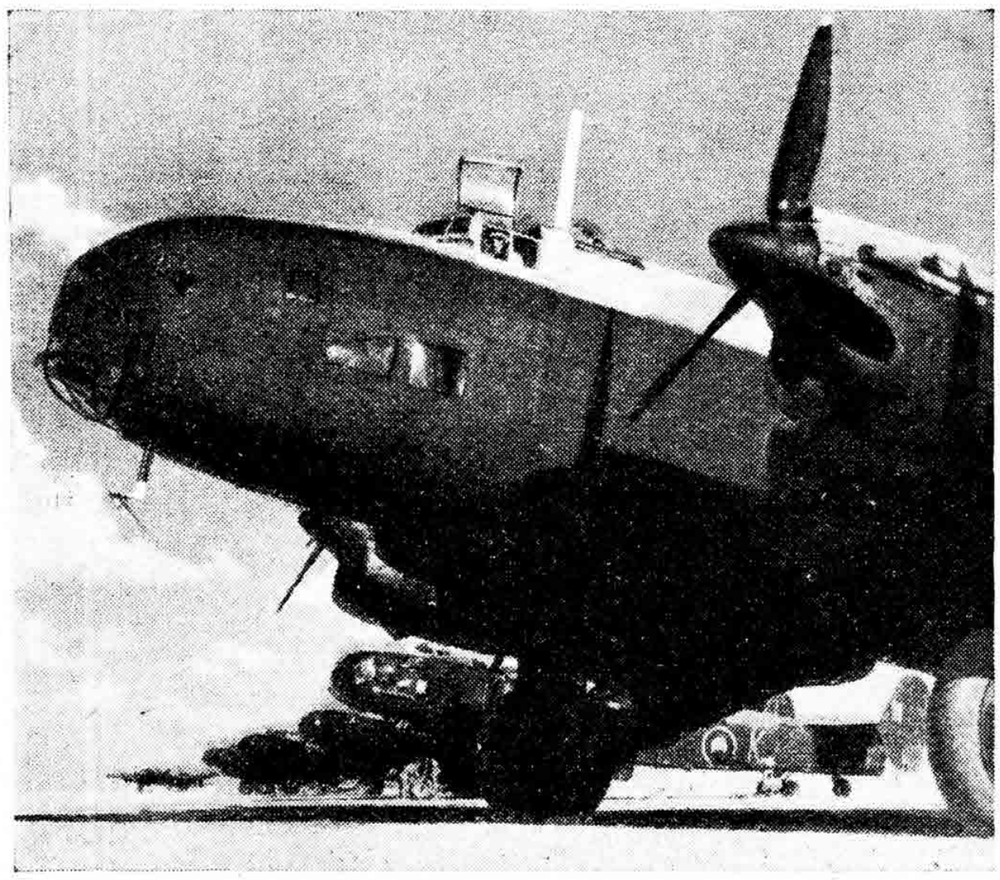
When British and American ambitions encounter one another in the air, the result may be either direct competition or the invention of some device to avoid it.

Competition might be avoided by an allocation of traffic or by an allocation of territory. The first alternative, which is the pool, has never been popular in Britain and certainly would not be in America. The idea of allocating territory, i.e., recognising "spheres of influence," runs into difficulty along the borderlines of the proposed zones. It also runs up against the psychological difficulty that the peoples of both countries have been learning to think in global terms. They will not be patient, either in Britain or in the United States, of proposals that they be fenced off from any part of the World.

Competition may make conflict, but it need not do so. Competition between British and American air lines should be as keen, but at the same time as friendly, and as co-operative in matters where co-operation is mutually advantageous, as the competition between any two of the air lines within the United States. There will be no occasion for Britain and America to parallel each other's routes throughout. But the writer believes that a substantial amount of competition will be healthful to trade and beneficial to the traveller, and further that it will cause less friction than the measures that might be devised to avoid it.

Across the North Atlantic, at any rate, parallel American and British services may be expected between New York and London. If the situation causes any more friction than arose out of the three parallel non-stop services maintained by American air lines between New York and Chicago before the War, it will be evidence of a quite needless inability of the British and American Governments to co-operate in finding fair solutions for whatever problems of scheduling, rates or alleged unfair competitive methods may arise. Most of the problems involved in the use of each other's bases would be solved by acceptance of the fundamental right of any transport aircraft to stop for refuelling at any base, whatever the nationality, and by agreement on standard traffic rules and radio procedures.

An issue between the two countries might arise out of the fact that the United States is producing military transport aeroplanes at a great rate at the present time, while British production concentrates on combat types. There has been great anxiety in British aeronautical circles and in Parliament over the possibility that the end of the War will find Britain with no aircraft that could perform creditable transport service The industry that has produced the Spitfire and the Lancaster can obviously develop transports, and good ones; but development takes time. The Deputy Prime Minister told the House of Commons on June 1, however, that arrangements were being made for the development of four new transport types, to be carried forward as rapidly as their subordination to the priority of military requirements would permit.



MIDDLE EAST HALIFAXES.—In July, 1942, two squadrons of Bomber Command Handley Page Halifaxes joined the R.A.F. in North Africa, where they supported the Eighth Army throughout the campaigns in North Africa and Sicily. Now they are attacking objectives in Italy. The aeroplanes shown here are Handley Page Halifax II Series Is.

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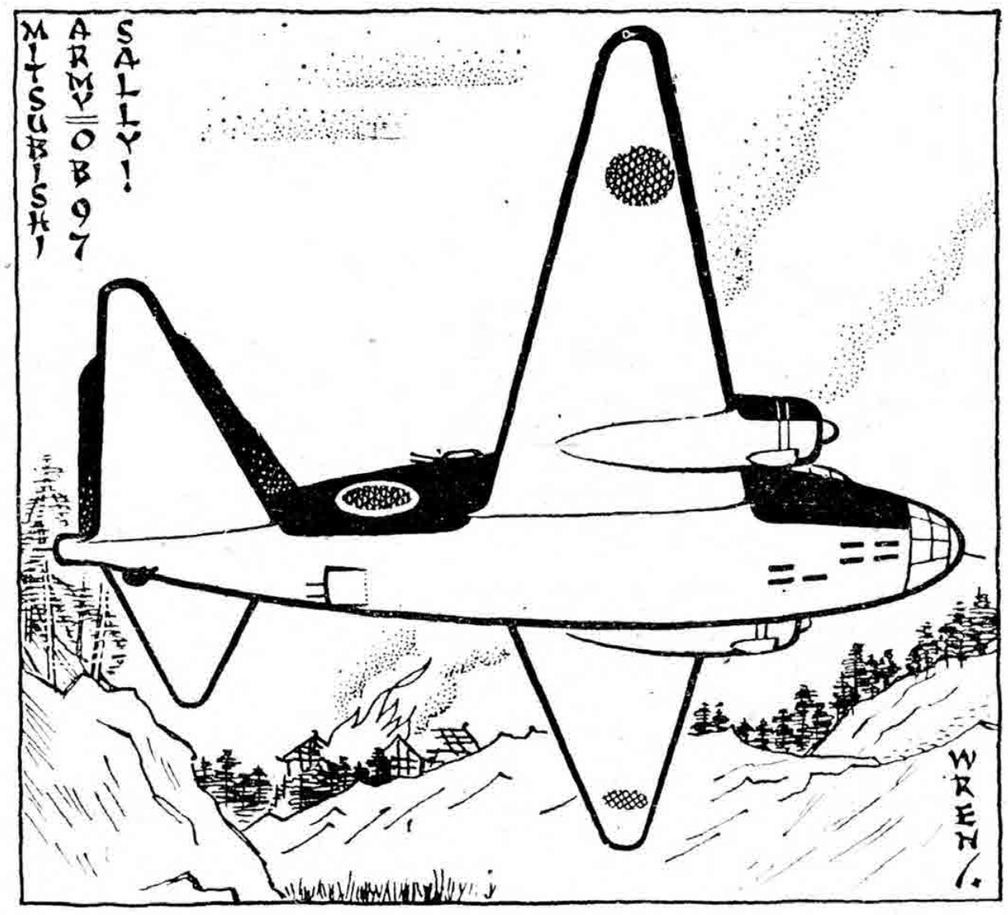


Away you go, collect your hordes,
Proclaim your woe in dismal chords—
We shall not heed their dismal sound
When joy reigns everywhere around;
The echoes of our festival
Shall rise triumphant over all!
(After Gilbert and Sullivan's "The Mikado")

American builders have certain advantages. They have had more specialised experience with transports than the British have had, and they have been accustomed to working closely with a number of air lines instead of a single one as in Britain. American factories will be producing transports at the end of the War. However, they will be models built mainly for military purposes and a large surplus of these will have accumulated. It is unlikely that there will be any occasion to continue the production of these models, and as a result American factories, like the British, will be making ready to build newer types. While the newer types are coming through the preparatory stages both countries will operate air routes with existing equipment, which probably will mean largely with surplus military aircraft no longer required by the Air Forces.

There should be nothing in any of these problems to make serious trouble between the two countries. If all dreams could be fulfilled, Britain and America would each like to carry the air traffic of the World. Since neither can expect to do the whole job, each must prepare to deal with the other as a friendly and co-operative competitor. The Governments must not be content merely to make a rigid initial agreement. The departments concerned with civil aviation must remain in constant communication to make certain that the agreements are working properly and to expand them or liberalise them where necessary. As in the case of many another problem of British-American relations, the underlying spirit will be more important than the legal form of the solution. The only agreement that can be genuinely satisfactory to either party in the long run will be one which will be genuinely satisfactory to both. It must leave no sting or sense of defeat to either. Both British and American air transport operations can be of benefit to both countries, and to all the rest of the World. Success in handling the air transport problem will make success easier in other fields. And any advantage that either country might seem to gain in placing political handicaps on the air transport opportunities of the other would prove to have been indeed a Pyrrhic victory.

Anglo-Soviet Youth Competitions

IN RESPONSE to the National Essay Competition recently organised in Great Britain by the Anglo-Soviet Youth Friendship Alliance, a similar Essay Competition run by the Soviet Youth Committee in Moscow has just been concluded in Russia. The essays were on different aspects of British life. A prize-winning subject was "Aircraft Construction in Britain."

Without Comment

THE GERMAN aeronautical magazine "Flugsport" has made the following statement:—"The Centaurus, an 18-cylinder double-row motor of the Bristol Aeroplane Company, should have, according to English accounts, an output of over 2,000 h.p."

Mosquito Fighter-bomber

WE MAY NOW reveal the existence of another version of the de Havilland Mosquito. This is a fighter-bomber, similar in most respects to the Mosquito II long-range fighter, and armed with the normal four 20 mm. cannon and four .303 in. machine-guns mounted in the nose. Additional features are long-range jettisonable fuel tanks fitted under the wings outboard of the motor nacelles and provision for a bomb load of 1,000 lb. stowed internally in the rear half of the bomb bay. Aeroplanes of this type are being used on intruder operations in place of the Mosquito IIs, which carried no bombs. We are not permitted to disclose the mark number of the new Mosquito.

The Boeing B-40

HEAVILY ARMED versions of the Boeing Fortress are being used by U.S.A.A.F. as escort fighters for large formations of bombers. They have been redesignated the B-40 and include in their armament heavy calibre guns, some mounted in extra turrets.

Radio Controlled Automatic Pilot

THE U.S. ARMY AIR FORCES have revealed that electronically controlled automatic pilots have been standard equipment on Boeing Fortresses and Consolidated Liberators for some months. Radio-controlled motors are mounted in their tails to operate rudders and elevators. The device enables the aeroplanes to be controlled by two or three members of their crews, particularly bomb aimers during bombing runs. Normal controls are also fitted.

Orville Wright in Car Accident

ORVILLE WRIGHT narrowly escaped death or serious injury recently when the car in which he was travelling was involved in an accident. His only injuries were bruised elbows.

The Air is Our Concern

A B.B.C. BROADCAST on November 21 gave publicity to a subject about which many have been thinking for years, and THE AEROPLANE writing for still longer, the ups and downs of British Aviation.

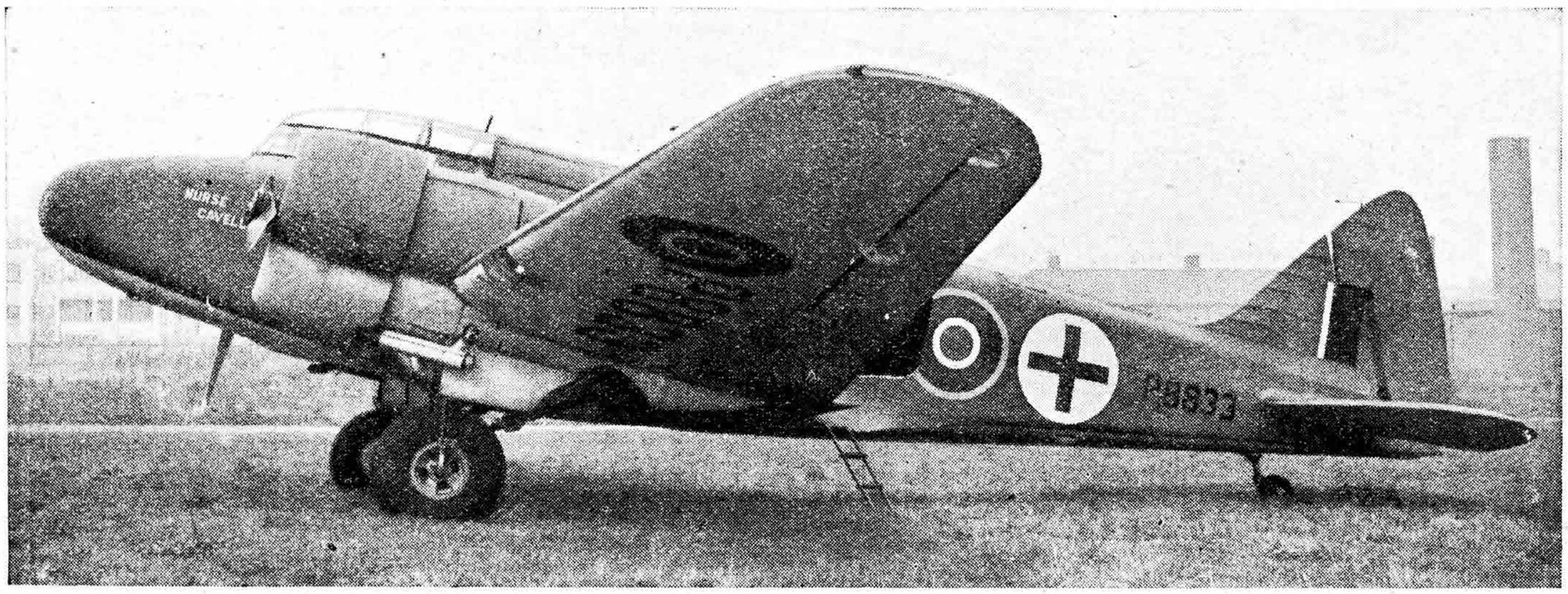
Nigel Tangye was largely responsible for the script with the collaboration of Cecil McGivern, the producer, and the least we can do is to congratulate both on an inspiring contribution to the cause for which we all exist. Wing Cmdr. Tangye has been a regular contributor to THE AEROPLANE between the Wars and his pen has obviously not yet run dry.

One or two outstanding points of the broadcast, of which Part I, "Lessons From the Past," was given, come to mind. The "axing" of the Royal Air Force after its brilliant inception in 1918, and the dispersal of the British Aircraft Industry about 1920, were well brought out with lessons which are now plain to all.

Many of the spectacular air efforts of this country between Wars were dramatised, but some of the more solid achievements were omitted; for example, the long-range distance flights of the Royal Air Force. From these flights were derived data, technical and operational, which have proved so valuable a foundation for the bombing offensives against Germany to-day. The D.H. 9As' flight to Kano, the flights of the Fairey IIIDs to South Africa and back, the Supermarine Southamptons' flight to Australia and the record-breaking non-stop flights of the Vickers Wellesleys from Egypt to Australia are examples.

"The Air Is Our Concern" will be continued with a second broadcast on Friday, Dec. 3, at 9.40 p.m. in the Home Service, to which we recommend our readers. To air-minded people we need only add that the air was always our concern and always will be.

BLOOD WAGONS—I.—The first pictures to be released of the Handley Page Harrow in use as an air ambulance. Nose and tail turrets have been removed and faired in. (Bottom left) In order to facilitate the loading of the stretchers, the door in the starboard side has been enlarged and modified in shape. (Bottom right) The spacious fuselage of this ex-bomber transport is well suited to carry the patients with the maximum of comfort, at the same time leaving plenty of room for the medical personnel to attend to their charges whilst in flight. The nick-name "Blood Wagon" is R.A.F. slang.



BLOOD WAGON—II.—Ambulance aircraft of Air Transport Command provide a useful means of conveying sick personnel from lonely stations to hospital in the shortest possible time. The Airspeed Oxford (Ambulance) is the correct designation of this aeroplane, which was formerly misnamed the Mk. III. Oxford ambulances did front-line service in the North African campaign, transporting wounded soldiers and airmen to hospitals behind the battle-front, thus saving many lives.

Production in France

THE FOLLOWING COMMENTS on "News From France," which appeared in THE AEROPLANE of Sept. 24 last, are by a French aeronautical engineer of distinction, Lieut. H. Deplante, who escaped to this country after the unoccupied portion of France was taken over by the Germans a year ago:—

I had the pleasure recently of reading (in your journal) a well-informed article on French aviation. I would like, however, to point out one or two errors.

At the time of the Armistice, and for several years previously, I was chief research engineer for new aircraft with the S.N.C.A.S.O. In June, 1940, when the line of demarcation was made, the majority of French aeronautical engineers and technicians found themselves in the occupied zone.

For my part, all my research personnel were located at Bordeaux, but, with much patience and no little danger, I managed eventually to regroup my Research Bureau, with a staff of 120, at Chateauroux in the unoccupied zone. In April, 1941, we received the order to leave Chateauroux for Cannes, where the Air Ministry had decided to make an important technical centre. The object of this was a double one: to prepare for commercial aviation after the War, and above all to get valuable technicians away from German control.

Engineers and technical men of the S.N.C.A.O., S.N.C.A.C., C.A.M.S. and S.N.C.A.N., all volunteers, left their homes and offices in the Paris region and, together with their families, clandestinely crossed the line into the unoccupied zone. For this, they used the same secret lanes by which the others had got away from Bordeaux and, eventually, they all reached Cannes. M. Hurel was appointed by the Air Ministry as Director of the research Centre at Cannes and four departments were set up.

1. Heavy Aircraft Section, Chief M. Deplante. Constituted almost entirely from ex-members of the S.N.C.A.S.O. Bureau.
2. Light Aircraft Section, Chief M. Pillon. Formed from ex-members of the S.N.C.A.O. Bureau.
3. Seaplane Section, Chief M. Hurel. Formed by men from the C.A.M.S. and S.N.C.A.N.
4. Industrial Research Section, Chief M. Roca. Formed for the most part by S.N.C.A.C. men.

Right from the start, each section maintained its complete technical independence. M. Hurel, for instance, could not claim responsibility for aircraft designed in my department. In spite of difficult times, we did good work without any sort of enemy control. When I succeeded in leaving France last November the Cannes group comprised 350 people, of whom two-thirds were attached to my department. We nearly starved at Cannes, but we were far away from the Boche and not working for him.

Having finished this preamble, here, at last, are my observations:—

M. Hurel has not, and, I know, would not, claim any responsibility for the aircraft S.O.-30N, S.O.-30R, S.O.-80, S.O.-90, S.O.-91. Those responsible are: Engineer in Chief Deplante (S.O.-30N, S.O.-30R), M. Deplante and M. Le Bihan (S.O.-80, S.O.-90, S.O.-91).

Characteristics

S.O.-30N.—Twin-engined machine (not four-engined). 6 R 14 N 48 and 49. Substratospheric. Carries 23 passengers and 2,530 lb. of freight. Range, 1,240 miles. Weight, 27,000 lb. Wing area, 738 sq. ft. Pressure cabin allows maintenance at 19,700 ft., of the atmospheric pressure at 8,300 ft. Undercarriage of conventional type. Construction finished and machine ready for trials end of 1942.

S.O.-30R.—Twin-engined machine (not four-engined). Substratospheric like the preceding model. 30 passengers. 3,300 lb. freight. Range, 1,240 miles. Weight, 33,900 lb. Wing area, 880 sq. ft. Tricycle undercarriage. Design finished, but machine not built.

S.O.-80 (or Bloch 800).—Twin-engined. Bearn 6D (350 to 375 h.p.). Carries 1,100 lb. freight. Range, 725 miles. Cabin capacity, 175 cubic ft. Weight, 7,075 lb. Wing area, 210 sq. ft. Maximum speed, 278 m.p.h. at 9,100 ft. Prototype completed Sept., 1940. Flew end of 1941 and in 1942. Trials very satisfactory.

S.O.-90 and 91.—Twin-engined. Bearn 6D (350 to 375 h.p.). Mail or liaison aircraft. Carries 2,530 lb. freight on 750-mile range. Cabin capacity, 423 cubic ft. Weight, 9,500 lb. Wing area, 340 sq. ft. The prototype, S.O.-90 (normal undercarriage) was advanced at the end of 1942. The prototype S.O.-91 (tricycle undercarriage) was hardly commenced at the end of 1942, through lack of skilled labour.

I feel sure that you will admit the value of these rectifications, and I remain at your service to give any further details

Group Capt. "George" Bulman

GROUP CAPT. P. W. S. BULMAN, M.C., A.F.C., F.R.Ae.S., a Director of Hawker Aircraft Ltd. and well known as a Test Pilot, addressed the Luton Branch of the Royal Aeronautical Society at their monthly meeting on Wednesday, Nov. 10. Mr. W. E. Park, B.Sc., Wh. Sch., A.F.R.Ae.S., took the chair.

Group Capt. Bulman emphasised the importance of correlating and co-ordinating the activities of the design and production staff in an aircraft factory, and said that until an aeroplane is actually flown by the Test Pilot no one can tell how the hundreds of parts designed and produced by these departments will work in practice. He described the enthusiasm felt by a Test Pilot for flying new aeroplanes, particularly prototypes that have never been flown before.

He contrasted the more or less phlegmatic British Test Pilots with the "glamour boys" of the United States, part of whose work is to dive new aeroplanes to make them reach the customer's specification for speed—the customer usually being the Government.

With regard to the possible permanent centralisation of the Aircraft Industry, he said that he believed progress depended upon "a man with an idea," whether industry was State-controlled or not. A certain amount of centralisation was bound to come, but he did, nevertheless, favour the small firm, because individuals were able to exercise their own initiative far more freely than in large-scale undertakings.

He described his experiences at the Royal Aircraft Establishment at Farnborough in the early days when anyone with an idea was allowed to develop it more or less as he pleased. That system was excellent at the time, but now, on the other hand, small but interesting developments and ideas should be put aside for study later in favour of the important main line of developments upon which firms like Hawker Aircraft Ltd. had to concentrate more and more intensely as competition in both military and civil flying increased.

THE WAR IN THE AIR

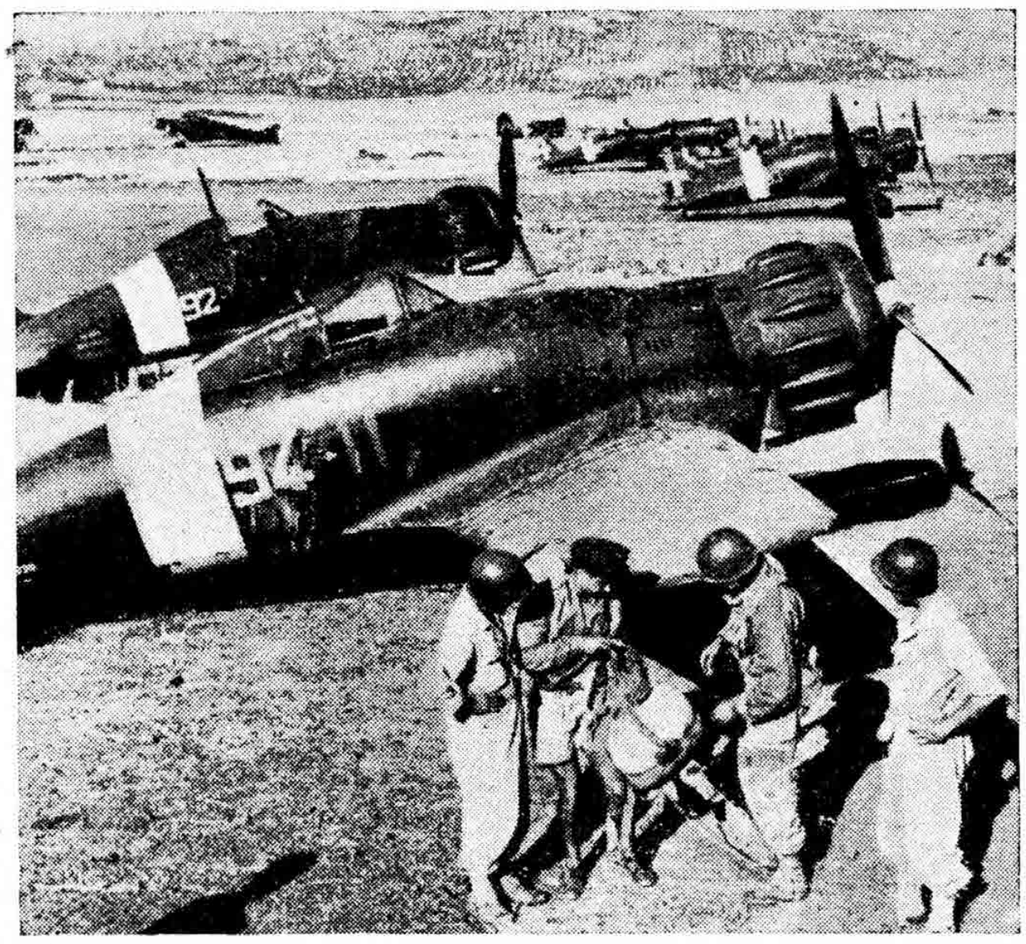
LIFT—BUT NO DRAG.—A Supermarine Seafire I being brought up on the deck lift of H.M.S. Tracker, one of Britain's new pocket aircraft carriers. A point of interest is the width of the airscrew blades, which shows clearly on the lowest blade.

MAKING UP for an enforced lull, Bomber Command, during the latter part of last week, carried out the heaviest and most intensive attacks on Germany yet attempted. Even these, however, represented only a foretaste of what the industry of the Reich is likely to receive in the near future.

Specialised target selection was once again a feature of the week's work, and chemical industries, in particular, were given special attention. Following American daylight raids on molybdenum mines and chemical factories in German-occupied Norway, massive night attacks were made on chemical plants in Germany proper by R.A.F. Bomber Command with the strongest forces of four-engined bombers ever employed on such operations.

Certain variations in bombing technique were noticeable, and the value of our frequent Mosquito raids by night was amply demonstrated. These raids keep the German defence in a state of constant uncertainty. British aircraft are signalled over German territory, but the force approaching may consist of a couple of dozen Mosquitoes, or 500 Lancasters, whilst their actual target is a matter for rapid guesswork. In such circumstances, the bulk of German night fighter strength may be sent with all haste in a wrong direction, as appears to have been the case in the great double attack on Berlin and Ludwigshaven. The stronger of the two R.A.F. forces met the weaker fighter defence force.

Although the war of movement in Russia is still front-page news, and likely to remain so until we launch the grand assault in the West, first-hand information about the Russian air fighting is scanty. We know that things are going well, however, and that the Red Air Force is growing in strength, and German fighter wastage must undoubtedly be very heavy.



SURRENDER HERE.—A pilot of the Regia Aeronautica with United States troops in Sicily after the armistice. The fighters are Macchi M.C. 200 Saettas and the three-motor bomber is a Savoia Marchetti SM. 79 Sparviero.

Mr. Leo Crowley, United States Foreign Economic Administrator, revealed that America has sent over 6,500 aeroplanes to Russia, more than has been sent to any other of the United Nations. Great Britain, moreover, has sent and continues to send great numbers of fighter aircraft to the Soviet Union.

In addition to this, we know that Soviet aircraft production, unhampered by the breaking-up process which Allied bombers apply to the German industry, is increasing at a formidable rate. In any case, steady Russian progress, despite lengthening communication lines, gives proof of air superiority. The conditions of present-day warfare are such that no army, however powerful on the ground, can continue to advance for long without preponderance in the air.

Away in the South-West Pacific the Allies have been regaining islands from the enemy, but, nearer home, in the Ægean, are busy losing them. Air cover in such operations, means victory, and the lack of it, defeat. The tragedy of Leros repeats in miniature that of Crete, although there appears to have been vastly less reason for the Kos and Leros adventures than for the Cretan epic.

No troops in the World can hold out for long against accurate and unceasing air attack unless that attack is countered from the air. Only those with personal experience of completely unhindered bombing and gunning from the air can form any picture of what our men must have endured in the last hours of their stand on Leros. The British air base in Cyprus is about 350 miles away, and, on the German side, Rhodes and Kos were within fighter range, and Crete only 150 miles off.

In Russia, the great Soviet push goes steadily forward in spite of most savage German counter-attacks. One of these, West of Kiev, has retaken Zhitomir, but the enemy hold on that town is precarious and more than offset by the Russian gains of Korosten and Ovruch. The last-mentioned town is said to have been captured almost entirely by air-borne troops. This is the first time in history that an enemy position of such importance has fallen to air attack; yet another proof of Russian air strength.

Here at home, speeches about the War were fortunately few during the week, but, from across the Atlantic, Lord Halifax, in one of his more than usually platitudinous moments, informed us that the enemy is still strong.

Northern Europe

In Northern Europe the week started quietly, although these words may be read with a sour smile by Fighter and Coastal Command pilots, whose work is incessant.

Early in the week Typhoons made vigorous daylight attacks on enemy shipping and transport in Northern France. They shot up five locomotives near Rouen, sank a tug in the Seine and set a radio station on fire. Other Typhoons hit two small motor vessels heading out to sea, and left both blazing. Later on, more Typhoons, operating near Le Havre, sank an armed coaster and left another on fire, and fighter-bombers dived through cloud to hit the hangars at Lanveoc Poulmic seaplane station near Brest.

On Tuesday, Nov. 16, we were given another example of that highly specialised selection of bomb targets which is undoubtedly causing much worry to the German Government. U.S. Fortresses and Liberators made the long sea trip to Norway and bombed the molybdenum mines at Knaben, 40 miles East of Stavanger. They also attacked the electric power station at Rjukan, 77 miles West of Oslo. Knaben, which, it may be remembered, was attacked by Mosquitoes on Mar. 3 last, is believed to be virtually the only source of good molybdenum

possessed by Germany Other mines existing in Southern Germany and Austria have only a small output and the ore is of poor quality

Photographs taken during the raid show many hits on pithead buildings at Knaben, while at Rjukan pipe lines carrying water down to the big hydro-electric station were cut and the water was seen gushing from them

Although operating witnout fighter escort, the complete force made this round trip of over 1,000 miles with the loss of only two aeroplanes. Six German fighters were reported as shot down.

Later in the week, American Liberators returned again to Norway and succeeded in making a mess of the main Luftwaffe repair base at Kjeller, 11 miles North-East of Oslo. Liberator crews reported fierce opposition from fighters, including the use of rocket guns. Eight German fighters were reported as shot down and nine Liberators failed to return. Three of them, however, landed in Sweden and 30 members of their crews were interned there

On Wednesday, Nov. 17, flying conditions enabled Bomber Command to resume operations. Ludwigshaven was the target on Wednesday night, Nov. 17 and a point of interest on this particular raid was that our machines carried only high explosive bombs, and those of large calibre. This intensified the striking power of the force, which, according to present standards, was not a very large one. The variation in bombing technique evidently puzzled the German defence, for it was not until after the last of our bombers had left that fighter flares appeared in the sky over Ludwigshaven.

On the night of Thursday, Nov. 18, Germany had the heaviest raid of this War. Nearly 1,000 four-engined bombers were sent over and the largest force went to Berlin. Simultaneously, an attack was made on Ludwigshaven and although diversionary in relation to Berlin, this raid was an extremely heavy one. The German defence apparently assumed that Berlin was to be the diversion and Ludwigshaven the real thing. As a result, most of their available night fighters seem to have been sent to Ludwigshaven, which is 400 miles South-West of the German Capital The large force sent to Berlin, composed entirely of Lancasters, encountered very few fighters.

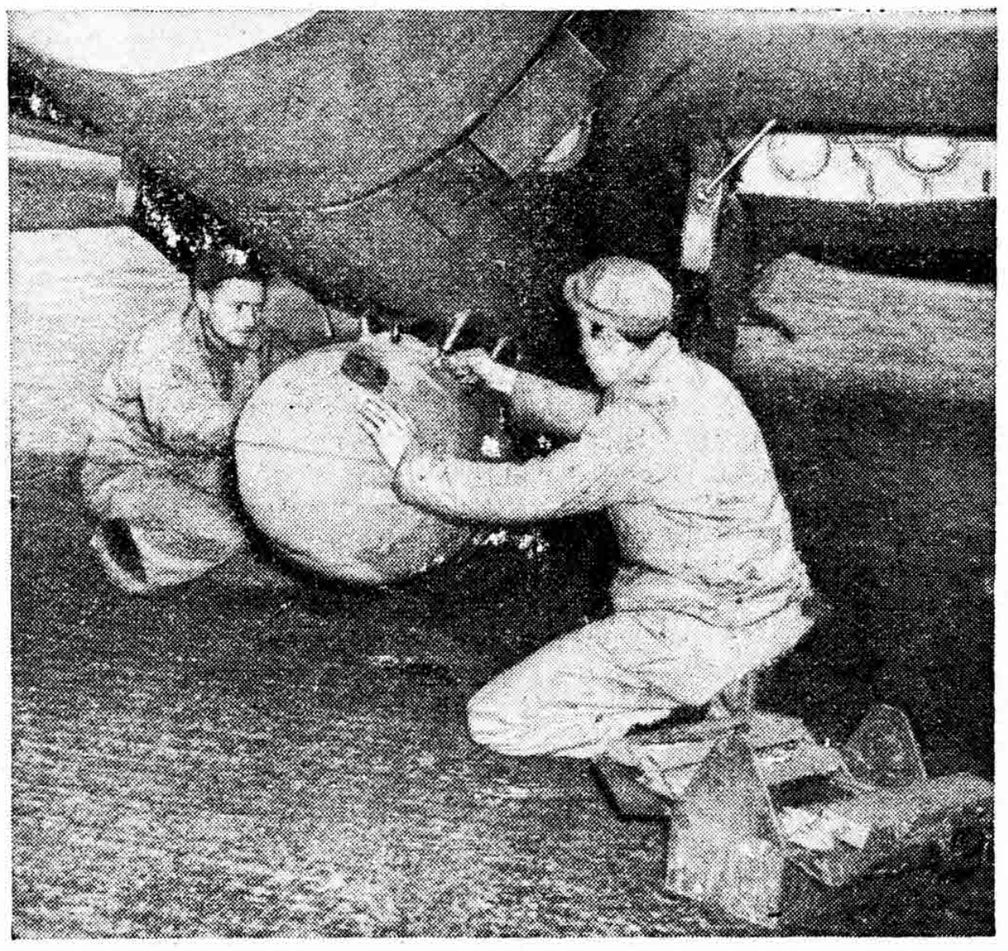
The return trip was a severe ordeal for both forces. Flak was heavy and temperature dropped at times to 41 below zero, causing much icing. A total of 2,500 tons of bombs was dropped by the two forces and 32 aircraft failed to return.

On Friday night, Leverkusen, six miles North of Cologne, was the target and here again chemical factories of the utmost importance to Germany were hit. Flak was heavy, but night fighters did not put in an appearance. They had possibly once more been sent in a wrong direction, as small diversionary attacks were in progress at the time over other parts of Germany.

Russia

A Russian crossing of the Dnieper in the Cherkassy area early in the week is of importance if it can be followed up before the Germans have time to effect much heavy demolition. Cherkassy links up with a fine new motor road running down to Odessa, and fast movement along this would cut off all German troops in the Krivoi Rog pocket. The capture of Cherkassy would, moreover, represent a threat to the rear of German forces in the Dnieper bend Air-borne troops are stated to have played an important part in the Cherkassy crossings.

The insistence upon holding positions long after military



LONG-RANGE FUEL AND ICE CREAM.—U.S Army Air Force personnel attaching a long-range petrol tank to a Republic P-47 Thunderbolt. We understand the tank has been used to make ice cream at 18,000 ft.

science would appear to indicate the need for their abandonment is, nevertheless, a feature of the present German " elastic retreat." In other respects this retreat, with all that it involves, has so far been carried out in a masterly fashion.

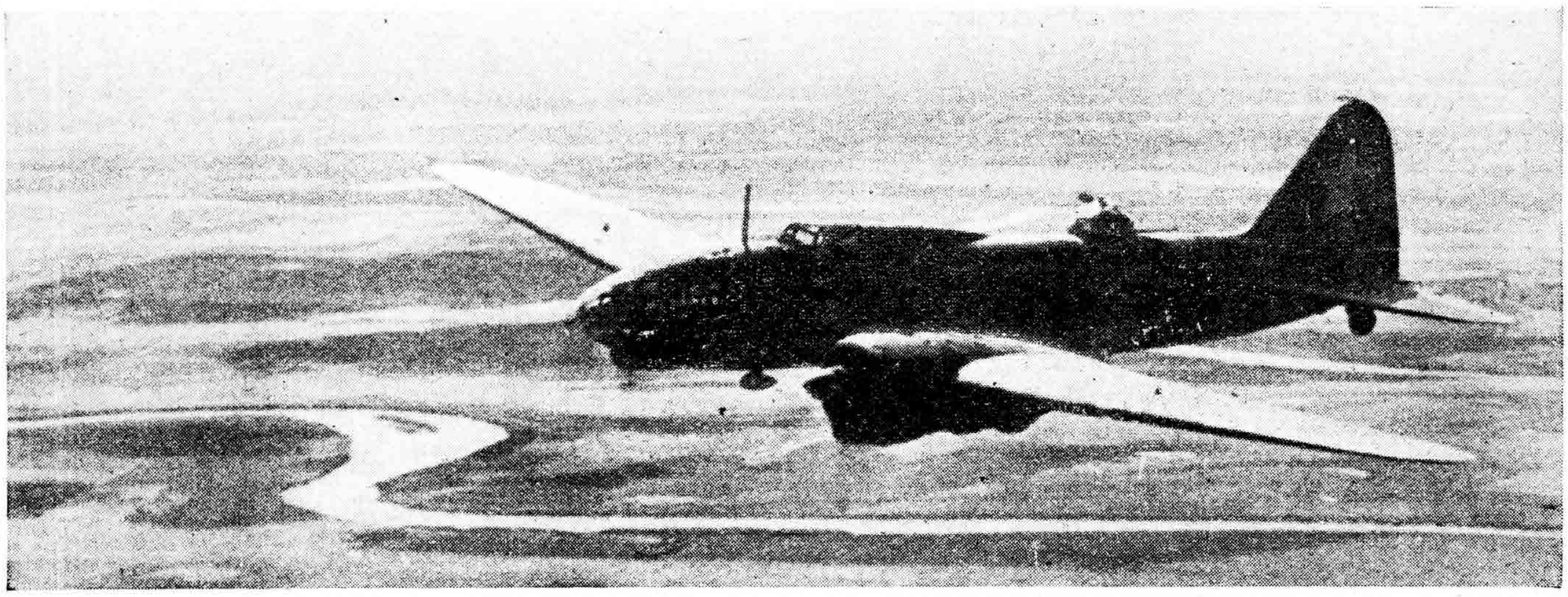
Right to the end of the week, German troops were still holding their ground in the long salient from Kherson to Krivoi Rog and beyond, despite what appeared to be strong reasons for getting out while the going was good. It is probable that the German Command hoped for relief here through the success of their strong counter offensive further North, which recaptured Zhitomir.

By Sunday last, the fall of Cherkassy appeared imminent, as Red Army troops were in the outskirts of the town. The taking of Ovruch by paratroops and glider-borne units was certainly the most interesting event of last week's operations in Russia. The Soviet Government was the first to experiment on a large scale with this form of war from the air.

We found to our cost in Crete how formidable this kind of attack may become when air defence is weak, but this is the first time that Germany has experienced a reverse of this nature At Ovruch, moreover, it was no case of an air attack on an island far away from land-based fighter defence, but of an assault on a strongly entrenched position in the course of a land campaign.

Far East and Pacific

Japanese-occupied villages and troop positions in the Kalemyo area of Burma were targets for dive bombers and fighter-bombers of the R.A.F. on Sunday, Nov. 14. Bombs were seen to burst in all target areas and direct hits were



DALNOBOYNUY BOMBARDIROVSCHIK.—A DB-3F long-range bomber of the Red Air Force. Designed by Sergei Iliuchin, the DB-3F is fitted with two 1,100 h.p. M-88 motors. The maximum bomb load is two tons and the maximum range 2,500 miles.

observed on buildings. After the bombing, most of the targets were heavily machine-gunned.

Continuing their attacks on enemy road and river communications, fighters damaged a steamer and other river craft on the Irawaddy. They also hit a number of lorries, most of them on the Taungup Pass road. Many vehicles were burnt out. At Padaung, near the Eastern end of the Taungup road, an attack on barracks was followed by an explosion and fires.

Heavy and medium bombers of the R.A.F. bombed Pegu railway junction with conspicuous success, whilst fighters attacked the oilfield installations at Nyaunghla on the Irawaddy. Following this attack the fighters made sweeps up and down the river, during which 26 river craft were successfully hit. The Akyab area was also subjected to fighter sweeps. In daylight fighter-bombers attacked objectives around Kalemyo. No Allied aeroplanes were lost in any of these operations.

Bombing attacks at extreme range have been a feature of war in the Pacific. Japanese installations on tiny atolls in the Mid-Pacific Marshall and Gilbert Island groups were bombed by American Liberators. Meanwhile in the Solomons the air war over Bougainville has increased in intensity. At Kara airfield torpedo and dive bombers unloaded 39 tons of bombs on the runway, supply areas and gun positions. During other air attacks around the island a float-plane and 10 barges were destroyed, while many buildings were set on fire.

Hong Kong was raided twice during the week by American bombers. One 11,000-ton cargo ship and two 1,000-ton ships were sunk. An aerodrome North-West of Hanoi was also attacked.

Towards the end of the week carrier-borne aircraft dropped 90 tons of bombs on Japanese installations in the lonely Pacific island of Nauru.

Italy and Southern Europe

Weather in Southern Italy was so bad throughout the week that hardly any ground movement was possible and air operations were on a limited scale. This will surprise nobody familiar with the Mediterranean at this period of the year, but if Winter arrives there early, it is usually short and the Allied Commands appear optimistic about progress so soon as conditions permit.

On Tuesday night, November 16, Piombino, on the Italian coast opposite Elba, was attacked by heavy bombers, while, on the following day, American Fortresses pattern-bombed Eleusis aerodrome at Athens for the third time in three days. Khalkis was also bombed three times in succession. Towards the end of the week weather improved slightly and the Eighth Army made a five-mile advance to take Peramo.

Diary of the 220th Week of War

Offensive Operations of Fighter, Coastal and Bomber Commands of the Royal Air Force and of the U.S. Army Eighth Air Force. From Nov. 14 to 20, 1943

Sunday, November 14

DAY .. Nothing to report.
NIGHT .. Nothing to report.

Monday, November 15

DAY .. Typhoons attacked shipping and transport in France. One Typhoon was lost.
NIGHT .. Bomber Command Mosquitoes attacked objectives in W. Germany. Two Mosquitoes were lost. One fighter was lost during an offensive night patrol. One enemy bomber was destroyed during slight enemy activity over South and South-West England.

Tuesday, November 16

DAY .. U.S.A.A.F. Fortresses and Liberators attacked Molybdenum mines at Knaben and the power-station at Rjukan in Norway. Six enemy fighters were destroyed by the bombers, two of which were lost. Typhoons attacked targets in W. France. Spitfires and a Mosquito attacked various targets in France.
NIGHT .. Bomber Command Mosquitoes, without loss, attacked objectives in W. Germany.

Wednesday, November 17

DAY .. One Sunderland of Coastal Command was lost on patrol over the Atlantic. Typhoons attacked shipping in N France. Two R.A.F. fighters were lost on offensive patrol.
NIGHT .. Main target: Ludwigshaven. Mosquitoes bombed targets in Berlin and W. Germany. One bomber was lost.

Thursday, November 18

DAY .. Typhoon bombers, with Typhoon escort, attacked objectives in N. France. Spitfires made offensive sweeps and attacked railway targets. One R.A.F. fighter was lost. U.S.A.A.F. Liberators attacked the Luftwaffe repair base at Kjeller in Norway. Eight enemy fighters were destroyed by the bombers, nine of which were lost.
NIGHT .. Main targets: Berlin and Ludwigshaven. Mines were laid in enemy waters. Thirty-two bombers were lost. Fighter Command intruders destroyed one enemy aeroplane.

Friday, November 19

DAY .. U.S.A.A.F. Fortresses, escorted by Thunderbolts, attacked targets in W. Germany. Typhoon bombers, escorted by Typhoons, attacked enemy airfields and other targets in N. France. Spitfires made offensive sweeps and destroyed one enemy fighter. Three R.A.F. fighters were lost.
NIGHT .. Main target: Leverkusen. Mines were laid in enemy waters. Five bombers were lost.

Saturday, November 20

DAY .. Fighter-bombers, escorted by fighters, bombed objectives in N. France. Mosquitoes destroyed a Junkers 90s off the coast of Brittany. Beaufighters of Coastal Command destroyed one Focke-Wulf Kurier and two Ju 88s over the Bay of Biscay.
NIGHT .. Two enemy aircraft were destroyed during slight enemy activity over S.E. England.

U.S. ARMY EIGHTH AIR FORCE

In operations during the week Nov. 14 to Nov. 20, the U.S. Army Eighth Air Force lost 11 heavy bombers. In the issue of Nov 12 it was stated in error than ten heavy bombers, two medium bombers and four fighters had been lost. This should read—fifteen heavy bombers, four medium bombers and six fighters. The total reported losses, therefore, now stand at 777 heavy bombers, 25 medium bombers and 70 fighters. Reported successes in combat now stand at 2,669 enemy fighters shot down.

AXIS AND ALLIED LOSSES—NOV. 14-20, 1943

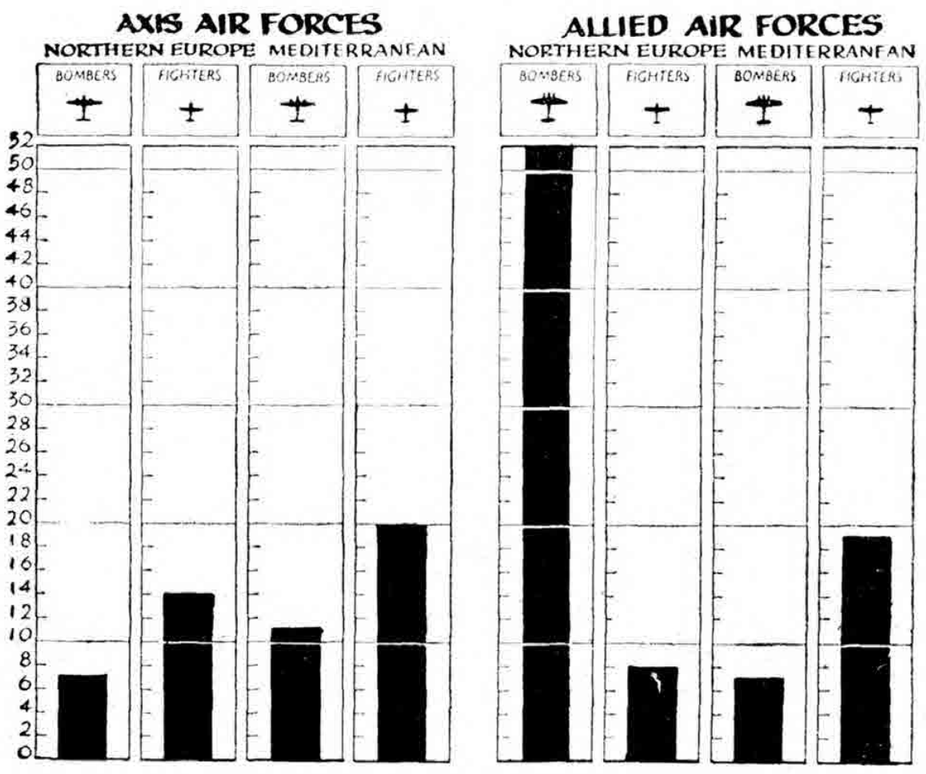
Date	Axis (N. Europe)		Axis (Medit.)		Allied (N. Europe)		Allied (Medit.)	
	Aircraft	Personnel	Aircraft	Personnel	Aircraft	Personnel	Aircraft	Personnel
14-11-43	—	—	10	19	—	—	10	22
15-11-43	1	4	—	—	4	12	2	2
16-11-43	6	6	14	35	2	20	6	10
17-11-43	—	—	5	8	4	11	2	6
18-11-43	8	8	—	—	42	251	1	4
19-11-43	—	—	2	2	8	33	4	1
20-11-43	6	24	—	—	—	—	1	7
Totals	21	42	31	64	60	327	26	52

TOTAL LOSSES IN THE AIR WAR* (To dawn, Nov. 21)

	Axis Air Forces	Allied Air Forces
Aircraft destroyed in combat or by A.A. gunfire	18,328	12,439
Personnel	30,671	49,645

* Excluding Russia and the Far East.

THE WEEK'S LOSSES—Nov. 14 to 20, 1943



THE WEEK'S LOSSES AT A GLANCE.—Comparative losses in the Air War for the week Nov. 14 to 20, 1943, inclusive. The chart does not include aeroplanes destroyed on the ground or those destroyed in Russia and the Far East. The figures for Northern Europe are: Axis (night offensive) 3 bombers; (defence by day) 4 bombers and 14 fighters. Allied (daylight offensive) 12 bombers and 7 fighters; (night offensive) 40 bombers and 1 fighter. The figures for the Mediterranean theatre are: Axis, 11 bombers and 20 fighters. Allied, 7 bombers and 19 fighters. Approximate personnel losses are: Northern Europe: Axis, 42; Allied, 327. Mediterranean theatre: Axis, 64; Allied, 52.

NEWS OF THE WEEK

Provisional instructions have now been approved for the issue of the Africa Star, ribbon and clasps. The Africa Star will have priority over the 1939/43 Star, concerning which instructions will be issued at a later date. No person shall be entitled to both Stars. Detailed terms of eligibility for the 1939/43 Star have not yet been definitely decided and no authority can be given for issue of the ribbon of this Star. The ribbon of the Africa Star will be worn immediately after ribbons of prior war medals. It is pale buff colour, with a central, vertical red stripe and two narrower stripes, one dark blue and the other light blue. The ribbon is to be worn with the dark blue stripe farthest from the left shoulder.

Officers and otner ranks of the following classes will be eligible for the Star:—All officers and other ranks of the British, Dominion, Colonial and Indian Forces, Nursing Officers. Officers and other ranks of the A.T.S., V.A.D. Officers and members.

To qualify for an award, individuals must have been taken on the strength of a unit or formation for an appropriate period in a qualifying Command. The Star is instituted for service in certain operational Commands in the Middle East and Africa from the date of Italy's entry into the War on June 10, 1940, until the cessation of operations against the enemy in North Africa on May 12, 1943.

Service in the following will qualify for the award:—Troops under N.A.F., H.Q. and Middle East Command, excluding those not West of Suez Canal and Red Sea: Abyssinia, from June 10, 1940, to Nov. 27, 1941; Italian Somaliland and Eritrea; British Somaliland, from Aug. 4, 1940, to Aug. 19, 1940; Malta, from June 10, 1940, to May 12, 1943.

A silver emblem in the form of an Arabic " 8 " for personnel of the Eighth Army and a " 1 " for those of the First Army will be worn on the ribbon to denote a clasp to the Africa Star.

The German Air Ministry has at least one Consolidated Liberator II flying for test purposes inside Germany.

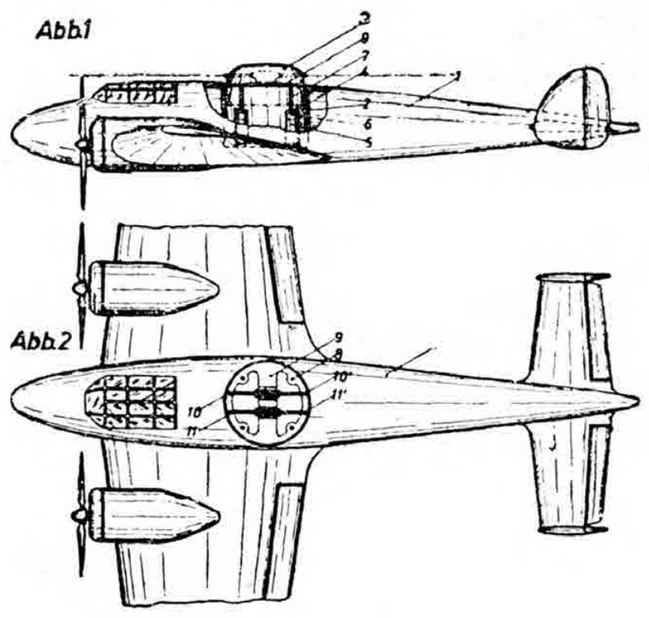
Russian aircraft production, according to certain U.S. experts, is increasing and some estimates put the monthly production at about 1,900 aeroplanes.

Orders for the first two experimental Grumman Hellcat single-seat shipboard fighters were placed in Aug. 1941, and four months later, in Dec. 1941, the first production contracts were signed. Modifications were incorporated in the design and then late in 1942 the first Hellcats were delivered to the U.S. Navy.

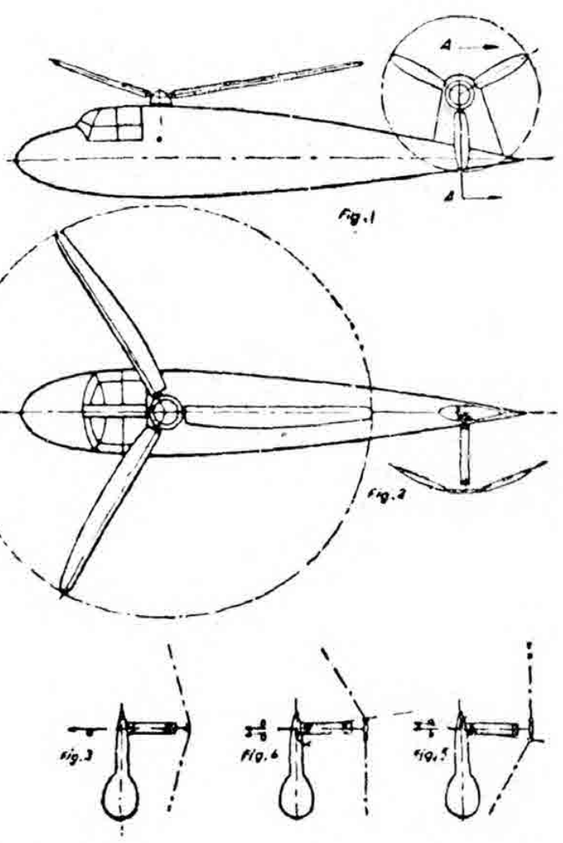
Tail cones have been fitted to the Consolidated C-87 Liberator Express, in place of the sheet-metal fairing on early models. They are 30 in. in length and weigh some 11 lb. less than the old installation. Speed of the C-87 has been increased by the change, which simplifies construction and improves the aerodynamic properties of the fuselage.

Two land-based patrol aeroplanes of the U.S. Navy, the North American Mitchell and Lockheed-Vega PV-1 Ventura are being used in the Pacific, specially equipped with a new form of anti-submarine armament.

King Farouk spoke of Egypt's geographical position as an air base after the war, for civil transport, in his speech at the opening of the Egyptian Parliament. He said: " My Government has undertaken to construct on a vast scale new aerodromes and to enlarge those already existing."



Nothing new.—A Junkers patent turret incorporating large-calibre guns which appear, from the text accompanying the diagram, to be modelled on the lines of the Davis non-recoil gun of 1916. This principle incorporated a double concentric barrel and a centrally placed breech with a charge firing simultaneously in opposite directions, thus balancing the recoil.



Two Minds.—Another German patent, by Focke-Wulf, shows a helicopter of great similarity to the recent Sikorsky designs. Control is obtained by variation of the angle of incidence of the blades of the auxiliary rotor. Vertical, horizontal and forward movements are all obtained by altering the lift forces of the rotors, according to the patent.

A special type of protective clothing is being issued to Bomber Command ground crews this winter. The R.A.F. has adopted an idea of the Fleet Air Arm, and is providing flight deck suits to men who have to work in all weathers on dispersal points. These suits are proof against wind and rain. They are worn under the blue dungarees supplied to all maintenance staff. Members of flarepath parties and those who work with the aerodrome control pilot at take-off and return are being issued with leather and canvas flying suits.

MOUNTAIN FASTNESS.—A molybdenum mine at Knaben, in Norway, bombed by Boeing Fortresses of the U.S. Eighth Army Air Force. The mine area was covered with bombs.

NEWS FROM GERMANY

The Bombing of the Vatican

THE SPANISH PAPER "Informaciones" published, on Oct. 23, 1943, an article by its Berlin correspondent which, at the present moment, ought to be studied carefully. It gives the answer to the question of who bombed the Vatican.

Señor Sanchez Maspons, the "Informaciones'" Berlin correspondent, described at length how German fighter pilots are trained to deal with Flying Fortresses. Maspons stated that among new methods used for the training of these specialised fighter pilots are mock battles against formations of Flying Fortresses flown by German crews, known as the "Flying Fortress Staffeln."

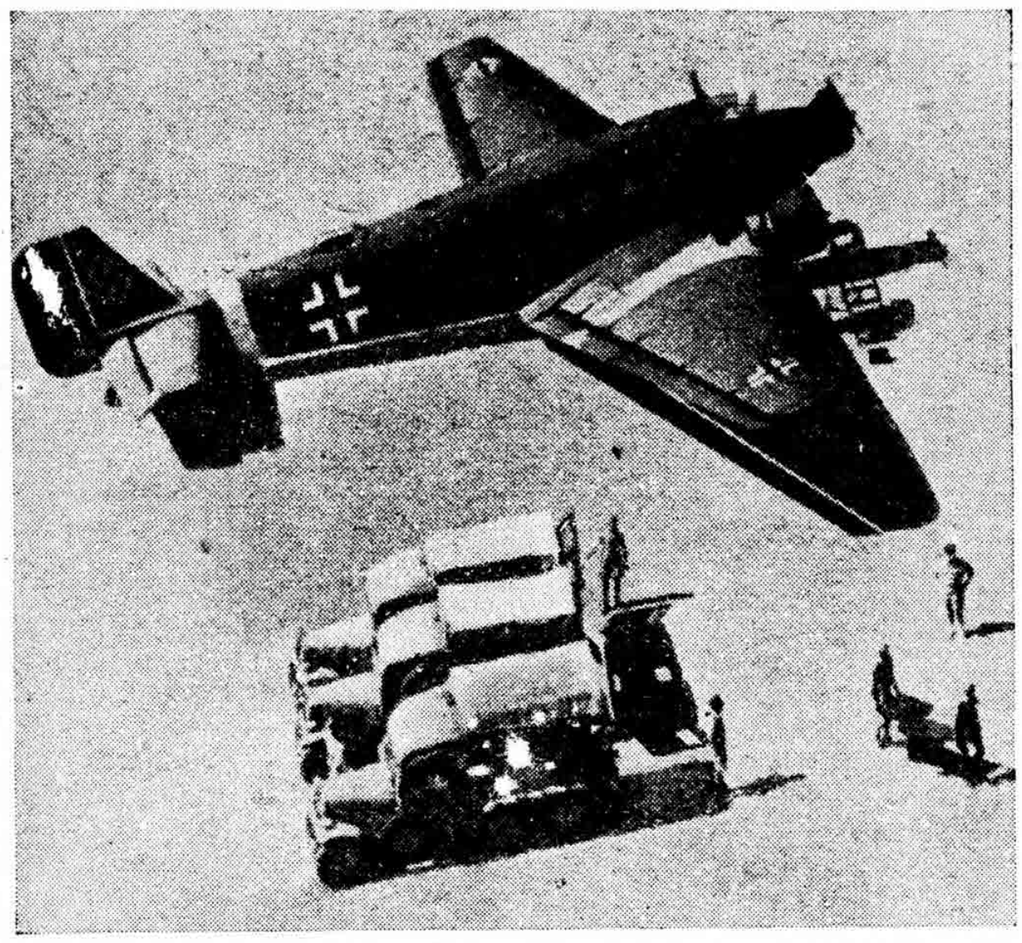
These units are "made up of four-engined American and some four-engined British bombers." The Germans have a fair number of these types which they keep in the war zones inside the Reich. On the Atlantic Coast are special units for the recovery of enemy aircraft which are still fit for use. German mechanics who have worked in aircraft factories abroad, in particular in the United States, dismantle the recovered aircraft and the parts are sent to a special factory which turns out the "Flying Fortress Staffeln."

Major-General Galland, the former commander of the Schlageter Jagdgeschwader, at present Inspector of Fighters, is in charge of the training. According to the Spanish journalist, only men who speak English perfectly are accepted for duty in "Flying Fortress Staffeln" The men live in special camps, and their only contact with other units of the Luftwaffe is through liaison officers. After training flights or mock battles, they inform the fighter pilots of the results, correct mistakes and improve their methods of attack. The Berlin correspondent of "Informaciones" concluded his report by stating that the "Flying Fortress Staffeln" are now carrying out raids in company with German bombers of a new type.

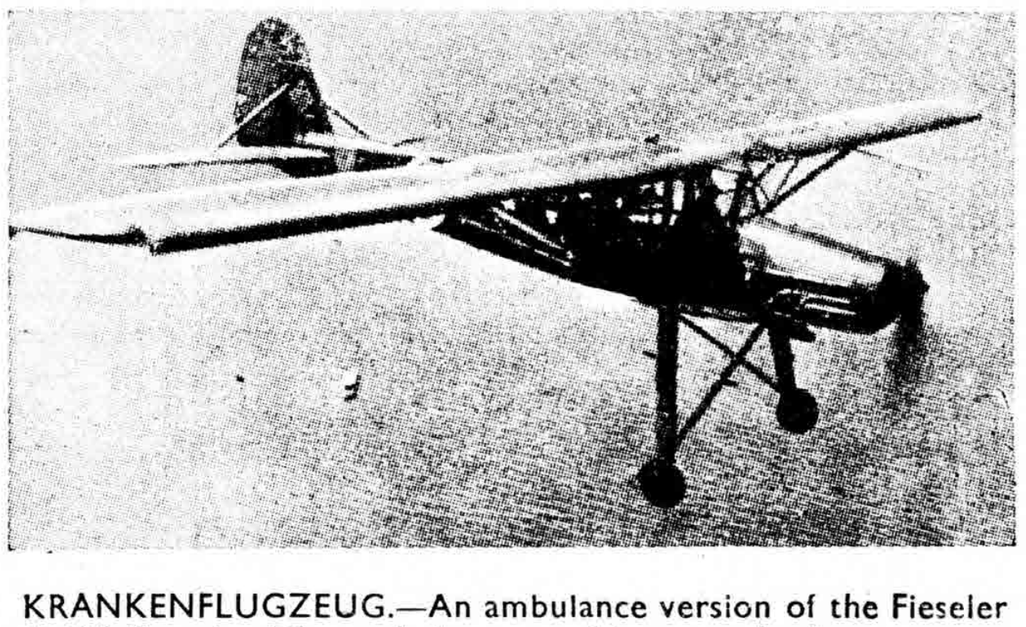
In addition, there are other Luftwaffe units flying other types of Allied aircraft. As far back as last year, reports from neutral sources indicated that in order to obtain "realistic" photographs of air fights, the Germans had assembled a number of Hurricanes and Spitfires at the Rechlin testing aerodrome, over which, for the benefit of photographers and cameramen, mock battles were flown. During these shows, all the Hurricanes or Spitfires were shot down. The pictures usually showed British aeroplanes going down with thick black trails behind; the actual crash, however, was never shown The black trail originated from a smoke-creating apparatus which the "Hurricane or Spitfire pilots" set in motion at convenient times.

There is no great imagination required to visualise that the "Flying Fortress Staffeln," or one of the other Luftwaffe units equipped with British or American machines, loaded with captured Allied bombs, could be used for other purposes. The Spanish journalist himself gives the clue when he states that the "Flying Fortress Staffeln" are entrusted with bombing raids.

Ten years ago the Nazis fired the German Reichstag and blamed the Communists. Hermann Göring, as Minister of the Interior, was in charge of that "ops." This time, Hermann Göring, in his capacity as Commander-in-Chief of the Luftwaffe, is responsible again. His reward ten years ago was promotion to a higher rank. On Nov. 9 he was allowed to attend the meeting of the old Party members and listen to His Master's Voice. After the Reichstag fire came the Reichstag trial, which proved Göring's guilt beyond doubt; the proof of his guilt in bombing the Vatican will be established by another court, the justices of which will not be as lenient as the seven red-robed puppets at Leipzig ten years ago.



IN GREAT DEMAND.—A Luftwaffe Junkers Ju.52/3M in service as an air ambulance. The shadow clearly shows the Junkers "Double Wing."



KRANKENFLUGZEUG.—An ambulance version of the Fieseler Fi 156 Storch. The ambulance markings can be just seen on wings and fuselage.

An Enemy "Appreciation"

"MOST OF THE U.S. BOMBERS in the European theatre of war do not carry bomb sights during attacks. This applies to four-engined bombers as well as Marauders." This is, according to Transocean's aeronautical correspondent, Carl Zeppelin, in a transmission to the Far East, the most surprising discovery and experience of the past months.

U.S. aircraft, the writer continued, had the reputation of being equipped with the best bomb-sight in the World. The Sperry bomb-sights, however, which were found on many U.S. bombers brought down over Europe allow the conclusion, he said, that the Sperry sights are good, but not better than German bomb-sights.

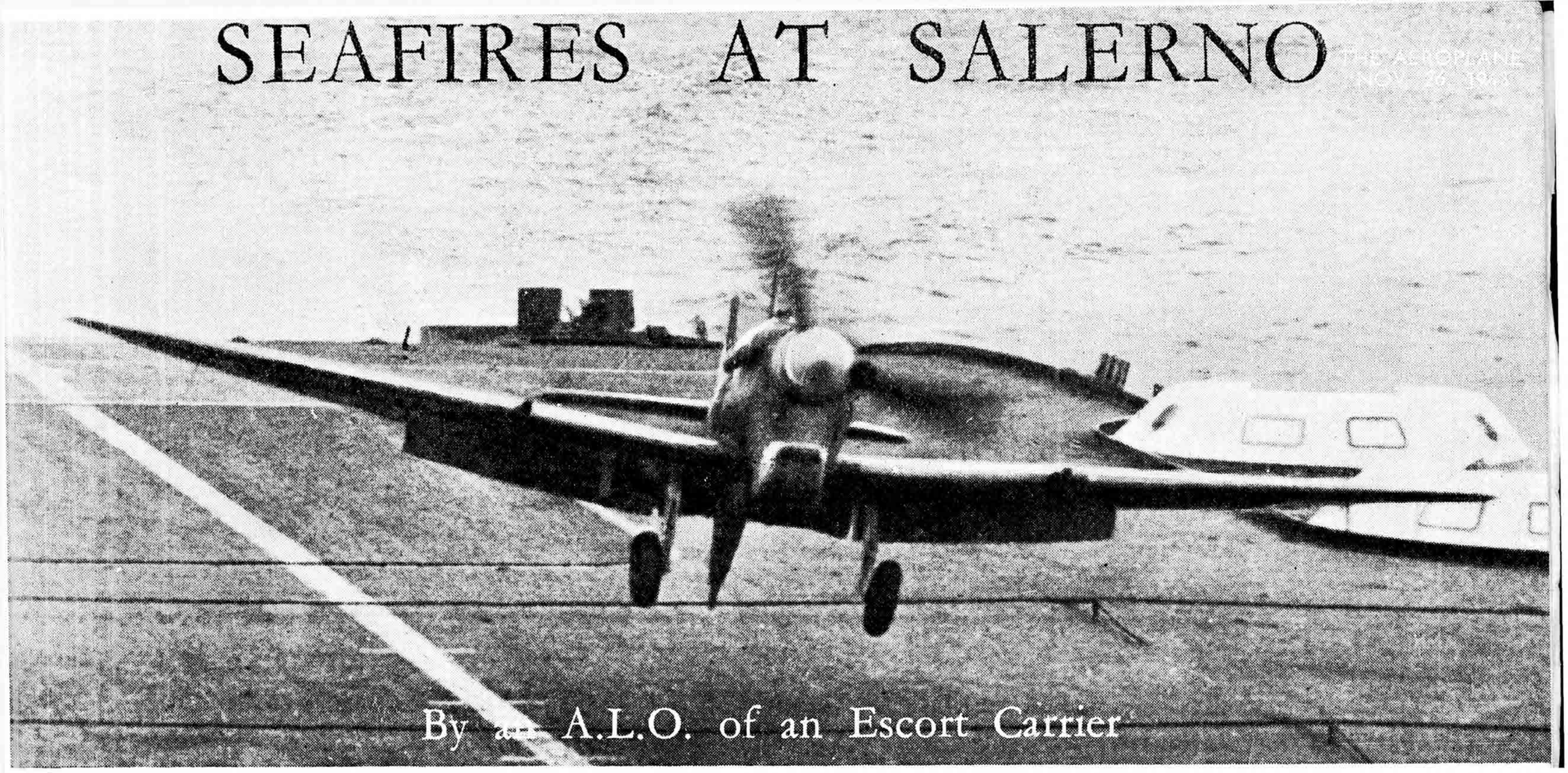
Another "discovery" made by Transocean's Zeppelin was that the Fortresses carry only a very small bomb load in proportion to their size, and that "nearly one-third of their effective weight is used for their armament." He explained that the reason for the American technique of attack in formation is that the U.S. Air Force has only time for short training and thus cannot give the crews the necessary experience to execute orders individually.

A curious historical twist to this enemy criticism of the American Fortress heavy bombers is given by the name of the correspondent—Zeppelin. Apart from a certain effect on British morale in the early part of the Great War from 1915-17, the Zeppelin airship had little effect on the progress of that War. A small amount of material damage was done by and there was a regrettable loss of life from those early airship raids, but on a scale no greater than is now caused by the hit-and-run raids of German fighter-bombers over the South and South-East nowadays.

Zeppelin might almost be describing raids carried out in former years by products of his more famous namesake, instead of the mass raids of Fortresses over his country to-day, which are effective.

His criticisms can be classified under three headings: 1, That only certain U.S. bombers carry bomb sights; 2, that the Sperry bomb sight is no better than its German counterpart; and 3, that the bomb load of the Fortress is comparatively small. He neglects to mention the increasing bomb loads on later mark Fortresses; the escort protection now being given to American heavy bombers by long-range fighters; and the extreme accuracy of the Sperry prismatic bomb sight, which reduces the percentage of bomb wastage considerably. In effect, this last characteristic increases the effective bomb load of the Fortress. A 100 per cent. efficiency in hitting the target, which is the American ideal, is something that Herr Zeppelin's compatriots in the Luftwaffe could never accomplish here.

SEAFIRES AT SALERNO



By an A.L.O. of an Escort Carrier

FORMIDABLE FIGHTER.—A Supermarine Seafire I, with arrestor hook extended, landing on the deck of H.M.S. Formidable during the operations at Salerno. The ships reported to have taken part in this action were the 23,000-ton carriers Illustrious and Formidable, covered by the Nelson and Rodney, and the escort carriers Attacker Battler, Hunter, Stalker, and Unicorn, covered by light cruisers and destroyers.

I WAS PRIVILEGED to be one of the two Army officers working with the Fleet Air Arm during the Salerno landings, spending the period of the operation aboard one of H.M. Escort Carriers. I thus examined with interest recently a photograph appearing in THE AEROPLANE of October 22 showing a Seafire making an extra heavy landing on the deck of such a Carrier. Beneath this photograph was a caption praising the work of the Fleet Air Arm at Salerno.

I then read the article appearing above the photograph, entitled "Mediterranean Air Power," by Air Commodore A. W. F. Glenny, M.C., D.F.C., and it is largely to correct certain impressions and omissions in that article that this contribution is submitted.

Whereas the F.A.A. performance was mentioned in the caption there was no reference whatever to it in Air Commodore Glenny's article, thereby, in my opinion, doing the F.A.A. a distinct injustice, and leaving a very large gap in the true facts regarding the air cover at Salerno, not to mention the part played in the African and Sicilian landings as well as in the heroic Malta convoys.

This is what happened:—

The Aircraft Carriers and escort entered their operating area before dawn on the first morning. The previous night they had been interested spectators of a tremendous firework display in the Straits of Messina, presumably in celebration of the Italian Armistice. At dawn the first patrol was air-borne, and from that time onwards till dusk each day, in sunny, cloudless weather, the air above Ischia, the Bay of Naples, the Gulf of Salerno, and the beaches, was constantly patrolled by the Seafire squadrons.

The number of aircraft composing the squadrons cannot be given here, but it is sufficient to say that for the first four days it represented a substantial proportion of all aircraft covering the area, including U.S.A.A.F. and R.A.F. The "some dozens of Spitfires" mentioned by Air Commodore Glenny were in fact Seafires, with a comparatively small number of Spitfires giving top cover.

The above clarifying remarks in no way detract from the performance of the R.A.F. during those first days, but Sicily was about 150 miles away, and the Carrier force barely 30 miles.

Luftwaffe Dispositions

Intelligence reports told us that the Luftwaffe had quite large numbers of Me 109s and Ju 88s based around Foggia, and there were also some Fw 190 fighter-bomber squadrons on the aerodromes North of Naples.

Undoubtedly the hammering given these aerodromes by Allied bombers in the period before the landings must have seriously lessened their power of counter-attack. There was quite a substantial number of enemy aircraft in the vicinity of the patrol area each day. In fact, our pilots had reported seeing them on various occasions, but they were almost invariably too high or too far away to warrant interception.

I therefore sum up my view of the situation as follows: There were enemy fighters high above the patrol area trying to draw our aeroplanes away, and fighter bombers outside it waiting for us to oblige and allow them to make their attacks. They would on no account risk casualties by the guns of the Seafires and Spitfires, although they were occasionally prepared to "mix it" with the Lightnings. Very few of our pilots were involved with the Me 109s. In two cases, the latter were destroyed and in three others they retreated in a damaged condition. In other words, we refused to play their game, which was, of course, the correct policy, even if the result was unspectacular and disappointing for the pilots. There was no loss to pilots or aeroplanes as a result of enemy action.

Heat

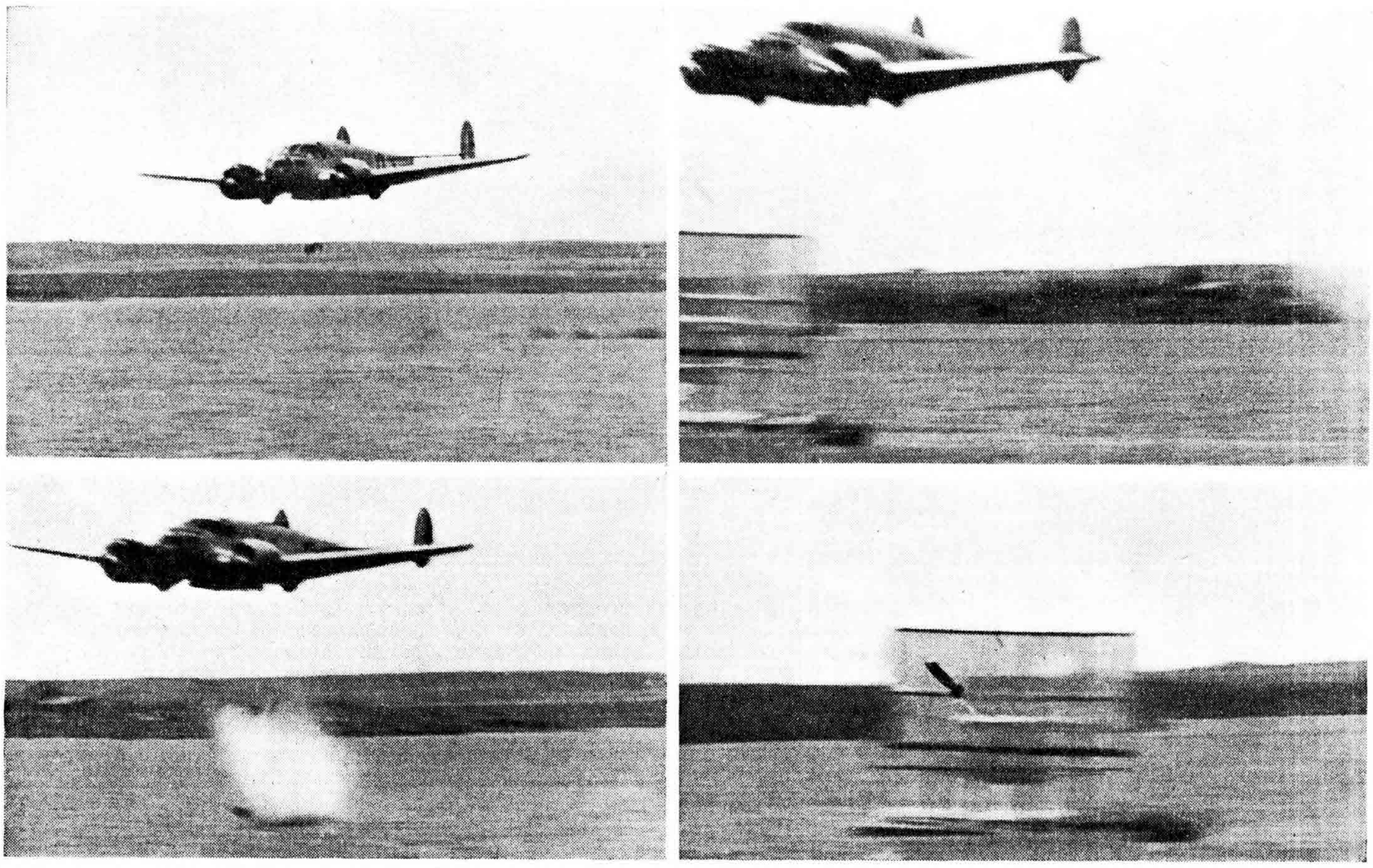
During the whole period of operating the weather was hot and sunny, and there was hardly a breath of wind other than that caused by the ship's speed. This, combined with the fact that the Escort Carrier is neither so large nor so fast as the Fleet Carrier, imposed considerable strain upon the pilots who were taking off and landing on under these conditions perhaps three or four times a day.

Added to this was the great and constant heat, the noisy and somewhat confined space on board, and the sun beating down on the flight deck and ship's sides. At an operational aerodrome a pilot can at least get away and appreciate a break between sorties. In a ship this is quite impossible; all he can do is to go to the Wardroom, or to his cabin and sleep heavily but with little satisfaction. The mattress may be comfortable enough, but there are no scuttles, and despite the forced ventilation the atmosphere is hardly refreshing. All these things are unavoidable, but should nevertheless be known and appreciated more.

On the afternoon of the fourth day all the remaining aeroplanes flew ashore to help the situation there, and the Carrier force made its way to Palermo. For them the operation was concluded with the receipt of a signal from Rear-Admiral Vian stating that landing strips were now safely established, and congratulating them on their fine effort which had made the operation practical. Here, too, should be mentioned the constant cover which aircraft from the Illustrious and Formidable provided for the Escort Carriers.

In conclusion, therefore, speaking as an entirely impartial observer, who up to this Summer had lived first with the Army and then for 18 months with an R.A.F. Squadron, I would like to confirm your paper's reference to the gallant part which the Fleet Air Arm played in this operation.

SKIP-BOMBING



DUCKS AND DRAKES.—A Beech AT-11 "Kansas" advanced trainer engaged in skip-bombing practice. Top left, the bomb may be seen leaving the aeroplane and bottom left, it strikes the water. Top right, the bomb is seen in the centre of the picture just above the edge of the water, but actually in mid-air. Bottom right, a "bull's-eye" is scored right through the target, which represents a ship.

THE new technique of skip-bombing has brought success to the U.S. Army Air Forces in the battle of the Bismarck Sea and in the Mediterranean. Similar methods of bombing are being used with telling effect against Japanese forces in the Aleutian Islands. When employed against shipping, skip-bombing can be regarded as the middle course between dive-bombing and torpedo attack. Skip-bombing, or bounce-bombing, of land targets is best described as a cross between dive-bombing and shelling.

Investigations into this method of attack began at Eglin Field, Florida, in January, 1942. Heavy, medium, and fighter-bombers were tested to determine which class was most able to meet the peculiar requirements of this new technique. Medium bombers of the Mitchell and Marauder class proved to be most suitable for average distance attacks against sea targets. Heavy bombers were found to be too slow in speed and in control. Fighters have not the necessary range. Nevertheless, Consolidated Liberators in the South-West Pacific have at least one skip-bombing success against Japanese ships to their credit.

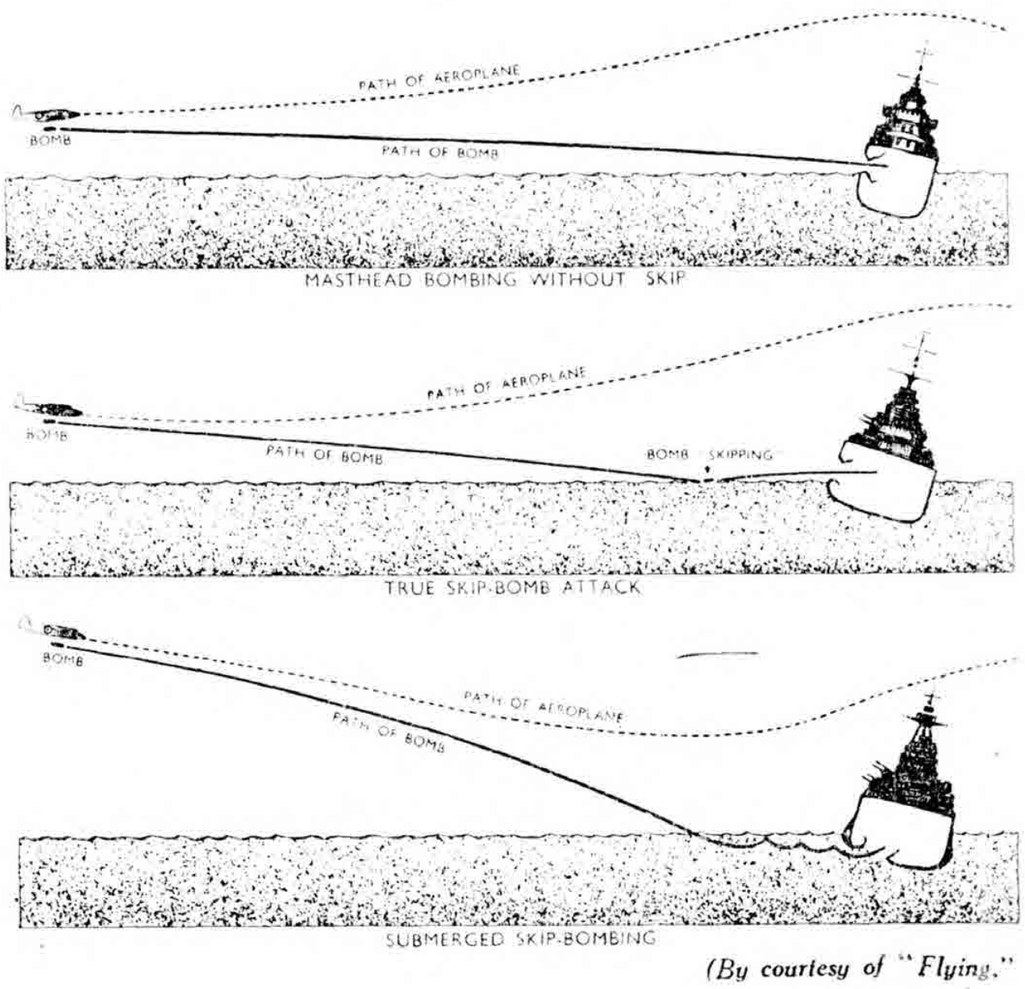
The advantages of medium bombers lie in their speed and ease of manœuvre and handling. "Jinking" tactics are advisable during the run-up, as attack must be made in face of intense fire from the targets. These attributes combined with forward-firing power are considered essential for this form of bombing. The bombs are of the normal armour-piercing type, with delayed-action fuses to allow the attackers time to fly clear of débris and to ensure that the explosion occurs after penetration of the bomb. Special fuses were developed at Eglin Field for the bombs.

Various types of skip-bombing are used at sea. Sometimes the bomb is aimed to bounce on the water and ricochet into the ship's side. A modification is to drop the bomb earlier so that it bounces, falls into the sea and strikes the target ship beneath its water line. The third method entails attack from a higher level, when the bomb is released close to the ship and strikes before a vertical dropping position is attained.

Reports from the Mediterranean of skip-bombing missions from January to April this year show that 105 sorties were flown by Mitchells and Marauders. A total of 16 merchant ships was sunk and 18 were badly damaged. Direct hits were registered by 66 per cent. of the bombs used and 15 per cent. of the remaining 34 per cent. were near misses, which, if they did not actually hit the ships, probably caused damage.

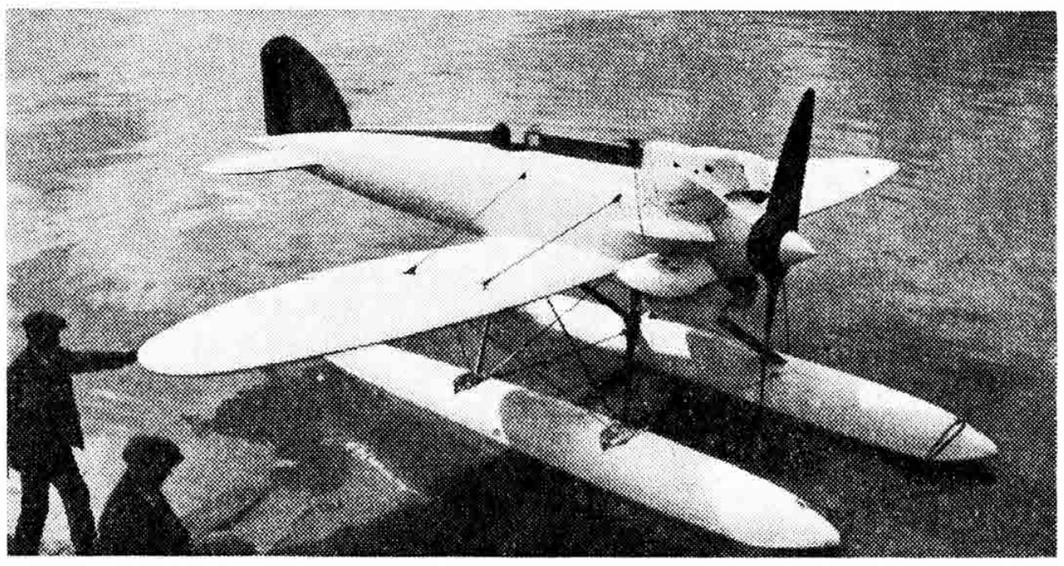
Skip-bombing has been used extensively in the Aleutians. One typical application occurred on Oct. 16, 1942, when two Japanese destroyers of the Hibiki class were sunk. The aeroplanes used were B-25 Mitchells, escorted by P-38 Lightnings. The escort strafed the destroyer's defensive positions before the skip attack. Skip-bombing was used against land objectives during the Pantellaria assault. Low-flying U.S. aeroplanes skipped bombs into caves being used as underground hangars.

Whatever the success of the skip-bomber, its future depends on its ability to cope with withering fire at point-blank range and also on the choice of the right target in the right conditions. Unless care is exercised, skip-bombing may well prove uneconomical or even costly.



(By courtesy of "Flying."

SIDELIGHTS FROM THE PAST—LXXII



THE BLACKBURN-NAPIER PELLET

SCHNEIDER TROPHY racing seaplanes were in the public eye largely because of the publicity given to that international competition. In consequence the more successful types used were well known, in particular to the air-minded section of the community. Some of the less fortunate competitors have vanished into obscurity. This is a pity, because some stout individual efforts were made by the British Aircraft Industry with lesser-known types in international air competition. Two of these are dealt with here, the Blackburn Pellet which competed in the Schneider Contest of 1923, and the Short-Bristol Crusader, which was sent out to Venice for the memorable Trophy race of 1927 won by Flt. Lt. Webster on the Supermarine Napier S.5.

The Blackburn Pellet started life somewhere at the end of the last War as a naval flying-boat for patrol escort, designated the N.1.B. The cessation of hostilities dried up experimental construction and only the hull was completed. It was found to be in excellent condition later when the Blackburn Aircraft Co. decided to enter for the Schneider contest in 1923.

To it were added biplane wings of sesquiplane arrangement. Above the centre section of the upper wing a 450 h.p. Napier Lion motor was mounted. The tractor airscrew functioned about a foot behind the pilot's head.

The hull of the Pellet was of the Linton-Hope type of circular cross section with hoop-stringer structure. It was planked with mahogany laid on in diagonal strips. Two steps were incorporated.

About a month before the race the Pellet was ready for water-handling trials. These exposed a lack of buoyancy in the wing-tip floats and soon after the machine had left the slipway in the hands of Mr. R. W. Kenworthy, Blackburn's Chief Test Pilot at that time, it rolled over sideways and sank. The Pellet was salvaged, dismantled, and damage occasioned by water "soakage" and viscous Humber mud was put right. The Napier Lion also had to be completely taken down and the unfortunate hold-ups quickly drained the hour glass of time in which Kenworthy had to become acquainted with the Pellet. After repair the racer was packed up and sent to Fairey's Works at Hamble.

The evening before the race it was re-assembled and went out for another test. Kenworthy spent a period of unhurried and careful taxi-ing and then opened the throttle wide. The take-off was wet. At 30 knots the sea cascaded into the open cockpit and with the pilot wet to the skin the Pellet eventually became airborne. The relationship between C.G. and C.P. was then found to be unbalanced, but greater trouble claimed the pilot's sole attention. The water in the radiator was boiling and Kenworthy had to alight at once.

His plight had been seen by employees of S. E. Saunders and Co., the aircraft manufacturers, who had placed their hangars and slipways at Cowes at the disposal of the race committee of the Royal Aero Club for this 1923 contest. The Saunders people immediately dispatched a launch to the scene and the Pellet and its pilot were towed to Cowes. Mechanics worked all night installing larger radiators of French "Lamblin" design.

In the morning the Pellet came out for the third and last time. No further testing was possible and the navigability trials, part of the competition, had to be proceeded with. Kenworthy taxied the Pellet out to the marker buoy, waved to his friends ashore and opened up the throttle. The Pellet leaped forward with a terrific swing. It took off with one wing low and then dropped back into the water with the other wing down. This rocking and porpoising proceeded for some seconds until like a giant sting-ray the Pellet shot out of the water, cartwheeled over and sank in a cloud of spray. After an interminable time Kenworthy came up to the surface. He had been able to subsist in a pocket of air trapped in the hull until he was able to find his way out of the wreck. By that uncanny instinct of timing which is peculiar to aeroplane pilots Kenworthy cut the ignition switches a split second before the Pellet's "plummet." This saved his head from serious damage, placed as it was so close to the airscrew.

THE SHORT-BRISTOL CRUSADER

A Cameo of Venice

In addition to the Supermarine-Napier S.5 monoplanes and the Gloster S.IVB biplanes ordered by the Air Ministry for the 1927 Schneider Trophy Contest at Venice, a radial-engined monoplane was also sent out as a reserve machine. This was the Crusader, which was produced as a result of enterprise on the part of Lt.-Col. W. A. Bristow, the Bristol Aeroplane Co., Mr. W. G. Carter, who undertook most of the design and who was sponsored by Sir Henry White Smith, and Short Bros., who designed the floats and built the aeroplane.

This interesting type contained several novel features and, like the Blackburn Pellet, was in the air for too short a time for the pilots to have become fully acquainted with it. Its subsequent performance and the escape of the pilot bore a marked resemblance to the fate of the Pellet. Special interest rested in the Crusader on account of its specially designed air-cooled Bristol radial motor. At that time, 1927, radial motors averaged round about 450 h.p., whereas the new motor was projected to give 960 h.p. for short periods.

Research into the nature of air flow around the cylinder heads at high speed was then only of an exploratory nature and lack of knowledge on the subject led to trouble with the air intakes. An amusing account is given by Flt. Lt. H. M. Schofield of his anxieties and his helplessness with the Crusader when the motor was cutting in and cutting out. Bert Hinkler undertook the first test flights at Felixstowe.

The forward portion of the fuselage was built of steel tubing faired with plywood and aluminium to a circular section. The substantial engine mounting was of duralumin sheet and channel members riveted together. There was a four-point attachment to the rear fuselage structure, which was of semi-monocoque construction and had a plywood skin of double diagonal planking with a varnished linen inner layer and a covering of silk. The wings were of wooden construction on a normal two-box spar system with a 1 mm. thick three-ply skin over which silk was stretched as a final covering.

Streamlined helmets were fitted over each cylinder of the Bristol Mercury I motor to give low drag.

At Venice on Sept. 11 the motor was persuaded to run satisfactorily and Schofield prepared to take-off for a final flight. Fuel was being carried in one of the floats for the first time and handling was expected to be tricky. The pilot opened up and took off after a little difficulty in keeping the machine straight. When airborne at about 15 ft. the Crusader hit an outsize in bumps which rolled it over on one wing tip. The pilot corrected this movement on the stick, but instead of lifting the wing this action depressed it still further and in an instant the Crusader dived below the surface of the water at 150 m.p.h. Afterwards it transpired that the aileron control wires had been crossed.

Flt. Lt. Schofield was catapulted out of the cockpit and when the rescue launch reached the spot he was swimming strongly. The Mercury had a magnesium crankcase which was found to be eaten away by the strong saline water of the Adriatic when the Crusader was eventually fished up. After being hauled on board, Flt. Lt. Schofield was "out" for several hours. So ended the career of yet another promising British racing aeroplane. But lessons were learnt which proved invaluable in the development and installation of the high-powered Bristol radial motor, so prominent a feature of the equipment of the Royal Air Force to-day.

The photographs show on the left the Blackburn Pellet of 1923, and on the right the Short-Bristol Crusader of 1927.

AIR FREIGHT OF THE FUTURE

By J. Percival Chaplin, A.R.I.B.A., A.I.A.A.

AIR FREIGHT will undoubtedly expand, and in so doing revolutionise transport of all kinds. This revolution will probably materialise, like all revolutions, through the culminating effect of detail. Much theory has been advanced, but the translation of these theories to practice lies in the future.

A balance must be preserved between production time-cost and running cost, useful load and handling efficiency. This balance should be kept on a level to justify scrapping at frequent intervals, thus ensuring activity on the production side which will produce a constant flow of new ideas.

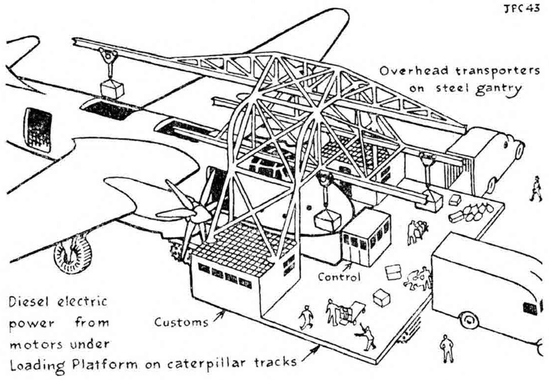
At the present stage of development, aircraft ranging from 60 to 120 ft. span offer the most useful field for design. Aircraft within this range can be easily handled, are reasonably cheap to run and produce, and can be scrapped after a fairly short life. Pay-loads are rapidly increasing in comparison with the size of the aeroplane, and a giant is not always the best, although perhaps the obvious solution to the problem of carrying loads practical commercially.

Aircraft

The basic points of cargo transport are: speed, size of unit, handling efficiency, form and shape of unit and balance. Applying these to aeroplanes brings out the following points:—

Speed.—Governed by drag and power. The former is a question of design and must balance with the most efficient shape. The latter is governed by running economy balanced with operational requirements.

Size of Unit.—Governed by type and weight of cargo. Our railways have been built up on small units, but the tendency is towards larger units. American freight cars about 40 ft. long are generally considered a good type.



FOR SPEED.—Designed for rapid freight handling, this unit has three overhead transporters enabling cargo to be worked from two side doors and roof hatches. Roof openings reduce the amount of handling and are now replacing side doors in warehouses.

Larger units bring difficulties of handling and lack of balance when partly loaded. Allowing for the bulkiest type of cargo, a compartment 40 ft. by 8 ft. by 9 ft. high would contain sufficient weight to load the types of aeroplane at a practical stage of design to-day. With higher wing loadings the size of compartment may be increased, but it may be better to use this characteristic to improve the efficiency of the aeroplane rather than its size.

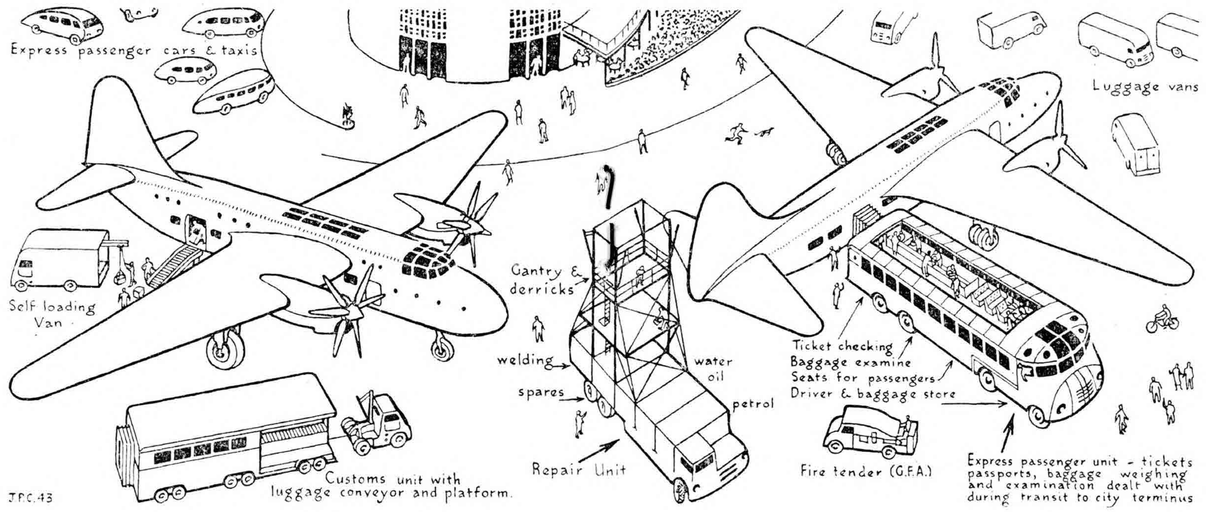
Handling Efficiency.—This falls into two parts, the handling of the aeroplane on the ground and the handling of the cargo.

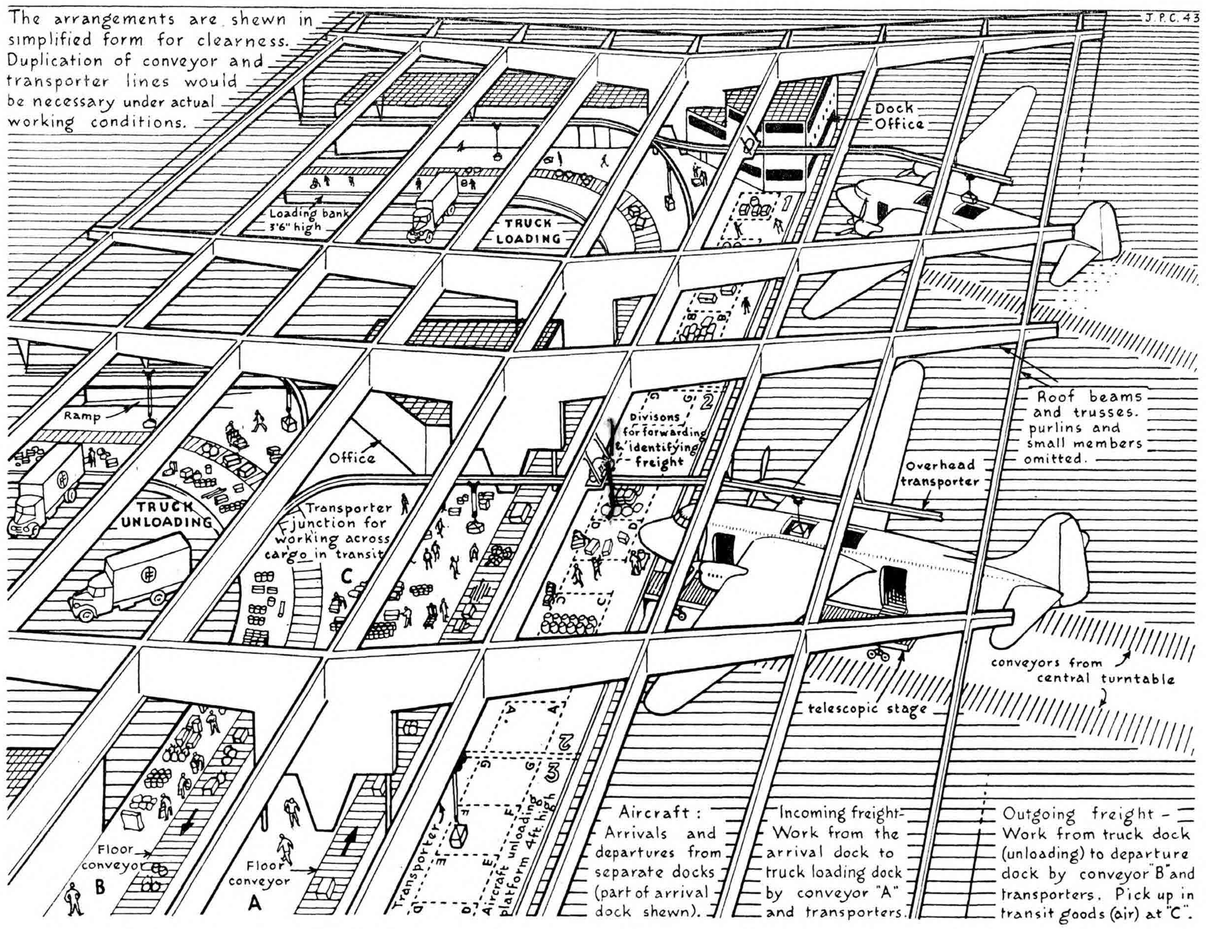
The larger the aeroplane the more complicated it is to handle, service and run. For cargo handling the key points are accessibility and suitability. Proper-sized doors and hatches placed so as to avoid obstruction from wings, airscrews and undercarriage are needed, as are level strong floors at a standard height from the ground if possible.

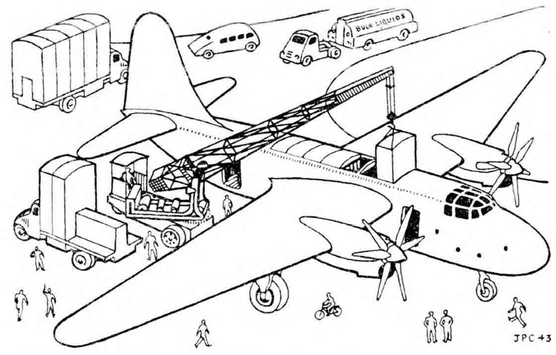
Provided the floor is level it is possible to overcome the variation of the height above ground by making adjustable floors in the loading dock or vehicle serving the aeroplane. Suitable shape and form of compartment for the various types of cargo is essential, and here a general-purpose type would appear to be the best proposition. Cooling, ventilation, fire protection and stowage facilities all need consideration.

Form and Shape.—The general form of the aeroplane is governed by the foregoing requirements, and a number of design problems are apparent in complying with them and at the same time producing an aerodynamically efficient design.

The form of the cargo space should be as near as possible to the ideal of a rectangular compartment with square walls and level floor and ceiling.







CONTAINER SERVICE.—This suggestion is based on an American idea (by the inventor of Fowler flaps). The fuselage sections are removed bodily and conveyed on special trucks. A manhole at the bottom of each one gives access from one end of the aeroplane to the other. Whilst this is probably the most economical and speedy method of freight handling, it gives rise to great problems of balance, especially under conditions of part loading.

Balance.—Balanced general design is essential for efficient running, and experience only can show the best type. The medium-sized, high-wing aeroplane with tricycle undercarriage and oval section fuselage appears to be a basis.

Design should take into account the best position and internal disposal of cargo in the compartment to maintain maximum efficiency with " part " loads.

Ground Facilities

To maintain the best possible speed from point to point in the air, balanced ground organisation is essential. The keynote is quick turnover, and to achieve this all adjuncts must be designed for the job. If permanent buildings are provided they should be as simple as possible, with mechanised gear and planned organisation for the speediest indenture and dispersal of loads.

The great disadvantage of buildings is that once built they are difficult to alter and too expensive to pull down and rebuild at frequent intervals. To keep abreast of aircraft development something less static is necessary.

Light metal units with a large use of plastics can provide buildings more easily altered. Hangars kept as wide open spaces present no problems. Station buildings could be either a permanent " shell " with subdivisions of a temporary nature or small temporary units. Much can be learnt from the exhibition type of building in this connection.

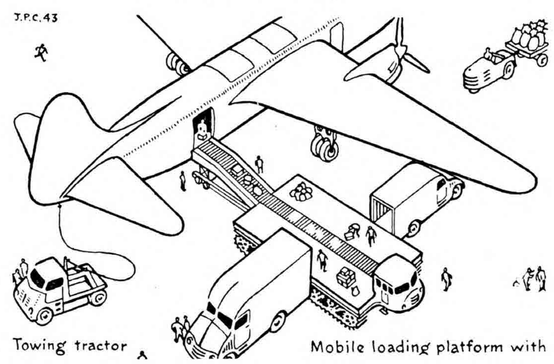
From some aspects it would seem more logical to eliminate buildings altogether and to handle passengers and freight by means of mobile units designed for a fairly short life.

Administration would require permanent quarters, but its needs are fairly static and not likely to alter much. The unit idea has many attractive qualities, and proper design can in some aspects provide more efficient handling.

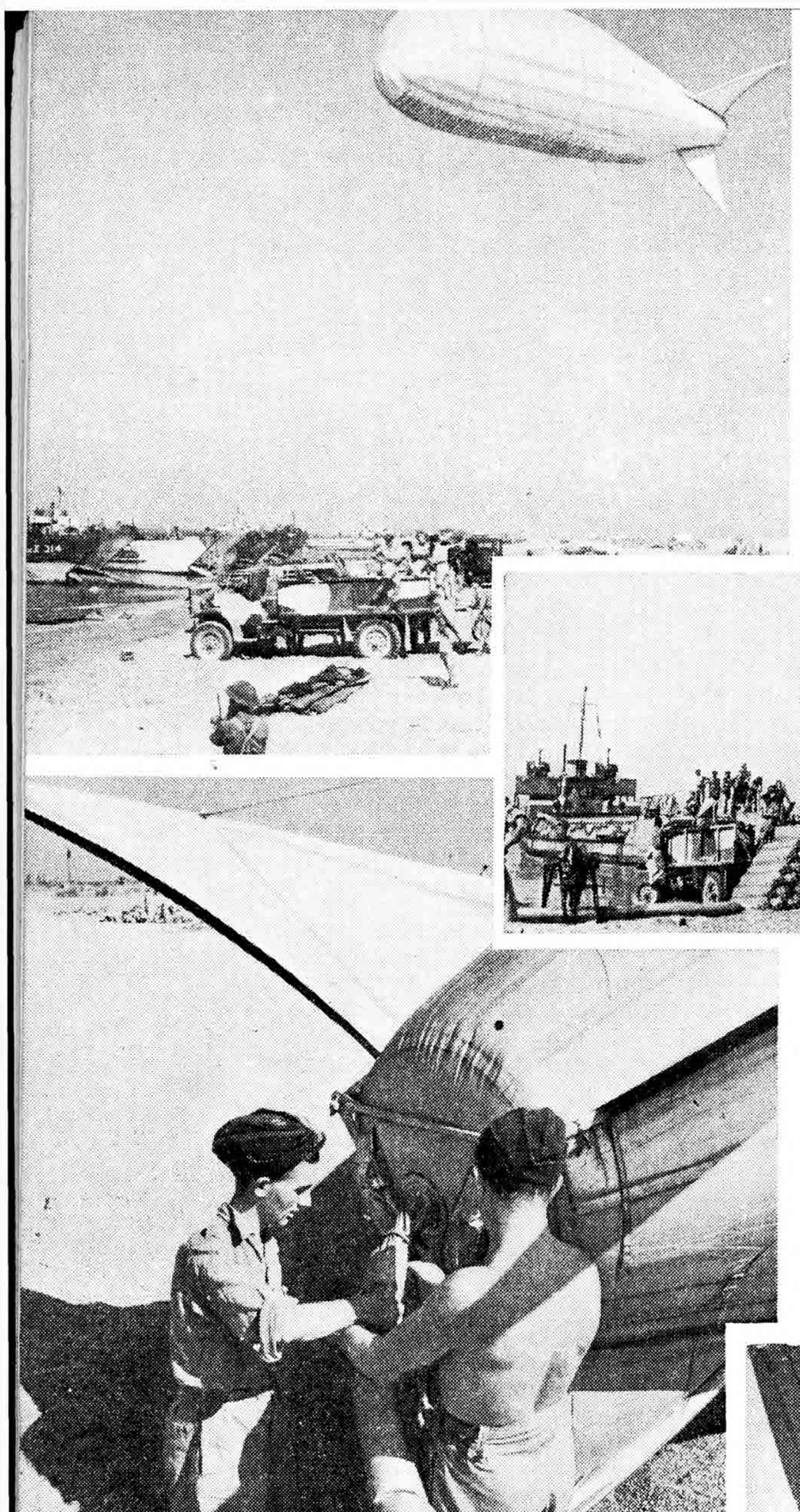
Great speed could be achieved as there would be no limit, other than the size of the ground, to the number of aircraft which could be handled at one time. The form of the units would require careful consideration, and the sketches illustrating this article should be taken as preliminary ideas only.

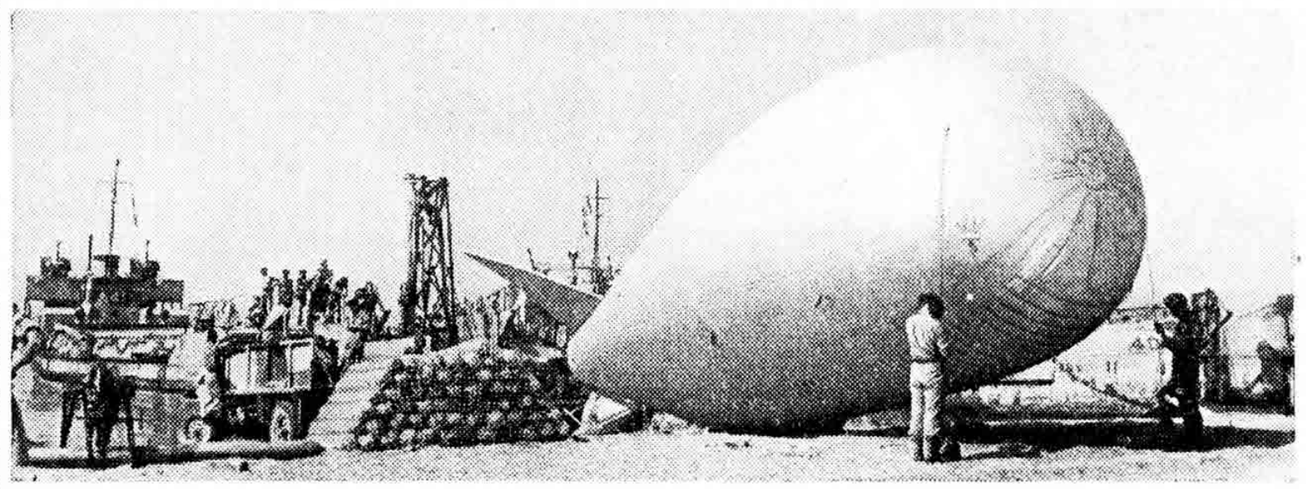
If this year's designs are viewed as next year's scrap, aviation will be sure of a lively and prosperous future.

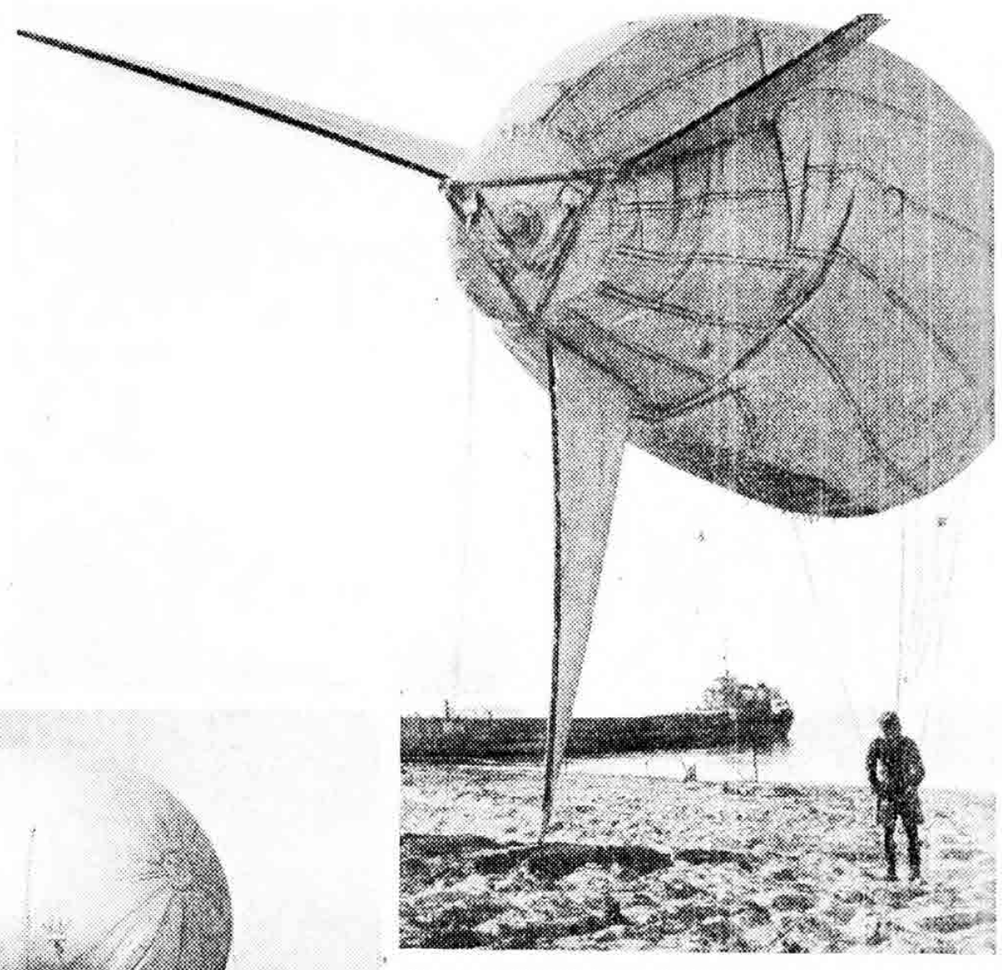
CONVEYOR LOADING.—The unit can be fitted with a roof and removable side screens. The projecting conveyor from the truck height platform can be jacked up to suit the aeroplane floor height.



Balloons at Salerno

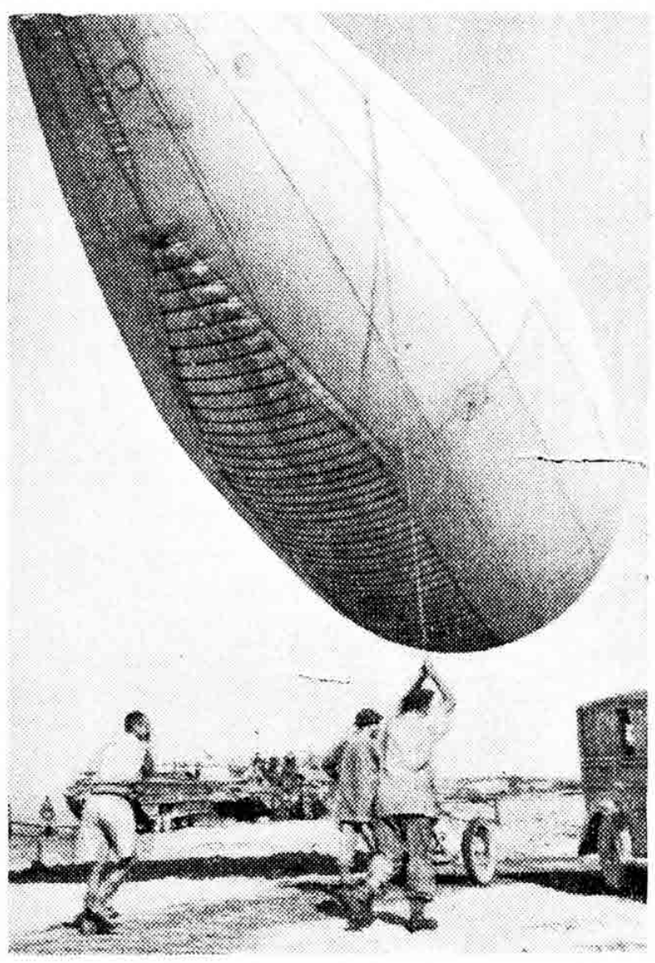




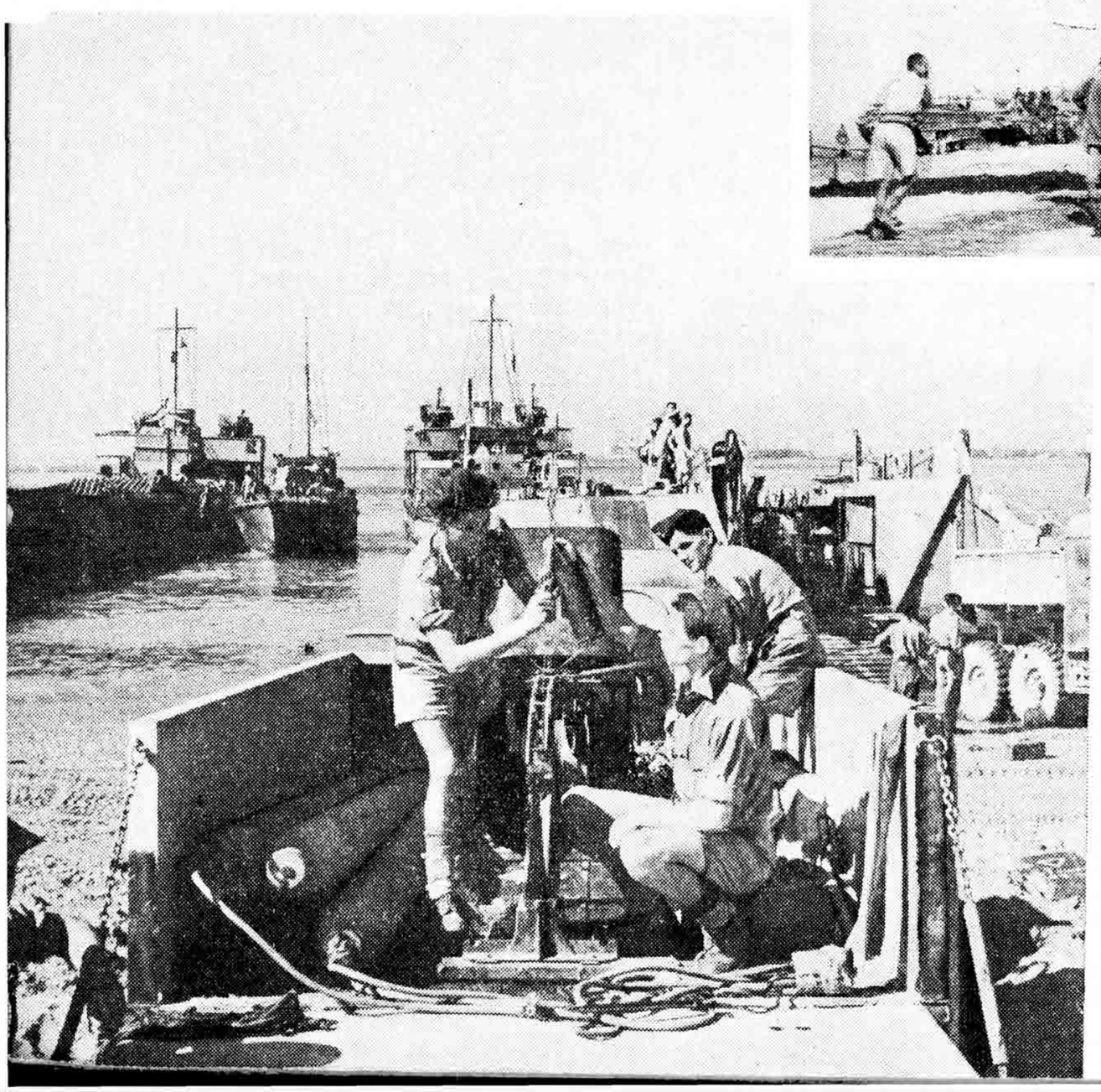


R.A.F. Balloon Barrage airmen were among the first to land at Salerno on Sept. 9. Their job was to protect the landing barges from bombing and strafing by low-flying enemy aeroplanes.

One detachment landed before daylight in the Gulf of Salerno. They waded ashore through 3 ft. of water, carrying their balloons at a height of 200 ft. and planting them on the beach in face of heavy machine-gun and mortar fire. Hydrogen was carried in cylinders which are seen covered with camouflage netting.



Photographs show the balloons on a landing barge, anchored on beaches, and being wound in for repair (top right). On the left a balloon is being wheeled along the beach to a ground anchor. Below, left, a parachute container is taken off the cable as a balloon is wound down. Right, one of the hand winches.



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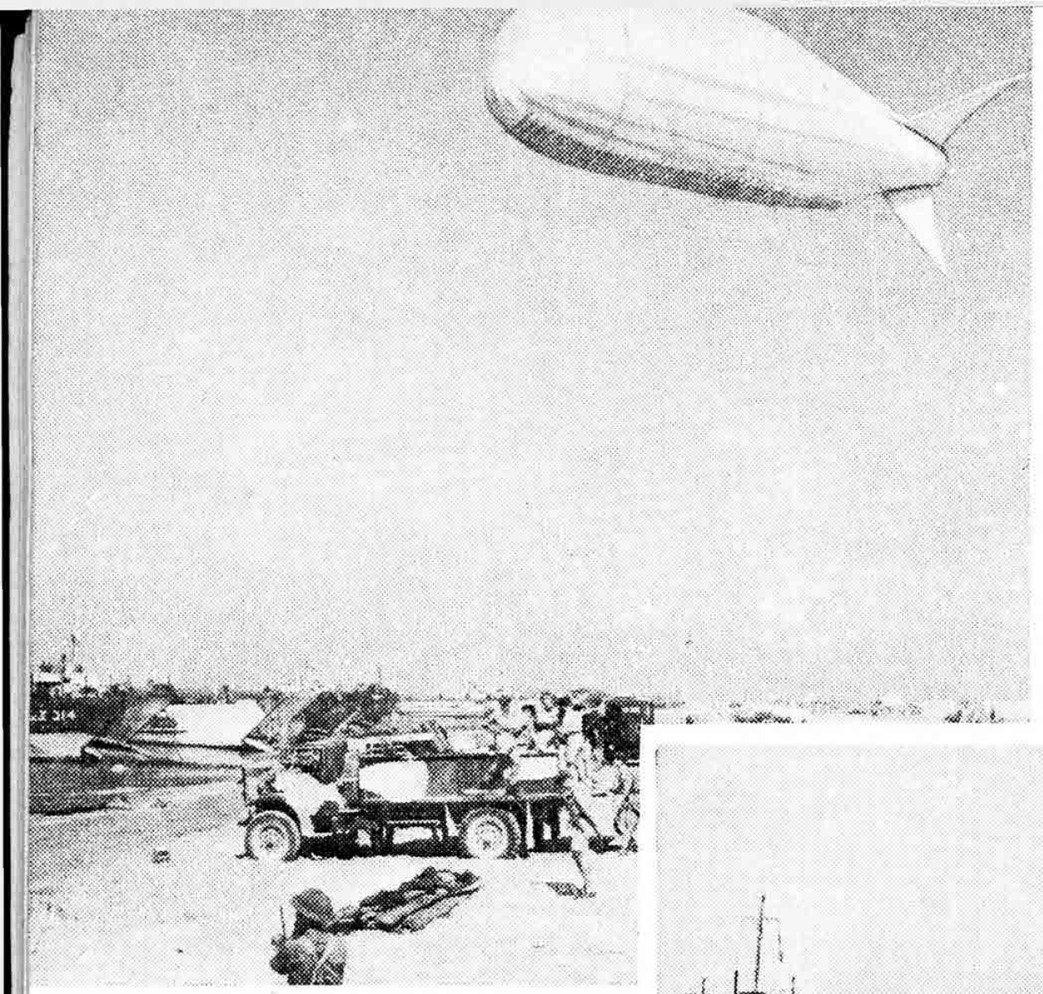

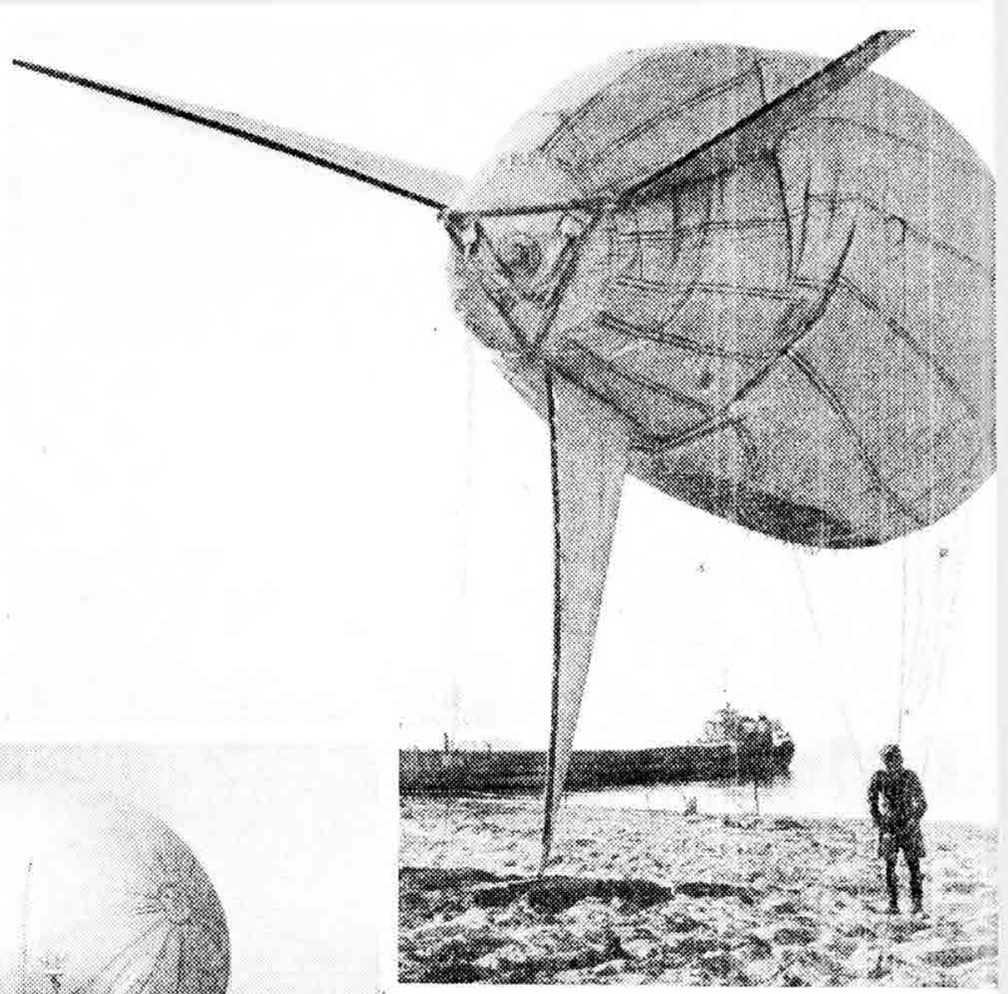

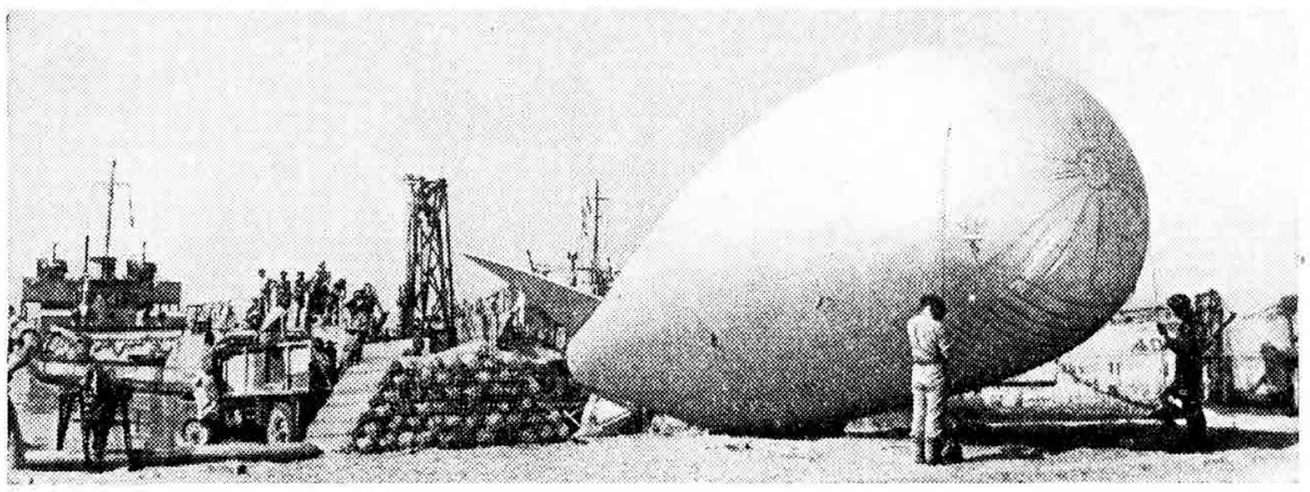

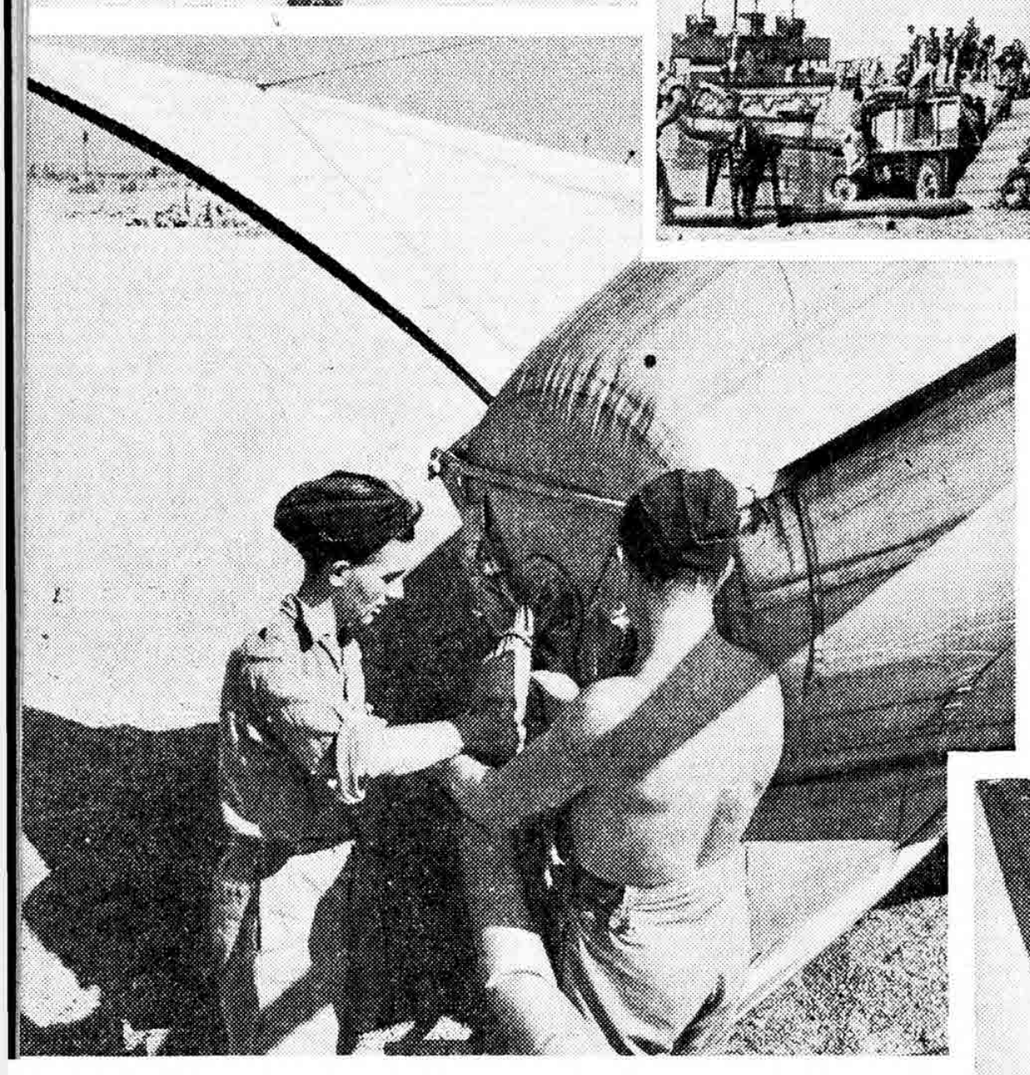

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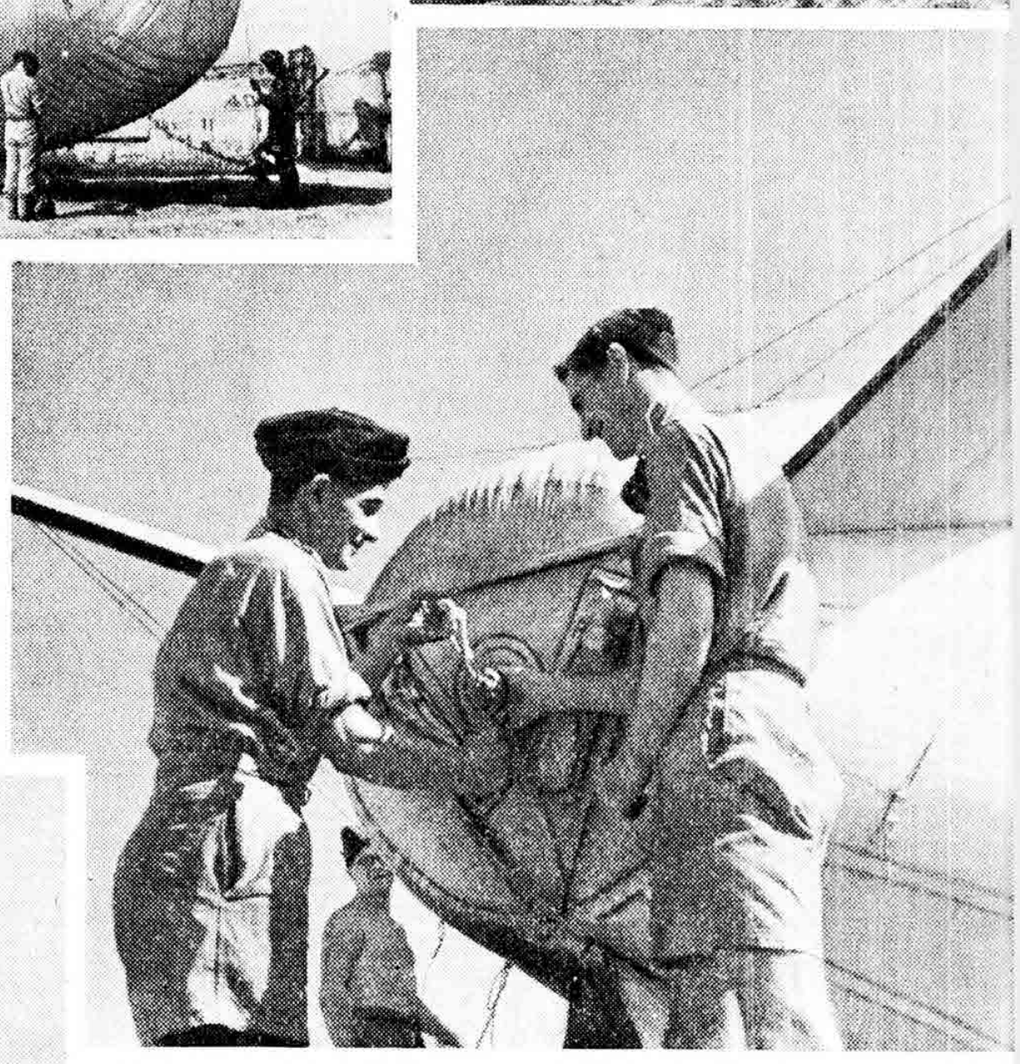

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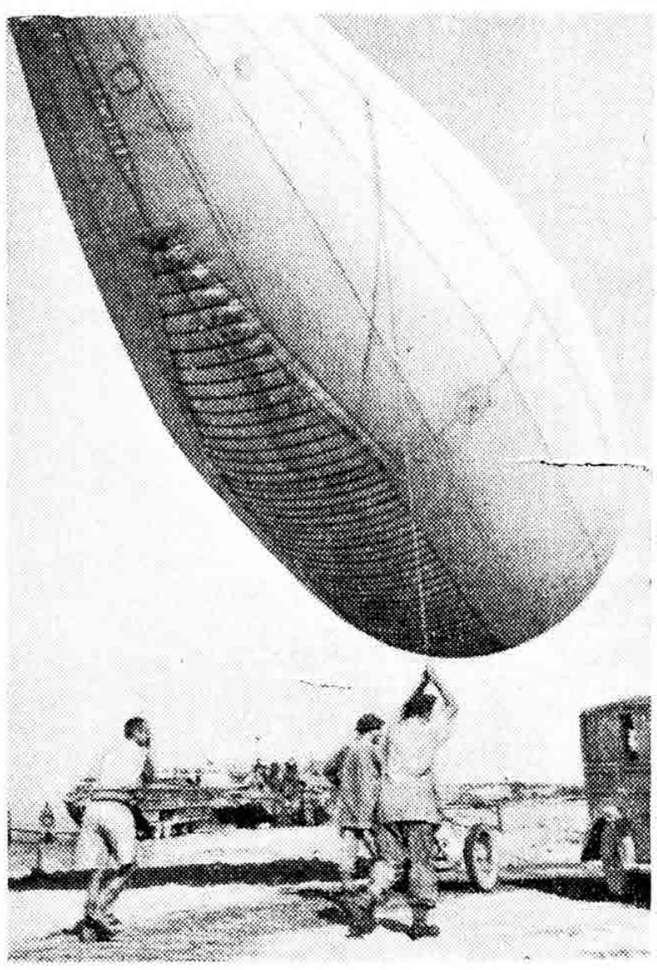

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BOOK REVIEWS

The Navy in the Desert

EASTERN MED. By B. J. Hurren. 5 in. by 7½ in. 160 pp. Published July, 1943, by Frederick Muller Ltd. Price 6s.

UNTIL this book appeared, no writer had been allowed to announce that the aircraft carrier Formidable was damaged by enemy bombing at the end of May, 1941. Lt.-Com. Hurren describes the attack by eight Ju 87s. No one has previously explained that at the time of the German attack on Crete there was no aircraft carrier in the Eastern Mediterranean, or that there was no aircraft carrier in those waters for many months afterwards. Another fact of interest which this book discloses is that in the heavy raiding of Hal Far aerodrome on Malta, craters were so resolutely filled in that all the 4,000 bombs dropped on or near that battered field failed to stop a single operational flight.

Revelation of this kind is only incidental to the author's main purpose. The task he set himself was to make a picture of the war in the Eastern Mediterranean during the hard times between 1940 and 1942 and to show what part the small, hard-worked forces of the Fleet Air Arm took in them. The impression is intimate because the author was mixed up in many of the doings. It is entertaining because he has an undeniable zest in living and a large capacity for discovering the cheerier side of misfortunes. It is also illuminating in its interpretation of strategical aims and its account of the tactics and improvisations they evoked.

Finally, like most of the people who won their freedom from the plagues of Egypt, he and his Fleet Air Arm companions came under the spell and the terrors of the desert. One of the best sections of the book is that which describes the organised expeditions to recover booty left behind by the enemy in his first headlong retreat through Libya. Even a great Lancia lorry fell into the hands of the Navy and, being reluctant to start up for duty with that Service, was towed into life by a Swordfish. There are other chapters which seek to convey the discomfort, the fascination and the utter desolation of the desert. As the author confesses, the sensation of life's smallness and isolation in the wastes of the wilderness is incommunicable; but this book gives an individual reaction which is probably not unique. Censorship, of one kind and another, prevents the account of war doings in those days from being exhaustive and yet as an instalment it is extremely vivid and unusually satisfying.—E.C.S.

Aeronautical Electrics

AIRCRAFT ELECTRICAL ENGINEERING. By F. G. Spreadbury, A.M.Inst.B.E. 5¾ in. by 9 in. 272 pp. Illustrated. Published, July 13, 1943, by Sir Isaac Pitman and Sons, Ltd. Price 21s. net.

"AIRCRAFT ELECTRICAL ENGINEERING" provides a review of the problems governing the design, and the characteristics, of electrical units for aircraft. It is, therefore, of more use to the student and designer of such equipment than to the aircraft design student or the installation engineer. However, the book might give the latter a basis for discussions with the electrical industry and some assistance in selecting types of motors, etc., for various functions.

The section on alternating current systems is disappointing. Discussions on the possible extension of the use of A.C. in aircraft are of such current interest that this chapter should have been amplified so as to cover, not only general remarks on the characteristics and application of existing equipment, but also a review of complete installation weights for representative aircraft and circuits in comparison with equivalent 12- and 24-volt D.C. systems and hydraulic systems. Incidentally, why refer to Auto-syn instruments just because they are A.C. and omit almost all reference to other electrical aircraft instruments and indicators? Aircraft bonding, return circuits, switches and solenoids, etc., apparently were not thought worthy of consideration. No information is given on electric airscrews, and the control circuit and equipment for these and other airscrews and equipment. Battery requirements are barely mentioned.

In short, to justify the title of "Aircraft Electrical Engineering," the author should have included much more information on installations as a whole, and their details, together with data on representative loads from aircraft equipment. This would have given more meaning to the thorough chapters on voltage regulations, aero-engine ignition, motors and generators, etc.

In his introduction, Mr. Spreadbury indicates that he appreciates the extent to which the use of electricity in aeroplanes will be increased, and we may hope that a later edition will be produced in which more space will be given to installations, at the expense, if necessary, of data on the design and principles of some of the more basic units.—C.N.J.

Outside the Limelight

UNSUNG HEROES OF THE AIR. By A. H. Narracott. 5 in. by 7½ in. 168 pp. Illustrated. Published by Frederick Muller Ltd. Price 7s. 6d.

THIS is a book that needed to be written because the work of the many men, both civilian and Service, such as test pilots, instructors, air line pilots and all those working in the background who contribute so much to the War effort and to the War in the Air, is but vaguely known and understood by the general public. Some of the stories have been told briefly before but new details have been added and new stories told.

Unfortunately, the book gives the impression that it has been put together somewhat hurriedly. Also there are several errors such as a statement that the Return Ferry Service is operated with a "fleet of American-built Boeing aircraft," although Liberators are mentioned a page or two later; and that the Cathay (a flying-boat) was to start a new "landplane" service to Lisbon. Again, in the section dealing with British parachute troops the statement is made that there have been only two recorded cases of British parachute troops in action—in Italy, and an unconfirmed Italian report of parachute troops at Tobruk in September, 1942. The raid on Bruneval on Feb. 27, 1942, seems to have been forgotten.

These may seem minor criticisms, but in a book so well worth writing any errors whatsover are regrettable.—J.B.

Dead Reckoning

APPLIED D.R. NAVIGATION. By J. H. Clough-Smith, B.Sc. (Lond.). 5½ in. by 8¾ in. 113 pp. Published, July 27, 1943, by Sir Isaac Pitman and Sons, Ltd. Price 6s. net.

THIS BOOK is intended primarily to give practical help to the Ground Instructor, particularly in the A.T.C., by serving as a link between the theory and practice of the subject. That link is, of course, the human element. The author insists on aircraft procedure from the beginning, and on tidiness of workmanship, instead of brilliance of mind, as the foundation for accuracy—points which are apt to be overlooked by the purely theoretical teacher.

The style is vivid and colloquial. Each point is made with directness and simplicity, and the prolific exercises (answers provided) are nicely graduated to march with the text.

This book will save busy men the time and labour of preparing matter for lectures, and should be especially helpful to the voluntary lecturer who knows his stuff, has taken on the job from a sense of duty, but is not trained in teaching. It is, however, so simply presented and clearly explained that anyone who knows his triangle of velocities and his definitions, and understands the Mercator chart, should be able to make himself an adept at D.R. Navigation by working steadily through the book.

Mr. Clough-Smith has produced a live book on Dead Reckoning.—G.P.

Nitrogen for Hardening

NITRIDING FURNACES. By D. Landau (Industrial Applications Engineer). 8¾ in. by 5¾ in. 99 pp. Illustrated. Published 1943 by The Nitralloy Corporation, New York.

A MIMEOGRAPHED review, this is devoted, as the author explains, to a practical exposition of the constructional features, capacities, operation and instrumentation of nitriding furnaces, together with notes on ammonia and its handling.

From the origin of this work, one might assume that solely American-type apparatus would be discussed. Be this as it may, the book is eminently intelligible to those accustomed to the handling of only British equipment.

That part of the text devoted to discussion of the properties and handling of ammonia in practice, should go far to convince those whose fear of the unknown tends to make them tardy in adopting the valuable nitriding technique, that their qualms are groundless. One of the most valuable qualities, in fact, of ammonia for industrial purposes, is its powerful smell—a badly sealed joint, a leaky valve, or a cracked cylinder, can never go undetected.

Landau's review might well be considered as a standard textbook on the subject of nitrogen hardening.—E.J.G.

AIR TRANSPORT

COMMERCIAL MARINER.—A Martin Mariner Transport riding at a mooring buoy. The Mariner Transport is a freight-carrying version of the Martin PBM-3 Mariner patrol bomber of the United States Navy. The rear section of the motor nacelles has doors fitted, enabling extra material to be housed internally.

A Rhodesian Reunion

A REUNION DINNER of those who before the War were connected with Civil Aviation either as pilots or technicians was held recently at the Grand Hotel, Salisbury, S. Rhodesia. About 70 sat down to dinner. They represented about 32 Empire Flying Clubs, five Air Lines Companies and half-a-dozen Aircraft Companies. The Chairman was F/L C. L. Pashley, who has been flying for 34 years and has totalled 13,000 hrs. The Guest of Honour was the Director of Civil Aviation for Southern Rhodesia, A.V.M. C. W. Meredith, C.B.E., A.F.C. The dinner was organised by F/L C. Nepean Bishop, who before the War was an instructor of the Brooklands Flying Club, and S/L D. D. Longmore, who was a member of the Leicestershire Aero Club.

The following Clubs and Schools were represented at the dinner:—Marshalls Flying School by W/C Grace and F/L Bentley; Brooklands Flying Club, Reading Aero Club and Portsmouth Aero Club by F/L Nepean Bishop; Leicestershire Aero Club by S/L D. D. Longmore; Heston Flying Club by F/L G. S. Parker; Air Service Training by F/L R. C. Griffin; Bristol Flying Club by F/L Wingate Hill; South Coast Flying Club and Southern Aero Club by F/L Pashley; London Air Park Flying Club by F/L J. B. Collins and F/L Lucani; Liverpool and District Flying Club by F/L Latimer; Yorkshire Aeroplane Club by F/L Micklethwaite; Southend Flying Club by S/L Wrightson; Red Hill Flying Club by F/L V. Shearman; Midland Aero Club by F/L J. Jordan; Lancashire Aero Club by F/L Roughley; Midland Bank Flying Club by F/O Giffard; London Aeroplane Club, Stag Lane, by Mr. J. Forsyth; Air Touring, Gatwick, by S/L Porteous; Brooklands Aviation, Ltd., Sywell, by S/L J. Ayling; Rhodesia Flying Club by F/L Carbury and Sgt. Mackenzie; Salisbury Flying Club by S/L C. M. Prince; Bulawayo Flying Club by Mr. P. S. Gibbs; Johannesburg Light Aeroplane Club by F/L Serase; Lusaka Flying Club by F/L Ashby; Ottawa Flying Club by Sgt. V. Shannon; Maidstone Flying Club by F/L Burnett; Kenya Flying Club by F/L Leibbrundt.

S/L C. A. Barnard represented Southern Rhodesia Air Services, and F/L Bourlay, Rhodesia and Nyassaland Airways. Wng. Cmdr. J. C. Reynolds represented the De Havilland Company and Flt. Lt. le Poer Trench the D.H. Technical School.

Post-War Air Transport and Plymouth

POST-WAR AIR TRANSPORT was discussed at a meeting in Plymouth on Friday, Nov. 5, arranged by the City's Chamber of Commerce and the Air League of the British Empire. The Lord Mayor, Viscount Astor, presided, and Mr. Leonard Taylor, Secretary of the Air League, addressed the meeting.

Lord Astor said that the city must consider the position of Plymouth with regard to air transport—whether the city was to be the terminus of a major route or an intermediate station with feeder lines. He drew attention to the central situation of Great Britain on the prospective air lines of the World, and indicated that international supervision of the training of pilots and the construction of aeroplanes would be needed.

Mr. Taylor predicted intense aerial activity after the War. The Government had rather committed itself to the policy of a chosen instrument, but in his opinion the Directors of British Overseas Airways were not the only people who might be able to run an air line, for there might be many capable young men among the thousands in the R.A.F. to-day, and opportunities ought to be given them. He considered that licensed competition would be a good thing. He suggested that all mail surcharges should be dropped, and all mail sent at a flat rate, whether to the farthest parts of the Empire or to the nearest town.

There was an enormous future for the private flyer. Although useful for certain military purposes, as for sport, the glider was not, in his opinion, a popular commercial proposition.

Tasman Empire Airways Statistics

OPERATIONAL STATISTICS of Tasman Empire Airways Ltd. show an all-round increase for the year ended Mar. 31, 1943. The number of passengers carried during that period was 2,259; the freight 33,990 lb.; mail 101,737 lb.; passengers per mile 3,023,040; freight-ton-miles 20,332; mail-ton-miles 60,874; miles flown 192,960; hours flown 1,265; trips scheduled 144 and trips flown 144.

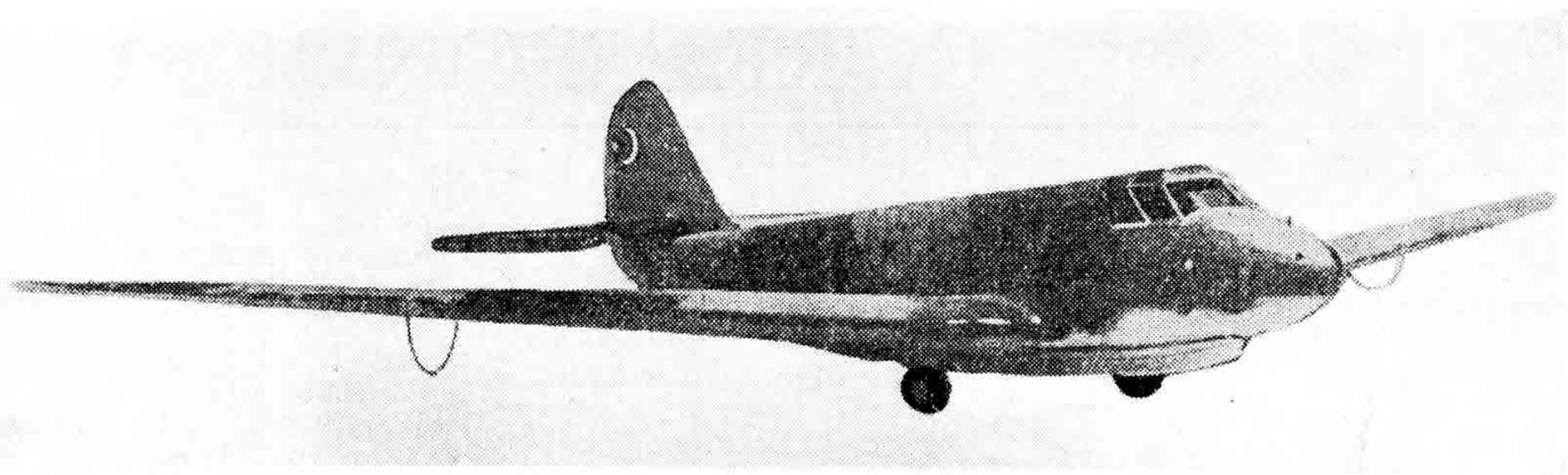
Air Transport Monthly

THE FIRST NUMBER of "Air Transport," a new monthly magazine published by McGraw-Hill of New York, appeared in September. The Editor is Fowler W. Barker, Secretary of the Air Transport Association for the past seven years.

CANADIAN CARRIER.—A Lockheed 14-H2 of Trans-Canada Airlines standing at Montreal Airport. An interesting point to note is the transparent nose-piece, which is apparently fitted to Canadian versions only.

Mr. Trippe and Post-War Air Lines

MR. JUAN TRIPPE, President of Pan-American Airways, recently told the Foreign Trade Convention that a single strong American International air line should be established after the War to enable the United States to compete with large foreign air transport monopolies. Such an air line should be controlled by all American transport interests able to contribute, and should be operated under a plan approved by the Government.



TURKEY'S WINGS.—A Turkish transport glider in military colours. It is of conventional design and in some ways resembles the General Aircraft Hotspur. The loops under the wings are to keep the wings from dragging along the ground during bumpy landings.

Financial Control of Taca

UNITED STATES INTERESTS led by Transcontinental and Western Air Inc. are acquiring financial control of the Taca system of air lines in Central and South America. The purchase price is about 2,225,000 dollars of stock, of which Transcontinental and Western Air is taking more than half. Other purchasers are: Stewart McDonald, President and Chairman of the board of Maryland Casualty Co.; Adams Express Co., a New York investment trust; Time, Inc., magazine publishers. The purchases of the last three are probably less than half a million dollars each. None of these buyers will own more than a minority interest in the company, though, together, their holdings will constitute a controlling influence.

Mr. Lowell Yerex, a New Zealand citizen, who founded and has controlled Taca since its inception, will continue to be the largest single stockholder and will be retained as President of the company on a ten-year contract.

Transcontinental and Western Air are also purchasing an interest in Aerovias Brazil and British West Indian Airways, in which companies Taca has controlling interest.

Vancouver Air Lines

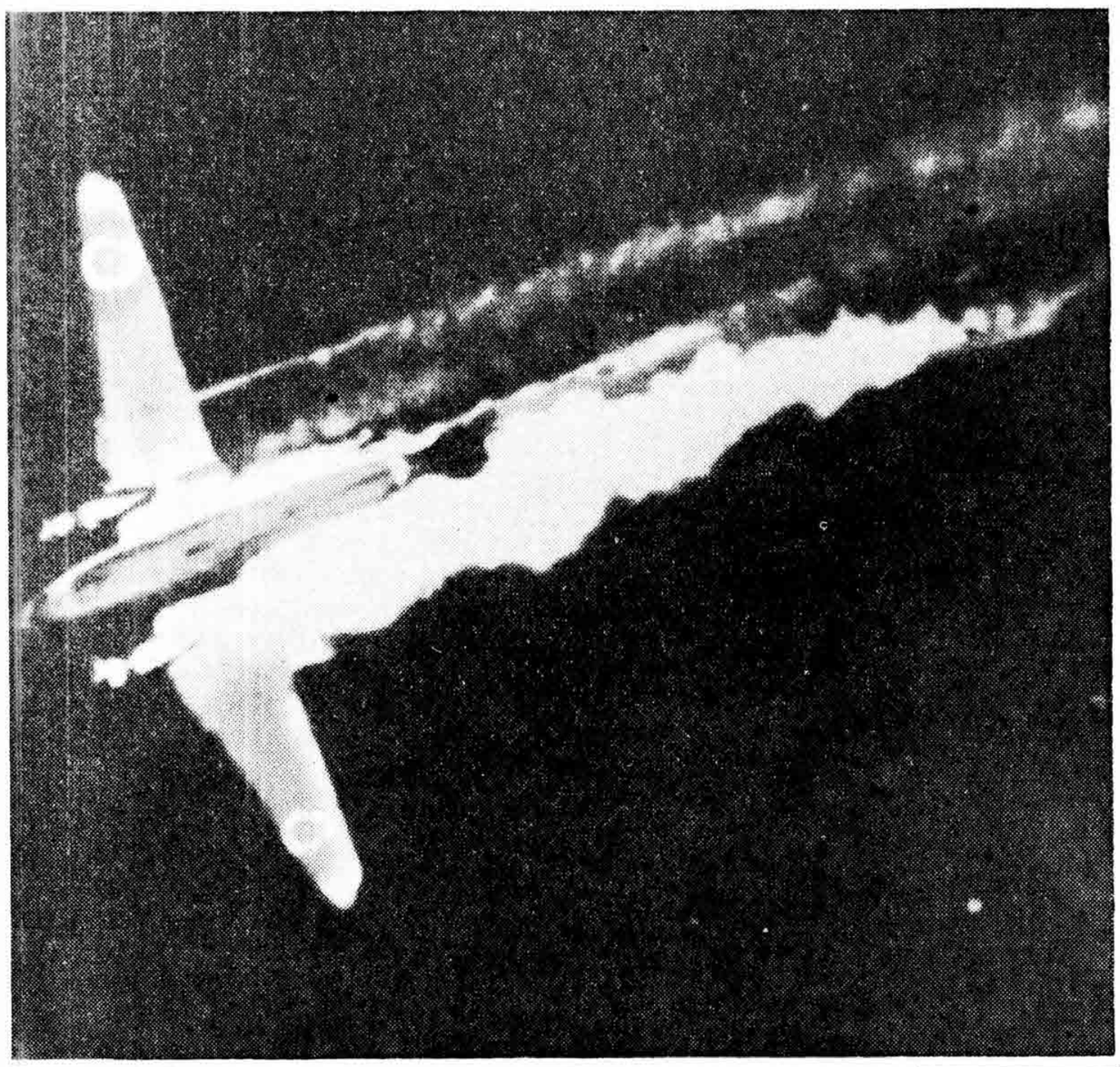
VANCOUVER ISLAND AIR LINES LTD. has been incorporated with a capital of 500,000 dollars. Its objects are to operate air lines, manufacture aeroplanes and aircraft equipment and run schools for teaching flying.

Caribbean Air Lines

PENNSYLVANIA CENTRAL AIRLINES has placed before the Civil Aeronautics Board a plan for a new 8,000-mile network of air lines throughout the West Indies. British Honduras, Guatemala, Nicaragua, Costa Rica, Columbia, Venezuela, Trinidad, Jamaica and Cuba are included in this plan.

American Aerodromes Tour

MR. C. M. NEWTON, Chairman of the Aerodrome Owners' Association, and Alderman O. C. Purnell, C.B.E., a member of the Association Executive Committee, have arrived, recently, in America by air to study Canadian and U.S. civil aerodromes.



Post-War U.S. Transport Aeroplanes

WILLIAM LITTLEWOOD, Vice-President-Engineering for American Airlines Inc., expressed the opinion recently that radical new designs in transport aeroplanes would not appear during the first five years after the War was over. If the War ends in 1944 DC-4 Constellation and converted DC-3 types would go into service. Such designs as the Consolidated Vultee 400-passenger C-99, Boeing's C-97 and the Douglas C-74 are not likely to be ready for operation for five years after peace.

Growth of U.S. Aeronautical Industry

THE AERONAUTICAL INDUSTRY is to-day the largest in the United States. In 1941 aeronautical production was valued at about 280,000,000 dollars, in 1942 it had jumped to 6,400,000,000 dollars, and in 1943 the schedule aims at a figure of 20,100,000,000 dollars. About 2,500,000 men and women are working on the production of aeronautical products and dependent on the Aircraft Industry for their livelihood.

Brazilian Ban on Mosquitoes

THE BRAZILIAN FEDERAL HEALTH SERVICE will inspect, for mosquitoes and other plague germs, all aircraft crossing the Atlantic from Africa to Brazil.

U.S. Steamship Company Applies for Air Line

THE MOOR MACCORMACK STEAMSHIP COMPANY has filed an application with the Civil Aeronautics Board for permission to operate air services between New York and Buenos Aires.

New Chinese Air Service

CHINA NATIONAL AVIATION CORPORATION is now operating an additional weekly service for passengers between Chungking and Calcutta. The new service flies by way of Ipin to the West of Chunghing instead of by way of Kunming.

Belgian Air Transport Headquarters

THE BELGIAN GOVERNMENT in London has established a branch of its Ministry of Communications to deal exclusively with air transport. The offices are at 39, Eaton Place, S.W.1, and Major-Aviateur Jean Verhaegen, of the Belgian Air Force, has been appointed to take charge.

New Aerodrome for Trinidad

THE TRINIDAD GOVERNMENT is to construct a new aerodrome closer to the Port of Spain than the existing one at Piarco.

Miss Gower in South Africa

MISS PAULINE GOWER, a Director of British Overseas Airways, is in South Africa on a tour of inspection of the Corporation's air routes.

New Italian Air Line President

AIR GENERAL GENNARO TEDESCHINI LALLI was appointed President and Delegate of the Administration of the Italian Company for Civil Aviation, formerly known as Ala Littoria. He replaces Umberto Klinger.

SETTING SUN.—Leaving a trail of smoke behind it, a Japanese transport aeroplane, believed to contain high Japanese officials, hurtles towards the sea. The machine appears to be a Douglas DC-3, numbers of which are in service with the Japanese Air Forces. It was shot down in the South Pacific by a U.S. Liberator bomber.

CORRESPONDENCE

The Case for the Established Air Lines

IN REPLY to the article in the issue of Nov. 12 I would like, as a shipowner interested in air transport, to make the following comments:—

(1) Air Line Companies not only " shall be " allowed to operate shipping, for there is no law to prevent them so doing now, and to my knowledge and belief the Shipping Industry has never attempted to prohibit air operators or other " outsiders " trespassing on their preserves.

(2) Your contributor states that an Air Line is no more qualified to operate a Shipping Line than is a Shipping Company to operate an Air Line. If the writer's apparent ignorance of the shipping business is taken as the standard of competence of air operators to embark in shipping it is clear that they will have but little chance of success in competition with the established Lines.

On the other hand at any rate some of the shipowners who wish to undertake air transport services are ignorant neither of the theory nor practice of air operation. In many parts of the World before the War the established Air Lines found the existing shipping organisations abroad could supply them with all the service they required and they were consequently so used.

That this was not merely a question of acting as ticket-selling agencies can best be shown by detailing some of the activities which have been within the capacity of my own small Company:—

(a) We have successfully handled at terminal ports and in transit aeroplanes and flying-boats with transit speeds up to 200 m.p.h.

(b) We have successfully handled the booking and loading of passengers and freight within the limited payload of aircraft, without assistance from an air expert, and this on one of the most difficult air routes in the World, across the Andes.

(c) International formalities for passengers and freight have never caused us the slightest difficulty. In this connection the air operator, in our experience, is let off much more easily than the sea operator.

(d) Quarantine restrictions are common to sea and air and have never caused us any undue difficulty in either case.

(e) Schedule problems have given us headaches in ship operations, and will doubtless do so in air operations also. The speed and small size of the aeroplane as a unit, however, in our experience, help to get over the difficulties which arise much more rapidly than the slow large unit to which we are accustomed on the sea.

(f) Catering for passengers in the air should present no special problem to the well organised catering department of a shipping line. Within a few weeks of entering this business my Company had obtained a reputation for providing better meals than an old-established operator with twelve years' experience.

(g) We have satisfactorily dealt with the night stop organisation.

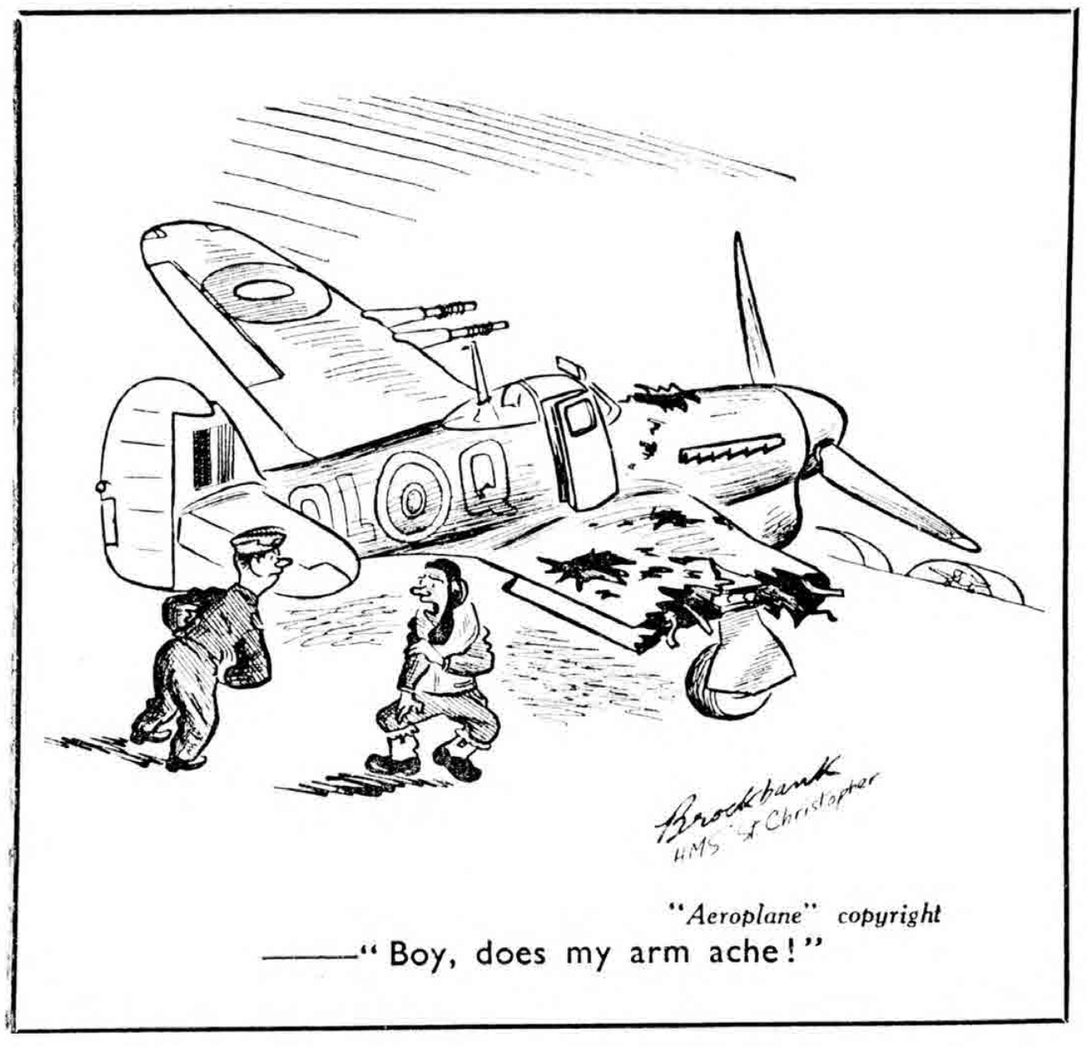
The above all deal with points in paragraph 4 of your contributor's article, but we have also:—

(h) Organised the survey and construction of an aerodrome for the use of medium size aircraft (Curtiss Condors), and supplied and laid out mooring buoys for flying-boats and made the necessary arrangements for handling such craft at a terminal.

(i) Organised the supply of meteorological data, and operated radio stations for the control of aeroplanes in flight.

We have still plenty to learn and we mean to learn it, but it is not true that we are completely ignorant or that the technique of air operation is a secret which is only disclosable to the favoured few now permitted by the Government to engage in air transport.

J. W. BOOTH,
THE BOOTH STEAMSHIP COMPANY LTD.



"Aeroplane" copyright

——" Boy, does my arm ache! "

IN THE ARTICLE on " The Case for the Established Air Lines " there is, well hidden among the general amusement, quite a lot of good sense. But the case would have appeared all the stronger if the desire to score off the shipping companies had been less obvious.

There are, however, some points on which I do not agree with the author or authors of the article. Admittedly our shipping lines and our railways were not always models of efficiency, but I can also remember cases of passengers who preferred to travel to the East Indies by the K.N.I.L.M. line rather than by Imperial Airways.

The point of view of the ship-owners, very ably stated in THE AEROPLANE of Nov. 5, clearly showed that they realise their limitations and that they intend the Air Transport side of their business to be run by experienced air operatives. This removes what was, in my opinion, one of the strongest reasons against the shipping companies going in for Air Transport, and that is the impossibility of the " marine mind " adapting itself immediately and successfully to the fundamentally different problems of Air Transport. It also renders invalid about one-third of the argument, as stated in THE AEROPLANE, for the case of the established air lines. The statement that " the transition from sea-borne to air-borne vehicles involves a far less profound change of technique and outlook than did the change from sail to steam " is a very good example of the marine mind at work.

The assumption that subsidies are essential for air-line operation is not yet quite universal, as some letters in the same issue of THE AEROPLANE help to show. Provided that excessive speed or range are not demanded it would be possible for many air lines to operate successfully without a subsidy, and there are several examples of this having been done. Once substantial subsidies become the normal thing then interest in Air Transport is not limited to constructors, operators and passengers but is immediately extended to the majority of the population as taxpayers. It will not be easy to convince the average man-in-the-street that by helping to pay for, say Mr. Solomon J. Bingelstein, President of Conglomerated Pictures Inc. (who may be earning! a hundred times as much as our unfortunate taxpayer) to cross the Atlantic by air at a cost of £50 instead of £200 or so, he is helping to keep Great Britain and the British Empire going. And yet that is what it amounts to.

If Air Transport operators after the War charged fares which would be economically sound without a subsidy, they could find passengers to pay those fares, but (and it is a big but) they would amount to only a very small fraction of the present potential passengers. This would mean that the Air Transport Industry, instead of growing very rapidly larger, might actually grow smaller. The Aircraft Industry would also shrink (and I should probably be out of a job). If we could obtain agreement throughout the World that there should be no subsidised Air Transport it might be a good thing for all concerned. As that is almost impossible, it is literally as much as our life is worth, as an exporting country with an Empire spread all over the World, to refuse subsidies to our air lines unless other countries do the same.

There is one thing we can do to mitigate the evils of the subsidy and that is to see that it is not limited to a single concern which is liable to grow heedless and complacent through lack of competition. Another serious point against the single-operating company, which directly hinders initiative and progress, is that a go-ahead employee with perhaps rather revolutionary ideas, who happens to disagree with the policy of the company has no alternative market for his talents. The same sort of thing also applies, but to a lesser extent, to the aircraft manufacturer whose products do not happen to appeal to the " one and only " air line.

There is plenty of room in the World for more than one British air line and plenty of proof, both here and in the United States of America, that one single air line is not necessarily the way to provide the most efficient air services.

E. N B. BENTLEY, A.F.R.Ae.S.

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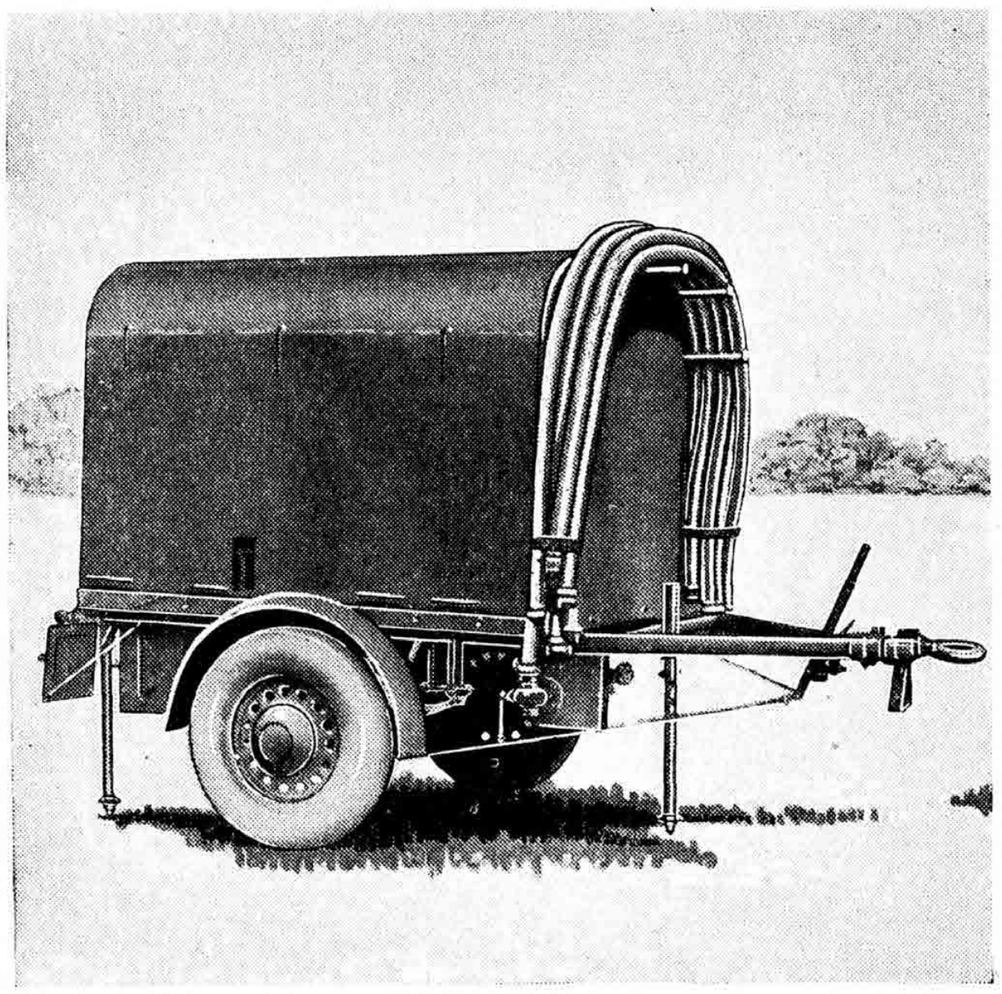
PURER AQUA PURA

In the picturesque Peruvian town of Cuzco, in the heart of the Andes, the tattered, ragged Inca Indian still earns his meagre living by laboriously hawking water from the barrel roped upon his back. People in tropical countries know only too well the vital need of pure water ; engineers know only too well the difficulty of obtaining it — and the disasters that follow water-carelessness.



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The A.T.C. of the Future

WITH REFERENCE to Mr. C. G. Grey's article on the A.T.C., as a member of the A.T.C. Committee in Stepney, I must bear testimony to the magnificent morale and enthusiasm of the boys of East London in their training for air crews.

For three years they rolled up although they knew their elder brothers and friends were going through it, and this has been true of the whole of the A.T.C. The same applies to the Army and Sea Cadets Movements, and I suggest that what is wanted is strong support of these Movements by the industrial firms in each district.

The Labour Superintendent in the Works should know how many boys are in each Pre-Entry Service Organisation and encourage enlistment and training from the earliest age. In addition, financial assistance should be forthcoming both now and especially when the War is over.

The Board of Education has recognised these Pre-Entry Service Organisations and will give facilities for education without interfering with the specialised training and control from Headquarters when the War is over. They should form the core of Flying, Gliding and Sailing Clubs for the youth of England, but with the great advantage of being trained by the old boys of their Corps who come back from the War.

In the House of Lords Debate recently it was not made clear that the Officers of the A.T.C. and Sea Cadets are largely of pre-war non-commissioned rank, and they do splendid work. This work can be carried on by the Flight Sergeants and Petty Officers at present in the Services when they return to the districts in which they were originally trained.

A. J. HUGHES.

IN HIS ARTICLE on the A.T.C. Mr. Grey compares the age of entry for youngsters with that of the Army and Sea Cadets, but he is wrong in suggesting 16 as the minimum age. Officially this is 15 years and 3 months; unofficially it can be as low as 13½, as every boy knows who is prepared to give a fictitious age. As no confirmation is ever asked for there must be large numbers of 13s and 14s at present in the A.T.C., so it does not seem likely that by officially lowering the age numbers will materially increase.

Some of these youngsters, probably the large majority, are going to tire of the A.T.C. once the novelty of the uniform has worn off, and there would seem to be a grave danger of time and money being wasted on boys who are not really air-minded. This, of course, is the root of the trouble. In 1940 and '41, inspired perhaps by the Battle of Britain, the youth of this country was crazy about flying. Now, unfortunately, this seems to have worn off, and from my experience of boys from 12 to 14 years old air-mindedness has sunk to a low level.

In my opinion much good could be done if the A.T.C. encouraged more co-operation with Air Scouts so that more youngsters could be " nursed " into air-mindedness at a lower age and passed into the A.T.C. at the proper and official age.

ALEC L. WATSON.

SINCE you were good enough to publish my article on the A.T.C., various interesting points in relation to that article have reached me.

(a) I am told that I was too conservative in my statement that the Sea and Army Cadets take youngsters in at 15. That, I believe, is the official age, but they do in fact take them in at 14, and one correspondent says that some Army Cadet units take them even younger than that. They have, apparently, shanghaied lads from the Sea Cadets under that age.

(b) A further interesting point has to do with uniforms. Although we are a democratic and are supposed to be a non-military nation, there is no getting away from the attraction of a uniform. Even the very sketchy uniform of the Church Lads' Brigade attracted thousands of boys before the Boy Scouts were started. And the Scout uniform, with its suggestion of Australian bush-men, has surely been at least as much of an attraction as has the doctrines which they preach and the bush-craft which they teach. Therefore can we wonder that youngsters rush to join the Army Cadets?

(c) I am told that this gives the Army a score over the Sea Cadets, who, with true Naval care for quality and keenness, keep their newly joined lads on probation for three months before issuing uniforms to them. This seems to be too much for the patience of many lads who, instead of waiting, go off and join the Army Cadets. I do suggest that three months is rather too long a probation. Surely any officer who has had experience in handling men and boys ought to be able to tell, within a fortnight, whether a youngster is going to make good or not.

(d) Correspondents suggest that one reason for the falling off in the A.T.C. is that would-be Cadets are scared off when they learn from friends, who are already in the Corps, about the amount of time which they have to put in on Mathematics. Here they have my heartfelt sympathy. I never could learn Maths., and any figure which I cannot calculate with ten fingers and ten toes is outside my understanding. I quite recognise that Maths. are necessary for navigators, and for pilots, though not quite so much. Possibly Maths. are also needed by bomb-aimers, who have to calculate drift and height and speed and so forth, unless equipped with the wonderful U.S. bomb-sight which can put a bomb into a barrel from 20,000 ft., according to trans-Atlantic statements.

But surely Mathematics are not needed by engine fitters, armament workers, or even air gunners.

Probably the difficulty here is that most of the boys who want to join the A.T.C. want to be fighter pilots, or at any rate bomber pilots. A few may understand that if they fail physically to pass tests as pilots they may be turned over for training as air observers, which means navigation and more Maths. I doubt very much whether our primary schools, or even secondary schools, teach Maths. up to the stage needed by air navigators and pilots.

(e) Moreover, if a boy left a primary school at 14 and could join the A.T.C. at 15, he would have had a year in which not only to forget what he had learned but to forget how to learn. The brain is only a muscle, and if you can imagine a young man in full athletic training knocking off training for a year you can imagine how little chance he would have on a sports field or a football field at the end of twelve months. The mere labour of getting back into form is enough to choke most people off. I know it because I have done it.

Few boys who have left school for any length of time would settle down to serious school work again. So the A.T.C. ought to take them in at 14.

(f) What all the Cadet Corps ought to teach primarily is discipline, self-respect, pride in the King's service, loyalty to their comrades and officers, and a sense of duty to God, King and Country. And one does not need Mathematics for that. If the A.T.C. concentrated less on school " learning " and more on turning out good citizens and good fighting men it would be doing better work.

C. G. GREY.

A Pilot's Outlook

I WAS INTERESTED in the article " A Pilot's Outlook " in the Nov. 12 issue of THE AEROPLANE and particularly in the last sentence.

The writer of the article may like to know that in the firm by which I am employed, the following are pilots—three of the four Directors, including the Managing Director and the Chief Designer, their two Personal Assistants, the Sales Manager, the Repair and Service Manager, the Chief Liaison Officer, the Transport Manager and five of the six members of the Executive Management Board. Moreover, six of these individuals are Air Ministry approved Test Pilots, with a total of 24,000 hours flying time to their credit.

In addition there are the professional Test Pilots and the Chief Test Pilot sits on the aforementioned Management Board and therefore has a direct influence on the active policy of the Company. This should be sufficient to ensure the right outlook!

It would be interesting to know to what extent this principle is followed in other firms.

D. L. BROWN, A.M.I.C.E., A.M.T.M.E., A.F.R.Ae.S.

"Jettisonable" Fuel Tanks

I WAS MOST INTERESTED to read the letter from Mr. Raymond Sims regarding detachable fuel tanks. His letter brings back old memories. How many people remember the old " Amiot-Spad "? I was with the late Colonel G. L. P. Henderson in the old " black sheds " at Brooklands in 1927 and I well remember this aeroplane which was stored in Dudley Watt's sheds next door to us. It belonged, I think, to Steve Donoghue and, among many other unique features, it certainly had a " jettisonable " fuel tank.

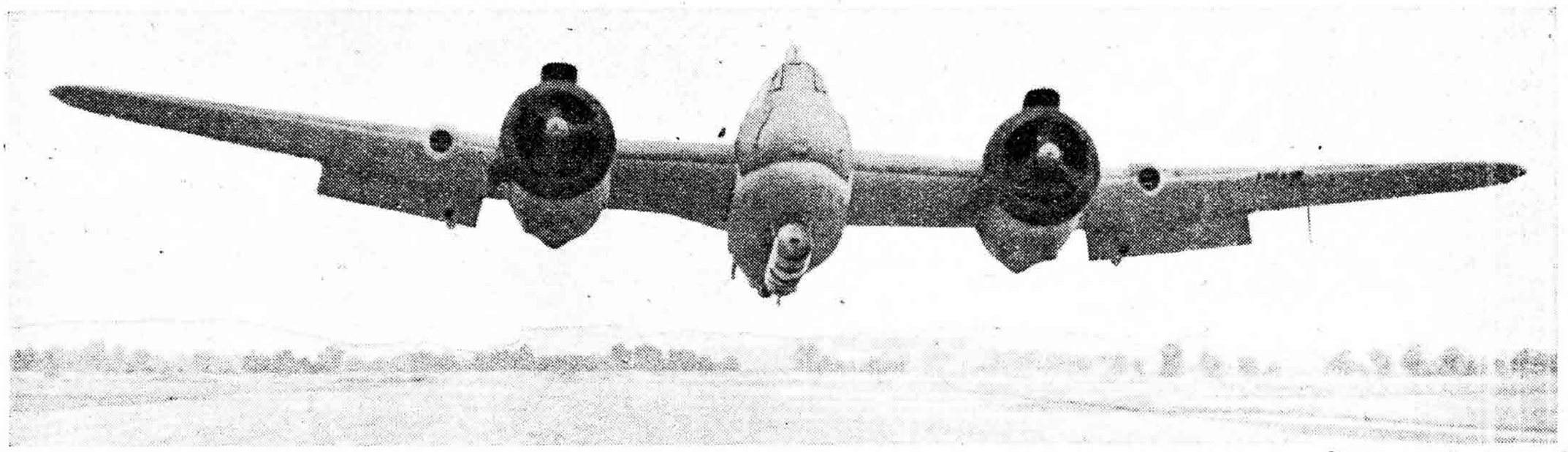
The aeroplane was an all-metal (fabric-covered) biplane with a 300 h.p. Hispano. The tank was located in the full depth of the fuselage on the C.G. and just forward of the side-by-side seated cockpit, and was slung in steel bands (not unlike barrel hoops). In the cockpit was a formidable jettison lever, the pulling of which drew a series of pins out of the steel bands, and away went the tank through the open bottom of the fuselage just clear of the undercarriage.

There were many stories (probably untrue), current at the time, of pilots mistaking this lever for the tail trim and dropping tanks through roofs!

Whether the idea was used in later models I am unable to say, but it certainly worked with this particular machine.

RIVERS OLDMEADOW.

THE ROYAL AIR FORCE



["Aeroplane" photograph

BEAU GESTE.—A Bristol Beaufighter torpedo-carrier, powered by two Bristol Hercules motors, slowly flying across its aerodrome with concertina flaps down and undercarriage up.

THE ROLL OF HONOUR

THE 310th and 311th Casualty Lists were published by the Air Ministry on Nov. 15 and 17. They contain the names of 597 officers and airmen, including 207 mentioned in previous lists as missing or missing believed killed and now presumed or reported killed in action or on active service or prisoner of war.

The lists include 87 killed in action or on active service, 22 died or died of wounds or injuries received in action or on active service, 10 wounded or injured in action or on active service and 269 missing or missing believed killed in action or on active service.

The total R.A.F. casualties officially reported since the War began is now 61,137.

The 310th and 311th Casualty Lists are:—

ROYAL AIR FORCE

Killed in Action

1556380 Sgt. L. Green.
120555 F/O J. A. Lerossignol.
1546300 Sgt. A. D. Trotter.
610633 Sgt. I. Watters.
1552291 Sgt. J. W. S. Anderson.
1318037 F/Sgt. G. A. Bradshaw.
1439792 Sgt. W. L. Clarke.
1496923 Sgt. J. Cotton.
47873 F/O B. E. Dye, D.F.M.
1811231 Sgt. R. B. Fletcher.
60765 F/L J. M. J. Fryer.
156089 P/O R. R. Gilbert.
1498307 Sgt. J. P. Hague.
969821 Cpl. J. B. Kiernan.
1237225 Sgt. A. J. King.
1134570 Sgt. A. Lee.
1214074 Sgt. A. E. Lester.
137558 P/O E. Platt.
119881 F/O F. N. Robertson.
1334963 Sgt. C. M. Veale.

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

654615 Cpl. J. Barnard.
1315246 Sgt. V. F. Butcher.
1310216 Sgt. A. G. Daniels.
979990 Sgt. W. H. Darge.
994040 Sgt. R. Laverty.
900223 Sgt. E. A. J. Nicholas.
66024 F/O W. B. O'Connor.
615314 L.A.C. J. Savidge.
1031421 Sgt. A. Staff.
934282 F/Sgt. L. J. Webber.

Previously Reported Missing Now Presumed Killed in Action

1023445 Sgt. S. Allen.
1123836 Sgt. J. Bell.
1254325 Sgt. N. R. Bennett.
906085 F/Sgt. A. E. Booth.
1551769 Sgt. W. H. Bower.
1610166 Sgt. R. D. Bradbury.
1330654 Sgt. F. D. Buchwalter.
778483 Sgt. R. Calcutt.
1378971 F/Sgt. C. Carr.
1467115 Sgt. T. W. H. Casbolt
1288309 Sgt. C. W. Dickens.
975985 F/Sgt. T. I. Evans.
1375165 F/Sgt. F. H. J. Farrell.
935654 F/Sgt. E. Froggart.
41994 F/L P. D Furniss.
1176030 Sgt. A. F. Goff.
1126073 Sgt. H. Jones.
1376851 Sgt. J. R. J. Kau.
129668 F/O F. W. Larcey.
137567 P/O A. C. R. Laudon.
1266105 Sgt. V. Lawrence
29038 S/L W. E. L. Lewis, A.F.C.
1128271 Sgt. W. G. S. McAsh.
1123740 Sgt. H. McManus.
1038439 Sgt. R. McNeill.
1376646 F/Sgt. D. V. Marchand.
778210 Sgt. C. P. Mitchell.
1126541 Sgt. J. Murchinson.
1264307 Sgt. C. R Pendelpho.
953431 Sgt. R. D. Perkins.
1310537 Sgt. L. J. Preece.
1018378 Sgt. N. Ridley.
1095177 Sgt. C. Risingham.
1331581 F/Sgt. R. M. Scratchley.
114060 F/O L. A. Smith, D.F.C.
120887 P/O I. N. Stirton.
115122 P/O W. D. Taylor.
1379180 Sgt. H. Y. Torr.
124245 P/O A. H. A. Treadwell.
1259278 F/Sgt. A. W. Utting.
1199627 Sgt. J. Warren.
657215 Sgt. T. A. West.
80259 F/O I. R. Willis.
37309 W/C V. C. Wood, A.F.C.
89816 F/O H. L. C. Woolley.
1332207 Sgt. F. H. Allen.
113902 F/O R. Allin.
42969 F/L A. Brindley.
1457184 Sgt. J. Brown.
1231848 Sgt. D. J. W. Buttery.
1496921 Sgt. G. Cave.
1390928 Sgt. D. O. C. Culshaw.
1380838 Sgt. D. G. Davies.
937274 Sgt. L. Fox.
1108004 Sgt. D. E. Hall.
991197 Sgt. W. Halsall.
1065511 Sgt. K. Hands.
125306 F/O W. J. Hart.
1143473 Sgt. J. G. McAteer.
551156 Sgt. A. W. McMorrine.
927094 Sgt. J. H. Maudson.
1205929 F/Sgt. G. B. C. Miller.
120421 F/O C. E. Nicholson.
1059835 Sgt. W. Noble.
1183503 Sgt. S. P. H. Purchase.
1339072 Sgt. C. E. Read.
129913 F/O J. D. Robertson.
656532 Sgt. G. R. W. Ross.
124662 F/O R. H. Stent.
1164235 Sgt. C. Stubes.
1136176 Sgt. J. H. Surtees.
123031 F/O J. C. Taffs.
1382817 Sgt. G. Templeton.
655967 Sgt. F. T. Tolhurst.
37437 W/C R. K. Wildey, D.F.C.
1314587 Sgt. D. J. Williams.
572343 Sgt. S. Young.

Previously Reported Missing, Now Reported Killed in Action

101506 F/O R. G. Stringer.

Wounded or Injured in Action

1583058 Sgt. R. W. Dalkins.
1293629 Sgt. V. J. Leach.

Died of Wounds or Injuries Received in Action

1072709 W.O. P. Gatley.

Missing Believed Killed in Action

1095873 F/Sgt. C. C. Gofton.
1389947 F/Sgt. A. C. Harris.
1587352 Sgt. D. W. Sweet.
1795491 Sgt. A. E. Belshaw.
32176 S/L D. P. McKeown, A.F.C.
1040150 Sgt. A. J. Oakes.
1391333 Sgt. A. W. Raggett.
1550748 Sgt. J. Scott.
1047593 Sgt. C. Walton.

Missing

155801 P/O A. P. Arnott.
1500580 Sgt. M. Atkinson.
1331129 F/Sgt. V. R. Baker.
1575833 Sgt. T. Barnett.
578277 Sgt. E. Bartlett.
1387091 Sgt. E. N. N. Beldon.
1410655 Sgt. S. G. Bennett.
1231205 Sgt. T. I. Betts.
1318945 F/Sgt. E. W. Bower.
1252341 Sgt. T. W. Bradford.
1259352 Sgt. V. T. Bradley.
1393357 Sgt. L. J. D. Bristow.
40340 Act. W/C K. H. Burns, D.F.C.
1558450 Sgt. T. C. Cassidy.
1384670 F/Sgt. R. C. Chislett.
1013548 Sgt. F. A. G. Clark.
1392903 Sgt. H. N. Clarke.
1518242 Sgt. J. Collins.
1119137 Sgt. D. G. Connor.
1077677 Sgt. A. Cowan.
578383 Sgt. G. D. Cox.
1565815 Sgt. T. L. Craven.
965489 Sgt. J. Cunliffe.
130221 F/O C. D. Farmer.
1269967 Sgt. P. O. Fletcher.
907386 Sgt. L. Gaffee.
573532 Sgt. E. J. Gillman.
1604513 Sgt. J. G. Golden.
1323448 Sgt. T. Grange.
1222829 Sgt. P. Groom.
1587219 Sgt. R. C. Haigh.
1589233 Sgt. J. Harding.
1207018 Sgt. A. Harris.
1558937 Sgt. J. Harris.
1562916 Sgt. H. W. Heron.
1238441 Sgt. J. C. Hick.
1392760 Sgt. J. Hickling.
G/C F. S. Hodder.
139880 P/O K. Home.
1604617 Sgt. S. H. Hopkins.
1811429 Sgt. R. J. Humbles.
1300534 Sgt. W. R. Huntley.
1319384 Sgt. J. J. Jones.
1081896 Sgt. J. Kenny.
658117 Act. F/Sgt. R. A. Knight.
1066420 Act. W.O. O. Lambert.
21350 F/O D. G. Leader-Williams
921759 Sgt. G. Lee.
1814763 Sgt. F. J. Lucas.
1370097 Sgt. W. C. McCartney.
1387167 Sgt. E. McIntosh.
156006 P/O H. W. Milligan.
1811627 Sgt. T. G. Moore.
142328 P/O C. E. Musto.
1109844 Sgt. R. H. Nash.
1371110 Sgt. R. G. Nelson.
1579991 Sgt. J. W. Noble.
1575142 Sgt. D. F. P. Pape.
133705 F/O V. C. Peters.
1242105 Sgt. J. Pollard
1397028 Sgt. A. A. Poulton.
905173 Sgt. G. J. Powell.
1390630 Sgt. H. J. Pratt.
1263575 Sgt. E. A. R Preston.
1580639 Sgt. L. A. Price.
1212929 Sgt. F. G. Pryde.
647735 Sgt. O. Ramsden.
1397881 Sgt. J. E. Rainsford.
1123968 Sgt. D. B. Richardson.
145512 P/O A. A. Robertson.
1553859 Sgt. E. Robson.
1318641 F/Sgt. H. Salter.
110567 F/O R. R. Shadbolt, D.F.C.
1147315 Sgt. W. Sheffield.
954028 Sgt. H. Simister.
1323222 Act. W/C E. H. Skinner.
1324892 Sgt. L. G. Smart.
1096128 Sgt. J. Smith.
1091661 Sgt. J. Snowden.
636350 Sgt. J. A. Stewart.
1045932 Sgt. J. M. Stringfellow.
72476 S/L A. C. L. A. Stuart.
990895 Sgt. J. Sutherst.
1130724 Sgt. A. D. Taylor.
156273 P/O A. E. Taylor.
149548 P/O R. V. Turner.
952938 Sgt. F. W. Tysall.
1319771 Sgt. L. J. Wakerell.
1301837 Sgt. G. Wallace.
156122 P/O K. Ward.
110851 F/O O. J. Wells.
1195598 Act. W.O. R. J. Williams.
1044677 Sgt. E. J. Wright.
1578659 Sgt. D. G. Yardley.
156416 P/O A. E. Young.
1330621 Sgt. A. Bell.
129024 F/O R. T. J. Bilney.
1578540 Sgt. R. D. Binks.
1060465 Sgt. P. Birch.
1336750 Sgt. T. Birkby.
1334434 Sgt. R. D. Botting.
126765 F/O R. J. Boyd.
1270390 Sgt. A. Burgess.
1274974 Sgt. N. E. Burgess.
1323853 Sgt. J. S. Carmichael.
1128782 Sgt. G. Cheadle.
1379918 Sgt. T. Collier.
936161 Sgt. A. Cotterell.
1795797 Sgt. W. A. Crawford.
1148911 Sgt. J. R. Dunn.
1067501 Sgt G. Ezard.
1335417 Sgt. L. R. Fisher.
1332763 Sgt. G. R. Ford.
1476458 Sgt. P. G. Furlong.
1393192 Sgt. W. F. Garner.
1315846 F/Sgt. H. E. V. Gawler.
656364 Sgt. C. Golby.
1379098 Sgt. H. E. Greavison.
1581242 Sgt. R. F. Grove.
1450841 Sgt. J. Hallsworth.
1085741 Sgt. C. L. Hamilton.
656996 F/Sgt. J. S. Harries.
157285 P/O E. C. Harrill.
1551160 Sgt. E. B. Harvey.
108522 Act. F/L J. R. Hastings.
1333343 Sgt. J. W. Hayton.
778991 F/Sgt. A. V. Hefferon.
128547 F/O P. E. Henley.
1208802 F/Sgt. F. P. Hill.
1056981 Sgt. R. J. H. Hitchmough.
576564 Sgt. L. Hobson.
1301508 Sgt. O. H. Hodges.
1387002 F/Sgt. W. P. Homersham.
1317702 Sgt. D. Hopkins.
1176649 Sgt. W. H. Horrigan.
1255764 Sgt. O. H. T. Innocent.
1545885 Sgt. R. V. G. Johnson.
1517242 Sgt. J. G. Jones.
1449867 Sgt. B. J. Kennell.
1448022 Sgt. A. L. Kent.
1579313 Sgt. A. L. King.
1128416 Sgt. J. King.
1387038 Sgt. P. W. Kitchen.
1323838 Sgt. R. E. Langford.
1333518 F/Sgt. S. C. Langston.
85664 F/L D. C. Maltby.
1054919 Sgt. W. C. Mitchell.
155481 P/O H. A. Moore.
1381184 Sgt. A. T. Newton.
625593 Sgt. T. F. Pearman.
1149021 Sgt. D. E. Potts.
1438909 Sgt. D. H. Reid.
777783 Sgt. L. S. Reynolds.
1095835 Sgt. W. R. Rodgerson.
934481 F/Sgt. C. Salisbury.
1394719 Sgt. A. F. Saunders.
134520 F/O J. L. Shattock.
1290625 F/Sgt. L. E. Short.
1582936 Sgt. T. Silcock.
1332550 W.O. D. A. Tucker.
112720 Act. F/L C. E. Turner.
126669 F/O V. P. Upton.
1496737 Sgt. J. R. Wales.
1482490 Sgt. S. G. Walke.
1238503 Sgt. F. W. Watts.
47585 F/O J. E. Watts.
133759 F/O S. H. A. Woodhouse.
1387855 Sgt. A. L. York.

Killed on Active Service

81674 Act. S/L R. C. Dafforn.
1571654 Sgt. M. P. De Sashy.
1576380 Sgt. A. C. Dickenson.
843241 Sgt. E. J. Hitchcox.
653608 Sgt. J. H. Hutchinson.
1219540 Sgt. F. Johnson.
1087736 Sgt. E. N. Jones.

1238563 Sgt. G. R. Joyce.
1578703 Sgt. W. E. F. Lavender.
1575320 Sgt. J. W. M Ma Donald.
145662 P/O D. R. Moon.
1134784 Sgt. F. W Nixon.
1439777 Sgt. H. Randall.
1481205 Sgt. S. J. Richardson.
1601535 Sgt. H. E. Rolfe.
1316986 Sgt. A. W. Salt.
1546655 Sgt. T. G. W. Shepherd.
1336691 Sgt. S. A. Sims
126001 F/O J. S. Thomas.
1044676 Sgt. G. H. Tough
1530950 Sgt. T. A. Walkden.
106145 Act F/L K. B. Watkins.
1337005 Sgt. R. W. Woods.
1603917 L.A.C. E. E. Elkington.
1568355 A.C.1 A. J. Ferguson.
1394803 Sgt. J. E. Garbutt.
615211 Sgt. F. D. Grehan.
1186092 Sgt. P. Irwin.
1487462 L.A.C. E. B. Jackson.
1388668 Sgt. W. H. Lawrence.
1321577 Sgt. F. E. L. Lungley.
1673114 Sgt. D. Parsons.
523915 W.O. R. W. Pratt.
151188 F/O R. L. Smith.
126717 F/O A. E. Snell
1332801 L.A.C. P. L. Taylor.

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

1020208 Sgt. R. E. Burt.
1144371 L.A.C. A. Richardson.

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

129435 F/O J. L. Hodgson.

Previously Reported Missing, Now Presumed Killed on Active Service

1317417 Sgt. R. C. Evans.
41164 F/L R. H. B. Field.
1292708 Sgt. H. A. S. Fraser.
657936 Sgt. E. H. Johnson.
1345198 Sgt. A. R. King.

Previously Reported Missing, Now Reported Killed on Active Service

1025060 Cpl. L. A. Kearsley.

Wounded or Injured on Active Service

1400452 L.A.C. T. L. Stephens.
1121127 F/Sgt. H. R. Crompton.
1258089 F/Sgt. D. E. Tymms.

Died on Active Service

1179362 L.A.C. D. K. Dorward
65481 F/L J. McCrory.
1463924 A.C.1 A. A. Olney.
1391941 Sgt. E. J. C. Stiles.
1231423 L.A.C. F. H. Wood.
1305548 L.A.C. G. E. Wootton.
1600287 A.C.2 R. W. Betts
1052731 Cpl. J. Campbell.
847663 Cpl. G. G. Dowson.
956174 F/Sgt. S. F. Foster.
1496700 L.A.C. A. Hunt.
972834 Cpl. W. H. McCormick.
1443086 A.C.1. A. M. S. McIntosh.
1420155 L.A.C. D. T. Mansfield.
1586527 L.A.C. E. R. Marsh.
508981 F/Sgt. L. E. Price.
508388 Cpl. J. H. Smith.
1230094 Cpl. S. E. Woodhouse.

Previously Reported Missing, Now Reported Prisoner of War

130589 P/O B. E. Cooper.
1384226 Sgt. R. Cooper.
1380187 Sgt. J. P. Egan.
1284654 F/Sgt. F. J. Evans.
568506 F/Sgt. F. C. Fray.
1023994 Sgt. G. Jones.
142839 P/O S. G. Keatley, D.F.M
961286 L.A.C. H. W. Long.
1410376 Sgt. F. J. Prothero.
1068295 Sgt. J. S. Taylor.
1300168 Sgt. G. C. Tisbury.
1216686 Sgt. W. F. Turner.
137306 F/O M. P. Ellis.
1033029 Sgt. F. S. Maltas.
1375983 F/Sgt. E. A. Roede.
1023131 Sgt. G. L. Stewart.

WOMEN'S AUXILIARY AIR FORCE

Died on Active Service

2146992 A.C.W.2 J. M. C. McDonald

ROYAL AUSTRALIAN AIR FORCE

Killed in Action

Aus.410436 F/Sgt. E. H. Berry.
Aus.407349 F/Sgt. N. H. Fuss.
Aus.420353 F/Sgt. J. B. McLachlan.
Aus.416798 F/Sgt. M. J. Smart.
Aus.412043 F/Sgt. D. C. M. Walton.

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

Aus.411817 F/O K. W. Paul.

Previously Reported Missing, Now Presumed Killed in Action

Aus.411767 F/O J. A. Frazer.
Aus.406149 Sgt. C. W. Musto.

Missing Believed Killed in Action

Aus.418760 Sgt. W. H. McDonald.

Missing

Aus.421563 F/Sgt. P. M. Brook.
Aus.420454 F/O M. J. Campbell.
Aus.415118 F/Sgt. J. A. Chappell.
Aus.414129 P/O F. C. Ebeling.
Aus.425149 F/Sgt. E. R. Galligan
Aus.408400 F/O J. H. Haydon.
Aus.420753 F/Sgt. A. Hooker.
Aus.420469 F/Sgt. D. C. Houghton
Aus.426230 Sgt. J. Lynch.
Aus.415268 F/Sgt. T. W. N. McGrath.
Aus.413675 F/Sgt. K. J. Simpson
Aus.414170 F/Sgt O. J. Tanner.
Aus.412385 F/O G. J. Bushell.
Aus.412391 Act. F/L R. Carmichael
Aus.411483 F/O F. J. Clerke.
Aus.403648 F/O C. R. Croft.
Aus.414339 P/O J. S. K. Dalziel.
Aus.413357 F/Sgt A. J Davey.
Aus.405105 W.O. J. Gamble.
Aus.409113 F/Sgt. R. G. Harris.
Aus.415661 F/Sgt. R. J. Hunter.
Aus.409272 F/Sgt. E. T. L. Osborne.
Aus.412700 F/Sgt. G. F. Ritchie.
Aus. 14472 Sgt. L. A. Saunders.
Aus.420715 F/Sgt. J. L. R. Stubbings.
Aus.412751 P/O J. A. Tamsett.
Aus.425253 F/Sgt. K. J. Wilkes.
Aus.415749 F/Sgt. W. Yeomans.

Killed on Active Service

Aus.424119 Sgt. R. J. Clifford.
Aus.422640 F/Sgt. K. G. Fitzgerald.
Aus.403268 F/O R. T. Hood, D.F.M
Aus.425166 P/O S. M. Johnston.
Aus.415917 F/Sgt. R. W. Rashbrook.
Aus.420272 F/Sgt. S. G. Richersey.
Aus.415024 F/Sgt. I. A. Eliot.
Aus.425911 Sgt. N. L. Wachter.
Aus.412778 F/Sgt. J. F. B. Wearne.
Aus.402941 F/O C. W. Woods, D.F.M.
Aus.421954 F/Sgt. G. L. Yensen.

Wounded or Injured on Active Service

Aus.412220 F/Sgt. G. H Taylor.
Aus.422654 Sgt. K. M. Wilson.

Died of Wounds or Injuries Received on Active Service

Aus.405616 F/Sgt. J. F. Allen.

Previously Reported Missing, Now Reported Prisoner of War

Aus.409603 Sgt. F. B. Shaw.

ROYAL CANADIAN AIR FORCE

Killed in Action

R. 96679 Sgt. J. H. Smith.

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

R.105759 Sgt. B. W. Agar.
R.102186 F/Sgt. A. W. Cochrane.
R. 88546 F/Sgt. A. N Connor.
R. 85961 F/Sgt. G. Farah.
J. 17453 P/O A. L. Foster.
J. 8216 F/O D. G. Fraser.
R. 98989 F/Sgt. I. C. Grice.
R. 65638 Sgt. S. N. Hall.
R. 89625 F/Sgt. J. H. Higgins.
R.106357 Sgt. V. R. D. Kissick.
J. 12970 P/O G. W. Lawry.
J. 15034 F/O P. J. Leboldus.
R.100701 F/Sgt. H. K. McGreery
R.107744 Sgt. F. A. Marean.
R.119377 F/Sgt. G. W. Miller.
R.122409 Sgt. T. E. Richardson.
J. 13767 F/O G. W. Sellers.
R. 89257 Sgt. W. L. G. Thompson.
R.105321 Sgt. F. Ward
R.102418 F/Sgt. R. Weiss.

Previously Reported Missing, Now Presumed Killed in Action

R.103678 Sgt. F. H. Barker.
R.140390 Sgt. W. D. Cameron.
R. 76061 Sgt. C. O. Cook.
J. 11074 F/O E. W. Cunningham.
R.104758 Sgt. F. A. DeGruchy.
R.101891 Sgt. D. A. Ferguson.
J. 16905 P/O J. Fallis.
J. 10147 F/O T. M. Falls.
J. 16216 P/O H. F. Fansher.
R. 75877 Sgt. R. C. Fenton.
R. 73462 Sgt. C. B. Hodges.
J. 11963 F/O H. B. Kent.
J. 9079 F/O R. S. Kent.
R. 88685 F/Sgt. J. Lawrence.
R.108443 Sgt. J. O. M. Lebel.
R.106948 Sgt. J. J. Lemke.
J. 15046 Act. F/L R. H. Lowe.
R. 92790 F/Sgt. W. G. Murphy.
R. 94837 F/Sgt. L. B. Murray.
J. 16748 P/O J. N. Peck.
J. 16143 P/O P. F. Pinder.
R.102798 Sgt. J. Richards.
J. 10305 F/O A. F. G. Ritch.
R.102864 Sgt. W. A. Rollings.
R.129739 Sgt. J. L. Sparling.
J. 16242 P/O C. Tuma.
R.107040 Sgt. W. W Wallace.
R.139949 Sgt. S. Archie.
R.134035 Sgt. A. E. Atkinson.
R. 92543 Sgt. L. W. Bartman.
R. 90351 F/Sgt. R. Birchall.
J. 8793 F/O J. H. Brown.
R. 85910 F/Sgt. W. E. Cain.
R. 73825 Sgt. A. C. Cantley.
R.104277 F/Sgt. H. H. Clements.
R.126429 Sgt. C. F. Daley.
R.103897 Sgt. L. L. Gladwin.
R. 79076 Sgt F. W. Guild.
R.139686 Sgt. D. I. Harvard.
R. 70986 Sgt. C. D. Heming.
R.120606 Sgt. G. C. Heming.
R. 79184 F/Sgt. R. W. G. Hogan
R. 97033 F/Sgt. W. J. Hogg.
R.149986 Sgt. S. J. Jorgensen.
R. 79669 W.O. G. A. McMillan.
R 78908 F/Sgt. J. McA. Newton.
R.114904 Sgt. W. B. Nichol.
R.114943 Sgt. L. H. Peterson.
J. 16407 P/O F Prosperine.
R 142433 Sgt. W. J. Reid.
R.102783 F/Sgt. R. Strong.
R. 86739 F/Sgt. R. H. Ward.
J. 17541 P/O M. E. White, D.F.M.
R.103246 Sgt F. R. Windibank.
R. 92688 Sgt. G. A. Young.
R.115908 Sgt. D. Zaleschuk.

Wounded or Injured in Action

R.83451 F/Sgt. J. F. Smith.
R.156934 Sgt. J. S. Boucher.

Missing Believed Killed in Action

R.134836 Sgt. J. A. Albert.
R. 73846 W.O. H. D'Aperng.
J. 17608 P/O E. G. Dolby, D.F.C.
R.124704 Sgt. J. J. McLean.

Missing

R. 66134 F/Sgt. C. G. Baker.
R.143433 Sgt. C. A. Davis.
J. 18353 P/O F. S. Green.
R.130022 Sgt. I. D. Jennings.
R.172701 Sgt. S. C. MacLennan.
R. 92745 F/Sgt. J. D. MacNeill.
R.117288 Sgt. F. Middleton.
R. 79162 Sgt. J. E. Milner.
R.131647 Sgt. G. A. Munro.
R. 98092 Sgt. H. A. Queen.
R.137429 Sgt. T. J. Ryan.
R.121944 Sgt. H. K. Scott.
J. 17326 P/O G. P. C. Vandekerckhove, D.F.C.
J. 18458 P/O W. A. Williamson.
R.115850 F/Sgt. D. Zander.
R.161411 Sgt R. E. Adam.
J. 20144 F/O R. E. Baker
R.136138 F/Sgt. J. D. Bawden.
R.178212 W.O. P. P. Blazejko.
R. 81477 W.O. I. J. Burkitt.
R.175980 Sgt. J. Clark.
R.126892 F/Sgt. F. H. Davis.
J. 15145 Act. F/L J. L. Dehoux, D.F.C.
J. 22218 F/O W. A. Gardiner.
J. 21298 P/O R. C. Gilbert.
R.110773 W.O C. G. Glover.
J. 21894 F/O MacD S. Gordon.
C. 1623 S/L F. E Grant.
R.103205 F/Sgt. H. K Kells.
R.117456 Sgt. R. Lesser
R.136041 Sgt. C. C. Maw.
R 147502 F/Sgt. C. M. Niven.
J. 17470 P/O J. H. Price.
R.165175 F/Sgt. D. Scott.
J. 18470 P/O R. C. Sullivan.

Killed on Active Service

R.180851 Sgt. W. J. R. Blakely.
J.15718 F/O C. Foderingham, D.F.C.
J. 16260 F/O W. C. Gordon, D.F.C.
R.102337 F/Sgt. H. R. Ross.
J. 16926 F/O A. W. Stewart, D.F.M.
R.145403 Sgt. R. M. Todd.
R.121328 Sgt. E. C. Crabtree.
R. 80228 F/Sgt. E. Harbo.
J. 9313 F/O W. F. M. Howard.
R.163708 Sgt. G. Morrow.

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

R. 77048 W.O. J. H. Clark.

Wounded or Injured on Active Service

R.136214 Sgt. R H. Gilpin.

Died on Active Service

R. 78952 Sgt. K. I. J. Deane.

Previously Reported Missing, Now Reported Prisoner of War

R.130123 Sgt. R. O. Leonard.
J. 18112 P/O E. Moorcroft.

ROYAL NEW ZEALAND AIR FORCE

Previously Reported Missing, Now Presumed Killed in Action

NZ.414226 Sgt. R. A. Banks-Martin.

Previously Reported Missing, Now Reported Killed in Action

NZ.391351 F/O I. A. C. Grant.
NZ.411769 P/O G. W A. Mills.
NZ.411730 Sgt. N. P. Saul.
NZ.412746 Sgt. G. W. Sharman.
NZ.414713 P/O E. B. Withell.

Missing Believed Killed in Action

NZ.402228 W.O. W. J. Vocasivich.
NZ.411874 P/O R. H. Fitzgibbon.

Missing

NZ 41142 F/Sgt. J. G. Baker.
NZ. 42291 F/O H. G. F Cox.
NZ.417047 F/O J Goulding.
NZ. 42326 F/Sgt. D. L. C. Haub
NZ.414622 F/O D. C Henley.
NZ. 42330 F/Sgt. K. C. Jackson
NZ 415261 F/Sgt. W. A Kilby.
NZ.416324 F/O J. B. Lovelock.
NZ 415770 F/Sgt. K. A McGregor.
NZ.417107 F/Sgt. E. J. Roberts.
NZ.404116 F/O E. I Smallfield.
NZ.416548 F/Sgt. A. H Smith.
NZ.421614 F/Sgt. I H R. Smith.
NZ.414357 F/O O. K. Sutherland.
NZ.421946 F/O C. A. Watson.
NZ.417265 F/Sgt. W. D. Clark.
NZ.415541 F/Sgt. R. W Lower.
NZ.412789 Act. F/L W. Y. McGregor.
NZ.421090 F/Sgt. V. T. Parkin.
NZ.417299 F/Sgt. T. Watters.

Previously Reported Missing, Now Presumed Killed on Active Service

NZ.411793 Sgt. P. R. Karena.

Killed on Active Service

NZ.413818 F/Sgt. R. G. Cotton.
NZ.421987 F/Sgt. F. Payne

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

NZ.414862 Sgt. N. J. Cheney.
NZ.405374 F/Sgt. D. C. Henderson.
NZ.405352 F/Sgt. L. C Webster.

Previously Reported Missing, Now Reported Prisoner of War

NZ.412392 F/Sgt I. A. Mears.

SOUTH AFRICAN AIR FORCE

Missing Believed Killed in Action

102370 Capt. C. E. Martin.

Missing

103510 Lt. H. F. Boyer.

Killed on Active Service

102838 Capt. C. B. MacDonald.
104022 Lt. R. S. Meyer.

THE MORNING AFTER.—A Handley Page Halifax II Series I lands after a successful raid on German territory.

ROYAL AIR FORCE AWARDS

HIS MAJESTY THE KING has approved the award of the following decorations in recognition of courage and devotion to duty displayed in rescuing wounded airmen from blazing aircraft with bombs exploding around; and in recognition of skill and courage during air-sea rescue flights, photographic reconnaissance flights and other operational flights in the Ægean Sea, in the Mediterranean and over enemy and enemy-occupied territory:—

Member of the British Empire

Flying Officer: R. J. O. Doehler, R.C.A.F., No. 424 (R.C.A.F.) Squadron.

Distinguished Service Order

Act. Group Captain: W. E. Oulton, D.F.C., No. 58 Squadron

Wing Commander: J. C. Halley, R.A.F.O., No 502 Squadron.

Act. Wing Commanders: R. G. England, D.F.C., No. 107 Squadron; G. F. Grant, D.F.C., No. 156 Squadron; R. H. Harries, D.F.C., R.A.F.V.R.; Hubert Law-Wright, D.F.C., R.A.F.V.R., No. 14 Squadron; R. M. MacKenzie, D.F.C., A.F.C., No. 201 Squadron; H. N. G. Wheeler, D.F.C., No. 236 Squadron.

Act. Squadron Leader: E. G. Hughes, D.F.C., R.A.F.V.R., No. 540 Squadron

Second Bar to Distinguished Flying Cross

Act. Wing Commander: C. F. Gray, D.S.O., D.F.C., R.A.F.O

Bar to Distinguished Flying Cross

Act. Wing Commanders: G. R. Magill, D.F.C., R.A.F.O., No. 180 Squadron; B. B. Russell, D.F.C., R.C.A.F.

Squadron Leader: J. R. St. John, D.F.C., R.A.F.O., No. 101 Squadron.

Act. Squadron Leaders: J. S. Belton, D.F.C., R.A.F.V.R., No. 466 (R.A.A.F.) Squadron; R. H. Bunker, D.F.C., R.A.F.O., No. 9 Squadron; G. R. Hay, D.F.C., R.A.F.V.R., No. 102 Squadron; H. B. Martin, D.S.O., D.F.C., R.A.F.V.R., No. 617 Squadron; D. E. Street, D.F.C., R.A.F.V.R., No. 50 Squadron.

Flight Lieutenants: J. N. Rowland, D.F.C., No. 12 Squadron; D. J. Shannon, D.S.O., D.F.C., R.A.A.F., No. 617 Squadron.

Act. Flight Lieutenants: F. S. Cocker, D.F.C., R.A.F.V.R., No. 161 Squadron; O. A. Cussen, D.F.C., R.A.F.V.R., No. 161 Squadron; D. W. Henry, D.F.C., R.C.A.F., No. 214 Squadron; H. A. Hitchcock, D.F.C., R.A.F.V.R., No. 97 Squadron; H. A. Scott, D.F.C., No. 109 Squadron.

Pilot Officer: John McIntosh, D.F.C., R.A.F.V.R., No. 207 Squadron.

Distinguished Flying Cross

Squadron Leaders: A. I. S. Debenham, R.A.F.V.R., No. 10 Squadron; John Martin, R.A.F.O., No. 622 Squadron.

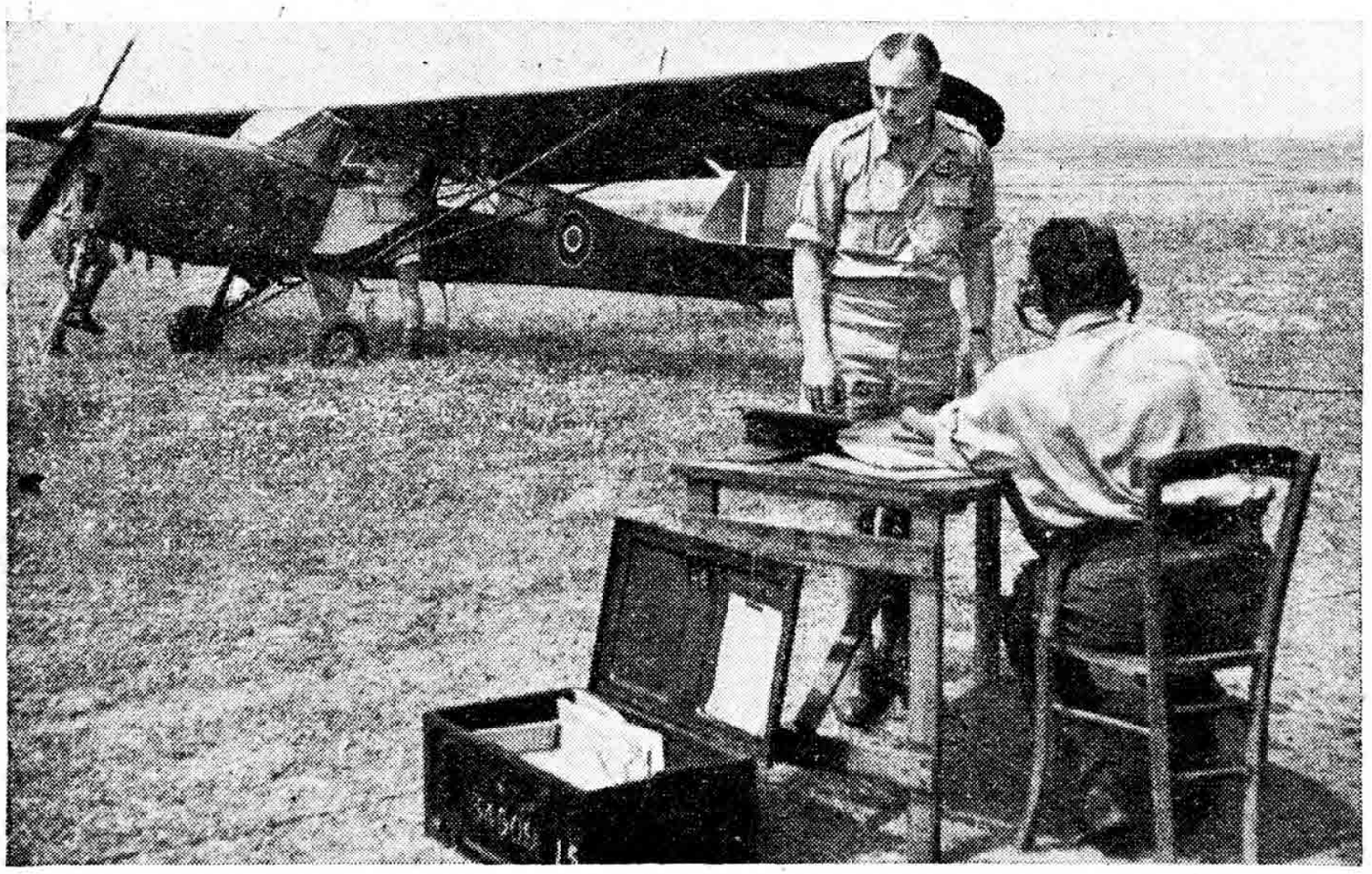
Act. Squadron Leaders: D. C. Anset, R.A.F.V.R., No. 156 Squadron; K. M. Barclay, R.A.A.F., No. 453 (R.A.A.F.) Squadron; M. W. Beveridge, R.C.A.F., No. 418 (R.C.A.F.) Squadron; D. A. Brown, No. 7 Squadron; A. H. G. Clarke, R.A.A.F., No. 455 (R.A.A.F.) Squadron; E. G. Dean, No. 10 Squadron; C. B. Hess, R.C.A.F., No. 432 (R.C.A.F.) Squadron; C. C. Moran, R.C.A.F., No. 418 (R.C.A.F.) Squadron; A. J. Mulligan, R.A.F.V.R., No. 156 Squadron; David Smith, D.F.M., R.A.F.V.R., No. 90 Squadron; E. J. Wight, R.A.F.O., No. 224 Squadron.

Flight Lieutenants: Ramsay Aytoun, R.A.F.V.R., No. 619 Squadron; E. N. Bunting, R.A.F.V.R., No. 604 Squadron; A. G. Conway, R.A.F.V.R., No. 136 Squadron; A. N. Davis, No. 16 Squadron; Robert Findlater, No. 109 Squadron; A. R. Gersekowski, A.F.M., R.A.F.V.R., No. 100 Squadron; D. F. Mackenzie, R.A.F.V.R., No. 97 Squadron; Donald Mortimer, No. 427 (R.C.A.F.) Squadron; J. H. Moutray, D.F.M., No. 9 Squadron; A. G. Patston, R.A.F.V.R., No. 85 Squadron; R. T. Phipps, R.C.A.F., No. 272 Squadron; R. F. N. Pughe, No. 16 Squadron; J. N. Rowland, No. 12 Squadron; V. H. Surplice, R.A.F.V.R., No. 77 Squadron; A. L. Walker, R.A.A.F., No. 466 (R.A.A.F.) Squadron; W. W. Wilson, R.A.A.F., No. 455 (R.A.A.F.) Squadron.

Act. Flight Lieutenants: G. T. Bailey, R.A.F.V.R., No. 78 Squadron; B. H. Berridge, D.F.M., R.A.F.V.R., No. 97 Squadron; J. E. Blair, D.F.M., R.A.F.V.R., No. 97 Squadron; Nathan Bowman, R.A.F.V.R., No. 109 Squadron; F. W. W. Chandler, R.A.F.V.R., No. 97 Squadron; M. A. Cybulski, R.C.A.F., No. 410 (R.C.A.F.) Squadron; Anthony Drew, R.A.F.V.R., No. 118 Squadron; A. H. Duringer, D.F.M., R.A.F.V.R., No. 101 Squadron; G. H. Ebert, No. 277 Squadron; R. T. Fitzgerald, R.A.A.F., No. 77 Squadron; K. S. Gaze, R.A.F.V.R., No. 78 Squadron; F. M. Griggs, D.F.M., R.A.A.F., No. 109 Squadron; G. H. T. Hatton, R.A.F.V.R.; J. D. Henderson, R.N.Z.A.F., No. 619 Squadron; Thomas Hodkinson, R.A.F.V.R., No. 97 Squadron; F. T. Hopps, R.A.F.V.R., No. 103 Squadron; James Hough, R.A.F.V.R., No. 7 Squadron; R. F. Lown, R.A.F.V.R., No. 15 Squadron; F. C. Macdonald, R.A.F.V.R., No. 620 Squadron; J. D. Mitchner, R.C.A.F., No. 402 (R.C.A.F.) Squadron; B. E. McLaughlin, R.A.F.V.R., No. 12 Squadron; J. A. Morton, R.C.A.F., No. 427 (R.C.A.F.) Squadron; J. A. Moss, R.A.F.V.R., No. 233 Squadron; E. H. Mulligan, R.C.A.F., No. 408 (R.C.A.F.) Squadron; J. V. Perrins, R.A.F.V.R., No. 138 Squadron; R. D. Phillip, R.C.A.F., No. 421 (R.C.A.F.) Squadron; R. C. Rawlings, R.N.Z.A.F., No. 158 Squadron; Reginald Roberts, R.A.F.V.R., No. 156 Squadron; Thomas Rowe, R.A.F.V.R., No. 77 Squadron; C. V. Stephens, R.A.F.V.R., No. 106 Squadron; E. A. Strange, R.A.F.V.R., No. 76 Squadron; E. M. Thompson, R.A.F.V.R., No. 156 Squadron; R. F. Tinkler, R.A.F.V.R., No. 83 Squadron; A. L. Webber, No. 89 Squadron; P. G. R. Weeks, R.A.F.V.R., No. 12 Squadron; C. A. Wilson, R.C.A.F., No. 100 Squadron; H. B. W. Wright, R.A.F.V.R., No. 48 Squadron; Victor Wood, R.A.F.V.R., No. 12 Squadron.

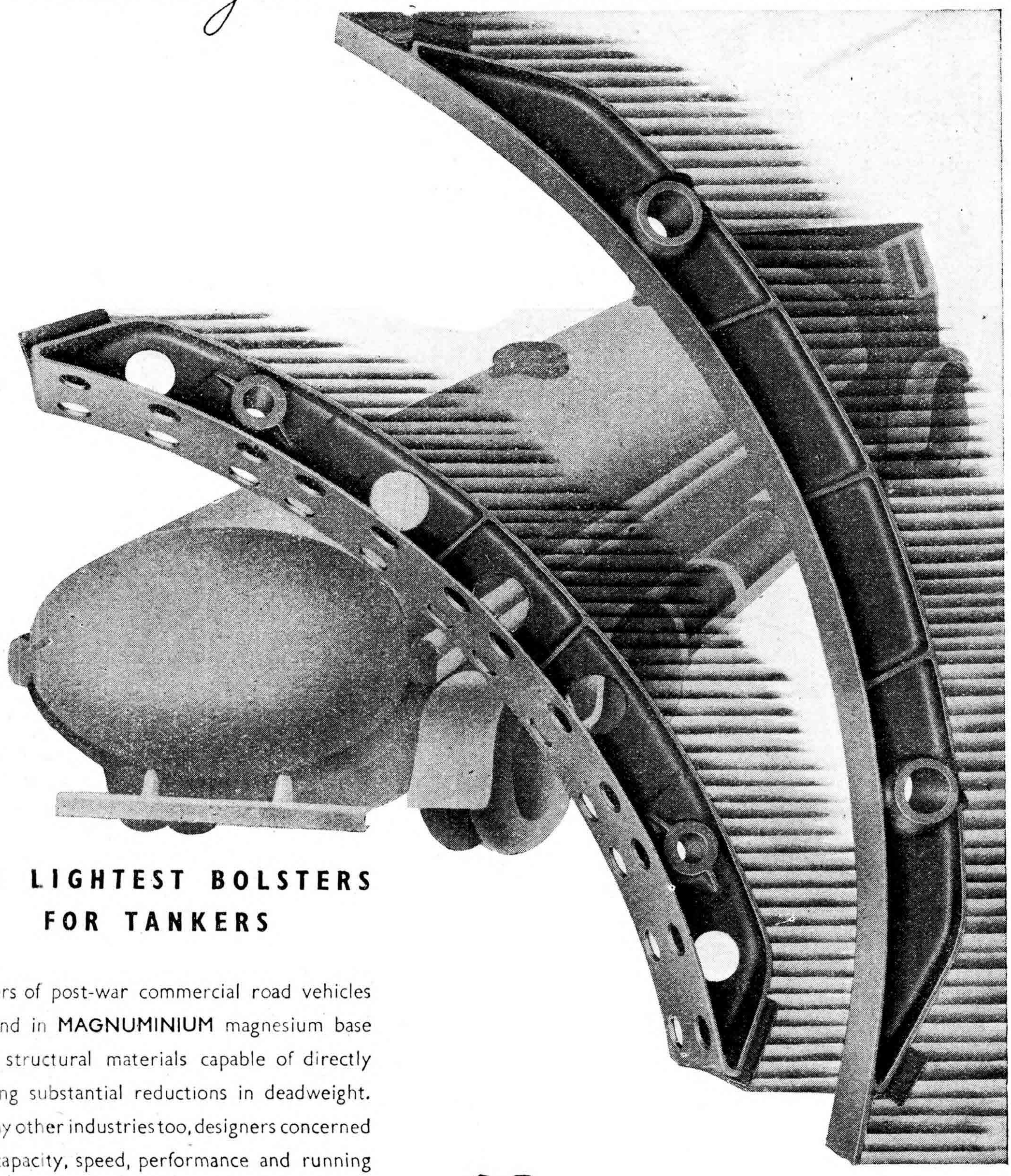
Flying Officers: E. A. Adams, R.C.A.F., No. 97 Squadron; D. H. Alcorn, R.C.A.F., No. 418 (R.C.A.F.) Squadron; William Auld, R.A.F.V.R., No. 51 Squadron; B. D. Baker, R.A.F.V.R., No. 92 Squadron; T. G. W. Bayfield, No. 51 Squadron; N. E. Beattie, R.A.F.V.R., No. 50 Squadron; I. C. Beckwith, R.C.A.F., No. 432 (R.C.A.F.) Squadron; D. S. Bell, R.A.F.V.R., No. 161 Squadron; K. J. Benner, R.C.A.F., No. 44 Squadron; J. J. Berg, R.A.F.V.R., No. 100 Squadron; N. B. Blakey, R.N.Z.A.F., No. 90 Squadron; K. S. Butterfield, R.A.F.V.R., No. 276 Squadron; Douglas Carter, No. 139 Squadron; W. L. Dark, R.C.A.F., No. 432 (R.C.A.F.) Squadron; A. M. Dinwoodie, R.A.F.V.R., No. 27 Squadron; J. T. Edwards, R.A.F.V.R., No. 12 Squadron; G. A. Facey, R.A.F.V.R., No. 89 Squadron; Alexander Fleet, R.A.F.V.R., No. 460 (R.A.A.F.) Squadron; D. J. Furner, R.A.F.V.R., No. 214 Squadron; M. V. Goodman, R.A.F.V.R., No. 192 Squadron; Alexander Grant, R.A.F.V.R., No. 77 Squadron; D. A. Greville-Heygate, R.A.F.V.R., No. 16 Squadron; D. I. Griffiths, R.A.F.V.R., No. 12 Squadron; W. J. Hanks, R.A.F.V.R., No. 158 Squadron; E. L. Hartley, R.A.F.V.R., No. 58 Squadron; D. A. Hickman, R.A.F.V.R., No. 12 Squadron; R. G. F. Hunt, R.C.A.F., No. 426 (R.C.A.F.) Squadron; C. R. Johnson, R.A.A.F., No. 156 Squadron; F. R. Kennedy, R.A.A.F., No. 156 Squadron (since deceased); B. B. Kennett, R.A.F.V.R., No. 464 (R.A.A.F.) Squadron; H. H. Ladbrooke, R.A.F.V.R., No. 410 (R.C.A.F.) Squadron; J. W. Leitch, R.A.A.F., No. 7 Squadron; Richard Mascall, R.A.F.V.R., No. 138 Squadron; Kenneth McIntyre, R.A.A.F., No. 7 Squadron; D. M. Moodie, R.C.A.F., No. 97 Squadron; R. M. Muir, R.A.F.V.R., No. 264 Squadron; V. W. G. Musgrove, R.A.F.V.R., No. 466 (R.A.A.F.) Squadron; A. G. Norman, R.A.F.V.R., No. 295 Squadron; N. G. Payne, R.A.F.V.R., No. 464 (R.A.A.F.) Squadron; Geoffrey Rice, R.A.F.V.R., No. 617 Squadron; A. C. Richards, R.A.F.V.R., No. 622 Squadron; A. E. Robbins, R.A.F.V.R., No. 76 Squadron; E. V. Sanders, R.A.F.V.R., No. 12 Squadron; C. A. Shirley, D.F.M., R.C.A.F., No. 50 Squadron; F. A. Spilsbury, R.A.F.V.R., No. 50 Squadron; A. B. Stovel, R.C.A.F., No. 139 Squadron; H. H. Taylor, D.F.M., R.A.F.V.R., No. 44 Squadron; H. J. Thomas, No. 426 (R.C.A.F.) Squadron; C. L. Walshaw, R.A.F.V.R., No. 10 Squadron; G. L. Weaver, R.A.F.V.R., No. 620 Squadron; D. C. L. Webber, R.A.F.V.R., No. 120 Squadron; M. B. Whitbread, R.A.F.V.R., No. 7 Squadron; Ivan Whittaker, No. 617 Squadron; G. A. S. Williams, R.A.F.V.R., No. 196 Squadron; L. V. Williams, R.A.F.V.R., No. 10 Squadron; Albert Wood, R.A.F.V.R., No. 77 Squadron; R. P. Wright, R.A.A.F., No. 156 Squadron.

Pilot Officers: J. J. Allen, R.A.A.F., No. 466 (R.A.A.F.) Squadron; R. A. Baker (since deceased), R.A.F.V.R., No. 50 Squadron; Frank Barker, R.A.F.V.R., No. 61 Squadron; B. R. Bayne, R.A.F.V.R., No. 106 Squadron; M. G. Brown, R.A.A.F., No. 12 Squadron; D. W. Burt, R.A.F.V.R., No. 97 Squadron; J. H. Cameron, R.A.A.F., No. 466 (R.A.A.F.) Squadron; B. A. Connor, R.A.A.F., No. 149 Squadron; Frank Cousins, R.A.F.V.R., No. 405 (R.C.A.F.) Squadron; J. H. Cridge, R.A.F.V.R., No. 158 Squadron; C. T. Crook, R.A.A.F., No. 460 (R.A.A.F.) Squadron; H. C. Doel, R.A.F.V.R., No. 158 Squadron; D. A. Duncan, R.A.F.V.R., No. 50 Squadron; Philip Dyson, R.A.F.V.R., No. 196 Squadron; W. H. Eager, R.C.A.F., No. 61 Squadron; W. E. Elder, D.F.M., R.N.Z.A.F., No. 76 Squadron; Harold Ellis, R.A.F.V.R., No. 103 Squadron; G. M. Ewan, R.C.A.F., No. 405 (R.C.A.F.) Squadron;



SPOTTING FLIGHT.—An Army pilot, who is also a gunnery officer, receives his instructions before taking off on a spotting flight for the artillery in an Auster III.

The Lightest Structural Metal



THE LIGHTEST BOLSTERS FOR TANKERS

Builders of post-war commercial road vehicles will find in **MAGNUMINIUM** magnesium base alloys structural materials capable of directly effecting substantial reductions in deadweight. In many other industries too, designers concerned with capacity, speed, performance and running costs, will turn to the use of these alloys. Magnuminium is four times lighter than steel, possesses outstanding strength/density ratios and a range of other interesting properties and characteristics. Technical data may be obtained on request to the Development Department.

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MAGNESIUM BASE ALLOYS

MAGNESIUM CASTINGS & PRODUCTS LTD • SLOUGH

Harry Fawcett, R.A.F.V.R., No. 405 (R.C.A.F.) Squadron; P. M. Foster, R.A.F.V.R., No. 78 Squadron; S. N. Freestone, R.A.F.V.R., No. 199 Squadron; Norman Gardiner, R.N.Z.A.F., No. 12 Squadron; J. R. Gardner, R.A.A.F., No. 460 (R.A.A.F.) Squadron; D. H. Glasson, R.A.A.F., No. 466 (R.A.A.F.) Squadron; K. D. Gray, R.A.A.F., No. 101 Squadron; Kenneth Hewson, R.C.A.F., No. 76 Squadron; E. F. Hicks, C.G.M., R.A.F.V.R., No. 466 (R.A.A.F.) Squadron; John Hugill, No. 102 Squadron; J. R. Hulley, R.A.F.V.R., No. 10 Squadron; Wilfred Humphries, R.A.F.V.R., No. 199 Squadron; W. J. Jowers, R.A.F.V.R., No. 9 Squadron; F. J. Kauter, R.A.A.F., No. 12 Squadron; E. A. L. Kemp, R.A.F.V.R., No. 50 Squadron; K. J. Kinsella, R.A.F.V.R., No. 90 Squadron; Joseph Kohut, R.C.A.F., No. 7 Squadron; A. R. J. Laberge, R.C.A.F., No. 432 (R.C.A.F.) Squadron; K. J. Lambert, R.A.F.V.R., No. 10 Squadron; J. C. Lang, R.C.A.F., No. 51 Squadron; G. B. Loder, R.A.A.F., No. 156 Squadron; W. C. L. McKay, R.A.F.V.R., No. 158 Squadron; W. G. McLellan, R.C.A.F., No. 101 Squadron; L. A. McMorron, R.A.A.F., No. 466 (R.A.A.F.) Squadron; W. T. Mayson, R.A.F.V.R., No. 7 Squadron; C. B. Megone, R.A.F.V.R., No. 603 Squadron; E. W. Moore, R.A.F.V.R., No. 10 Squadron; M. R. Nash, R.A.A.F., No. 460 (R.A.A.F.) Squadron; J. C. Otter, R.A.F.V.R., No. 156 Squadron; Vernon Royle, R.A.F.V.R., No. 10 Squadron; B. J. Sherry, R.A.F.V.R., No. 9 Squadron; A. C. Shipway, R.A.F.V.R., No. 83 Squadron; C. W. Smith, R.A.F.V.R., No. 620 Squadron; Hugh Stephens, R.A.F.V.R., No. 161 Squadron; E. J. Stone, R.A.F.V.R., No. 35 Squadron; Roy Stopani, R.A.F.V.R., No. 49 Squadron; S. W. Templar, R.A.F.V.R., No. 102 Squadron; G. M. Thornton, R.C.A.F., No. 427 (R.C.A.F.) Squadron; J. H. Verrall, R.N.Z.A.F., No. 214 Squadron; James Walker, R.A.F.V.R., No. 101 Squadron; R. J. Wells, No. 120 Squadron; Peter Wilby, R.C.A.F., No. 7 Squadron; Wilfred Wilkinson, R.A.F.V.R., No. 156 Squadron; H. P. Williams, R.A.F.V.R., No. 106 Squadron; A. M. Wood, R.A.F.V.R., No. 76 Squadron.

Warrant Officers: James Borland, R.A.F.V.R., No. 12 Squadron; S. C. I. Bremner, R.A.F.V.R., No. 97 Squadron; A. J. Brown, R.A.F V.R., No. 101 Squadron; Howard Bryson, R.C.A.F., No. 97 Squadron; W. V. Curran, R.A.A.F., No. 12 Squadron; A. L. D'Eon, R.C.A.F., No. 427 (R.C.A.F.) Squadron; H. M. Ellis, R.A.F.V.R., No. 61 Squadron; A. E. Flowerday, R.A.F.V.R., No. 97 Squadron; A. R. Hales, R.C.A.F., No. 49 Squadron; W. L. C. Hickling, R.A.A.F., No. 156 Squadron; James Montgomery, No. 149 Squadron; Gordon Pearce, R.A.F.V.R., No. 97 Squadron; A. E. Pinson, R.A.F.V.R., No. 192 Squadron; G. V. Price, D.F.M., R.A.F.V.R., No. 50 Squadron; E. W. Smith, R.A.F.V.R., No. 12 Squadron; L. K. Teitzel, R.A.A.F., No. 103 Squadron.

Act. Warrant Officers: R. J. Bunten, R.A.F.V.R., No. 103 Squadron; P. O. Bone, R.A.F.V.R., No. 97 Squadron; George Carpenter, R.A.F.V.R., No. 35 Squadron; J. L. Hannah, R.A.F.V.R., No. 97 Squadron; A. J. Harris, R.A.F.V.R., No. 97 Squadron; C. W. Knox, R.A.A.F., No. 156 Squadron; G. A. Lindsay, R.C.A.F., No. 156 Squadron; John Morrison, R.A.F.V.R., No. 49 Squadron; E. W. Ritchie, R.A.A.F., No. 156 Squadron.

Conspicuous Gallantry Medal

Warrant Officer: C. E. White, R.A.F.V.R., No. 100 Squadron.

Flight Sergeant: E. E. de Joux, D.F.M. R.A.F.V.R., No. 102 Squadron.

Bar to Distinguished Flying Medal

Flight Sergeant: Alfred Dickinson, D.F.M., R.A.F.V.R., No. 83 Squadron.

Temporary Flight Sergeant: W. F. W. Porteous, D.F.M., R.A.F.V.R., No. 7 Squadron.

Distinguished Flying Medal

Flight Sergeants: D. A. J. W. Ball, R.A.F.V.R., No. 207 Squadron; G. G. Beale, R.A.F.V.R., No. 61 Squadron; Samuel Boyle, R.A.F.V.R., No. 44 Squadron; Robert Brown, R.A.F.V.R., No. 100 Squadron; E. F. Bryan, R.A.F.V.R., No. 97 Squadron; A. H. Carling, R.A.F.V.R., No. 101 Squadron; J. C. Chapman, No. 156 Squadron; C. W. Charlton, R.A.F.V.R., No. 161 Squadron; H. W. N. Clausen, R.A.F.V.R., No. 97 Squadron; J. L. Crabb, R.A.F.V.R., No. 49 Squadron; L. G. Davis, R.A.F.V.R., No. 61 Squadron; John Doyle, R.A.F.V.R., No. 464 (R.A.A.F.) Squadron; John Duffy, No. 97 Squadron; S. M. Dunshea, R.A.A.F., No. 12 Squadron; W. J. Earle, R.A.F.V.R., No. 199 Squadron; W. J. Evans, R.A.F.V.R., No. 50 Squadron; Frank Farnham, R.A.F.V.R., No. 192 Squadron; G. G. Forbes, R.A.F.V.R., No. 156 Squadron; C. F. Fryer, No. 101 Squadron; W. L. Gaul, R.A.F.V.R., No. 51 Squadron; L. G. Hall, R.A.F.V.R., No. 161 Squadron; R. L. Hayter, R.A.F.V.R., No. 50 Squadron; W. B. Hawkins, R.A.F.V.R., No. 7 Squadron; W. A. Hetherington, No. 201 Squadron; (now Warrant Officer) Wellington Hill, R.C.A.F., No. 97 Squadron; (now Pilot Officer) K. J. P. Holmes, R.A.A.F., No. 10 Squadron; John Hyde, R.A.F.V.R., No. 207 Squadron; A. C. Jones, R.A.A.F., No. 97 Squadron; (now Pilot Officer) Daniel Jones, R.A.F.V.R., No. 7 Squadron; A. J. Kendall, R.A.F.V.R., No. 10 Squadron; K. E. Ladds, R.A.F.V.R., No. 58 Squadron; R. A. Leavers, R.A.F.V.R., No. 199 Squadron; P. W. Lees, R.A.F.V.R., No. 103 Squadron; Gerald McCelland, R.A.F.V.R., No. 10 Squadron; S. R. McMinn, R.A.F.V.R., No. 35 Squadron; J. F. Merchant, R.C.A.F., No. 9 Squadron; Rowland Middleton, R.A.F.V.R., No. 207 Squadron; S. R. Miller, R.N.Z.A.F., No. 12 Squadron; Harold Nelson, R.A.F.V.R., No. 427 (R.C.A.F.) Squadron; A. T. Newbegin, R.A.F.V.R., No. 97 Squadron; I. H. Nicholson, R.A.F.V.R., No. 207 Squadron; W. D. Pintches, R.A.F.V.R., No. 10 Squadron; W. A. Pitt, R.A.F.V.R., No. 158 Squadron; D. B. Polden, R.A.F.V.R., No. 101 Squadron; J. C. Pollitt, R.A.F.V.R., No. 61 Squadron; K. E. Powell, R.A.F.V.R., No. 158 Squadron; Frank Read, No. 196 Squadron; W. E. A. Reading, R.A.F.V.R., No. 466 (R.A.A.F.) Squadron; Selwyn Richardson, R.A.F.V.R., No. 77 Squadron; S. W. Rogers, R.A.F.V.R., No. 149 Squadron; J. C. Ross, R.A.A.F., No. 156 Squadron; (now Pilot Officer) J. D. Rudling, R.N.Z.A.F., No. 136 Squadron; John Simmons, No. 207 Squadron; R. L. Skillen, R.C.A.F., No. 427 (R.C.A.F.) Squadron; A. M. Smith, R.A.F.V.R., No. 9 Squadron; C. A. Stewart, R.A.F.V.R., No. 9 Squadron; E. C. Temple, No. 617 Squadron; L. L. J. Thomas, R.A.F.V.R., No. 83 Squadron; N. L. Thomas, R.A.A.F., No. 15 Squadron; R. H. Watford, R.A.F.V.R., No. 61 Squadron; W. R. Wicks, R.A.A.F., No. 12 Squadron (since deceased); A. E. Wilson, R.A.F.V.R., No. 61 Squadron.

Act. Flight Sergeants: W. R. J. Dingle, R.A.F.V.R., No. 35 Squadron; Maurice Hemming, R.A.F.V.R., No. 97 Squadron; E. C. Nixon, R.A.F.V.R., No. 35 Squadron; Frederick Strange, R.A.F.V.R., No. 97 Squadron.

Sergeants: Clive Anderton, R.A.F.V.R., No. 118 Squadron; A. H. L. Atkinson, R.A.F.V.R., No. 76 Squadron; B. O. R. Bays, R.A.F.V.R., No 418 (R.C.A.F.) Squadron; R. S. Bennett, R.A.F.V.R., No. 97 Squadron; L. J Bentley, R.A.F.V.R., No. 15 Squadron; Walter Berry, R.A.F.V.R., No. 76 Squadron; Robert Blair, R.A.F.V.R., No. 90 Squadron; J. T. Bundle, R.A.F.V.R., No. 97 Squadron; E. J. Carden, No. 423 (R.C.A.F.) Squadron; T. G. C. Cheshire, R.A.F.V.R., No 50 Squadron; Harold Cork, R.A.F.V.R., No. 77 Squadron; A. W. Davis, R.A.F.V.R., No. 76 Squadron; I. C. V. Dooley, R.A.F.V.R., No. 50 Squadron; L. C. A. Dowell, R.A.F.V.R., No. 100 Squadron; J. P. Duval, R.C.A.F., No. 427 Squadron (now Pilot Officer); Laurie Foat, R.A.F.V.R., No. 101 Squadron; J. P. Grant, R.A.F.V.R., No. 295 Squadron; H. W. Gurton, R.A.F.V.R., No. 10 Squadron; R. J. Hamilton, R.A.F.V.R., No. 101 Squadron; James Hill, R.A.F.V.R., No. 12 Squadron; W. G. Hill, R.A.F.V.R., No. 12 Squadron; David Hillyer, R.A.F.V.R., No. 61 Squadron; John Hodgson, R.A.F.V.R., No. 61 Squadron; Joseph Hooson, R.A.F.V.R., No. 35 Squadron; C. G. Johnson, R.A.F.V.R., No. 27 Squadron; G. H. Jones, R.A.F.V.R., No. 76 Squadron; William Laverick, No. 35 Squadron; L. A. Lenox, R.A.F.V.R., No. 158 Squadron; Matthew Livingstone, A.A.F., No. 138 Squadron; R. P. Lloyd, No. 101 Squadron; D. A. Long, R.A.F.V.R., No. 51 Squadron; A. C. Lorrimore, No. 101 Squadron; W. R. McEwen, R.A.F.V.R., No. 466 (R.A.A.F.) Squadron; Charles Macfarlane, R.A.F.V.R., No. 10 Squadron; W. M. Macphail, R.A.F.V.R., No. 61 Squadron; J. F. G. Mann, R.A.F.V.R., No. 61 Squadron; James Millar, R.A.F.V.R., No. 10 Squadron; R. S. Minnett, R.A.F.V.R., No. 10 Squadron; G. D. B. Moore, R.A.F.V.R., No. 12 Squadron; R. G. Morgan, R.A.F.V.R., No. 76 Squadron; J. D. O'Gorman, R.A.F.V.R., No. 101 Squadron; A. J. Page, R.A.F.V.R., No. 77 Squadron; V. A. Reed, R.A.F.V.R., No. 78 Squadron; C. D. Shaw, R.A.F.V.R., No. 138 Squadron; A. H. Shillcock, R.A.F.V.R., No. 76 Squadron; F. M. M. Smith, No. 10 Squadron; R. K. Stratford, R.A.F.V.R., No. 469 (R.A.A.F.) Squadron; E. G. Sutton, R.A.F.V.R., No. 460 (R.A.A.F.) Squadron; D. R. Tattersall, R.A.F.V.R., No. 12 Squadron; G. W. R. Taylor, R.A.F.V.R., No. 76 Squadron; T. L. Thackray, No. 10 Squadron; K. D. White, R.A.F.V.R., No. 50 Squadron; S. A. White, No. 61 Squadron.

George Medal

Act. Squadron Leader: P. G. Ottewill.

Flight Lieutenants: R. J. McCombe, R.C.A.F., No. 331 (R.C.A.F.) Wing; E. J. A. Lindsay, R.C.A.F., No. 424 (R.C.A.F.) Squadron.

Sergeant: Gildus Davies, No. 202 Squadron.

Aircraftman 1st Class: Daniel Owen R.A.F.V.R.

British Empire Medal

Flight Sergeants: H. E. Hall, R.A.F.V.R., No. 214 Squadron; W. J. Neilsen, R.A.A.F., No. 150 Squadron; H. A. McDonald, R.A.A.F., No. 150 Squadron.

Sergeants: J. A. Campbell, R.C.A.F., No. 424 (R.C.A.F.) Squadron; R. W. Coulston, No. 142 Squadron; H. J. Rhoda, R.A.F.V.R.; N. A. Workman, No. 209 Squadron.

Leading Aircraftmen: H. T. Collins, R.A.F.V.R., No. 104 Squadron; C. A. G. Snelling, R.C.A.F., No. 424 (R.C.A.F.) Squadron; G. R. Thompson, R.A.F.V.R., No. 58 Squadron; P. P. Wilkinson, R.C.A.F., No. 424 (R.C.A.F.) Squadron.

EXTRACTS FROM THE LONDON GAZETTE

Air Ministry, June 8, 1943.

ROYAL AIR FORCE VOLUNTEER RESERVE

GENERAL DUTIES BRANCH.—Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.):—Mar., 1942: C. J. Macpherson. Sept., 1942: J. O. Boothby.

TECHNICAL BRANCH.—Sqn. Ldr. (temp.) F. E. Tyndall is granted the rank of Flt. Lt. (war subs.). Apl.

Plt. Offs. (prob.) to be Flg. Offs. on prob. (war subs.):—Mar.: K. E. N. Whitehall. Apl.: E. F. Britton, D. R. Corser, W. E. Fowles, C. J. Hedgecock, I. T. Haynes E. G. Collis. May: A Bilsland, J. G. Jones, J. L. Jones.

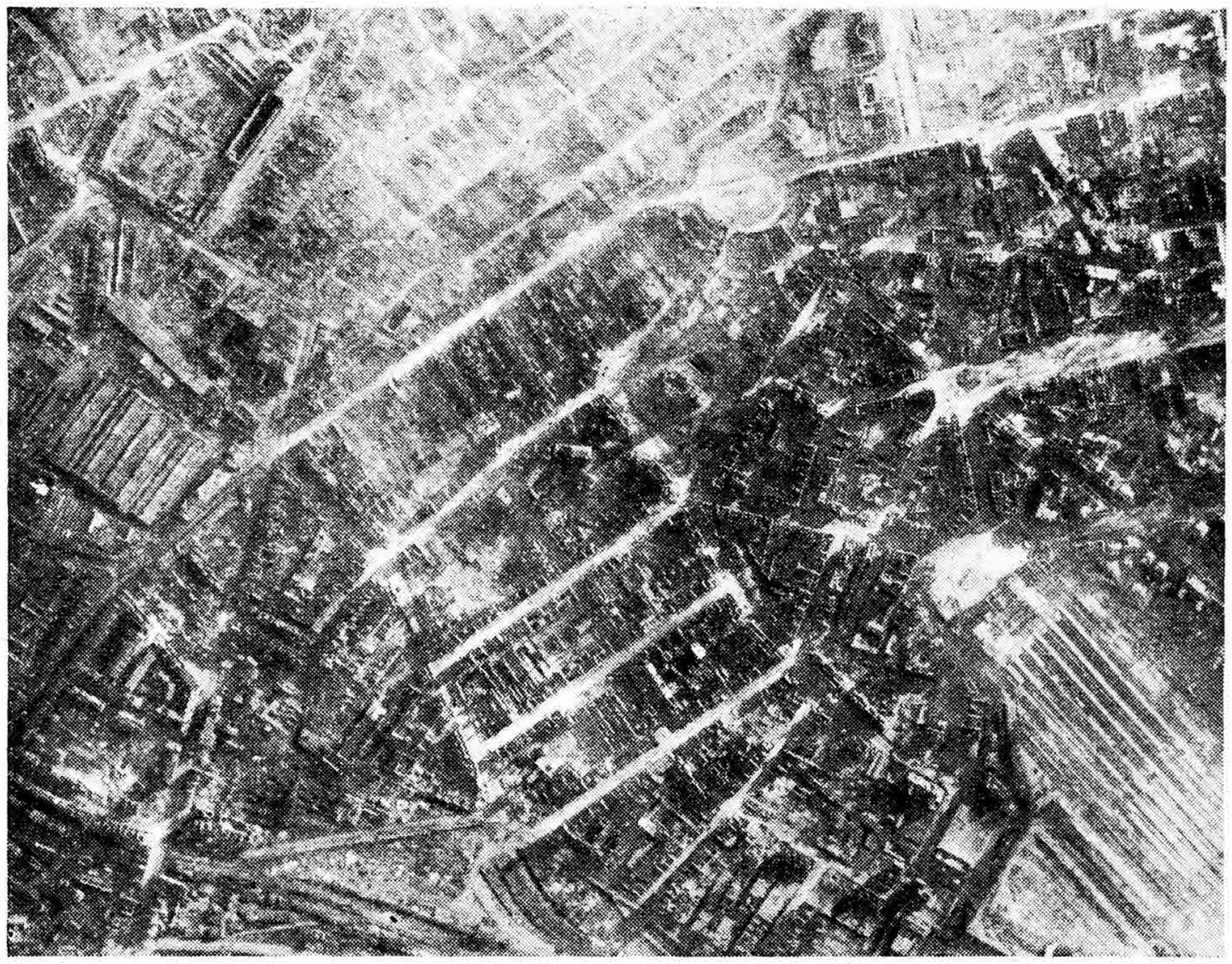
Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.):—May: J. T. Burn, A. J. Clark, L. J. Coles, P. J. Cooper, I. G. L. Critchett, C. E. R. Fairbairn C. D. Graham, R. B. Manning, I. F. Stewart, T. M. Stewart, W. Weiner, E. Wilkinson, H. Botham, J. R. Cole J. Reid, T. B. Smart.

ADMINISTRATIVE AND SPECIAL DUTIES BRANCH.—The folg. are granted the rank of Sqn. Ldr. (war subs.):—Sqn. Ldrs. (temp.): Jan.: L. W. C. Pearce-Gerrais. Mar.: H. C. Pyper. Flt. Lts.:—May: J. D. Atkinson, A.F.C. June: C. H. Bell, O.B.E.

The folg. are granted the rank of Flt. Lt. (war subs.):—Flt. Lt. (temp.): Apl.: G. F. H. Page. Flg. Offs.: May: G. R. Riddell-Carre, C. B. Waters.

Plt. Off. (prob.) R. S. Gray is confmd. in appt. and to be Flg. Off. (war subs.). Apl., 1942 (Sen. Feb. 24, 1942). (Subs. for notifn. of June 2, 1942.)

Plt. Offs. (prob.) to be Flg. Offs. on prob. (war subs.): Apl. 1942: J. P. Swanson (Sen. Mar. 3, 1942), M. McI Tulloch. July, 1942: M. F. Herford. Sept., 1942: P. G. Smith. Oct., 1942: R. A. Hughes, L. G. Turner, J. Russell, A. E. Pickering. Dec., 1942: R. A Paddon. Jan.: J. H. Chadwick, E. C. G Collins. Feb.: F. W.



DESOLATION.—The industrial area of Kassel after the R.A.F. raid of Oct. 22. This town was famous for its locomotive, tanks, lorries and instrument works.

Turner. Mar.: W. J. McWaters (Sen. Jan. 10), F. H. Leighton. W. Cosgrove, G. Hibbert (Sen. Nov. 20, 1942), A. R. Coats, R. Melvin-Warner, T. D. Brown (Sen. Jan 21), W. J. A. Evans, C. B. Peel, J. H. Walker, H. P. Hallett (Sen. Nov. 12, 1942), R. Burn (Sen. Feb. 3), A. L. Hughes (Sen. Mar. 7) G. H. Roker (Sen. Jan. 29), C. W. Van Der Veen (Sen. Feb. 3), R. G. Yates (Sen. Jan. 29), A. MacD. Parkinson (Sen. Feb. 8), J. W. Bennett, W. H. Musgrove, G. McLardie, G. A. Warden, R. F. Littledale, G. M. B. Smith, T. Chant, A. J. Cooke (Sen. Feb. 10), J. D. G. Garrie, J. Hansen, G. La N. P. Hewitt. Apl.: R. H. Lennox, S. G. Jackson, J. E. D. Slater, L. J. Boulter, S. F. G. Minney, E. Narracott, V. E. Dolman. May: J. K. Hilton, E. G. Parsons (Sen. Feb. 3), B R. Try, L. H. Wigg, R. Yeudal, W. C. Ballard (Sen. Jan. 21), E. W. East (Sen. Jan. 27), T. G. Hampsheir (Sen. Jan. 14), A. A. Mutch, W. H. Spokes (Sen. Jan. 26), L. Thwaite, G. Temperley (Sen. Feb. 3), W. J. Child, W. Tyrrell, C. F. H. Barrett, R. A. Davis, T. A. Gilligan, J. Gray, J. F. Palmby, A. D. Smith, G. Turton, G. G. S. Astbury. June: A. E. Bowles, L. R. Halliday, R. V. Harman, G. Hodgson, G. Lockwood, J. Mitchell, A. R. Spens, E. G. Carr, G. A. Daniels, V. H. Nevell, F. Wilton, F. A. Winter.

Plt. Off. (prob.) A. E Rayner to be Flg. Off. on prob. (war subs.). Oct., 1942 (Sen. Aug. 30, 1942). (Subs. for notifn. of Jan. 1.)

Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.):—Nov., 1942: C. J. Jukes (Sen. Sept. 14, 1942). May: D. O. B. Aubrey, M. K. B. Aubrey.

Act. Plt. Off. (prob.) L. C. Filmer to be Plt. Off. (prob.). June, 1942. (Subs. for notifn. of Sept. 18, 1942.)

Act. Plt. Off. (prob.) J. E. Philpott to be Plt. Off. on prob. Feb. (Subs. for notifn. of Apl. 30).

The notifn. of May 14 concern. E. H. Towner is cancelled.

METEOROLOGICAL BRANCH.—Flg. Offs. to be Flt. Lts. (temp.):—Jan.: R C. Honeybone (Sen. Oct. 1, 1942), H. N. Winwood.

EQUIPMENT BRANCH.—Plt. Offs. (prob.) to be Flg. Offs. on prob. (war subs.):—Mar.: A. Pinks, H. A. L. Mathews, H. Harris (Sen. Mar. 26, 1942), K. W. C. Moran, W. M. Morgan, S. McKeith, C. J. Payne.

Act. Plt. Offs. (prob.) to be Plt. Offs (prob.):—Sept., 1942: H. H. Harris. Nov., 1942: R. N. Phillips.

The notifn. of Mar. 19 concern. J. B. Graham is cancelled.

MEDICAL BRANCH.—Flt. Lt. C. J. Hackett, M.D., B.S., M.R.C.P., D.T.M. and H., is granted the rank of Sqn. Ldr. (war subs.). June.

Flg. Offs. to be Flt. Lts. (war subs.):—Mar.: P. J. Morrissey, M.B., B.Ch.; H. I. O'Hare, L.R.C.P. and S.; R. B. Niven, B.M., B.Ch., M.R.C.P., M.R.C.S.; G. M. Pringle, M.B., Ch.B.; K. O'Brien, M.B., Ch.B; J. Orr, M.B., Ch.B. Apl.: G. E. S. Robinson, M.R.C.S., L.R.C.P.; D. G. G. Jones, M.R.C.S., L.R.C.P.; T. Lyle, L.R.C.P. and S., L.R.F.P.S.; J. E. Moffett, M.B. B.Ch.; H. R. Newman, M.B., Ch.B.; J. D. M. Kieran, L.R.C.P. and S. May: L. J. Grant, M.B., B.S., M.R.C.S., L.R.C.P.; S. Ormerod. B.M., B.Ch.

DENTAL BRANCH.—Flg. Offs. to be Flt. Lts. (war subs.):—Mar.: B. Menton, L.D.S. Apl.: S. Slater, L.D.S. May: H. P. Evans, L.D.S., R.C.S.; S. A. McLaren, L.D.S.; M. Barber. L.D.S.; N. I. Scott, L.D.S.; A. K. Green, L.D.S.

ROYAL AIR FORCE REGIMENT.—The folg. are granted the rank of Flt. Lt. (war subs.):—Flt. Lts (temp.): Mar.: R. F. James, J. L. P. Denny, M.C. Flg. Off.: I. S. C. Rose, O.B.E.

Plt. Offs. (prob.) to be Flg. Offs. on prob. (war subs.): Oct., 1942: A. C. Meadows. June: T. H. Bartram.

The notifn. of May 21 concern. J. Cockroft is cancelled.

WOMEN'S FORCES

WOMEN'S AUXILIARY AIR FORCE.—Asst. Sec.. Offs. (prob.) to be Sec. Offs. on prob. (war subs.):—Nov., 1942; B. M. Matthewman. Apl.: A. J. White.

Air Ministry, June 15, 1943.

ROYAL AIR FORCE

GENERAL DUTIES BRANCH.—To be Plt. Offs. on prob. (emergency):—Wt. Offs.: Mar.: G. N McGuinness. Apl.: R. V. Y. Walmsley. Flt. Sgts.: June, 1942: W. J. Cavett. Nov., 1942: L. W. J. Gay. Feb.: R. W. Kemsley. Mar.: D. T. Wood, S. R. Chambers, J. T. Ellison, A. McK. McPhail, Leslie Charlton, T. J. Daniels, D.F.M., John Swinburne, John McKay, P. R. Pounds. Apl.: A L. S. Portch, S. D. Simpson, A. B. Smart, E. L. Ankers, W. S. Bowen, E. G. Guy. Act. Flt. Sgt.: R. H. Baird. Sgts.: Sept., 1942: H. W. Carey. Nov., 1942: Roy Woolley. Dec., 1942: F. E. Carr. Apl.: J. P. Britton, A. F. Cullington, A. J. Laney, W. R. McBriar, Alfred Spencer, W. G. Toogood, G. P. Welsh, John Ellyatt, James Inward, A. G. Witt. Cpls.: G. P. Elliott, K. L. Hughes, H. W. J Weston. Ldg. Acm.: Frank Lloyd.

Plt. Off. (prob.) W. G. R. Pearce transf. to the Admin. and Spec. Duties Br. May.

Sqn. Ldr. C. E. Wardle retains the rank of Wg. Cdr. on reverting to the retd. list. June.

Flg. Off. P. J. Bayliss (Lt. P. Corps) relinquishes his temp. commn. on return to Army Duty. Apl.

AMENDMENT.—In notifn. of Feb. 23 concern. Wg. Cdr. L. W. Jarvis, for Feb. 7 read Feb. 17.

TECHNICAL BRANCH.—To be Flg. Offs. on prob. (emergency):—Wt Offs.: May: L. W. Hayward, M. C. Saunders.

To be Plt. Offs. on prob. (emergency):—Flt. Sgt.: May: J. W. Winship, D.F.M. Cpl.: W. R. Knott.

To be Act. Plt. Offs. on prob. (emergency):—Flt. Sgts.: Apl.: J. N. Poll, I. N. Jones. May: E. J. Clift, W. E. J. Cross, G. S. Hart, W. W. I. Walker.

ADMINISTRATIVE AND SPECIAL DUTIES BRANCH.—Sgt. James Fifield to be Act. Plt. Off. on prob. (emergency). May.

EQUIPMENT BRANCH.—To be Act. Plt. Offs. on prob. (emergency):—Wt. Off.: May: S. J. Andrews. Flt. Sgts.: J. L. Seymour, A. J. Wood.

RESERVE OF AIR FORCE OFFICERS

GENERAL DUTIES BRANCH.—Flt. Lt. D. W. Gathercole is transf. to the Admin. and Spec. Duties Br. June.

ADMINISTRATIVE AND SPECIAL DUTIES BRANCH.—To be Flt. Lts. in class CC.: Mar.: D. B. Blackstock, W. W. Cotton, J. K. Garlick.

Flg. Off. C. J. Bartlett relinquishes his commn. in class CC on cessation of duty. May.

Flt. Lt. G. W. Radge relinquishes his commn in class CC on appt. to an emergency commn. in the R.A.F.V.R. Nov., 1942.

ROYAL AIR FORCE VOLUNTEER RESERVE

GENERAL DUTIES BRANCH.—To be Plt. Offs. on prob. (emergency):—Wt. Offs.: Nov., 1942: F. H Thornton. Dec., 1942: Peter McDougall-Black. Feb.: Harold Seston. Mar.: Peter Killick. Apl.: A. H. Benson, G. A. Morley. Temp. Wt. Off.: Mar.: M J Frost. Flt. Sgts.: Nov., 1942: K G. Hodson. Jan.: Roy Pearce, A. D. S. Martin, C. C. Phillips. Feb.: E. T. Davies, D.F.M., C. F. W. Norman, Bernard Chapman, Gordon Thompson, R. T. Straker, W. G. Gray, G. G. Durrant. Mar.: P. J Brown, H. C. Singleton, A. K Cox, Gerard Percy, John Cockburn, J. A. Bott, G. R. Venables, W. C. Norrington, D.F.M., R. A. Hobbs, R. W. Ponting, L. B. Everett, D. M. D'Eath, W J. Propert, A. C. Stephens, L. H. Blin, S. G. Turner, J. H O'Neill, C. E. E. Mason, P. J. Coleman, K. F. Savage, Roy Veal, G. R. Harris, G. A. Scarcliffe, A. H. A. Dowd, P. O. Hedges, G. P. Clark, R. C. Tourell, W. R. J. White, H. S. Yates. Apl.: I. A. Jackson, H A. Hagger, W. B. Robson, R. W. A. Saxton, V. A. Robbins, C. P. Harold, Abraham Ambus, I. R. Hillan. Sgts.: Sept., 1942: A. J. Easey. Oct., 1942: J. B. H. Billam, C. B. Usher. Nov., 1942: Bernard Ford Dec., 1942: G. F. Keen. Jan.: Bernard Gagan, T. B. Taylor, J. L. Underwood, W. N. Francis, J. L. Birch, J. J. Payton, M. A. Capel. Feb.: L. H. Cowley, W. A. Summers, D. C. A. Saunders, F. H. Kent, C. W. G. Wilson, Robert Wallace, Alfred Hambly. Mar.: Hugh Mulholland, Geoffrey Robinson, B. E. Bell, W. S. Brookes, S. A. Woods, W. H. Cusson, A. E. Colley, D. V. Hibbert, T. P. Lepp, J. H. B. Richards, T. C. Tonkin, L. J. Eggby, Thomas Nix, D.F.M., D. O. G. Goldfinch, D. E. Sharpe, R. C. Taylor, Cecil Battersby, Harold Williams, D. F. Medhurst, F. N. Lawrence, L. A. Frampton, R J. H. Hussey, F. J. Steer, D. A. Dobbie, A. C. Heath, J. H. Pullman. Apl.: R. A. Baker, R. C Rolls, W. J. Cowen, A. G. Edwards, Vernon Royle, H. J. Trafford, Douglas Twist, S. L. Whillis, R. D. Gerrie, Ignatius Rademeyer, A. R. Saint, D. A. Holdsworth, J. R. Griffiths, G. A. Bozier, D. P. Oliver, D.F.M., Harry Rogers, Alfred Stevens, W. E. Cambridge, N. S. Cooper, Alec Hollingsworth, H. J. R. Hobdey. Temp. Sgt.: Mar.: G. J. Saver. Cpls.: Apl.: J. T. Coulthard, W. E. Crook. Temp. Cpl.: May: Charles Squires. Ldg. Acm.: Aug., 1942: L. W. Capell. Jan.: H. D. Glover. Mar.: J. A. Bailie, H. D. Richards, M. A. S. J. Sanders, W. E. Speed, B. J. Standish, Timothy Titchmarsh, H. E. Stone, D. W. Butler, W. St. G. Chandler, Ralph Davies, R. J. Hey, Fred Midgley, J F. Newberry, S . L. Page, D. J. Powell, B. D. Rivron, W. H. N. Sloan, R. W. Walker-Lutz, L. C. Watts, D. A. V. I D. Finlay, J. R. Rice, J. A. White Thomas Johnston. D. J. Lane, Frank Henderson, A. N. Frankland, D. H. Maling, F. H. Maynard. Apl.: W. R. Farrer, W. S. Flenniken, J. R. Fletcher, K. H. B Frere, R. W Gaskell, R. T. Gausden, J. R. Gibbons, A. C. Hicks, R. J. C. Higgins, A. D. Hindmarsh, William Hoult, J. O. Hyslop, G. J. Boniface, G. L. Borrett, R. W. Bowman, P. B. Coates, S. J. Cox, E. G. Davies, K. E. Dean, P. O. Deverson, P. J. Devlin, A G. Douglas, B. A. England, M. S. Igglesden, H. J. Jefferies, Anthony Keith-Thomas, George Knapp, P. E. Legard, J W. J. Leggett, Gerard Lewis, R. H. Long, I. E. Macmaster, G. E. Magness, John Mark, H. P. Marti, O. H. Morshead, J. R. Muir, John Park, L. A. W. Pinsent, F. G. Shipton, J. W. Stratton, P. J. Tattersall, G. A. Thatcher, Charles Taylor, K. P. H. Tisshaw, J. A. Wall, F. E. Washington, William Kemp, P. G. Cousens, N. C. R. Cummins, P. A. Gibb, P. J. Macartney-Filgate. May: N. F. Heppell, H. C. Bryant, T. D. Halliday, G. D. Spyers, Gwynfor Watkins, James Atkinson, R. G. Beale, G. A Butcher, A. O. Colan, R. E. Mulcahy, J. B. Stanley.

To be transf. to the Admin. and Spec. Duties Br.:—Flt. Lt.: May: J. H. Rankin. Flg. Offs.: H. B. Riding, A. J. B. Hughes, J. B. Hornby, A. J. Price.

AMENDMENTS.—In notifn. of June 30, 1942, concern A. E. W. Wynard, for Wynard read Wynyard.

In notifn. of Apl. 27 concern. W. H. Goodman, for Jan. 23, 1941, read Dec. 23, 1941.

TECHNICAL BRANCH.—To be Plt. Off. on prob. (emergency):— Cpl.: May: Allan Jackson.

To be Act. Plt. Offs. on prob. (emergency):—Cpl.: Feb.: Walter Worsnop. Acm. 2nd Cl.: May: A. H. Answorth, D. J. Bird, A. R. Carpenter, E. E. Coates, J. D. Croston, Wilfred Dolman, Leonard Leigh, Jack Lucas, Reginald Maynard, Walter Millar, Norman Throssell, C. G Trimmer, C. R. Wynne-Roberts.

R. A. Di Mascio to be Act. Plt. Off. on prob. (emergency) Nov., 1942, and regraded to Plt. Off. (prob.). Apl.

The commn. of Act. Plt. Off. (prob.) L. E. Chleboun is terminated. May.

ADMINISTRATIVE AND SPECIAL DUTIES BRANCH.— To be Act. Plt. Offs. on prob. (emergency):—Mar.: C. E. B. Binns. Apl.: E. L. Smith. May: J. A Currie. Act. Flt. Sgt.: Feb.: J. S. Angus. Sgts.: May: A. A. Ashley, W. B. Atkinson, E. A. Benson, H. K Black, K. C. G. Frost, J. K. Hill. Cpls.: W. R. Dalzell, Mark Flood, A. S. Goulder. Act. Cpl.: Bernard Vinson. Ldg. Acm.: C. S. Alder, R. J. Cross, F. W. Ginger, S. J. Jordan, W. P. L. Luckes, C. G. Woods. Acm. 1st Cl.: Mar.: S. J. Harlow. May: A. H. Collins, J. A. Phillips, F. A. Walbank. Acm. 2nd Cl.: Edward Cowell, E. W. Fleet, Ronald Kitching, William Liston, B. M. Macpherson, Bertram Mycock, George Nevison, W. F. Pretyman, J. McG. Taylor, Fred Tegg, K. C. Tewkesbury, E. C. Turner.

Flt. Lt. A. H. Ormerod is transf. to the Legal Br. Feb.

Flt. Lt. (temp. Sqn. Ldr.) J. C. Walker relinquishes his commn. on cessation of duty and retains the rank of Sqn. Ldr. May.

Flg. Off. E. T. Warren relinquishes his commn. on account of ill-health and retains the rank of Flt. Lt. May.

Flg. Off. H. R. G. Whates resigns his commn. and retains the rank of Flt. Lt. May.

To resign their commns. and retain their ranks:—Sqn. Ldr. (temp.): May: R. M. Waddington. Flg. Off.: G. M. Withers.

Sqn Ldr. G. Edward-Collins, C.I.E, M.C., resigns his commn. May.

Flg. Off. S. H. O'Mara is dismissed the Service by sentence of General Court Martial. May 17.

METEOROLOGICAL BRANCH.—To be Sqn. Ldrs. (emergency):— Apl.: A C. Best, G. A. Bull, Robert Cranna, John Glasspoole.

To be Flt. Lts. (emergency):—Nov., 1942: G. W. Radge. Apl.: O. M. Ashford, J. B. Baillie, Arthur Bleasdale, K. W. Bridger, R. H. Clements, S. G. Crawford, James Dawber, Harold Edge,

T. J. I. Edwards, J. T. Gilbert, G. E. W. Hartley, Harry Horrocks, P. F. Illsley.

Flt. Lt. H. H. J. Leigh-Clare is transf. to the Gen. Duties Br. Mar.

TRAINING BRANCH.—To resign their commns.:—Plt. Offs.: May: L. W. Palmer, E. M. Wright, A. Gunn. June: W. H. Hook, J. A. Crawford, A. E. Hancox, A. Hobson, R. H. Hopkins, Sir Arthur Whitten-Brown, K.B.E. Act. Plt. Offs.: May: D. McCulloch, T. G. Tanner. June: R. M. F. Chiswell, F. J. Crossley, J. D. Elder.

EQUIPMENT BRANCH.—To be Act. Plt. Offs. on prob. (emergency):—Mar.: E. C. Chappell. Apl.: J. S. Wright. Act. Flt. Sgt.: May: John Struthers. Sgt.: Dec., 1942: Harold Chartres. Cpls.: May: Harry Ballam, J. H. Fox, H. H. Maissel, W. H. Mason, J. B. O. Quigley, R. W. P. Riches. Act. Cpl.: R. J. P. Brown. Ldg. Acm.: Keith Butcher, L. B. Compton, W. R. Foster, J. R. Henderson, F. M. Jones, B. P. J. Moylan-Jones, A. P. Obank, D. G. Reid, R. C. Train. Acm. 1st Cl.: H. R. Culley, H. G. Longman, J. W. Lowcock, C. C. Ritchie, R. J. E. Smith, A. B. Walker, A. E. S. Yates. Acm. 2nd Cl.: Feb.: F. H. Howell. May: A. W. Black, P. D. U. Bowron, K. G. S. Clarke, E. P. Cooper, T. W. Dales, Paul Dening, W. M. G. Dickson, D. A. Finch, N. S. G. Finney, L. J. Fry, J. H. J. Fryer, A. D. Gawthorpe, J. P. Malcom, F. C. Papworth, R. N. Pegram, A. J. Pronger, F. G. Williams.

Flg. Off. A. J. P. Fry relinquishes his commn. on account of ill-health and retains his rank. June.

MEDICAL BRANCH.—To be Flg. Offs. (emergency):—May: J. D. Everall, M.R.C.S., L.R.C.P.; L. A. Rook, M.R.C.S., L.R.C.P.

Flt. Lt. G. Cormack, M.B., Ch.B., relinquishes his commn. on account of ill-health and retains his rank. May.

CHAPLAINS BRANCH.—To resign their commns.:—Feb.: The Rev. E. A. Tonneau. May: The Rev. J. M. H. Morris.

ROYAL AIR FORCE REGIMENT.—Flg. Off. E. J. Gardner is transf. to the Admin and Spec. Duties Br. June.

Flt. Lt. (temp.) J. E. D. Manlove resigns his commn. and retains the rank of Sqn. Ldr. June.

Flt. Lt. E. T. Buller, M.C., resigns his commn. June.

WOMEN'S FORCES

WOMEN'S AUXILIARY AIR FORCE.—To relin. their commns on account of ill-health:— Sec. Off.: June: K. E. Robins. Asst. Sec. Off. (prob.): C. E. N. Wyatt.

To resign their commns.:—Sec. Offs.: May: B. F. Johnson, E. G. N. Kennedy, E. B. L. Bennett. June: M. P. Macalaster, Z. J. Manwaring, P. L. Swallow, J. S. Davidson. Sec. Off. (prob.): J. Y. Brooks. Asst. Sec. Off. (prob.): May: B. P. Cosby.

Air Ministry, June 18, 1943.

ROYAL AIR FORCE

GENERAL DUTIES BRANCH.—Wg. Cdr. (temp.) R. Cleland is granted the rank of Wg. Cdr. (war subs.). Apl.

Sqn. Ldrs. (temp.) granted the rank of Sqn. Ldr. (war subs.):—Sept., 1942: A. W. T. Traill, D.F.C. Apl.: D. E. Bennett, V. Fairfield, D. A. Reddick, A.F.C.

Flg. Offs. to be Flt. Lts. (war subs.):—Mar.: E. F. Tessier, R. Waters, D.F.C. (2nd Lt. R.A.), G. E. Pinney. Apl.: S. T. L. Baker, E. L. D. Bickenson, D.F.C., G. C. Day, A. A. Emery, D.F.M., V. L. Fisher, C. C. Flynn, R. W. Gifford, N. Hearn-Phillips, D.F.M. (Sen. Apl. 2), D. Haigh, D.F.M., E. D. T. Norman. May: A. C. Jepps (Sen. Apl. 16), T. R. Nixon, D.F.M., H. H. Hall, J. A. P. Drummond, D.F.M., W. A. G. Mason (Sen. Apl. 16), R. H. Smith, D.F.M. (Sen. Apl. 16), J. F. M. Bevan, A. G. Swan, J. A. King, H. F. E. Gedge, H. J. King, H. F. Payne.

Flg. Off. P. W. G. Lester is granted the rank of Flt. Lt. (war subs.). Jan.

Plt. Offs. to be Flg. Offs. (war subs.):—Feb.: D. T. Argent (Lt. R. Fus.). G. C. Bensusan (Lt. P. Corps), A. B. Brentnall (Lt. Lan. Fus.), J. T. Burke (Lt. Oxf. and Bucks L.I.), R. S. Clark (Lt. R. Signals), A. H. Greenhalgh (2nd Lt. R.A.), R. P. Howe (2nd Lt. Essex R.), D. L. Hurford (2nd Lt. R.A.C.), D. H. G. Ince (2nd Lt. R.A.), W. M. Ingram (Lt. K.S.L.I.), K. O. Jenkins, (Lt. K.O.R.R.), J. D. Keightley (Lt. R.A.), R. S. W. Kemp (2nd Lt. R.A.C.), J. R. P. Kennedy (2nd Lt. A. and S.H.), R. I. Mackintosh (Lt. R.A.), J. W. W. Metcalfe (Lt. R. North'd Fus.), P. D. Mitchell (Lt. (temp. Capt.) Surrey R.), K. S. Morris (2nd Lt. R.A.), E. J. Packwood (Lt. R.W. Fus.), T. S. Rayner (Lt. Bedfs. and Herts R.), I. A. L. Stewart (Lt. A. and S.H.), R. G. West (2nd Lt. R.A.), H. B. Grynkiewicz (2nd Lt. General List). Mar.: C. A. S. Alexander (Lt. R. Fus.), G. H. Bainbridge (Lt. temp. Capt. R.A.), J. F. Balaster (Lt. Cheshire R.), A. S. G. Boulton (Lt. R.A.), A. Bremner (2nd Lt. R.A.), P. A. Camilleri (King's Own Malta R.), D. A. Carnegie (2nd Lt. R.A.), P. E. G. Critchley-Salmonson (Lt. R.I. Fus.), P. M. Green (Lt. R.A.), M. C. Harrison (2nd Lt. R.A.), A. A. Jagoe (Lt. Temp. Capt. E. Yorks R.), R. H. Lavington (M.B.E.) (Lt. R.W.K.), K. McDiarmid (2nd Lt. R.A.), I. E. D. Williams (2nd Lt. R.A.), G. F. Yates (2nd Lt. R.A.C.), G. S. Corry (2nd Lt. R.A.C.).

Plt. Offs. (prob.) to be Flg. Offs. on prob. (war subs.):—Oct., 1942: R. D. MacK. Kenneth. Nov., 1942: C. Howe. Feb.: G. W. E. Woolley. Mar.: G. T. Pratley, C. Stansfield, D.F.M., K. M. Prim, R. C. Penning, W. W. Lake, W. K. Thomas, M. G. Gardiner, D.F.M., W. R. Orr, G. E. Woods, H. J. Pavitt, A. F. J. Sanderson-Miller, J. F. Webb, L. J. Maidment, D.F.M., K. Clegborn, S. J. Eaton, J. Gaffney, S. H. E. Merry. Apl.: J. E. Perkins, E. J. Hale. May: C. Y. Brownlow, W. A. Fisher, D.F.M., A. T. B. Brown, G. E. Siddaway, B. T. Colgan, S. V. Pascoe, H. E. Green, F. H. Goodacre, L. P. H. Cole, M. Hall, G. C. Wohtlers, P. W. Edmonds, L. H. Sawyer, F. T. Thorp, D. M. Eastman, L. Ollier, D.F.C., A.F.M., E. Marshall, B. Clifton, D.F.M., R. L. Slater, J. S. Wallis, R. A. Robinson, E. Bell, A.F.C., T. C. Kaye, D.F.C., G. Constantine, E. E. C. Davies.

AMENDMENT.—In notifn. of June 2, 1942, concern. Plt. Off. D. H. A. Skillings, for 1942 read 1941.

TECHNICAL BRANCH.—Wg. Cdr. (temp.) F. F. S. Mattingley is granted the rank of Sqn. Ldr. (war subs.). Feb. 1942. (Subs. for notifins. of Oct. 2, 1942, and May 28.)

Flt. Lt. E. G. Wooberry is granted the rank of Sqn. Ldr. (war subs.). Apl.

Flg. Off. H. W. Barker (since promoted) to be Flt. Lt. Jan., 1942. (Sen. Apl. 6, 1941.)

Flt. Lts. (temp.) granted the rank of Flt. Lt. (war subs.):—Mar.: J. G. Portlock. Apl.: J. Williams, M.B.E., A. G. Peters, F. A. Chambers, W. C. Loader, G. W. Dodds, A. E. A. MacDonald, B. R. Grant, F. C. Pope, A. S. Hughes, M.B.E., F. R. Rance, A. Prior, F. Brown, C. V. Guest.

Plt. Offs. (prob.) to be Flg. Offs. on prob. (war subs.):—Dec., 1942: M. Greenwood, S. F. Rogers, R. G. Crowther. Jan.: C. W. Poate. Feb.: R. W. Lamb, F. T. Gamblin, C. Stamper, W. J. Polglass, W. G. Ling. Mar.: E. A. Sleigh. Apl.: R. Smurthwaite, S. R. Hawkey, A. Gibson (Sen. Feb. 6). May: A. Blackman, R. H. Espley, V. C. Arthur (Sen. Jan. 26), C. E. F. Brown (Sen. Jan. 16), L. Bullock (Sen. Jan. 30), D. W. Jefferson-Loveday (Sen. Jan. 30), J. A. Jefferson-Loveday (Sen. Jan. 22), J. Leslie (Sen. Jan. 28), A. F. W. Ollett (Sen. Jan. 17), G. Peacock (Sen. Jan. 19), T. G. Rayham (Sen. Feb. 4), R. D. Roberts (Sen. Feb. 22), E. S. Robertson (Sen. Jan. 23), R. W. G. Ruark (Sen. Feb. 3), G. F. Satchwell (Sen. Jan. 24), L. B. E. Scott (Sen. Jan. 30), T. R. Sharpe (Sen. Jan. 29), H. P. Stapleford (Sen. Feb. 22), R. Stephens (Sen. Jan. 30), W. Sykes (Sen. Jan. 21), W. K. Tedham (Sen. Jan. 22), K. F. Venn (Sen. Feb. 3), D. S. Perrin, J. R. Jaques, A. F. Every. June: W. Moore.

Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.):—July, 1942: J. Cunningham (Sen. May 25, 1942). Apl.: A. S. Fancey. May: W. W. Fuller, B. Massey, W. A. Morgan.

AMENDMENT.—In the notifn. of May 28, for A. W. Albury, M.B.E., read A. W. Alberry, M.B.E.

ADMINISTRATIVE AND SPECIAL DUTIES BRANCH.—The folg. are granted the rank of Flt. Lt. (war subs.):—Flt. Lts. (temp.): Apl.: W. J. Marshall, A. L. Martin, H. Thomas. Flg. Off.: E. F. Williams.

Plt. Offs. (prob.) to be Flg. Offs. on prob. (war subs.):—Nov., 1942: W. E. Pratley. Feb.: D. H. H. Cleverley, D.F.M. (Sen. Nov. 1, 1942). Mar.: S. R. Walton (Sen. Mar. 31, 1942), A. Hawkins (Sen. Jan. 10), T. H. Rudd, E. C. Robertson (Sen. Jan. 12). May: V. Anderson.

Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.):—Apl.: E. Leck. June: R. F. Muston, A. H. T. Ticknor.

EQUIPMENT BRANCH.—Flt. Lts. (temp.) granted the rank of Flt. Lt. (war subs.):—Apl.: J. H. Phillips, A. J. Goatly.

Plt. Offs. (prob.) to be Flg. Offs. on prob. (war subs.):—Mar.: D. M. Davidson. May: W. J. Spicer.

Act. Plt. Offs. (prob.) to be Plt. Offs. (prob.):—June: M. A. McCourt, D. W. Rockingham, J. D. Stafford.

The notifn. of Apl. 16 concern. A. J. Ashford is cancelled.

ACCOUNTANT BRANCH.—Sqn. Ldr. (temp.) W. E. Wolsey is granted the rank of Sqn. Ldr. (war subs.). Mar.

Flt. Lt. (temp.) K. L. Macdonald is granted the rank of Flt. Lt. (war subs.). Apl.

Flg. Off. (since promoted) J. Pirie is granted the rank of Flt. Lt. (war subs.). Dec., 1941.

MEDICAL BRANCH.—Sqn. Ldr. (temp.) E. S. Sidey, M.B., Ch.B., is granted the rank of Sqn. Ldr. (war subs.). Sept., 1942.

ROYAL AIR FORCE REGIMENT.—Plt. Off. (prob.) W. H. King to be Flg. Off. on prob. (war subs.). Dec., 1942.

RESERVE OF AIR FORCE OFFICERS

GENERAL DUTIES BRANCH.—The folg. are granted the rank of Sqn. Ldr. (war subs.):—Sqn. Ldrs. (temp.): Apl., 1942: A. W. Pennington-Legh. Apl.: K. H. P. Beauchamp, D.S.O., D.F.C., K. B. Corbould, D.F.C., B. G. Meharg, A.F.C., A. W. Oldroyd, D.F.C., A.F.C., E. H. Dally, K. J. Powell, M. J. B. Young, D.F.C., H. A. Chater, J. L. Waters, J. B. Stewart, G. L. Blake. Flt. Lts.: L. J. Joel, D.F.C. May: A. Watson, D.S.O., D.F.C.

Flg. Off. J. McRobert to be Flt. Lt. (war subs.). Apl.

TECHNICAL BRANCH.—Sqn. Ldr. (temp.) H. M. Samuelson is granted the rank of Sqn. Ldr. (war subs.). July, 1942.

ADMINISTRATIVE AND SPECIAL DUTIES BRANCH.—Sqn. Ldrs. (temp.) granted the rank of Sqn. Ldr. (war subs.):—Apl.: W. B. E. Powell, W. C. McNeil, A. M. Butt.

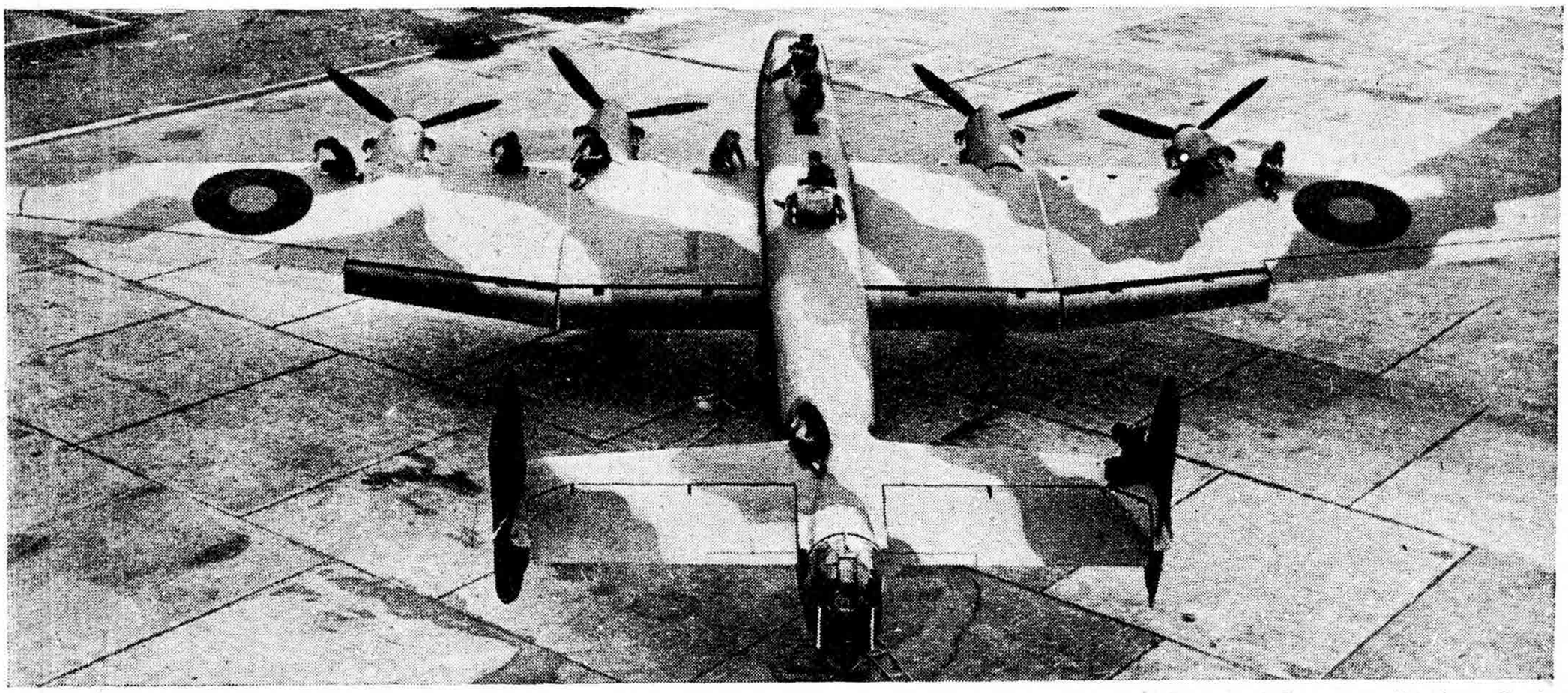
EQUIPMENT BRANCH.—Flt. Lt. (temp.) F. G. Chapman is granted the rank of Flt. Lt. (war subs.). Apl.

ROYAL AIR FORCE VOLUNTEER RESERVE

GENERAL DUTIES BRANCH.—The folg. are granted the rank of Sqn. Ldr. (war subs.):—Sqn. Ldrs. (temp.): Apl.: C. M. Miller, D.F.C. May: I. R. Stephenson. Flt. Lts.: Apl.: P. G. B. Warner, D.S.O., R. A. Mitchell, D.F.C., G. Clapperton, D.F.C., R. Hilton, D.S.O., D.F.C.

Flg. Offs. to be Flt. Lts. (war subs.):—Oct., 1942: D. S. Cobbett. Dec., 1942: J. Ruddick (Sen. Dec. 22, 1942). Jan.: F. A. Rabagliati (Sen. Jan. 14). Mar.: W. G. Watson, D.F.C., M. A. Sproule, F. G. Tiller, D.F.C., D. G. H. Pike, R. N. Tapley (Sen. Mar. 12), L. A. D. Speller, N. H. D. Ramsay (Sen. Mar. 19). A. E. Challenger. Apl.: H. M. S. Green, R. G. White.

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



DRESSING DOWN.—A Handley Page Halifax II Series IA before a test flight. The extended flaps and four-gun Boulton Paul dorsal turret may be noted.

FORTHCOMING EVENTS

Dec. 1

Luton.—Luton Royal Aeronautical Society, Technical College, Park Square.—Lecture by Mr. R. G. Manley on "Aircraft Vibrations."—19 00 hrs.

Dec. 8

London.—Royal United Service Institution, Whitehall.—Lecture on "Bomber Command" by Air Vice-Marshal R. H. M. S. Saundby, C.B., M.C., D.F.C., A.F.C.—15 00 hrs.

German Aero Motor Pistons

IN our issue of November 12, in the reported abstract of investigations into enemy aero engine pistons by Dr. C. Wilson, of High Duty Alloys, Ltd. it was mentioned that the pistons were die cast, which is, of course, incorrect.

In the original report the conclusion was drawn that the pistons had been produced by pressing in dies to close internal limits and were typical of press forging production.

In condensing the original report unfortunately forced upon us by the paper supply restrictions, this reference was omitted, and we regret any misapprehensions caused.

New Patents

APPLICATIONS ACCEPTED

556,900—General Aircraft, Ltd., and G. B. Leather.—Quick-release coupling devices.—Jan. 23, 1942

556,873—Reid and Sigrist, Ltd., and C. Bower.—Sliding cockpit covers and the like for aircraft.—June 11, 1942

556,933—Short Bros. (Rochester and Bedford), Ltd., and J. E. Bell.—Means for loading bombs on aircraft.—Jan. 14, 1941.

556,865—G. and J. Weir, Ltd., and C. G. Pullin.—Helicopters.—Apr. 22, 1942

556,866—G. and J. Weir, Ltd., and C. G. Pullin.—Helicopters.—Apr. 22, 1942

557,011—G. and J. Weir, Ltd., and C. G. Pullin.—Helicopters.—Apr. 22, 1942

Opposition period expires Jan. 10, 1944
Printed specifications available Nov. 25, 1943.

Company Notices

NEW COMPANIES

Air Cargo Distributors, Ltd.—Private company. Reg. Oct. 22. Cap. £100 in 100 shares of £1. To carry on the business of commission and general agents, factors, importers, exporters, brokers, warehousemen, manufacturers, distributors and merchants, carriers by air, land or sea, etc. Directors: C. C. Bate, T. Carr, C. H. Smith. Reg. office: 37, Eastcheap, E.C.3.

Bristol Industries (Air Freighters), Ltd.—Private company. Reg.: Oct. 19. Cap. £100 in 100 shares of £1. To establish, maintain and work lines of aerial communications, to carry on the business of carriers of goods, passengers, livestock and merchandise, etc. Directors: C. V. Wills, Wm. E. Hunt, A. F. J. Wills. Secretary: W. B. Jacobs. Solrs.: Bevan, Hancock and Co., Bristol.

BABY'S TEETHING TROUBLES

"Look, Sir, another Spitfire, mod.!"

Diary for 1944

"THE AEROPLANE" DIARY will be on sale at the beginning of December in two editions—one leather, with pencil, pocket and maps, price 6s. 5d., including Purcase Tax and postage, and the other cloth, without pencil, price 2s. 10d., including Purchase Tax and postage.

The following are the sources of some of the photographs in THE AEROPLANE this week:—

Barratt's Photo Press, Ltd.: p. 609.

Fox Photos, Ltd.: p. 627.

Keystone Press Agency, Ltd.: pp. 606 bottom, 612 top, 619 bottom

PERSONAL NOTICES

BIRTHS

Baird.—On Nov. 11, at Cardney, Dunkeld, Perthshire to the wife of Sqdn. Ldr. the Hon. R. A. Greville Baird (missing from operations since July)—a son.

Blanchard.—On Nov. 15, at Fulmer Chase, Fulmer, Bucks, to Mabel Janet (*née* Bradly), widow of Flg. Off. Peter James Blanchard, R.A.F.V.R. who was killed on active service in February.—a daughter.

Blyth.—On Nov. 9, at Watlington District Hospital, Oxon, to Gloria (*née* Swanson), wife of Flt. Lt. Richard Blyth, D.F.C.—a son.

Bowring.—On Nov. 11, at Ramsey Maternity Home, Ramsey, I.O.M., to Jean (*née* Liddle), wife of Flt. Lt. W. Bowring, R.A.F.—a son.

Charles.—On Nov. 8, at Oakdene Private Nursing Home, Kenton, Harrow, to Marjorie Elsie Du Barry (*née* Henessy), wife of Flt. Lt. Ivor D. Charles, R.A.F. (B.N.A.F.)—a daughter.

Cooke.—On Nov. 14, at Howard Place Nursing Home, Carlisle, to Judy (Edith) (*née* Harper-Smith), wife of Ist. Off. J. C. Cooke, A.T.A.—a son.

Endersby.—On Nov. 12, to Mary, wife of Flt. Lt. Frank Endersby, R.A.F.V.R.—a daughter.

Facey.—On Nov. 13, at the Bromhead Maternity Home, Lincoln, to Kathlyn (*née* Lenygon), wife of Flg. Off. W. G. Facey—a daughter.

Frost.—On Nov. 17, at Fulmer Chase, to Kitty, wife of Flt. Lt. A. E. Frost—a son.

Green.—On Nov. 10, at Newport, Mon., to Bette, wife of Flg. Off. J. P. O. Green, R.A.F. Regt.—a son.

Hancox.—On Nov. 9, at Worthing Hospital Maternity Home, to Christine (*née* Wilson), wife of Plt. Off. Herbert Hancox—a daughter.

Harris.—On Nov. 14, at Hedge End, Kingston Hill, Surrey, to Mary (*née* Galloway), wife of Sqdn. Ldr. E. N. Harris, A.A.F.—a son.

Jones.—On Nov. 10, at Bushey Heath, to Kathleen (*née* Hebbourn), wife of Plt. Off. Reginald A. Jones, R.A.F.—a son.

Jones.—On Nov. 15, at West End Nursing Home, Esher, to Eileen, wife of Sqdn. Ldr. E. Ellsworth Jones, R.A.F.V.R.—a son.

Lindsay.—On Nov. 14, at 9, Grosvenor Street, Edinburgh, Flt. Lt. and Mrs. J. Cossar Lindsay—a daughter.

Morgan.—On Nov. 12, at Mount Street Nursing Home, Preston, to "Gerry" (*née* Hansom), wife of Flt. Lt. Walter G. Morgan, L.D.S.—a son.

Oldham.—On Nov. 15, at the Market Harborough Maternity Hospital, to Ruth (*née* Tompkins), wife of Doug Oldham, R.A.F., of Folkestone—a son.

Parker.—On Nov. 11, at Stafford, to Betty, wife of Wng. Cmdr. D. Parker, D.F.C., R.A.F.—a daughter.

Paul.—On Nov. 8, at Farm House, Botley, Hampshire, to Rosemary (*née* Lane), wife of Wng. Cmdr. G. J. C. Paul, R.A.F.—a son.

Pinkney.—On Nov. 13, at Shardeloes Maternity Hospital, Amersham, to Alma (*née* Stoops), wife of Sqdn. Ldr. D. B. Pinkney, R.A.F.—a son.

Rembridge.—On Nov. 9, at Courtlands, Courtland Drive, Chigwell, Essex, to Marjorie (*née* Kenton), wife of Flg. Off. L. G. Rembridge, R.A.F. (missing, July, 1943)—a son.

Richardson.—On Nov. 10, at Sunderland, to Doreen, wife of Flg. Off. G. H. M. Richardson, R.A.F.V.R. (invalided)—a daughter.

Roberson.—On Nov. 11, at Leeds, to Katharine S. (*née* Bray), wife of Flt. Lt. John L. Roberson, R.A.A.F.—a daughter.

Robertson.—On Nov. 16, at Morva (*née* Davies), wife of Lt. (A) K. J. Robertson, D.S.C., R.N.V.R., Hinxhill, Ashford, Kent—a daughter.

Saunders.—On Nov. 15, at the O.V.I., Wolverhampton, to Diana ("Peter"), wife of Flt. Lt. Maurice Saunders—a daughter.

Storr.—On Nov. 8, at Denison Hall Nursing Home, Leeds, 1, to Lorna and Hugh Storr, Chaplain R.A.F.—a daughter.

Swann.—On Nov. 10, at Harleston Nursing Home, Norfolk, to Olga, wife of Flt. Lt. C. A. Swann, R.A.F.V.R.—a son.

Taylor.—On Nov. 11, to Prudence, wife of Sqdn. Ldr. R. H. C. Taylor, British Embassy, Madrid—a son.

Todd.—On Nov. 16, at the Purey Cust Nursing Home, Yorks, to Doreen (*née* Clements), wife of Flt. Lt. S. H. Todd, of Beverley—a son.

Toop Cooper.—On Nov. 16, in Didcot, to Elizabeth (*née* Abercrombie), wife of Flt. Sgt. J. W. Toop Cooper—a son.

Wilson.—On Nov. 12, at St. Mirren, Lyonsdown Road, New Barnet, Herts, to Dora, wife of Flt. Lt. Herbert Wilson, R.A.F.V.R.—a daughter.

Woods.—On Nov. 11, at Onslow House Nursing Home, N.14, to Joan (*née* Harman), wife of Flt. Lt. E. J. Woods—a son.

MARRIAGES

Baker—Burrell.—On Nov. 3, at Roslin Chapel, Flg. Off. Peter N. W. Baker, to Eleanor McDonald Burrell, P.M.R.A.F.N.S.

Bell-Syer—Burgh.—On Oct. 11, at Chelsea Register Office, Sqdn. Ldr. Herbert Benjamin Bell-Syer, A.F.C., R.A.F., to Lady Elizabeth Rose Bourn Burgh.

Beresford—Wayland.—On Nov. 14, Cpl. Douglas Beresford, R.A.F., to Elsie Wayland, of 48, Leigham Court Drive, Leigh-on-Sea.

Blackford—White.—On Nov. 11, in London, Flt. Lt. John Blackford, R.A.F., only son of Air Commodore D. L. Blackford, R.A.F., and Mrs. Isabel Blackford, to Pamela, younger daughter of Mr. J. Wintringham White, O.B.E., and Mrs. Inez White.

Builder—Smeeton.—On Nov. 10, at Sarratt Holy Cross, Herts, Sub.-Lt. (A) Peter Builder, R.N.V.R., only son of Mr. and Mrs. Harry Livingstone Builder, of The Highlands, Rickmansworth, to Christine Smeeton, W.R.N.S., only daughter of Mr. and Mrs. George Smeeton, of The Orchard, Croxley Green, Herts.

Kench—Highley.—On Nov. 5, at Dirleton, Flt. Lt. Anthony Sheldon Kench, R.A.F.V.R., only son of the late Capt. Leonard Sheldon Kench and of Mrs. L. M. Staley Spark, of Swanage, to Denise Mary Highley, elder daughter of G. K. Highley, M.B.E., and Mrs. Highley, of Hendon, London.

McHardy—Low.—On Nov. 8, in Glasgow, Sqdn. Ldr. L. H. "Sam" McHardy, D.F.C. and bar, R.A.F.O., son of Mr. and Mrs. Alex McHardy, of New Zealand, to S./O. L. H. Low, W.A.A.F., elder daughter of Mr. and Mrs. S. C. Low, of Glasgow.

Mills—Dickinson.—On Nov. 12, at St. Andrew's Church, Ham, 2nd Lt. Brian Vernon Mills, Royal Corps of Signals, only son of Mr. and Mrs. W. V. Mills, of Amersham, to Dorothy Barbara Dickinson, W.A.A.F., only daughter of Mr. and Mrs. F. Dickinson, of Kingston.

Nicol—Lewendon.—On Nov. 9, at St. James's Church, Purley, Plt. Off. Morris Bryans Nicol, R.A.F.V.R., elder twin son of Mr. and Mrs. G. B. Nicol, of Pewsey, Wilts, to Kathleen Mabel, second daughter of Mr. and Mrs. Lewendon, of Alton, Hants.

Proudlove—Dillistone.—On Nov. 9, Flt. Lt. David Eric Proudlove, R.A.F., younger son of the Rev. and Mrs. D. Proudlove, of Flexbury Manse, Bude, to Sub. Beryl Madeline Dillistone, A.T.S., younger daughter of Mr. and Mrs. H. Dillistone, of Golders Green and Brighton.

Rust—Harvey.—On Nov. 8, at Caines Church, Worcester, Plt. Off. Thomas Robert Rust, son of Mr. and Mrs. R. S. Rust, of Cromer and Worcester, to Mollie, younger daughter of Mrs. D. and the late Lt. F. W. Harvey, of Hull.

Siner—Domville.—On Nov. 15, at St. James's, Piccadilly, Flg. Off. Walter Siner, R.C.A.F., son of the late W. B. Siner and of Mrs. Siner, of East Orange, New Jersey, to S./O. Anne Juliet Domville, W.A.A.F., elder daughter of the late Capt. Cecil Domville, Bart., M.C., and of Mrs. A. P. H. Cadell, of Bleach House, Glinton, Northants.

Taylor—Hetherington.—On Oct. 23, at All Saints' Church, Babbacombe, Allan Taylor, R.A.F., to Candida Hetherington.

Walters—Smithers.—On Oct. 14, at St. Paul's Cathedral, Melbourne, Australia, Sgt. Basil Walters, R.A.F. (late of Singapore), elder son of Mr. and Mrs. J. S. Walters, of Bromsgrove, Worcestershire, to Yvonne Helen, elder daughter of Mr. and Mrs. A. T. Smithers, of Caulfield, Melbourne.