THE INTER SERVICES

AIRCRAFT RECOGNITION

Journal



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ATTACKER

Fighter by Vickers Armstrongs

SEPTEMBER 1949

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FOREWORD

BY

Air Marshal Sir Basil E. EMBRY

K.B.E., C.B., D.S.O., D.F.C., A.F.C.

Air Officer Commanding-in-Chief, FIGHTER COMMAND.

I WONDER how many friendly aircraft our side shot down in the late war through faulty identification ? No one can supply the answer and maybe that is to the good ! In spite of the shouts of horror and protest which will follow such an accusation, I am going to suggest it ran into hundreds. From my own small personal experience, which covers but a fraction of the air war, I can recall ten such incidents, and as on one occasion I was the victim, you will understand why I am so vehement.

The Navy, Army, Air Force and our Allies were all to blame. That unforgivable mistake of shooting at and shooting down friendly aircraft was made too often and by too many people. When you consider that the mistake could usually be attributed to neglect of training or in other words inefficiency, it makes one's condemnation all the more sincere. It is for that reason that I write with great feeling, when I say it is the duty of all of us who may be called upon directly or indirectly to handle or control anti-aircraft weapons to ensure that aircraft identification is given its proper place of importance in the training of those concerned.

Aircraft identification is also of paramount importance in the training of the R.O.C., which plays such a vital part in our system of inland plotting. In spite of radar and all the aids which modern science has given us, accurate and instantaneous aircraft identification by human observation is an essential requirement for the air defence of the British Isles.

I would remind you that training in aircraft identification is never complete ; it must go on and on, week in and week out. It is only by so doing that the degree of perfection which is required will be reached and maintained. It is like flying skill or proficiency at golf—it cannot be kept in cold storage.

B E Embry

HASTINGS and HERMES



by R. W. THOMAS, B.Sc.

NOW that there are large numbers of Hastings transports flying with the R.A.F. and with the immediate prospect of 25 Hermes IV airliners for B.O.A.C. the importance of being able to recognize this latest series of Handley Page aircraft is obvious. Although there are numerous versions of both the Hastings and Hermes flying or projected, the only two which spotters are likely to see in any numbers are the military Hastings I and the civil Hermes IV. The others will be described briefly later.

In the beginning

The first of the line, G-AGSS, the prototype of the civil Hermes I, crashed immediately after taking off on its maiden flight at Radlett in December, 1945, killing the crew. The prototype of the military version, called the Hastings, first flew at Wittering on 7th May, 1946, and was so successful that initial performance trials were completed in only sixteen days. This machine was TE580. Externally, it was very similar to the ill-fated first prototype and little modification was made before the type was put into large-scale production. It is an easy aircraft to identify, the shorter, dumpy fuselage distinguishing it from the later marks of Hermes. Although it has few obvious recognition characteristics (except perhaps the rather broad single fin and rudder) once it has been seen it is not likely to be mistaken for any of the other four-motored, single-finned aircraft which seem to be so fashionable today.

"Short" Hastings

Hastings has a top speed of just over 350 m.p.h. and cruises at over 300 m.p.h. on its four Bristol Hercules motors. Despite the so-called " short " fuselage, the main cabin is forty feet long and has an internal diameter which averages over ten feet. The aircraft may be used as a freighter, troop-transport, ambulance or glider-tug. As a freighter, 7½ tons of equipment may be carried and





Bullfrog. Two views of the Hastings displaying (*right*) the characteristic way in which it " sits " on its power group and its " bullfrog " countenance, and (*left*) its tubular fuselage and underslung Bristol Hercules radial engines.



Elongated Elegance. The beauty of the Hermes's lines are shown off here as she sits gracefully upon her tricycle undercarriage. Note the characteristic Handley Page fin and rudder. The Hermes is expected to be in regular B.O.A.C. service very soon now. This is the prototype model.

as a trooper 50 fully-armed troops or 30 parachute troops and 20 supply containers are accommodated. When used as an ambulance, 32 stretcher and 24 sitting cases with four attendants and a ton of supplies are the maximum load. These figures give some idea of the potentialities of a fleet of Hastings.

Long Hermes

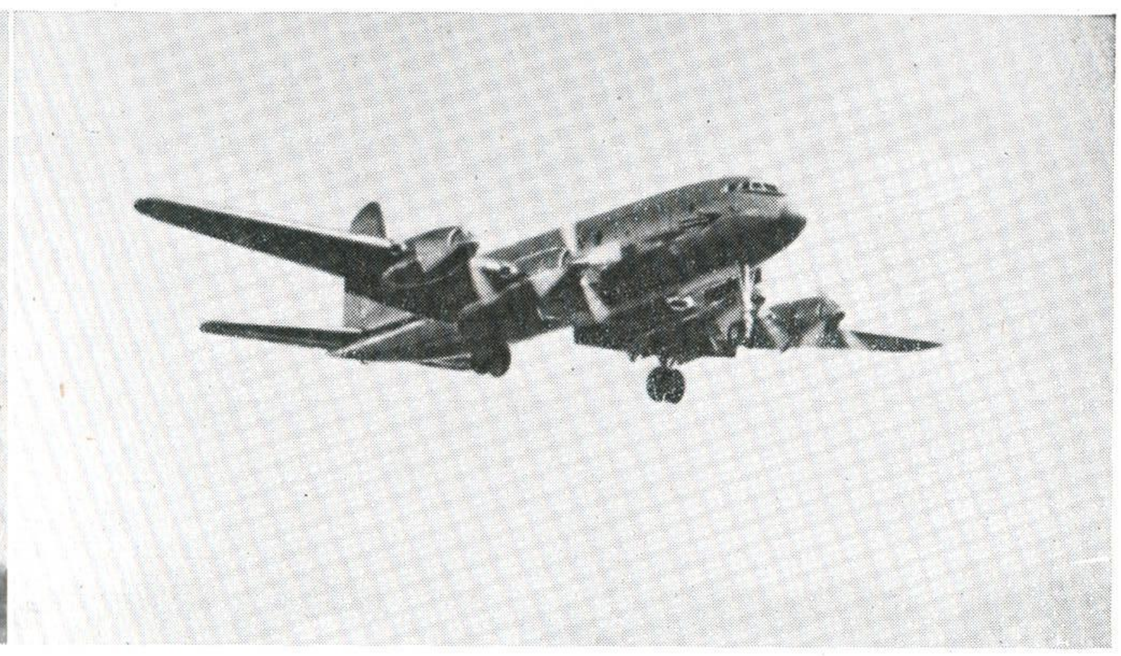
The next aircraft in the series to fly was the Hermes II, the prototype (and in fact the only one) G-AGUB first flying in August, 1947. This is intended purely as a research aircraft for the Mk.IV and no more will be built. Externally, it differs mainly from its predecessors in having a 13 feet longer fuselage, the extension being distributed evenly fore and aft of the wings. This machine is at present attached to the B.O.A.C. Development Flight at Hurn, testing Hercules 763 motors (as fitted in the Mk.IV) installed in the outboard positions. It has a tail-wheel undercarriage like the Hastings I.

The next Hermes to fly and the other one to be dealt with in detail here is the Hermes IV. This first flew on 5th September, 1948, and it excited a good deal of comment by putting in an appearance at a local flying display on its maiden flight and also by being demonstrated at the S.B.A.C. Display at Farnborough only two days later. The prototype, G-AKFP, flew barely eighteen months after the type had been conceived and the 25 ordered by B.O.A.C. for Empire routes should be delivered soon now. This type is easily distinguished from the Hastings by the longer, and hence apparently slimmer, fuselage. This aircraft has few obvious recognition features, also its extreme cleanness is apparent at great distances. It may easily be confused with the Canadair IV (now also going into service with B.O.A.C.) and the closely related Skymaster and a close comparison of these types should be made.

Another Hermes

The Hermes IV has a nose-wheel undercarriage, reversible pitch airscrews are fitted and the machine is fully pressurized. The windows are larger and squarer than the port-holes of the Mk.II to which it otherwise bears a close resemblance, except for the tricycle undercarriage. An interesting feature is that each of the under-





A Testing Time. Two more views of the Hermes IV alighting after trial flights. As the author of this article points out, a close examination of the Hermes IV alongside the Canadair IV is desirable if mistakes in identity are not to be made.

carriage legs carries two wheels. The power plant consists of four of the new Bristol Hercules 763 motors inside very clean cowlings. Each gives 2,100 h.p. for take-off. Sixty-three passengers may be accommodated but the B.O.A.C. machines will be fitted to a higher degree of comfort and will only carry forty.

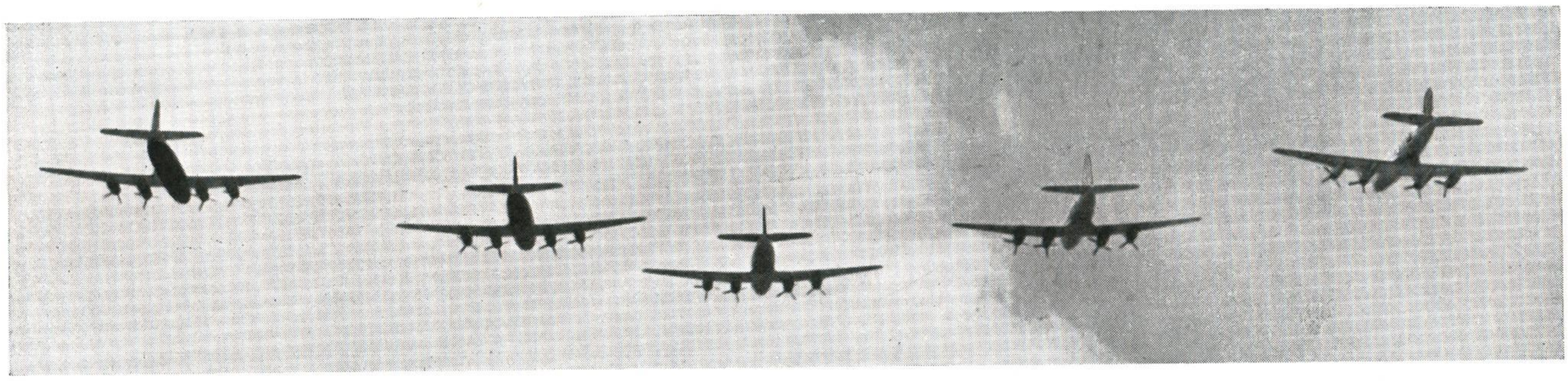
The latest version under construction, which may be flying before this appears in print, is the Hermes V. This is externally similar to the Hermes IV but is fitted with four Bristol Theseus airscrew-turbines. Each of these will give nearly 2,500 equivalent h.p. and the aircraft should have a cruising speed of 342 m.p.h. at 25,000 feet, as compared with the 300 m.p.h. of the Mk.IV. Two of these aircraft have been ordered by the Ministry of Supply and they are intended as experimental aircraft only at present.

The Rest

In conclusion may be mentioned several other unborn members of the family. The Hermes I is potentially a civil version of the Hastings I and a few of these may be produced to order. The Hermes III was a projected, but never built, version of the Mk.II with Bristol Theseus gas turbines driving airscrews replacing the Hercules motors of the earlier type. Latest version to be released is the Hermes V which will be generally similar to the Mk.IV but has drastic weight cuts so that an extra pay-load of about a ton can be carried. New flaps and increased fin and rudder area will distinguish it from earlier types. In addition to this civil series there are also projected versions of the Hastings corresponding to some of the later marks of Hermes.

It is interesting to note that the Hermes is the first civil aircraft to be built by the Handley Page Company since the famous Heracles class airliners of 1930. Unfortunately the Hermes is not such an easy recognition problem as the Heracles was but there will soon be sufficient Hastings and Hermes about to enable spotters to familiarise themselves with these types.

Troopers of Transport Command. The "spread" of the completely underslung radial engines makes them a tell-tale feature of the Hastings in views such as this.

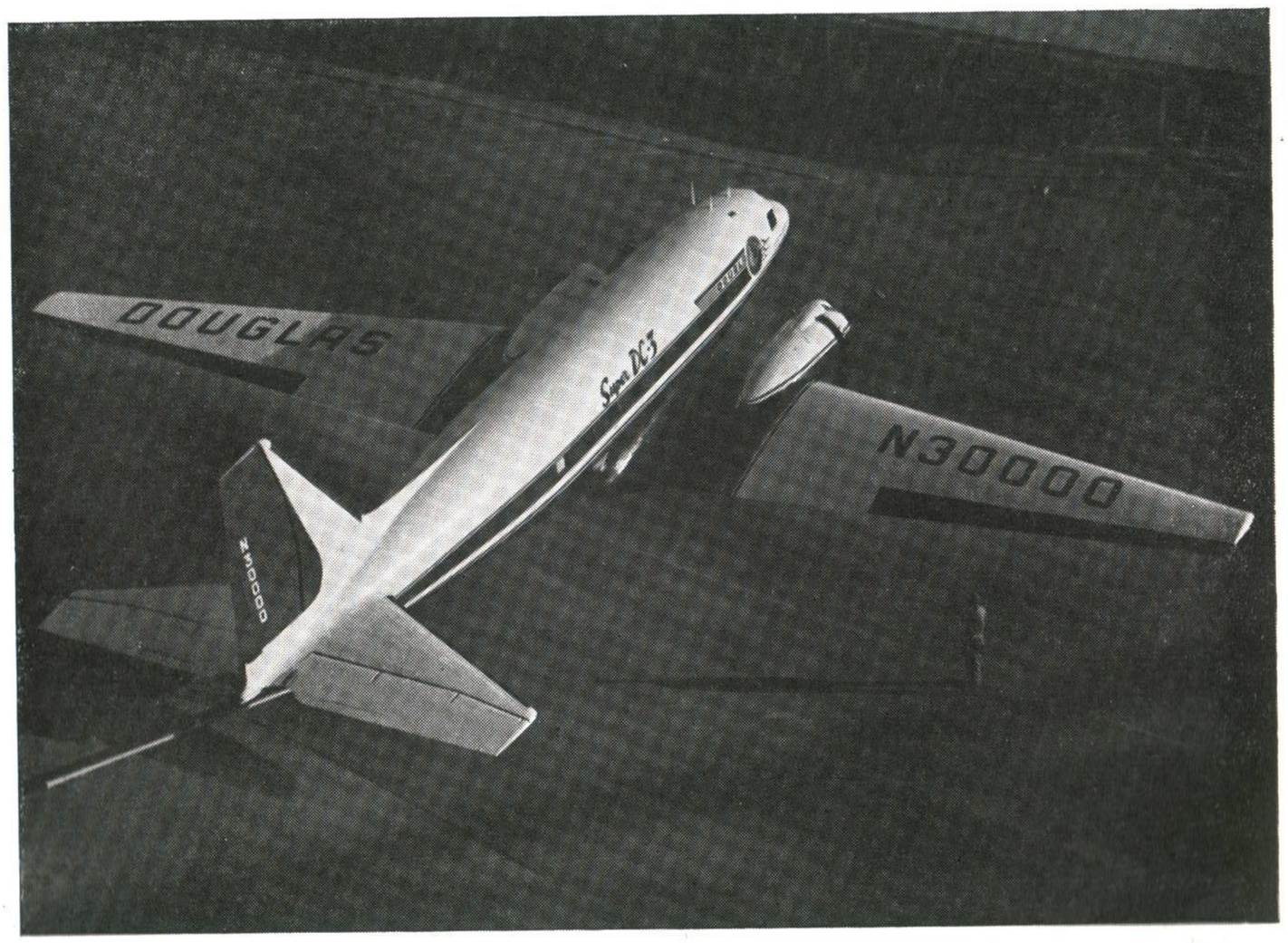


NEWS AND VIEWS

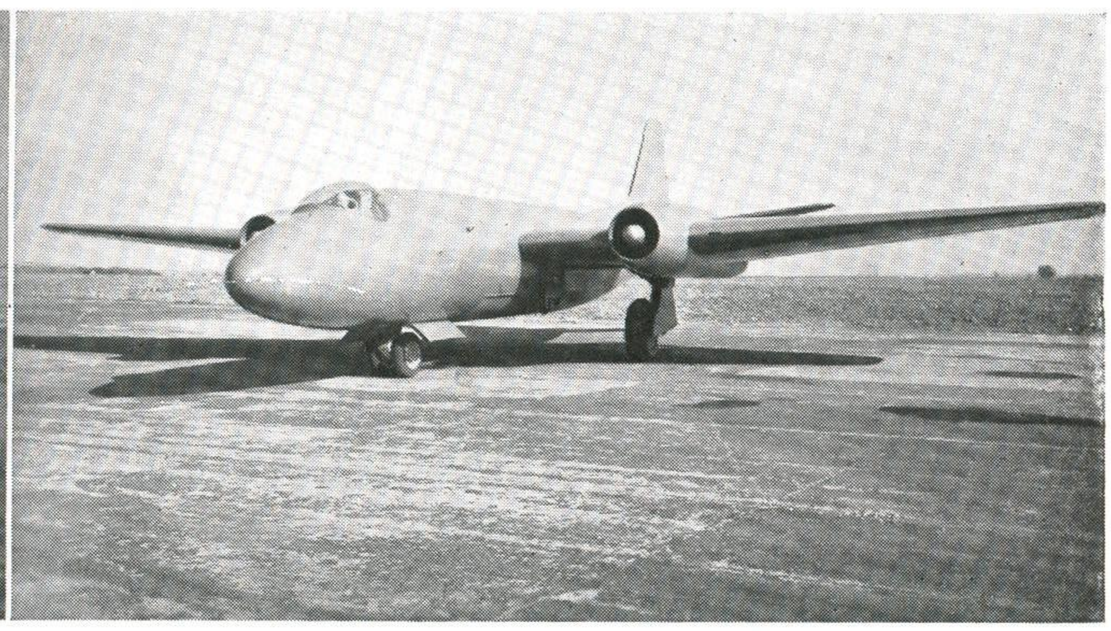
Long, Lean and Lockheed. The F-90 penetration fighter has twin Westinghouse J-35 turbojets in the fuselage, twin "cheek" intakes, twin jet tail-pipes and a "droop snoot". Wing sweep-back in 35°.



Dak with a Difference. Squared-off flying surfaces, more backward taper—in fact a sweep-back of 15½° in the wing (disguised in the photograph by the effect of the dihedral angle), more power and many refinements in internal and external detail, give what Douglas hope will be a new lease of life to a famous aeroplane. The Douglas Super DC-3 (two Wright Cyclone radials) has a wing span of 90 ft. which is 5 ft. less than the veteran DC-3 Dakota.



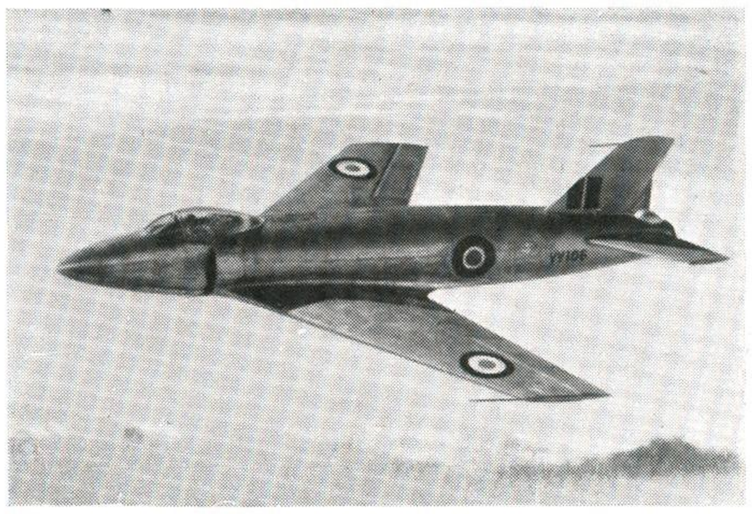




Christened Canberra. The first British jet bomber, the Canberra B Mk. 1 displays more of her charms in these two views. (*Left*) The tail is " lifted " to clear the jet blast from two Rolls-Royce Avon turbo-jets. (*Right*) The long sharp nose into which the cockpit has been sunk. The fuselage, in simple tubular form, has a drooping nose-cone and a rising tail-cone. The short undercarriage makes the aeroplane hug the ground.



Apollo's Approach. After a test flight, the Armstrong Whitworth Apollo (four Armstrong Siddeley Mamba turbo-prop engines) comes in to land. Characteristics to note are the spacing of the " pencil-line " engine nacelles ; the large root fillet and sharp dihedral angle to wing ; and the angle of rake in the leading edge of the large fin.

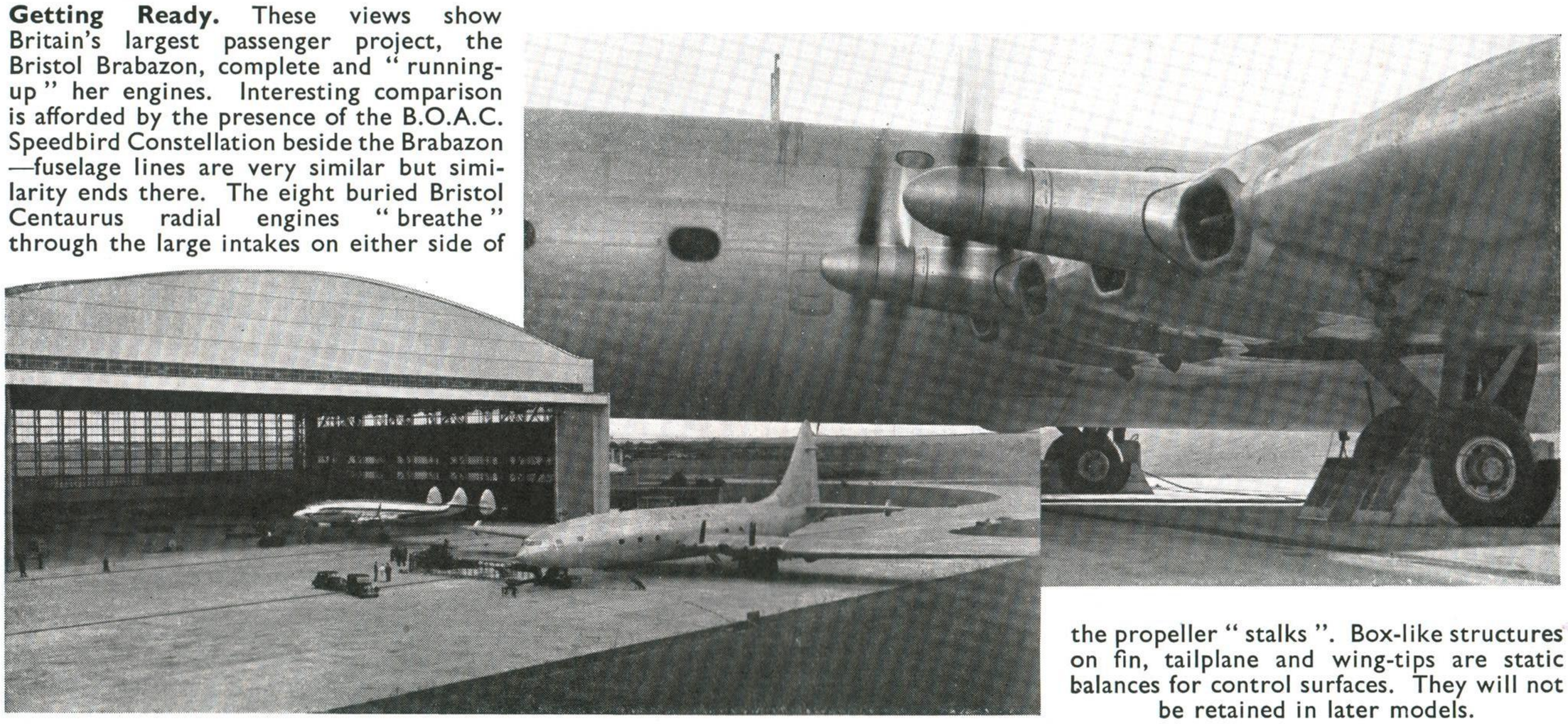


Swept Swiftness. The name Swift is not officially adopted, but would be apt. The Vickers 510, designed for research into supersonic speeds, retains the fuselage complete with " cheek " intakes of the earlier Attacker, but has considerable rake in the squared-off flying surfaces. The small " blister " behind the rudder probably contains an anti-spin parachute. Power is provided by a Rolls-Royce Nene 2 turbo-jet.

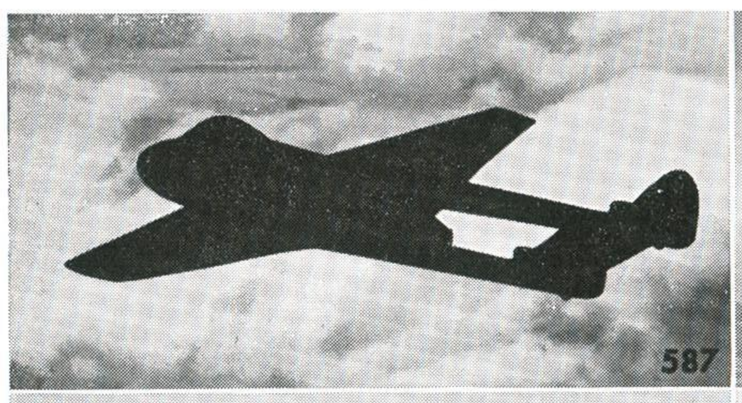


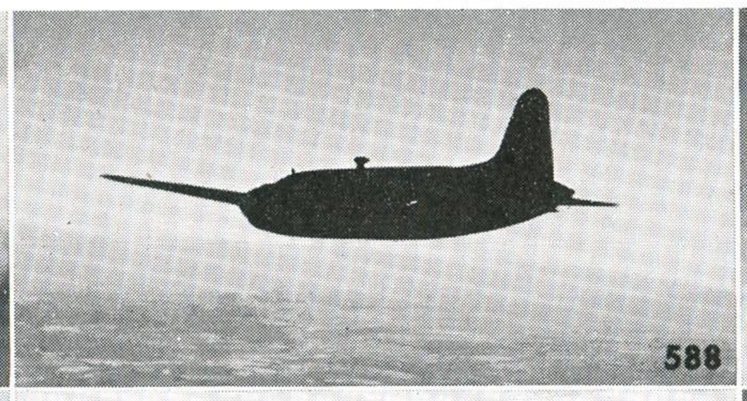
Valletta Variant. The Vickers Varsity (2 Bristol Hercules Radial engines) trainer, despite appreciable outline additions and alterations, still retains the family form in the main. Chief points are the large belly blister for bombing instructor and pupil, longer and more pointed nose (for nose wheel housing) and reformed engine nacelles with additional air-intakes.

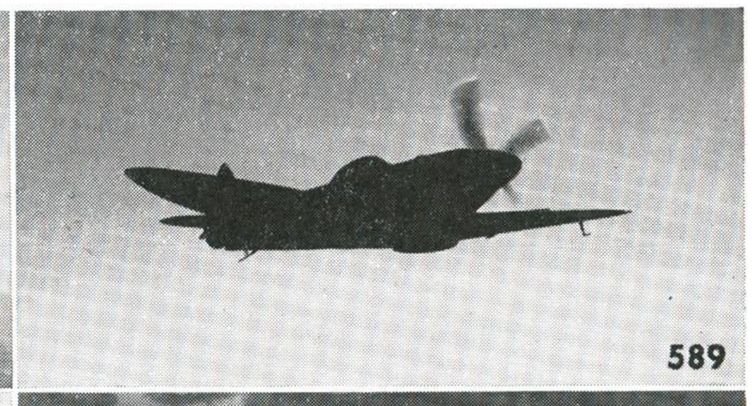
Getting Ready. These views show Britain's largest passenger project, the Bristol Brabazon, complete and " running-up " her engines. Interesting comparison is afforded by the presence of the B.O.A.C. Speedbird Constellation beside the Brabazon —fuselage lines are very similar but similarity ends there. The eight buried Bristol Centaurus radial engines " breathe " through the large intakes on either side of the propeller " stalks ". Box-like structures on fin, tailplane and wing-tips are static balances for control surfaces. They will not be retained in later models.

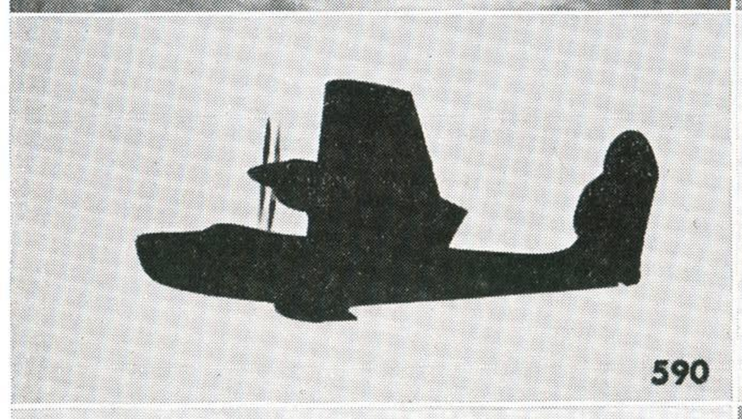


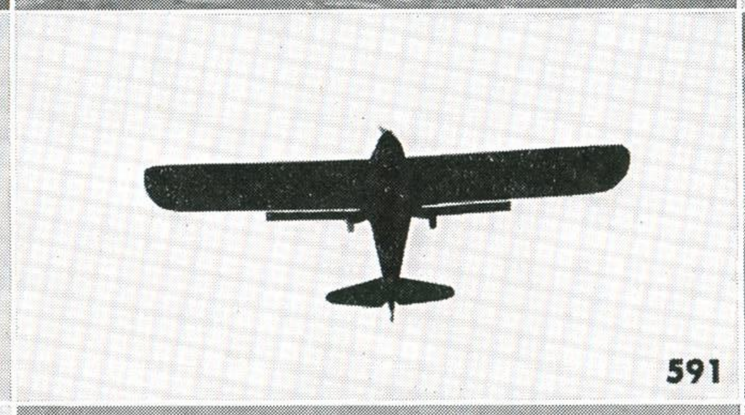
SILLOGRAPHS


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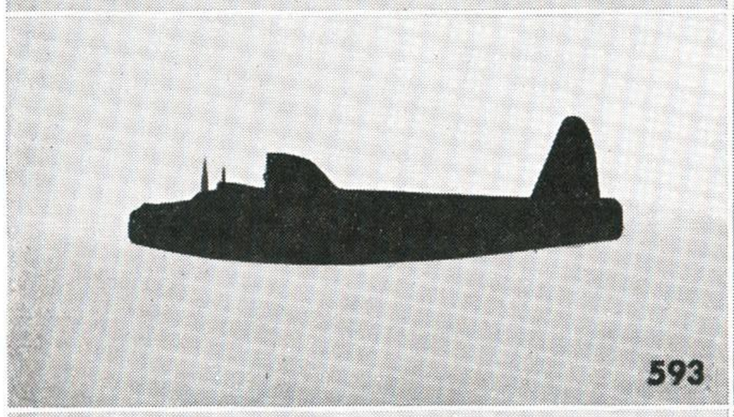

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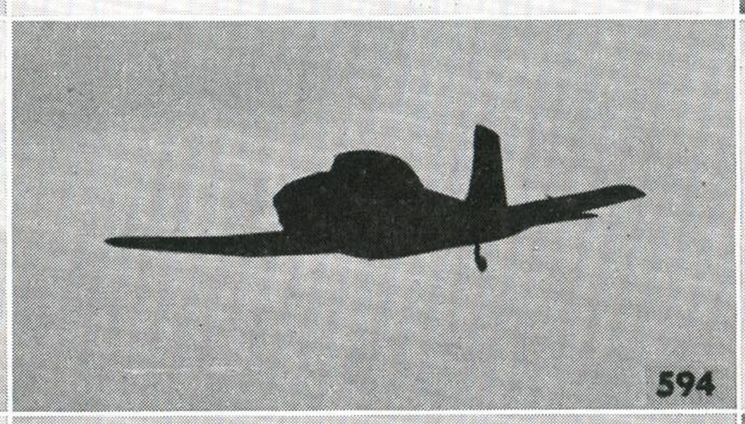

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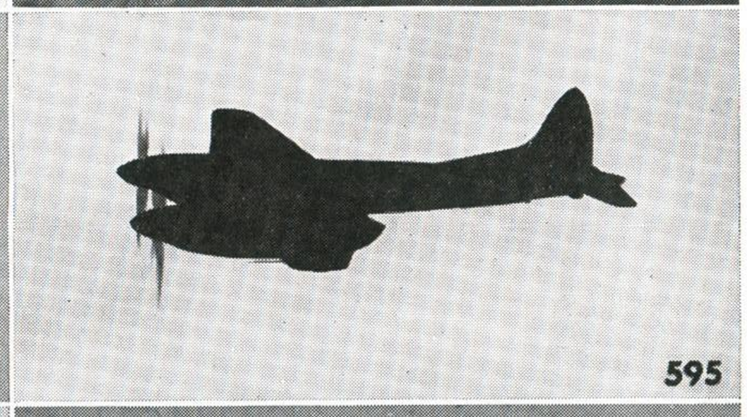

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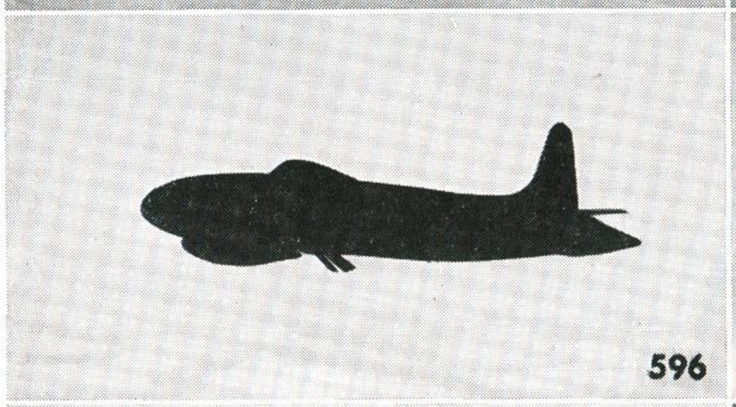

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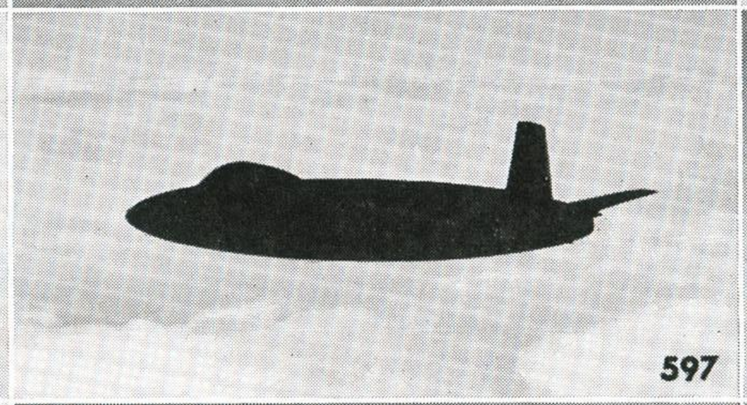

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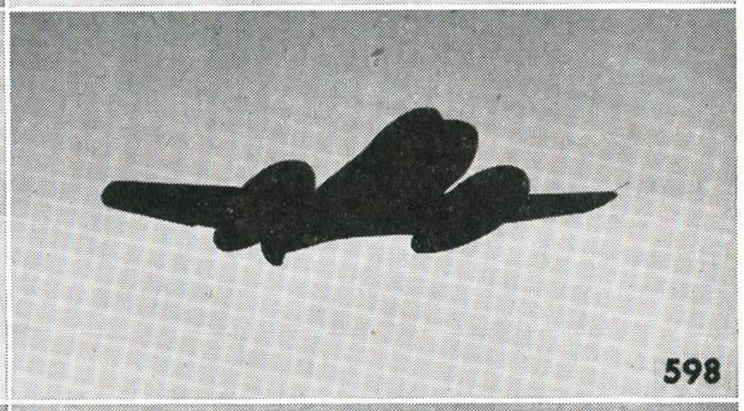

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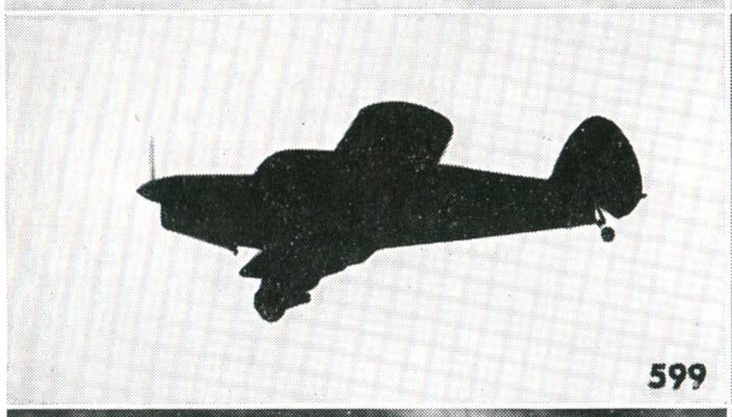

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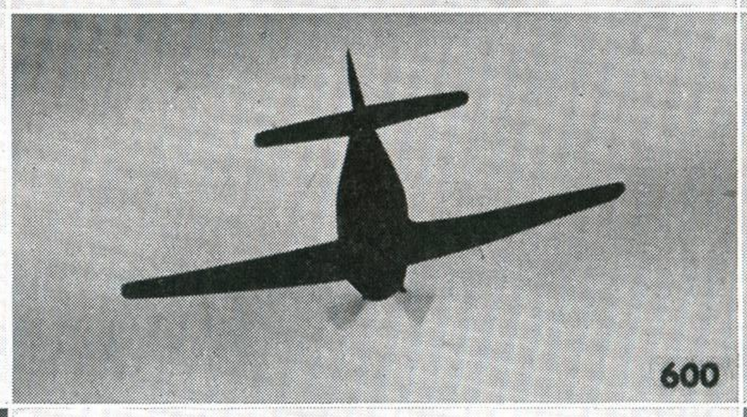

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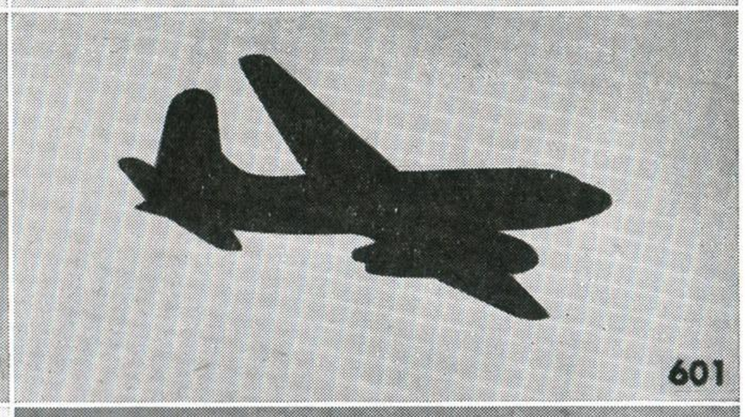

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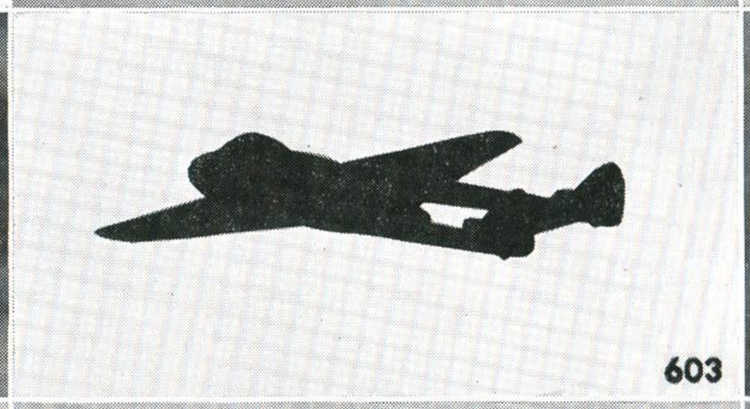

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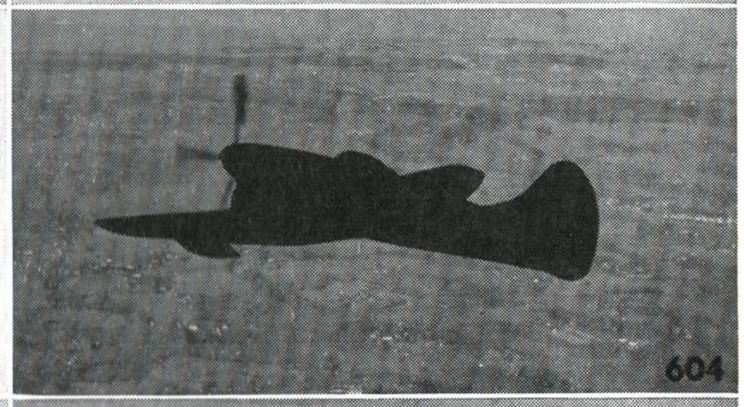

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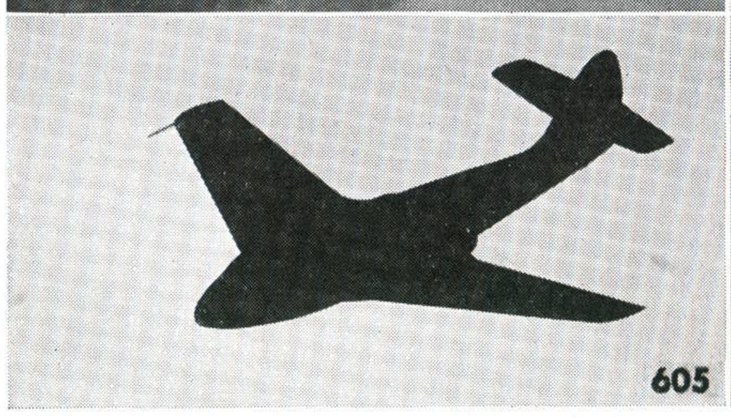

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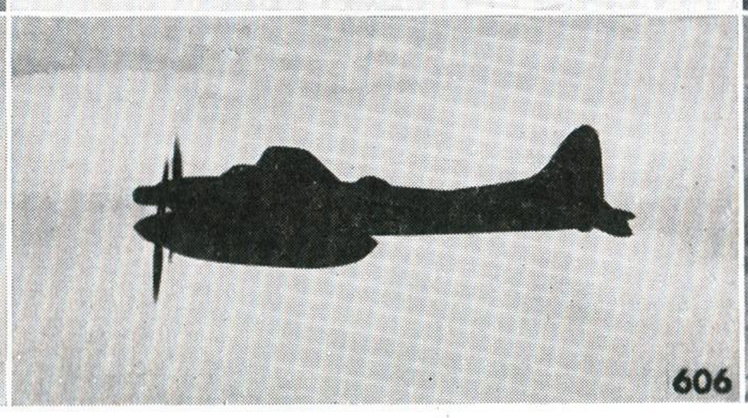

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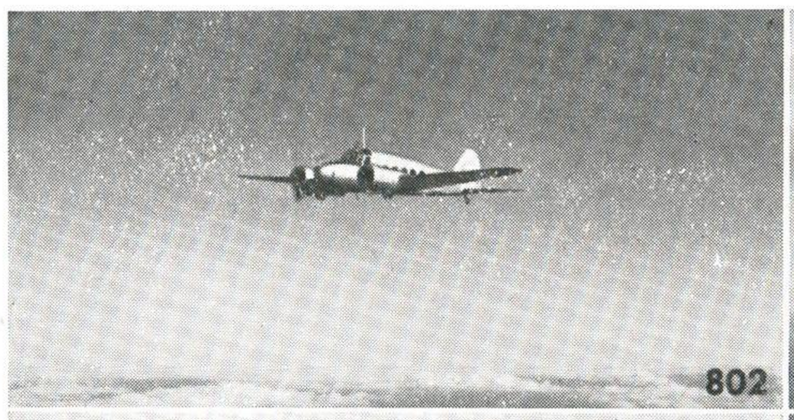

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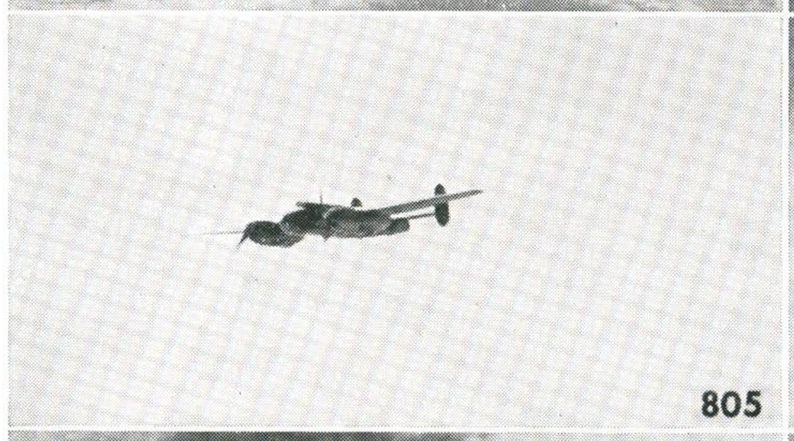

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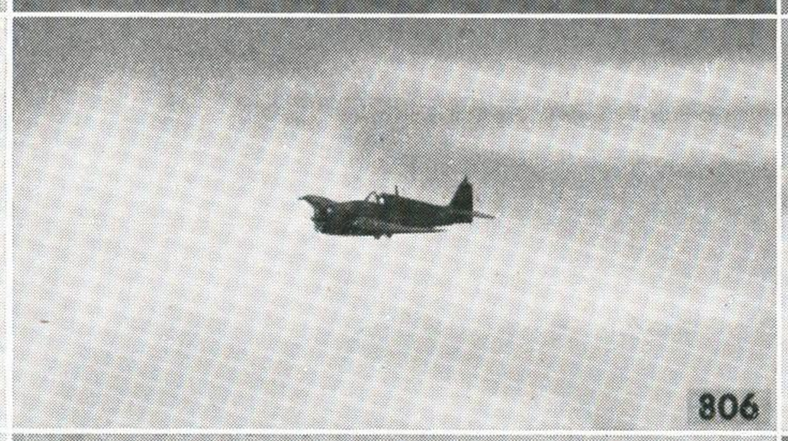
ADVANCED SPOTTING

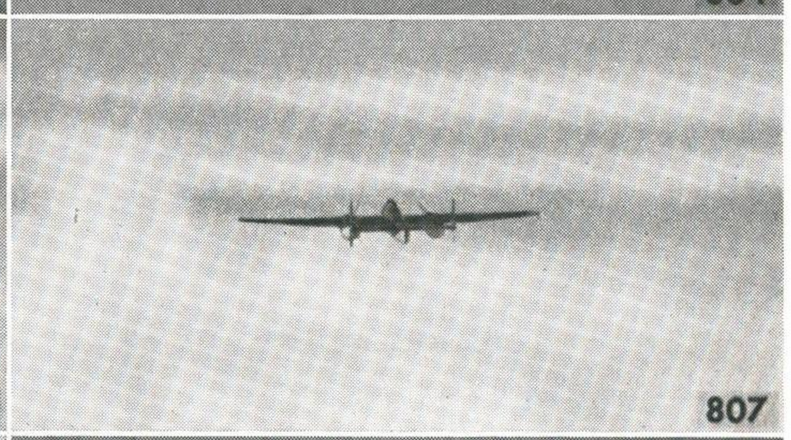

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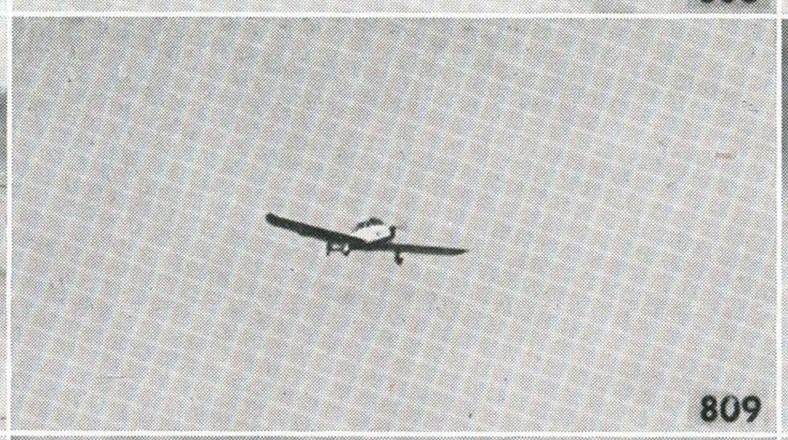

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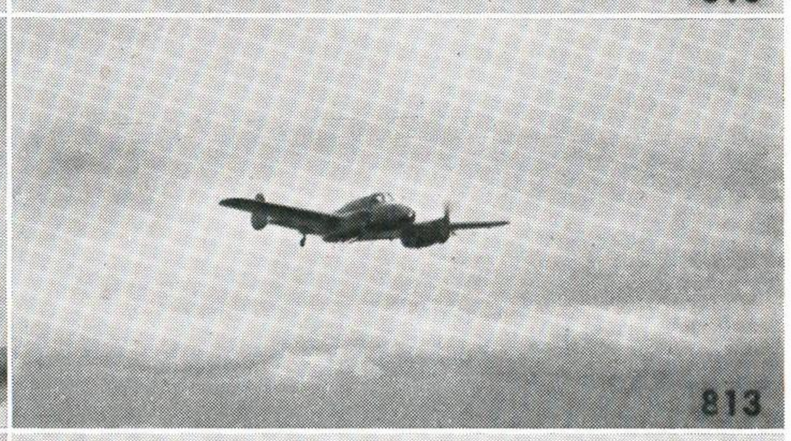

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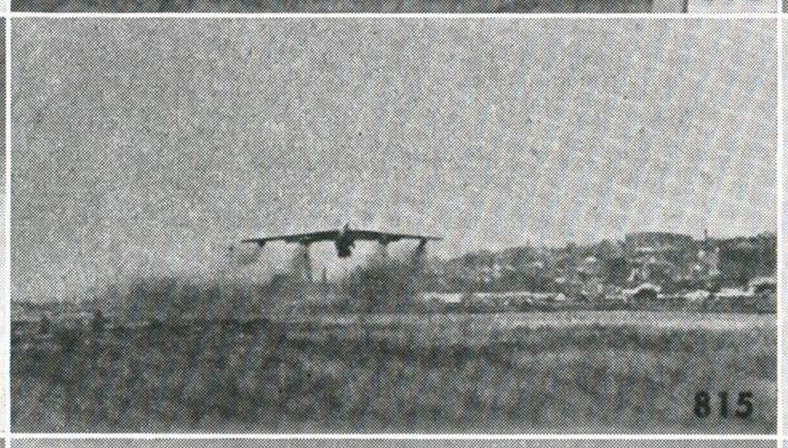

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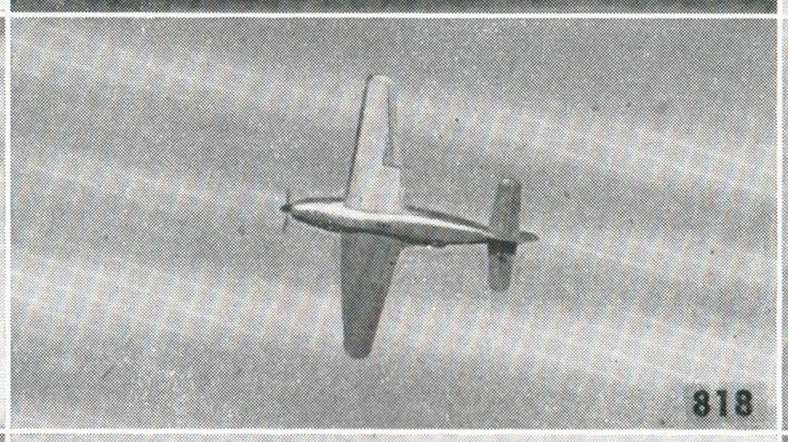

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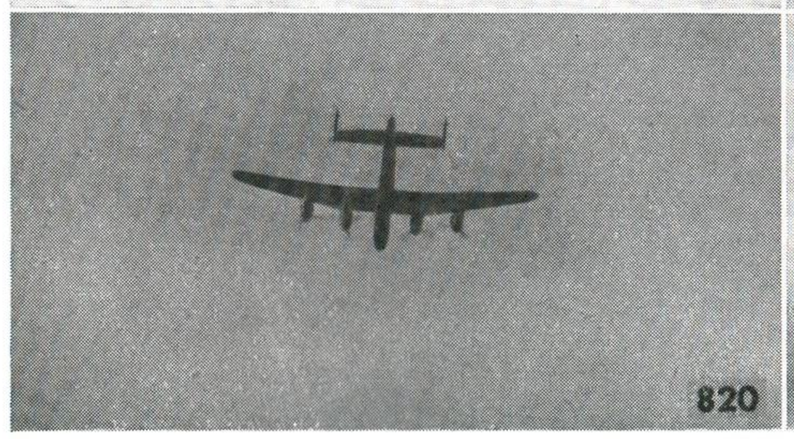

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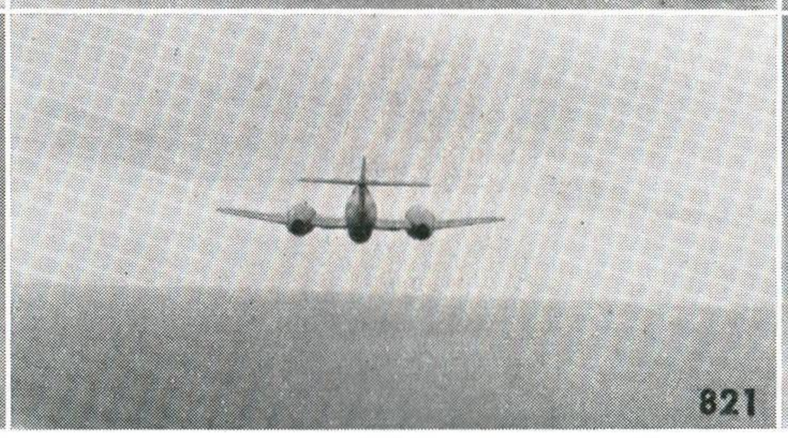

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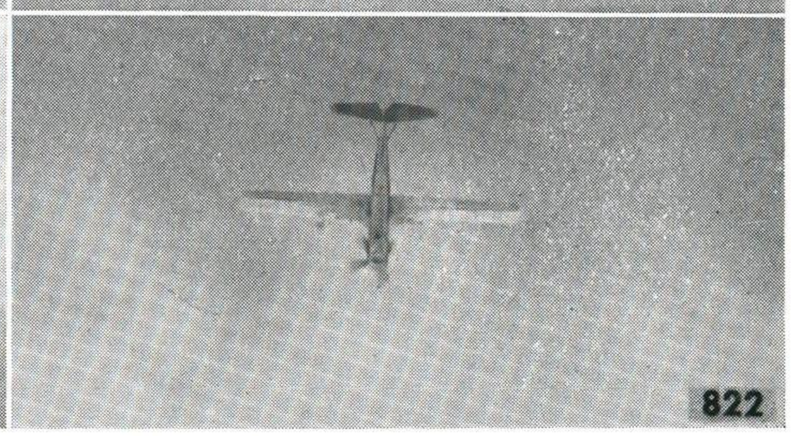

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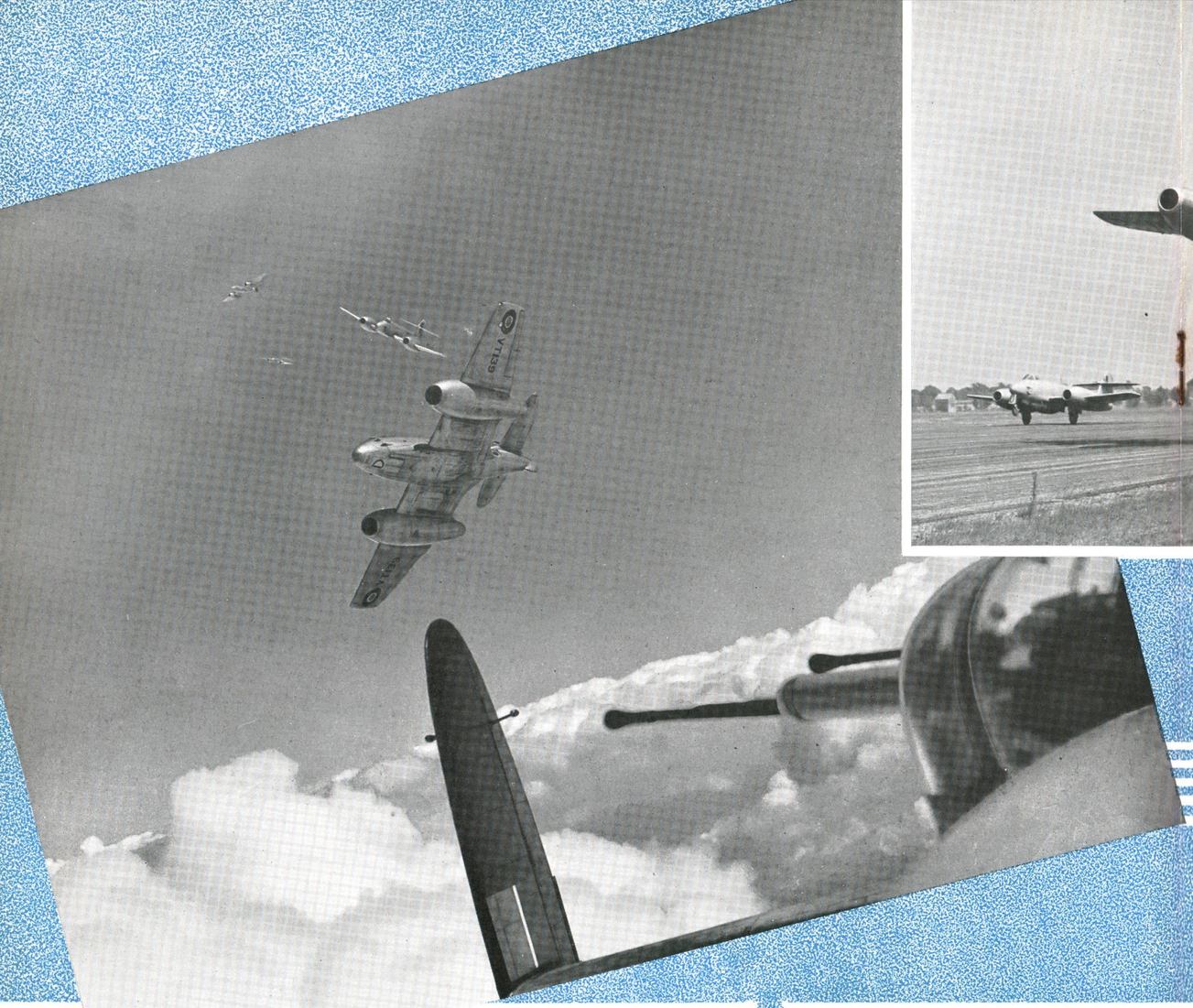

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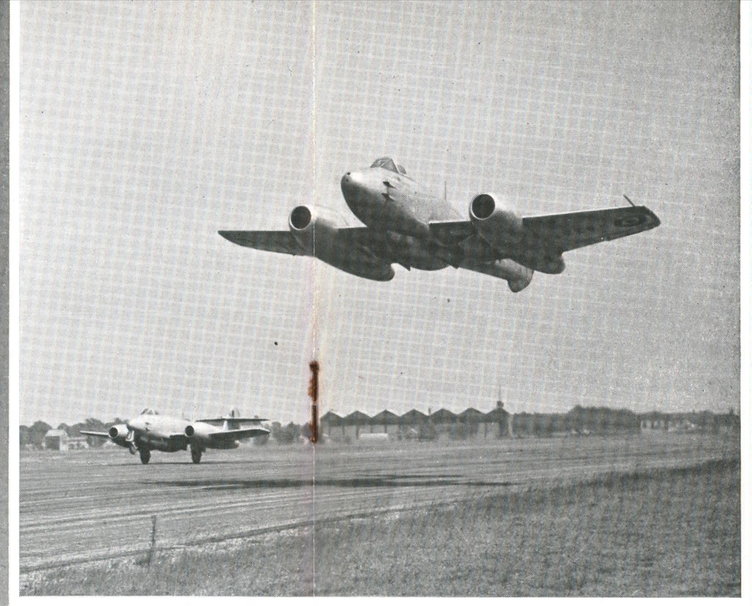

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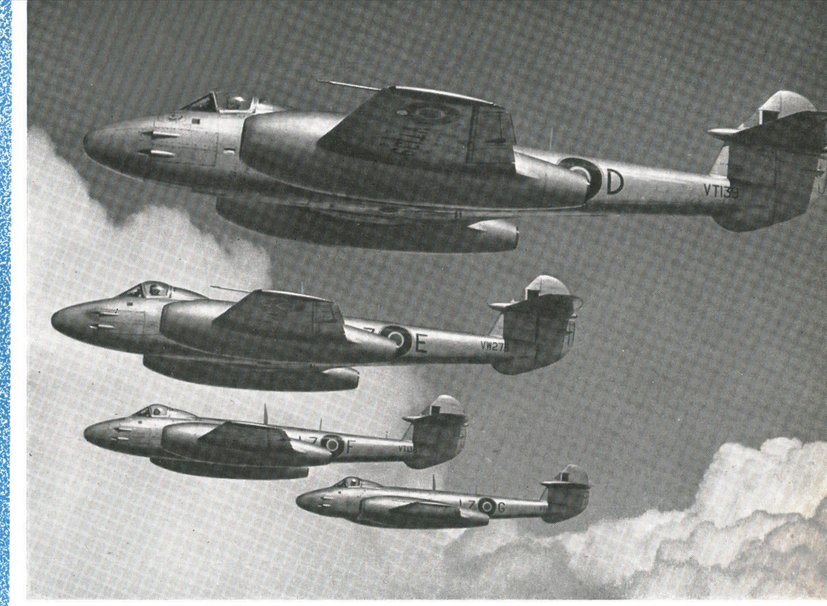

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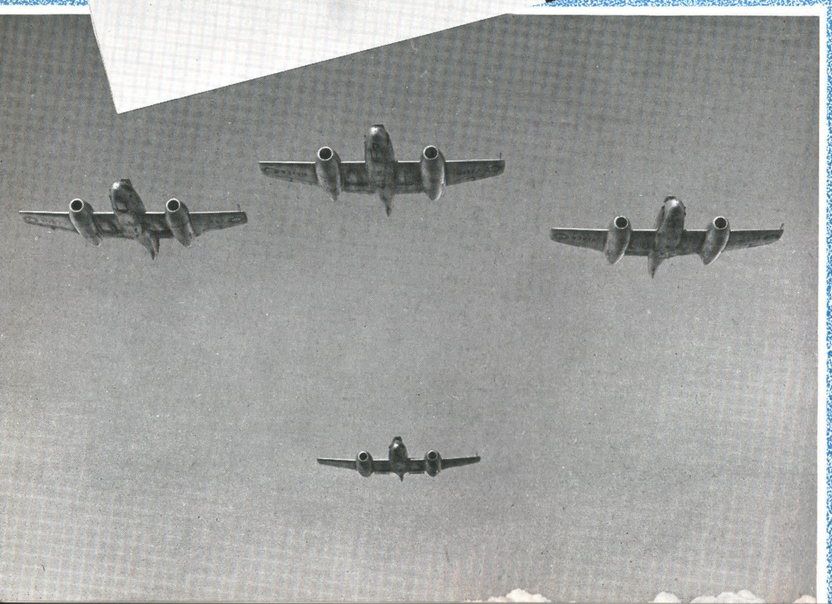

822







Foiled!





TAKING YOU by Gloster Meteor from ground level to the interception of an "enemy" Lincoln bomber in the cu-tops at ten thousand feet over Suffolk, these photographs were secured during practice for Exercise Foil. Whether the Lincoln has been foiled by the Meteors, or has itself foiled the Meteors' attacks we leave readers to decide, but what we can say is that one of the most important factors to pilots and gunners in any interception—whether making an attack or repelling one—is the instant recognition of the target. Failure to recognize it may prove disastrous in more than one way, whilst he who even hesitates may well be lost.

NOTES ON LECTURING

PART ONE — PRINCIPLES

The Author's experiences in "getting across" are considerable. He writes, broadcasts, and lectures regularly on aviation matters. He has also taught aircraft recognition. Good and efficient lecturing is essential in aircraft recognition training in which there are so many interesting sidelines leading away from the actual business of learning to recognize aircraft. These notes on the principles of lecturing are based on the Author's experiences over the last twelve years. Other articles, dealing with the particular requirements of aircraft recognition lectures, will follow at intervals. Henry Sessions, who illustrates and underlines many of the lessons of this article, is a very active member of the Royal Observer Corps, whence comes much of his inspiration. He is a newcomer to the *Journal's* pages but we expect to see much more of his work in the future.

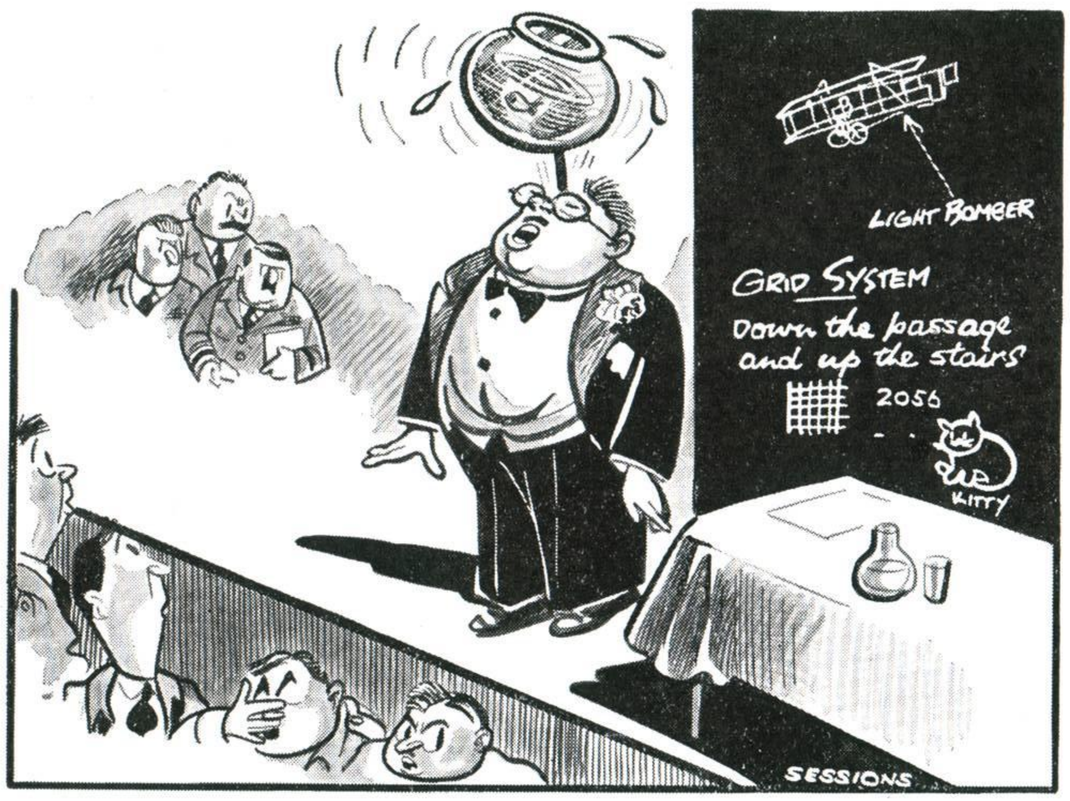
by C. H. GIBBS-SMITH

A GOOD LECTURE ought both to instruct and inspire. There is nothing sentimental or unpractical about that combination, and unless there is that combination it is a bad lecture.

To instruct is to hand over facts or theories—to give information. It is here that the lecture has its limitations for some listeners ; because there are those who can learn easily and quickly from the spoken word, and others (myself amongst them) who can best learn by quietly struggling with words and pictures, and struggling in decent solitude at that. But for the first group, the lecture can explain difficulties, point to solutions and drive home facts. It can perform this with all the advantages of the lively spoken word against the sometimes lifeless appeal of print ; the personal " rapport " between human beings against the muffled voice of the author heard indistinctly through a mask of black marks on white paper.

Inspiration

The word means, apart from its more exalted significance, " to affect so as to enliven or animate " (from the Latin *inspirare*, to breathe). In other words a lecture should so excite the interest of its listeners that they are persuaded to go out and learn for themselves. A good lecturer can make almost any subject on earth so interesting that its pursuit becomes a pleasure. Once interest is aroused, even a slow brain becomes energised, whilst a quick one is instantly supercharged. Sometimes, if the lecturer himself is exceptional, it will be not only a question of arousing enthusiasm but of suggesting new lines of thought, new angles of approach.



. . . to affect so as to enliven . .

Naturally, a lecture can do some good if it succeeds in only one of these directions. We may learn without inspiration, or be inspired without learning. If I had to sacrifice one, I would unhesitatingly throw learning overboard, because it is the easier to come by elsewhere. Get rid of inspiration and you might just as well give up going to, or giving lectures. But, unfortunately, it is inspiration, meant quite simply, that most lecturers fall short on.

Getting across

The problems facing the lecturer are chiefly psychological, or more simply, emotional. He must understand himself and his audience. In passing, one ought to glance at that curious but essential French word " rapport ", which the dictionary translates as " relation of harmony or affinity ". It is one of the great secrets of lecturing, and one which, I think, can never be learnt without some natural aptitude. Watch a popular lecturer enter the room, or even a man who has never been seen by the particular audience before. It is apparent at once that he can " get over " to the audience. His personality seems to come out and meet the " collective " personality of the audience, and audiences definitely have collective personalities apart from their individuals. If one falls foul of that personality the game is up. One then becomes just a speaker to them, nothing more. Rapport must, I think, depend mostly on the character of the lecturer, and upon his attitude to life in general and the audience in particular. A beneficent and positive person will get across when a negative, aggressive, one will not. That is for anyone to see and note.

Looking inwards at oneself it is easier to see what the lecturer must and must not possess. Speaking broadly, there are two opposites which can both ruin a lecture—conceit and nervousness. Pomposity, conceit and arrogance ; they are all related. " Conceit," wrote Bruce Barton, "is God's gift to little men." He might also have said that it is sometimes the armour of the man who is not sure of himself. So, by all means, let us take confidence into the lecture theatre, but not a swelled head. There is nothing that an audience recognizes so fast and so surely ; in fact it is the one form of recognition in which they need no training.

Fear the worst

On the other hand, you must do your best to overcome shyness and nervousness. Conceit sets up sales resistance in an audience, but nervousness just demoralises it. One of the best home-made remedies is to remember that what goes on in the heads of an audience, however destructive it may seem, is not going to injure you physically ; at least I hope not. Imagine the worst thing happening at a lecture (whatever *you* feel is the worst) and it will not turn out to be lethal. You will survive it. Don't bother unduly about what the audience is thinking. You know your subject ; you know what you want to say ; you have confidence that you can put it over. That is enough. It is absolutely certain that some of your hearers will think you an idiot, or worse : it is equally



. . . it is certain that some of your hearers will think you an idiot . . .

certain that the majority will not think anything of the kind. Let your mind speak to the latter. The former are a " constant " the world over ; there is a percentage of " haters " in every group, club, school, city and country in the world. You cannot convert them ; so ignore them. Once anxiety is at rest, the way is open to an easy flexibility of manner, the ideal at which we should aim.

Mannerisms

Now for technique. Lecturers often move about too much, or fidget with their hands. (I belong to the former group.) Both are very bad faults and derive mainly from nervousness. They both distract the attention of the audience away from what you are saying towards what you are doing—a fatal transposition. And the cure ? Do what the political speakers are taught ; give a few talks by yourself to yourself, and in front of a mirror—preferably a long one. Or another dodge. During the next lecture you yourself listen to, imagine all the time that you are in the lecturer's shoes so that you both see him from the outside and " feel " him from the inside.

Watch your voice. It is much better to speak too slowly than too fast. Again, practise by talking to yourself, but first warn your wife or family what you are doing. In the lecture room keep your head fairly high and try to throw your voice over the audience as it were, like a blanket. That does not mean shouting. It is chiefly a matter of good articulation, and sensible pausing. It is one of the most valuable lessons one learns when broadcasting ; that what seems to you a long pause between sentences or clauses, does not seem long to the audience. It also helps, when actually turning towards the audience, to look approximately at the back rows. One friend of mine adopts the ingenious method of choosing an intelligent or sympathetic face in one of the back rows and talking to it, or near it. This leads naturally to the tone of the talk. Personally I feel it is always best to be conversational rather than declamatory. In talking informally to an audience one automatically achieves yet another valuable asset, range of pitch and tone. There is nothing more tiring to an audience than the monotone in which you hear some academic lecturers hold forth.

Frame-up

The question of the content of your talk depends, of course, a great deal upon your subject matter. In general it is best to keep to the time-honoured progression from the general to the particular. At the outset of the lecture the audience should, I feel, be given a clear and concise idea of what the lecture is about and what ground it will cover. Some people, however, start off with a good anecdote, and then get down to the job. To some lecturers it comes naturally to organize their talks, to plan them to show general principles, followed by clearly described examples, and proceed at all times on the assumption that the minds of the audience must be given a framework into which the details can be fitted. Other lecturers, on the contrary, find it very difficult to organize their information, keep to, or drive home their point. Only a really big effort and willingness to criticize themselves will be of any help in these cases.

As for style, one could write reams, all of it simply one's personal opinion. For what it is worth I would suggest the following. Use short, vivid words ; bring in as many telling images and examples as possible to explain your meaning ; be funny if you can, but quit being funny if your audience doesn't laugh the first time*—it means



. . . give yourself a talk . . .

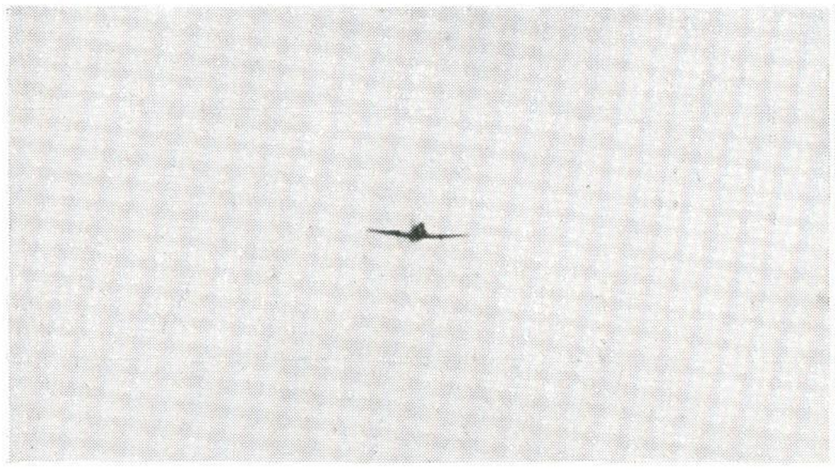
that your nonsense is not their nonsense ; by funny I don't mean vulgar—vulgarity can be very funny at a bar or over a table, but the only large audience that should be asked to bear it is in a music-hall ; don't be ashamed to show enthusiasm—the only people who won't like it were your enemies before you started.

* On second thoughts, you might risk a second try ; but no more.

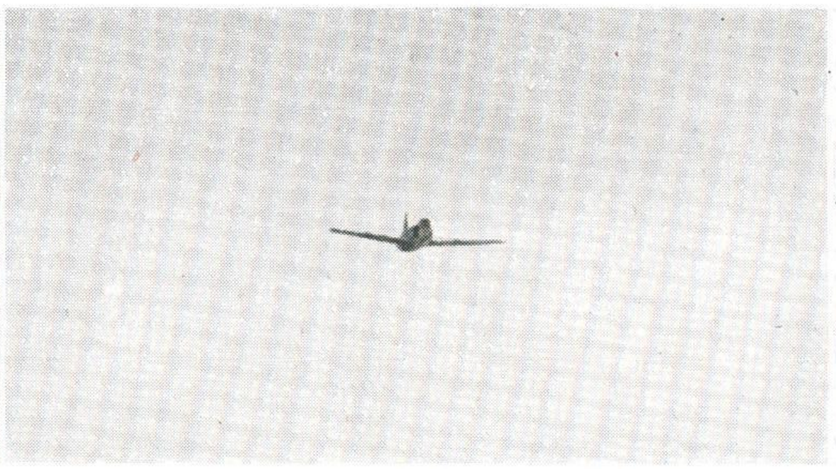
Continued on page 18.

What's the score?

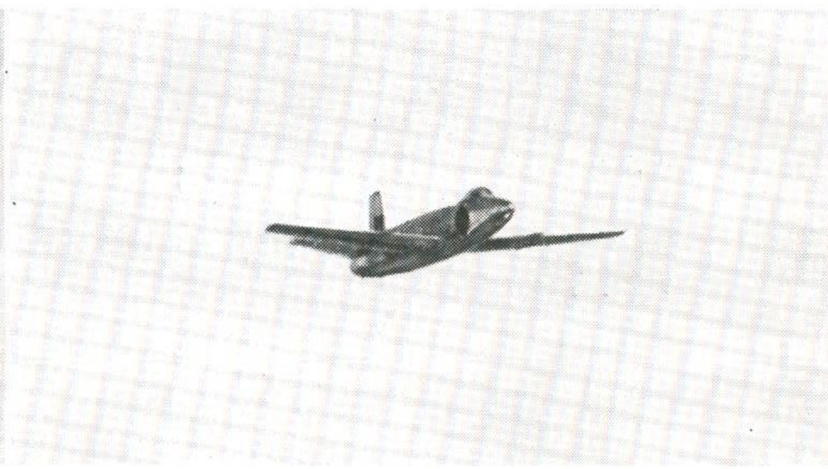
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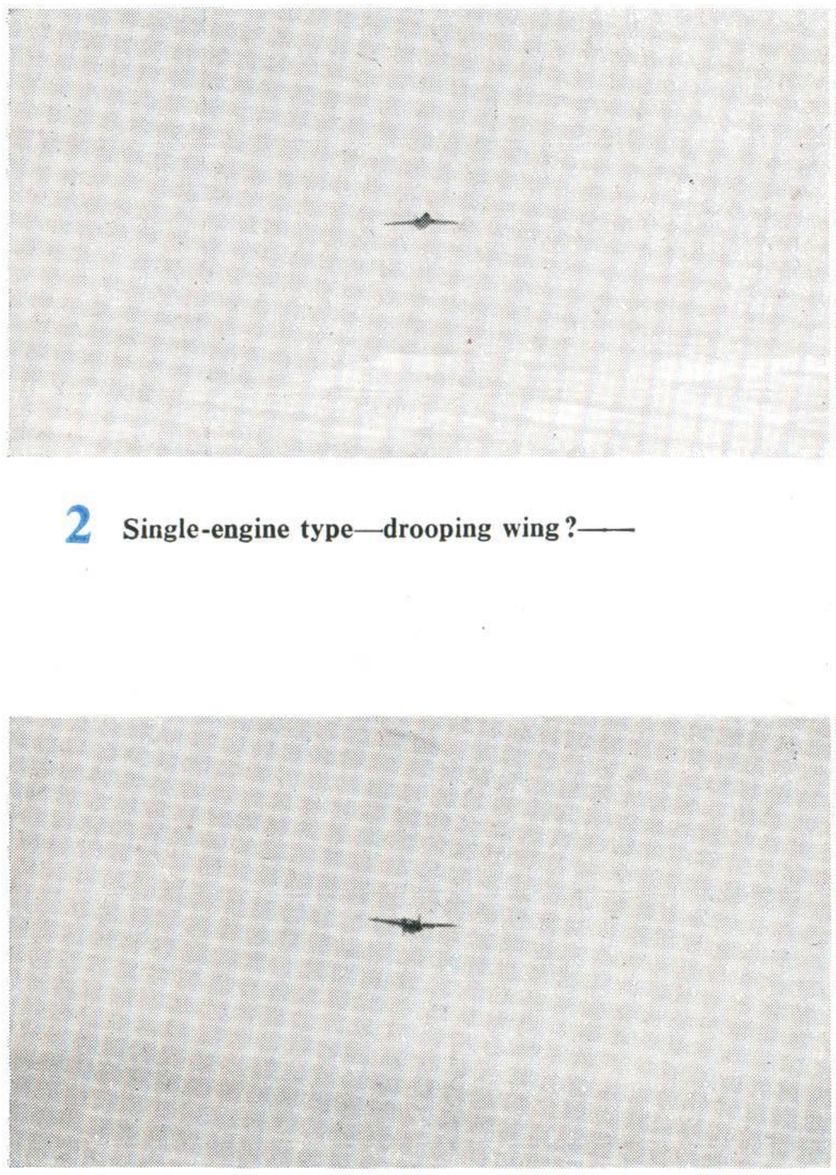
1 Low-wing single-engine type—slight wing dihedral——



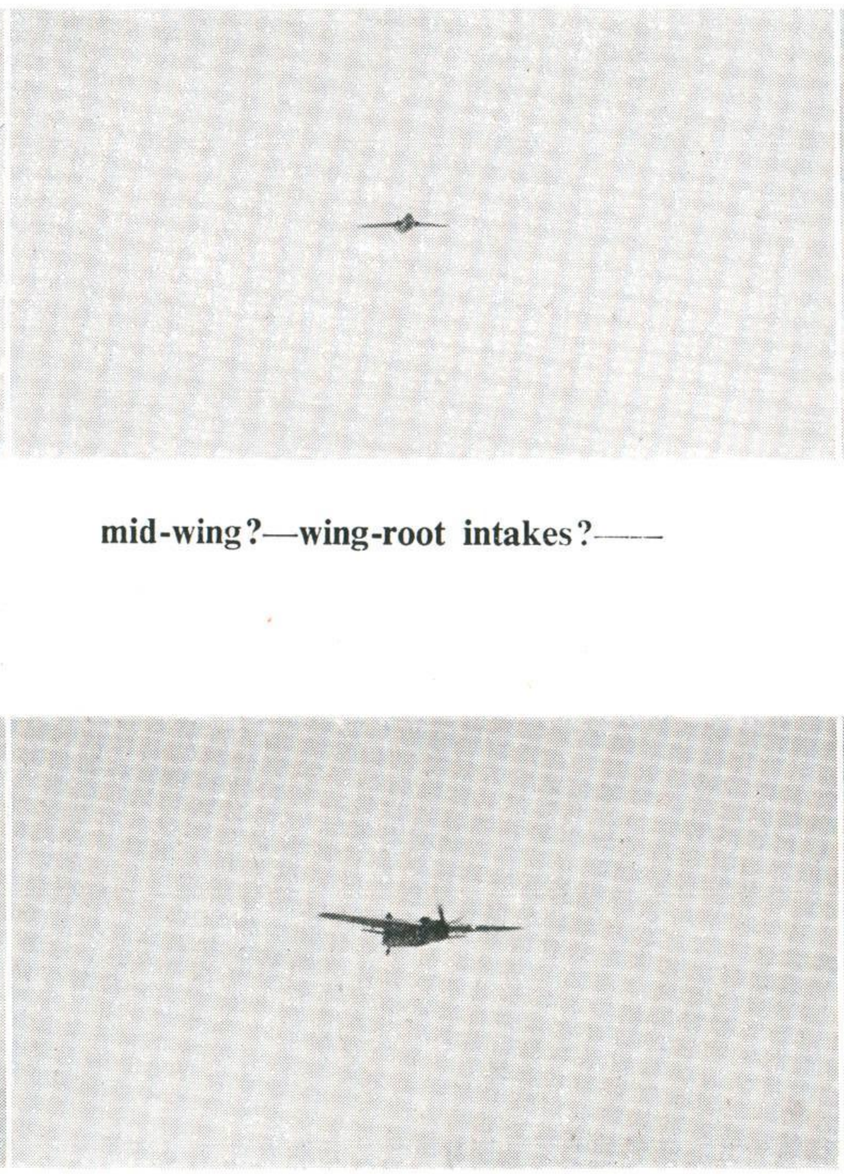
single fin and rudder—cockpit on nose——



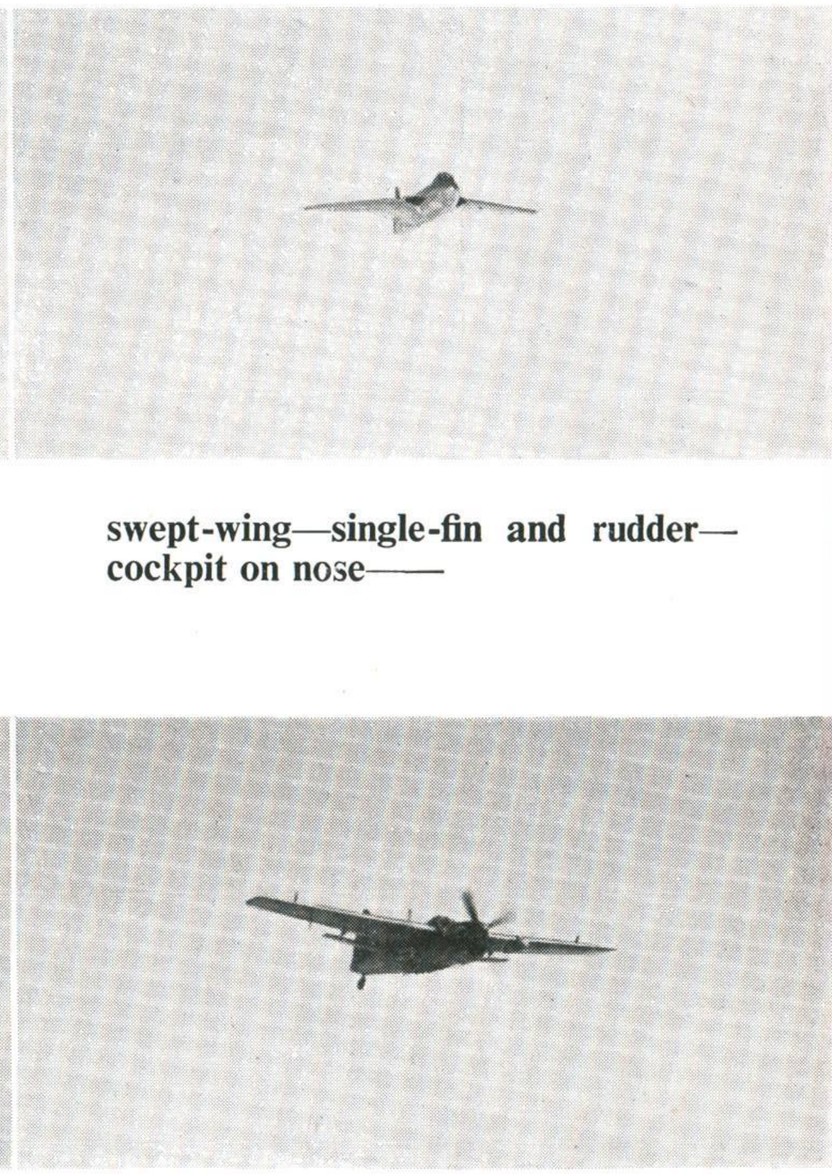
large air-intakes in "cheeks"—bullet body-form——



2 Single-engine type—drooping wing?——



mid-wing?—wing-root intakes?——

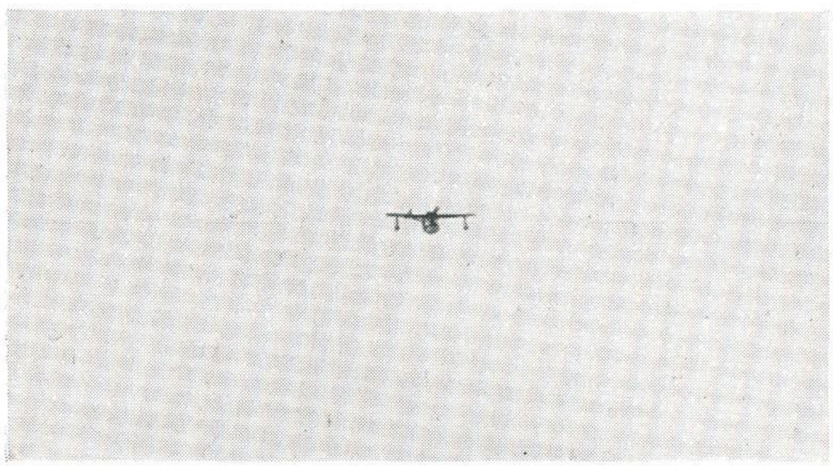


swept-wing—single-fin and rudder—cockpit on nose——

3 High-wing, single-engine type—high tail-plane?——

single fin and rudder?—double-wing——

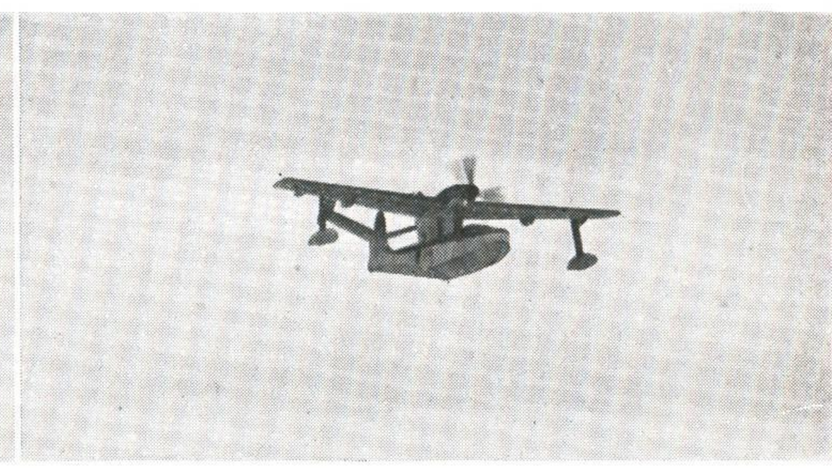
double-wing confirmed—Griffon-type engine—shallow fuselage——



4 Parasol-wing flying-boat—inset wing-floats——



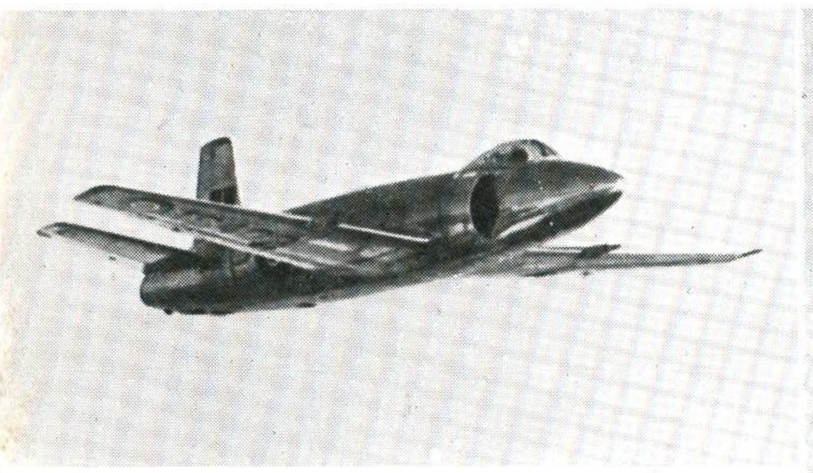
sharp dihedral in tail-plane—endplate fins and rudders——



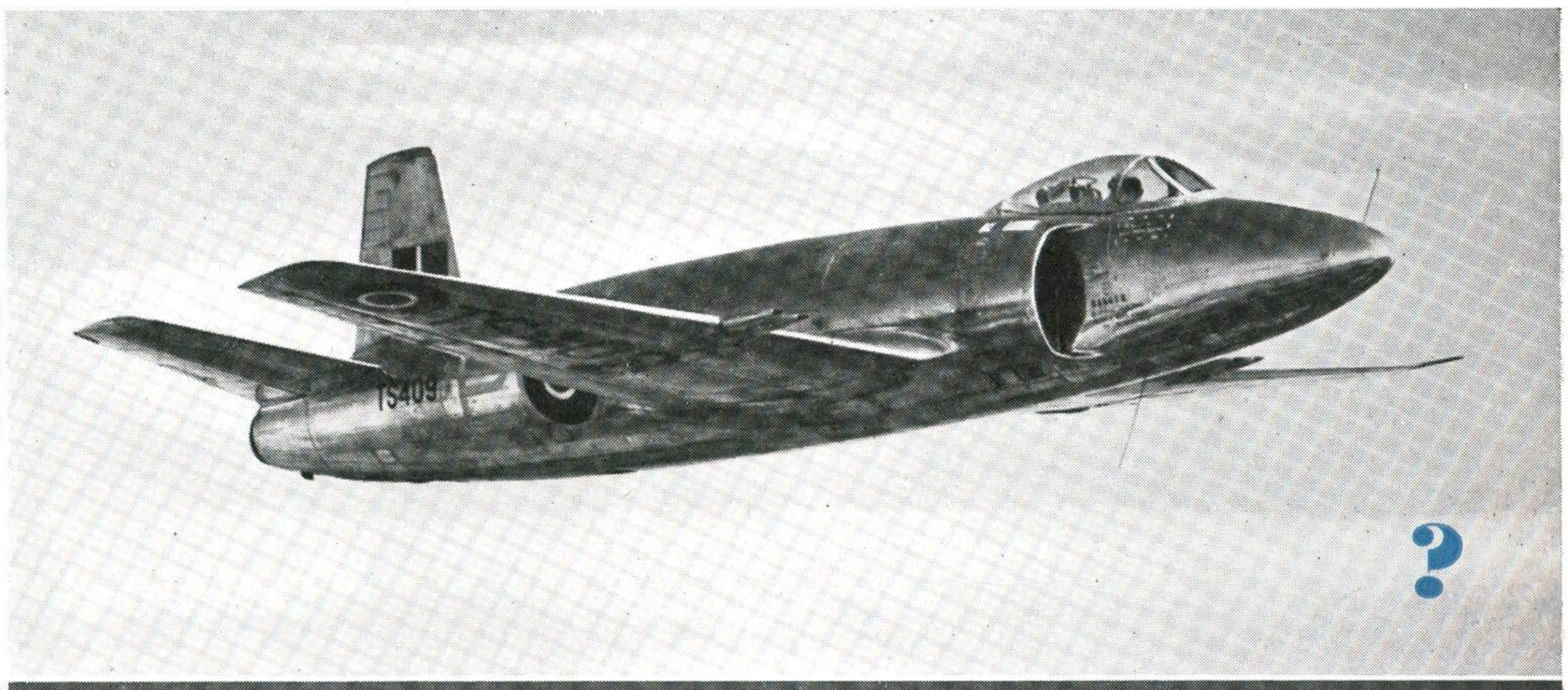
Merlin-type engine on pylon mounting —centre fin——

Mixed Bag

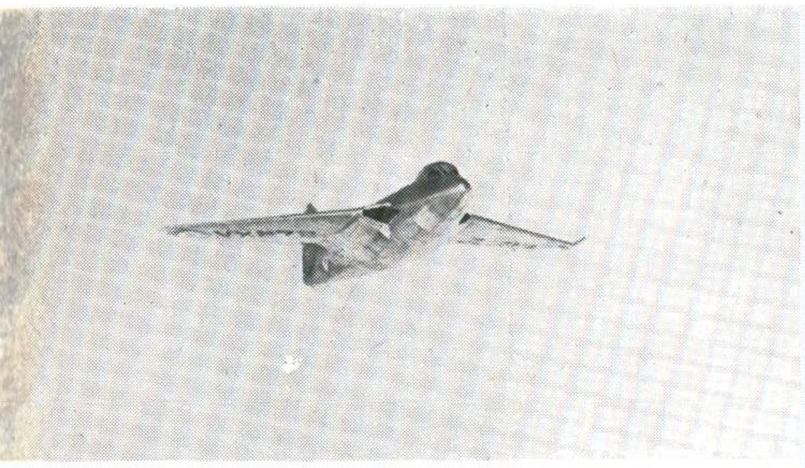
This interesting selection seems to demonstrate that singleness of purpose influences the shapeliness or otherwise of an aeroplane; No. 1, the VICKERS ATTACKER (one Rolls-Royce Nene turbojet) which has all the clean lines synonymous with modern jet-fighter design, is going into service with the Royal Navy. No. 2, the HAWKER P.1052 (one Rolls-Royce Nene turbojet), is an experimental aeroplane with fighter lines. No. 3, the FAIREY BARRACUDA T.R. Mk.5 (one Rolls-Royce Griffon in-line engine), is an example of earlier multi-purpose naval design, the configuration of which has put it in a recognition class of its own and made its name a household word. No. 4 is a VICKERS SEAGULL AMPHIBIAN (one Rolls-Royce Griffon in-line engine) built as a replacement for the Walrus and Sea Otter. Ability to alight on land, sea, or carrier deck accounts for its layout, yet, in its own class, it must be one of the cleanest (aerodynamically) ever built. It has a top speed of about 260 m.p.h.



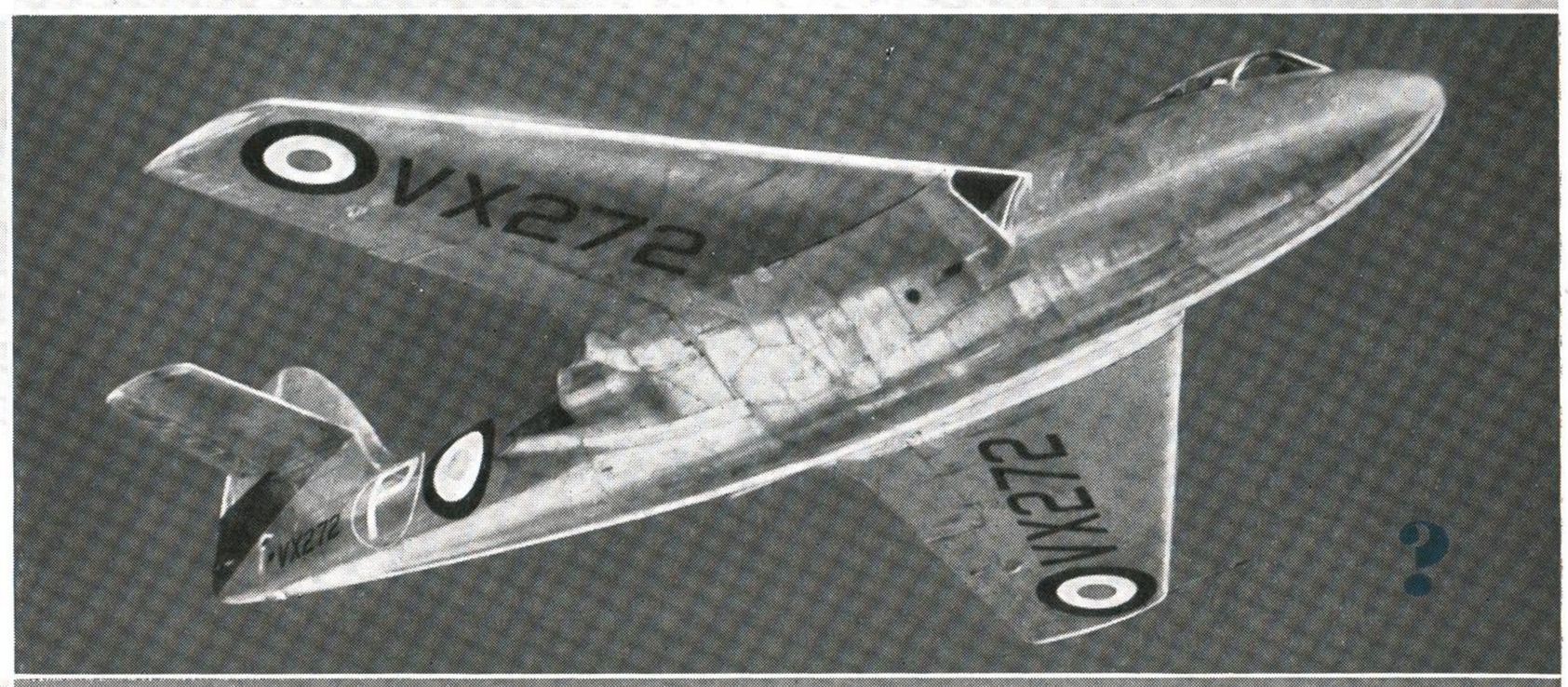
square-cut flying surfaces—jet-pipe behind tail——



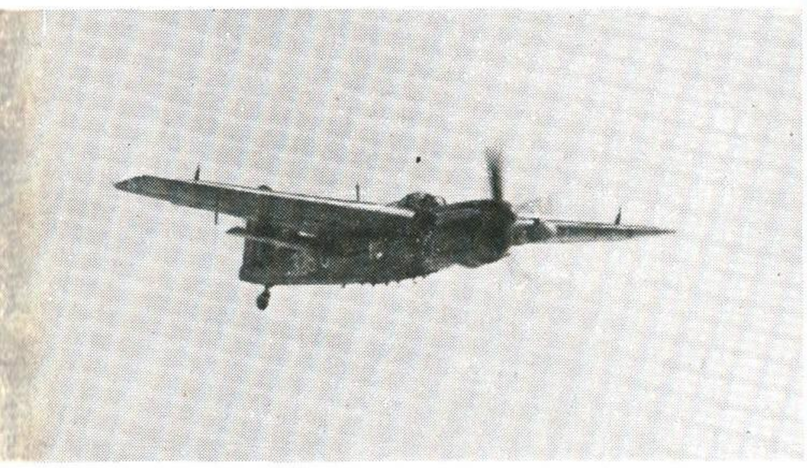
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high tail-plane—swollen centre-section (root intakes)——wing-root jet-pipes — "swallow-like" generally——



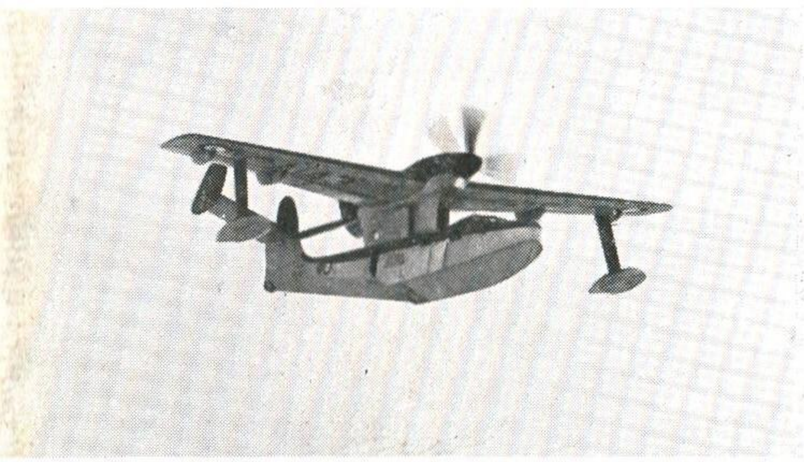
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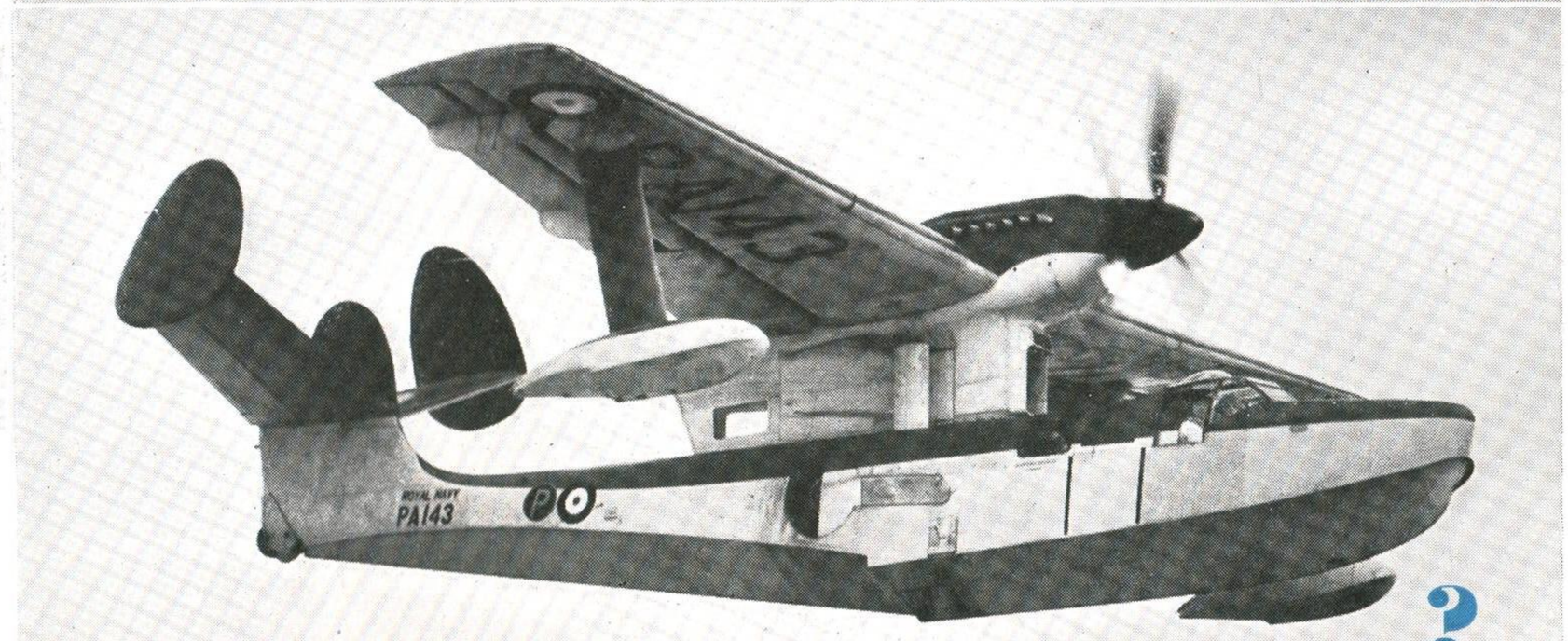
shoulder-wing—cockpit in line with leading edge—high tail-plane confirmed——



?



single-stepped hull—squared off wing-tips—amphibian——



?

From BEAUFIGHTER to BRIGAND

by "Confucius"

A RECENT ANNOUNCEMENT by the Air Ministry gave the news that the last Beaufighter-equipped Squadron of the Royal Air Force is in process of receiving new aircraft. Behind that bald statement lies a story of some importance, for it writes, as it were, the swan-song of that great aeroplane, the Beaufighter, going into honourable retirement at the end of a full and active life of nine years.

In No. 43 Squadron, R.A.F., based in Malaya—the last Beau squadron—the spirit of the aeroplane will live on however, for it is being succeeded by the type developed from it—the Bristol Brigand. And in places, more than the spirit of the Beaufighter will exist ; for there will be " Beau-ghosts " of the multi-purpose torpedo-carrying strike aircraft : training aircrew, towing targets, collecting " weather gen " and performing the hundred and one odd tasks around the aerodrome which obsolescent aircraft are expected to do.

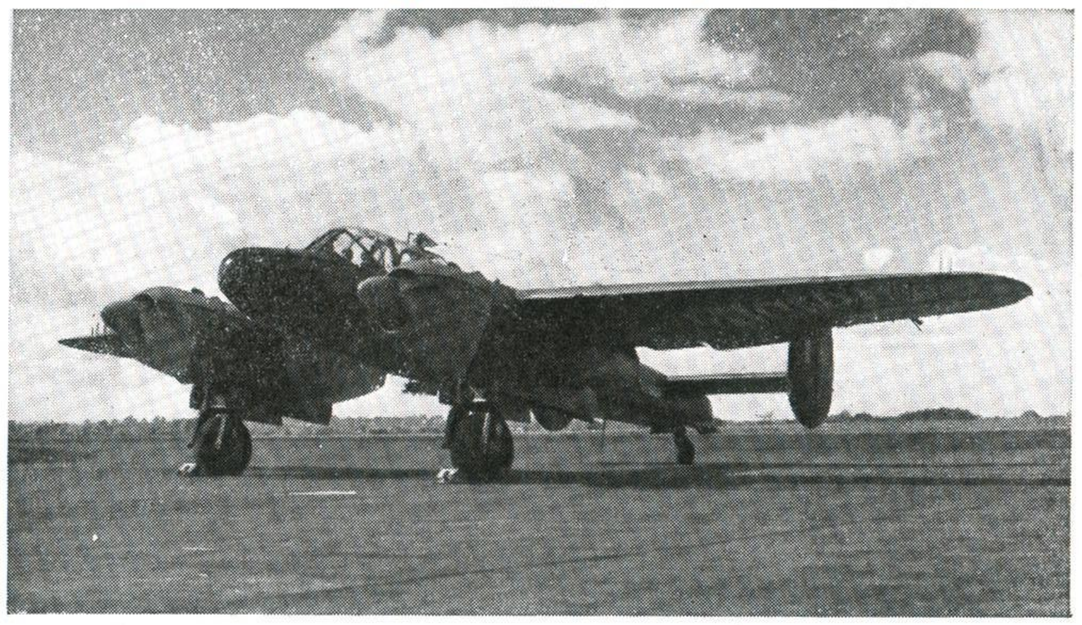
The Beau—Its Life and Times

As we are writing what will perhaps be the last few words penned about the Bristol Beaufighter, let us record briefly, for posterity, its biography.

Plans for the Beaufighter were first submitted by Bristols to the authorities shortly after the Munich crisis of 1938, and only eight months later, in July, 1939, the first aircraft made its maiden flight. Work on the aircraft was hurried forward as the Luftwaffe turned from day to night attacks, and in August, 1940, the first Beaufighter reached its squadron. In November that year, Beaufighters carried out their first patrol ; by Christmas, one squadron was completely equipped ; and by the New Year, over 20 German bombers had fallen to their heavy armament (for those days) of four cannon and six machine guns.

Thereafter, the " Beaus " operated in every major campaign of the war, from the coasts of Norway to the islands of the Pacific, from Brest to Arakan. From night fighting they turned to attacks on enemy shipping in Western waters, the Mediterranean and the Pacific.

A Bristol Brigand B. Mk.1 " running-up " its two 2,500 h.p. Centaurus radials. Note the apparent large sweep-back in the wing.



They fought in close support of the Eighth Army from El Alamein to Rome and took part in the Second Front. From the Japanese, the Beaufighter drew that most appropriate of all nick-names, " Whispering Death ". Long-range sweeps carried it far down the long seaboard of France and out over the Atlantic to attack long-range aircraft operating with the U-boats.

Beaufighters carried out the last operational sortie of the European war, a strike against German shipping in the Skagerrak, and they were in active service in the Far East until the capitulation of Japan.

The last Beaufighter, 5,562nd of its line, left Bristol's Weston-super-Mare factory on September 21, 1945. Beaufighters had also been produced in quantity in Australia.

Bigger and Better

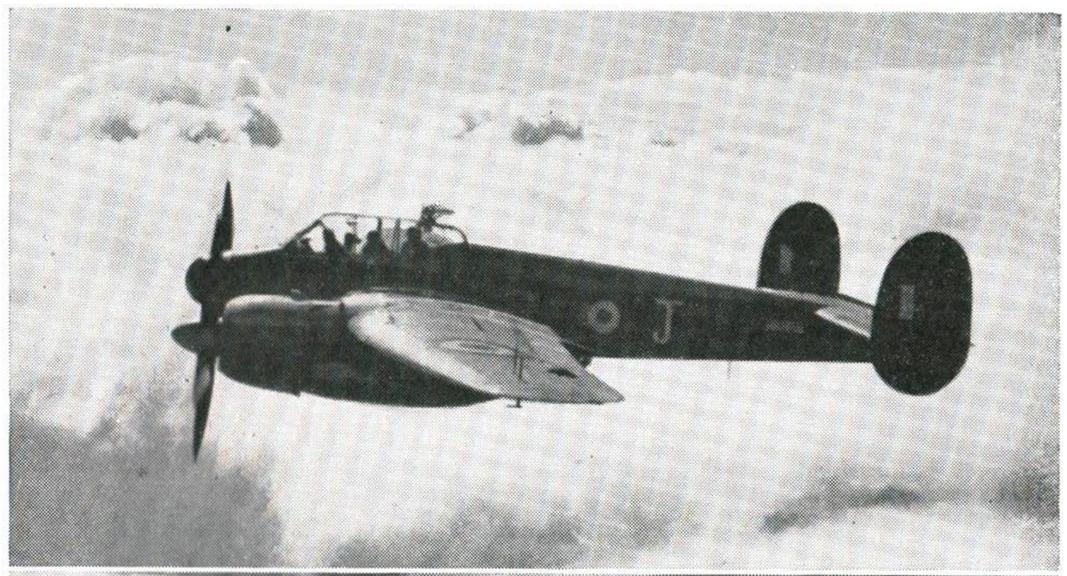
So much then for the Beaufighter.

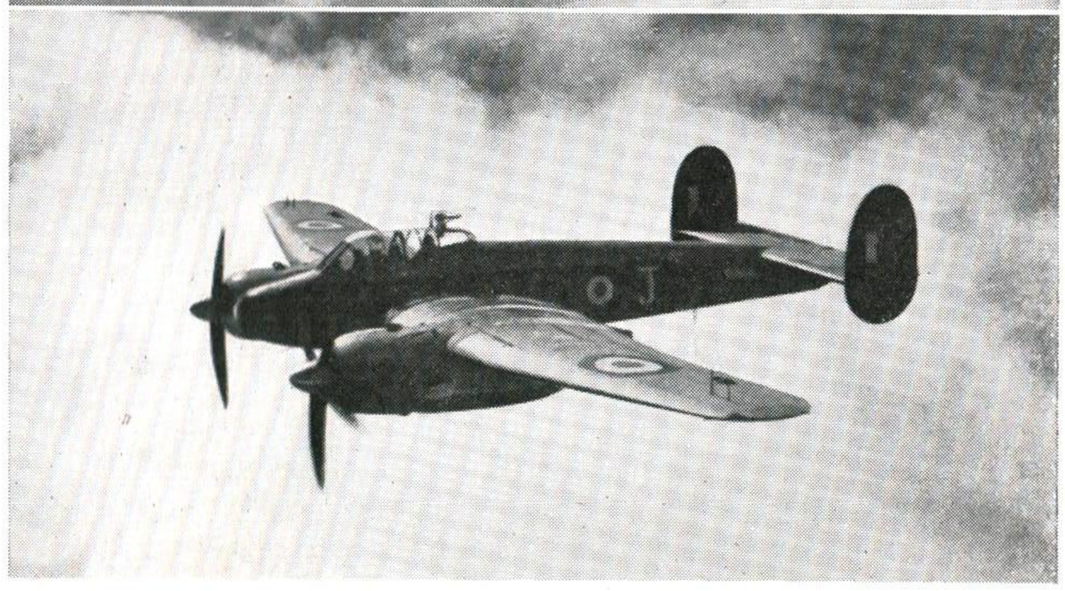
As early as 1942, the Air Ministry had drawn up requirements for a " bigger and better " Beaufighter designed particularly for torpedo attacks against shipping. Bristol undertook to develop this aeroplane, having experience with the Beaufighter to draw upon. As active development of the Brigand commenced, the Beaufighter T.F. Mk.6 and T.F. Mk.10 variants, modified for the carriage of torpedoes, were beginning to go into service with Coastal Command. Thus Bristols were able to put into the Brigand design also the results of actual operational experience with a torpedo-strike-fighter. An original proposal to modify the Beaufighter by moving the navigator up from his dorsal station to a position just behind the pilot, and use more powerful Hercules engines did not meet with approval, and a completely new design was therefore planned.

The Buckingham

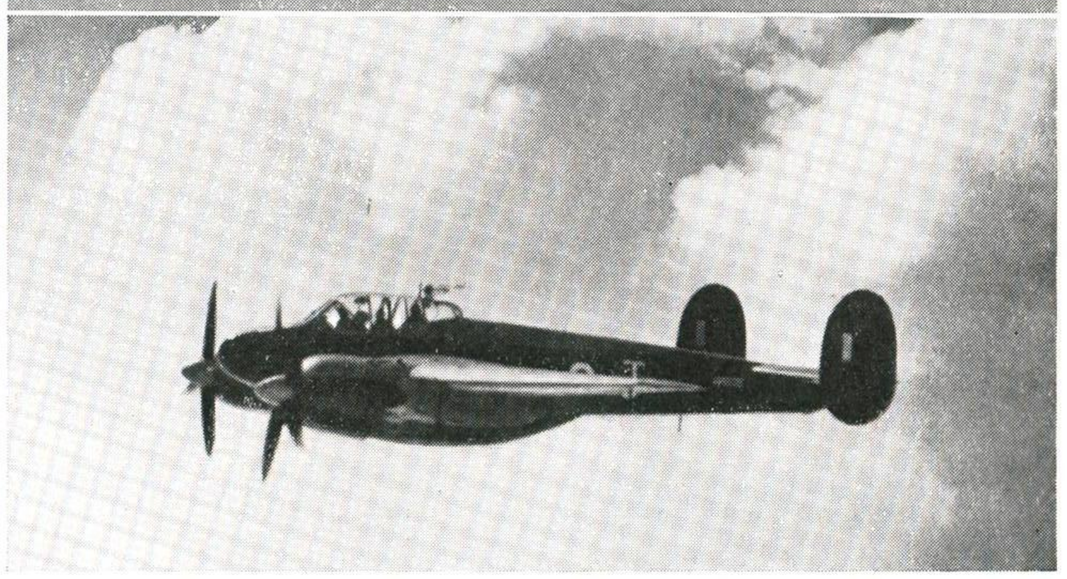
We must here make mention of the Buckingham which was also developed from the Beaufighter during 1940, as a high-speed day bomber for Bomber Command,

The Brigand's main recognition characteristics are : engines in line with nose, high cockpit canopy, slightly back-swept outer wing panels, and two large oval fins and rudders outrigged (see illustrations above and below).









seating a crew of four. This had twin fins and rudders, the new and powerful Centaurus engines, and a new wing, although Beaufighter ancestry was visible in it. The type never went into service with Bomber Command, though some were used as transports by Transport Command—but that's another story. In designing the Brigand, however, Bristol made liberal use of the Buckingham features, borrowing the wing, motor-nacelles and motors and tail units with little or no modification.

Thus was the type built, test flown and ordered in quantity. Fully tropicalised it was to supersede the Beaufighter in the Far East war theatre. Seating three—the crew was closely grouped in a single compartment, this being a desirable feature for anti-shipping aircraft—the Brigand T.F. Mk.1, as it was now officially named, carried a formidable armament. Like the Beaufighter, it carried four 20 mm. cannon in the nose for forward firing ; these were supplemented by a single 0.5 in. Browning in the rear of the cockpit enclosure to give tail protection. Under the fuselage was carried the 22 in. torpedo, which could be replaced by two 1,000 lb. bombs, slung in tandem fashion. Beneath each wing went one 500 lb. bomb or up to eight rocket projectiles. The fuselage nose cap neatly hides the A.S.V. radar scanner, which is an essential part of the Brigand's Equipment.

Present Position

Changing requirements since the end of the war have affected the Brigand in two ways. First, the contract was cut back considerably when the war ended, although limited production continued. Secondly, Coastal Command no longer found any need for the Brigand T.F. Mk.1 and a Bomber Command version known as the B. Mk.1 superseded it. This is, in fact, virtually the same aeroplane, though it does not normally carry a torpedo, being used as a light attack bomber. Whereas the Coastal Command aircraft were finished in light grey on the upper surfaces and white underneath, the bomber Brigands are slate grey above and a glossy black underneath.

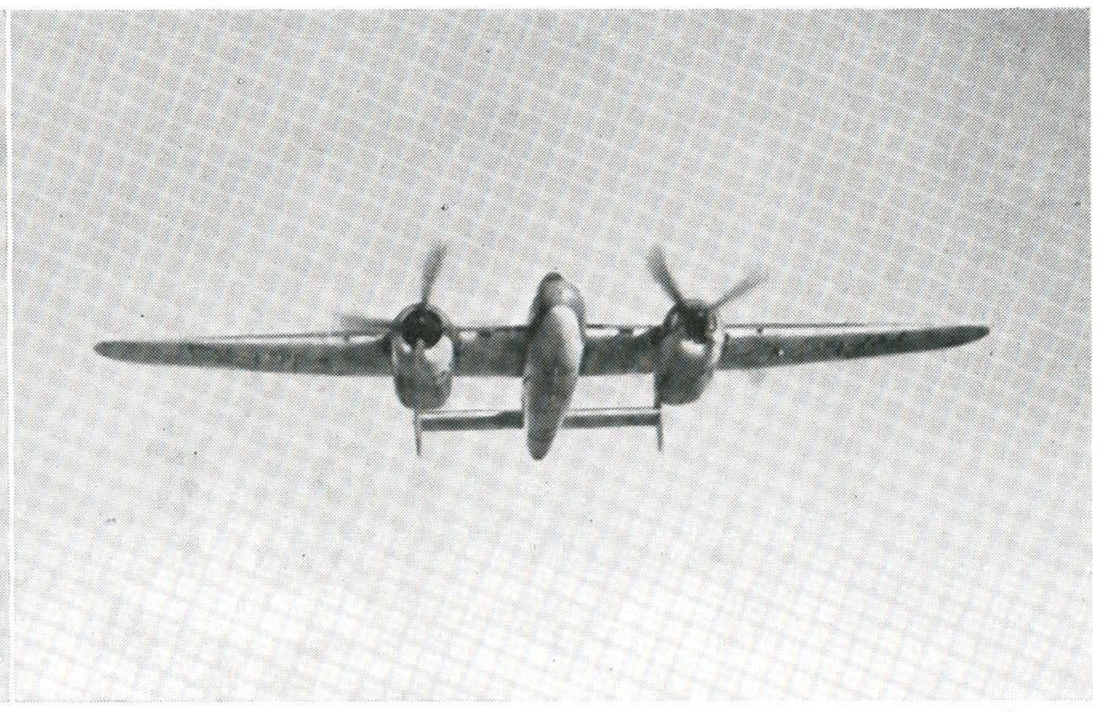
A variant of less importance, and externally similar to the B. Mk.1—even to the extent of being finished in the same colour scheme—is the Met Mk.3, used for meteorological flights. It has no armament and carries a few extra radios—but the most advanced spotter will find difficulty in distinguishing between the B. Mk.1 and Met Mk.3 in the air.

Recognitionally, the Brigand's most important feature is the tail unit—the twin large oval fins and rudders are a sure clue. Other points to note are the step down at the rear of the large cockpit enclosure, the fuselage nose in line with the spinners, the slight projection of the large engine nacelles behind the wing trailing edge, and the kink in the trailing edge near the tips, which gives the outer sections of the wing a slightly swept-back aspect.

It needs to be remembered, however, that a training version of the Buckingham is also in small scale service, and has the same tail unit and wings. The fuselage shape differs, however, and there is no step-down behind the cockpit. This aeroplane seats three and is named the Buckmaster.

Thus we come to the end of the story. The pattern of design history from Beaufighter to Brigand reads :— Beaufighter, Buckingham, Buckmaster, Brigand. The Beaufighter has outlived the Buckingham, for, as far as we know, none is now active. The Buckmaster is still flying, whilst the Brigand, in Squadron service, comes to its natural inheritance.



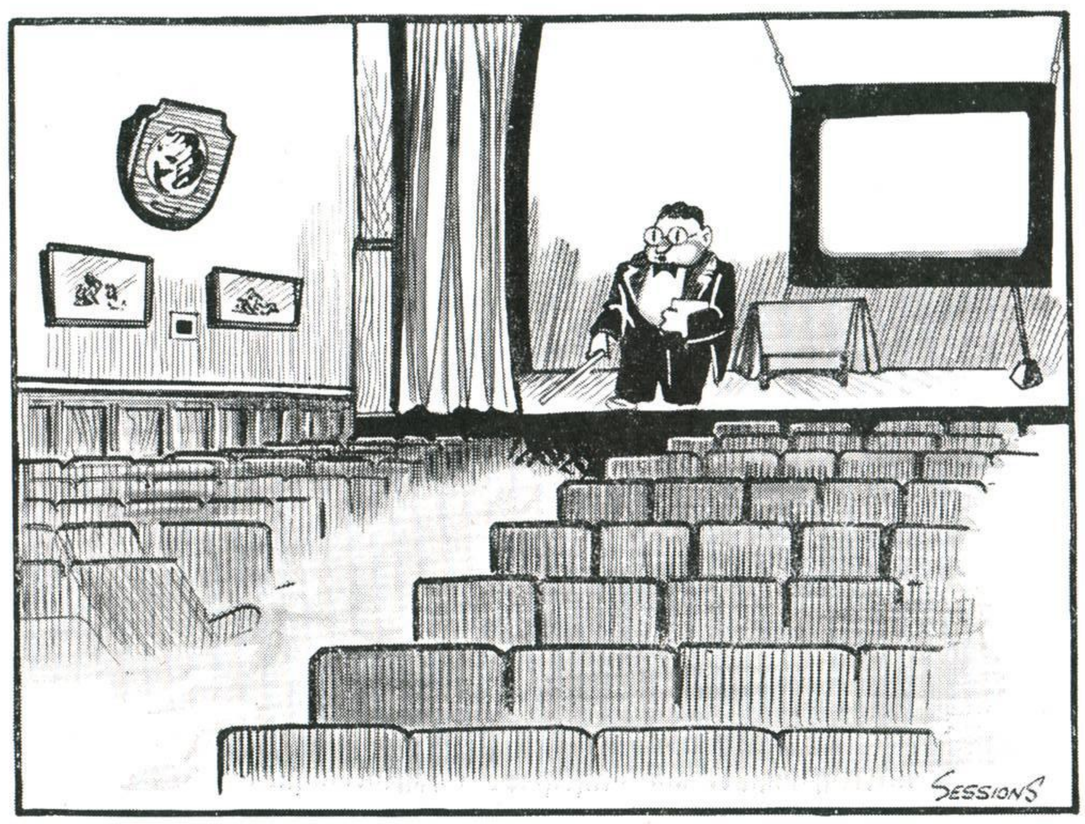


NOTES ON LECTURING—*Continued from page 13.*

Never imply, however slightly, that your audience is ignorant or inferior ; make them feel they are your equals—they probably are anyway—and they will be correspondingly gratified and attentive ; if you want bouquets, start giving them first and you may get some back ; if you have to disagree, either with a questioner or with some doctrine arising out of your talk, disagree diffidently—aggressive dissentions are not good, and may reveal a pathetic side of one's character ; and finally, never baulk at admitting you don't know something—an audience will always appreciate honest ignorance, but they will never forgive a faker.

Questions

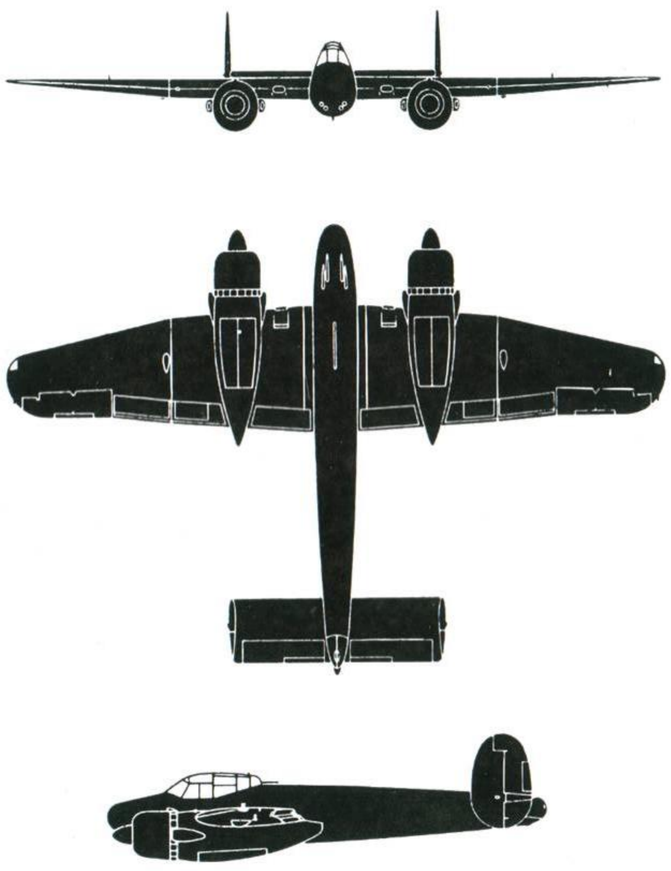
Finally, in this highly personal statement of opinion, we might think of the question period at the end of the lecture. It is, I feel, one of the most valuable parts of a lecture. When I am listening to a lecture there are always points which I am hoping the speaker will make, and which have often to be left to question time to be cleared up. If you intend to allow questions after the lecture, it is generally best to say at the start. Question time is also a first rate way of really getting to know an audience. It also shows up gaps in one's treatment of the subject, and (to me at least) often points directly to one's failure to define terms and say what is really meant. In informal discussion with your audience it becomes possible to straighten out all kinds of difficulties, and so many of these difficulties bring home to the lecturer how essential it is to be clear and definitive in speech and content. And lastly, try to get to *like* lecturing. Try to take pleasure in saying clearly and smoothly what you wish to say, and have the satisfaction of seeing that the audience appreciates it. Lecturing is, perhaps, a hard craft to learn but a most worth-while one when it is mastered.



. . . imagine the worst that can happen

SILHOUETTES — A TRIPLET OF TWINS

BRISTOL BRIGAND B.Mk.1



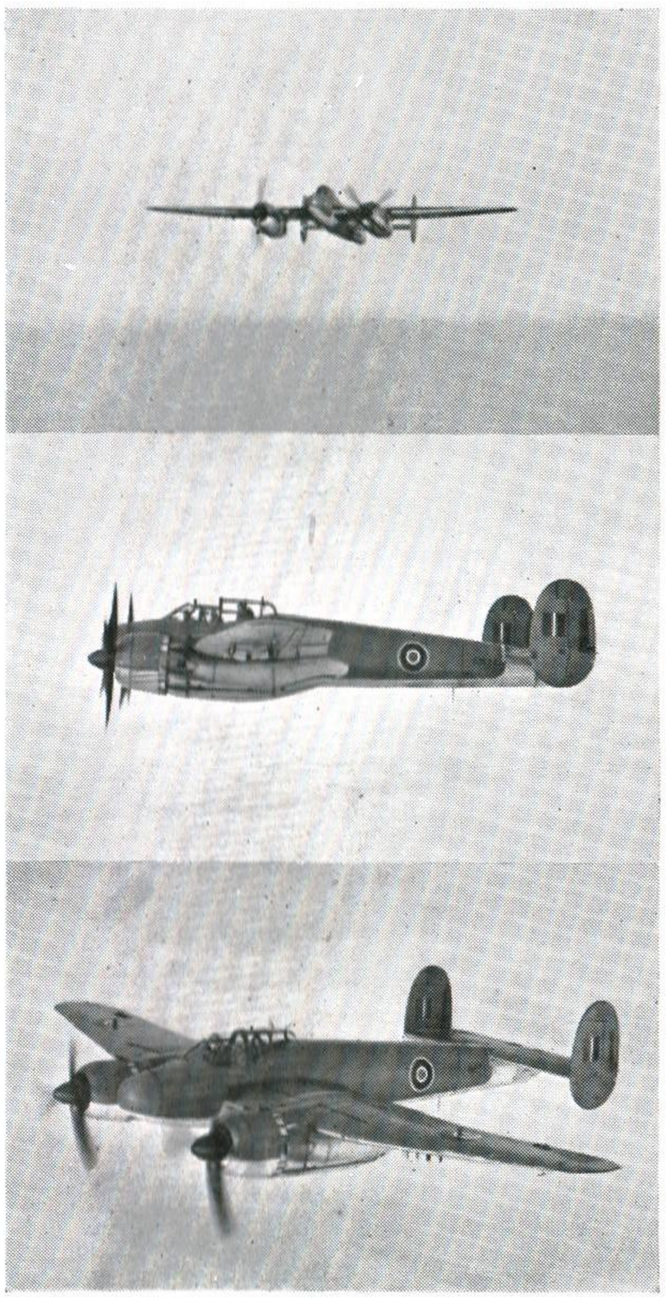
British Bomber

Engines : Two Bristol Centaurus radials

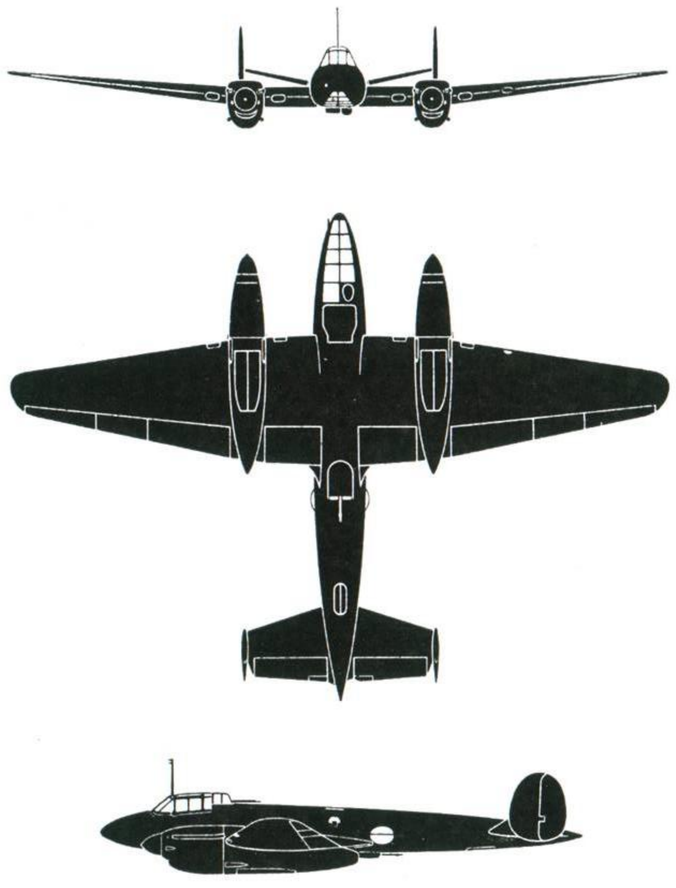
Span : 72 ft. 6 ins. Length : 46 ft. 5 ins.

Recognition Points

Wings : Mid-set and forward placed, wide centre-section, broken taper causing slightly back-swept wing extremities. **Engines :** under-slung, large radial cowlings, nacelles breaking line of trailing edge. **Fuselage :** short and narrow, stubby nose. **Tail :** Large, rectangular ; tall oval (endplate) twin fins and rudders. **Detail :** Humped cockpit canopy with rear gun position, antenna fairing on canopy roof.



PE-2 (Modified)



Russian Reconnaissance Fighter

Engines : Two M105A in-line

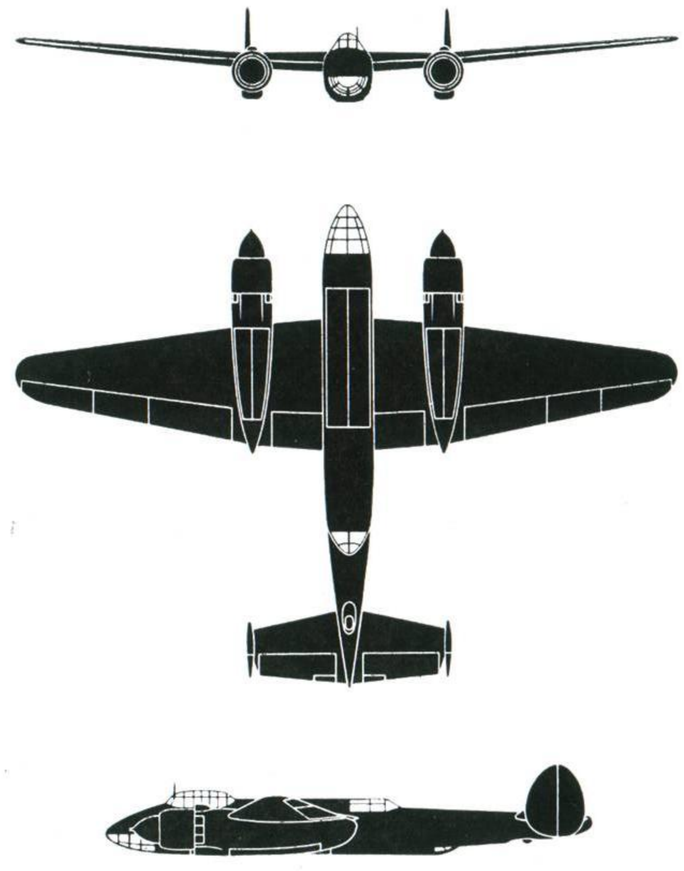
Span : 56 ft. 1 in. Length : 41 ft. 6 ins.

Recognition Points

Wings : Low-set, wide centre-section, broken equi-tapered tending to diamond shape. **Engines :** underslung, long, slender, pointed nacelles just breaking line of trailing edge. **Fuselage :** short sharp nose, shapely streamline body-form pointed at ends, cigar-form. **Tail:** short span wide chord tailplane back-tapered tending to hexagonal shape, marked dihedral; small rounded (endplate) twin fins and rudders. **Detail :** small stepped-up cockpit canopy, partly glazed nose, twin " blisters " amidships, gun position beneath fuselage.



TU-2



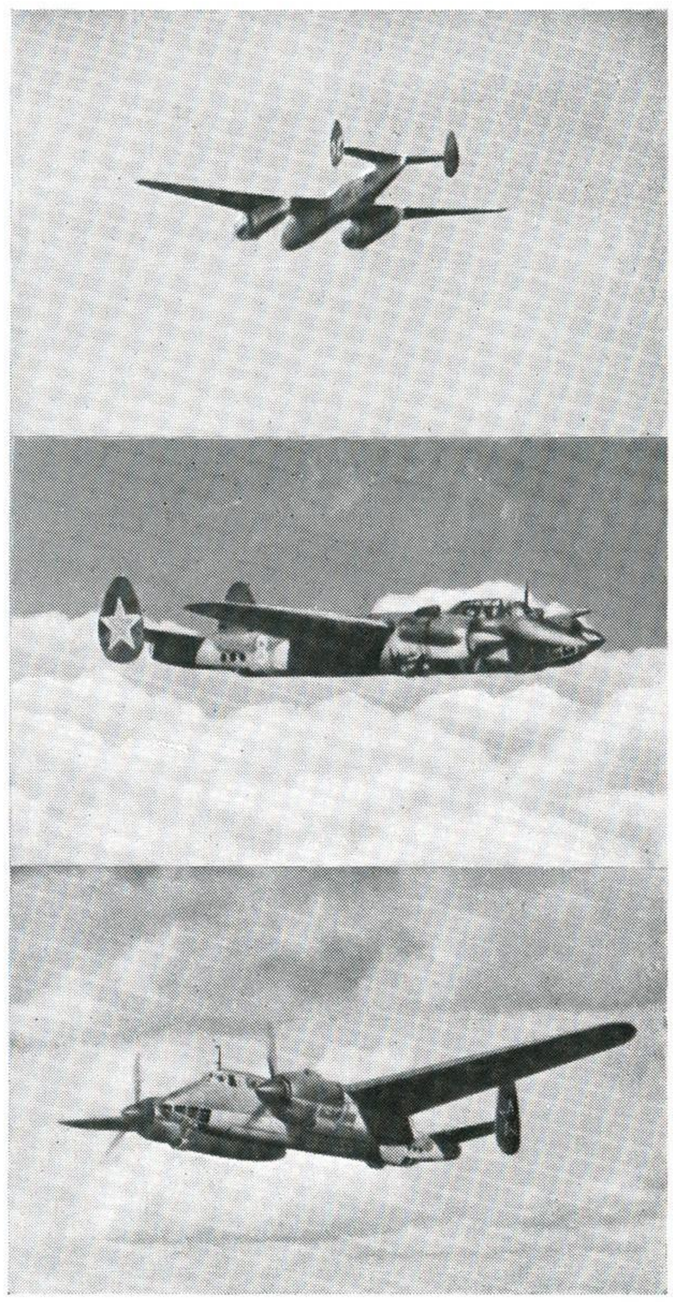
Russian Bomber

Engines : Two ASH-82 radials

Span : 60 ft. 11 ins. Length 45 ft. 3 ins.

Recognition Points

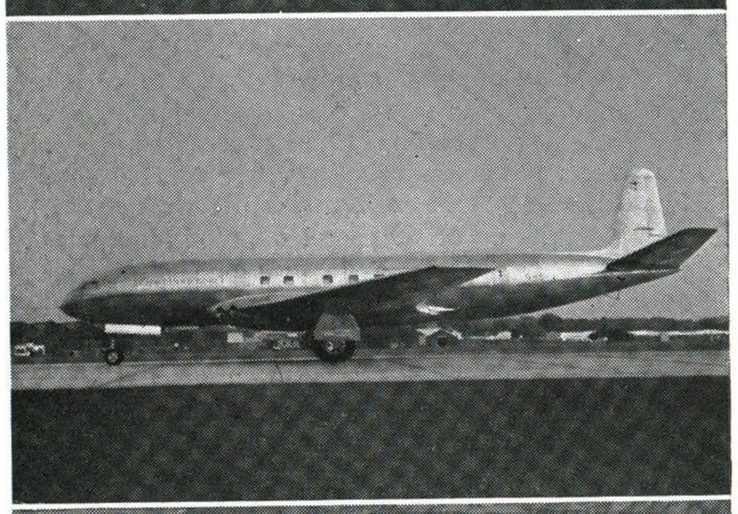
Wings : Shoulder or high mid-set, wide centre-section, equi-tapered, rounded tips. **Engines :** Underslung, large radial cowlings and spinners, nacelles just breaking line of trailing edge. **Fuselage :** wide and shallow, top and bottom lines broken by gun positions. **Tail:** wide chord, slight dihedral, back-tapered, rounded (endplate) twin fins and rudders. **Detail :** Upper and lower (stepped) gun positions aft of wing, observation window under nose.





COVER PHOTO : *The de Havilland D.H.* 106 *Comet.* This and the photographs below are some of the first pictures taken of an aeroplane which Britain—indeed the whole world—has awaited with some impatience. Her main recognition characteristics are a moderately swept wing, centre-section jet-installation, conventional tubular fuselage, a dihedral angle in the small tailplane and a very un-de Havilland fin and rudder.







SOLUTIONS TO RECOGNITION TESTS IN THIS EDITION:

SILLOGRAPHS

587. Vampire F.B. Mk.5
588. Viking 1B
589. Seafire F. Mk.17
590. Seagull Mk.1 (*P*)
591. Auster A.O.P. Mk.6
592. Sea Fury F. Mk.10
593. Wellington T. Mk.10
594. Balliol T. Mk. 1 (*P*)
595. Sea Hornet P.R. Mk.22
596. F-80A Shooting Star
597. Attacker
598. Meteor T. Mk.7
599. Proctor T. Mk.4
600. Athena T. Mk.1 (*P*)
601. Tudor 8
602. Sunderland G.R. Mk.5
603. Vampire F. Mk.3
604. Tempest F.B. Mk.6
605. P.1052 (*P*)
606. Sea Hornet N.F. Mk.21
607. B-29 Superfortress

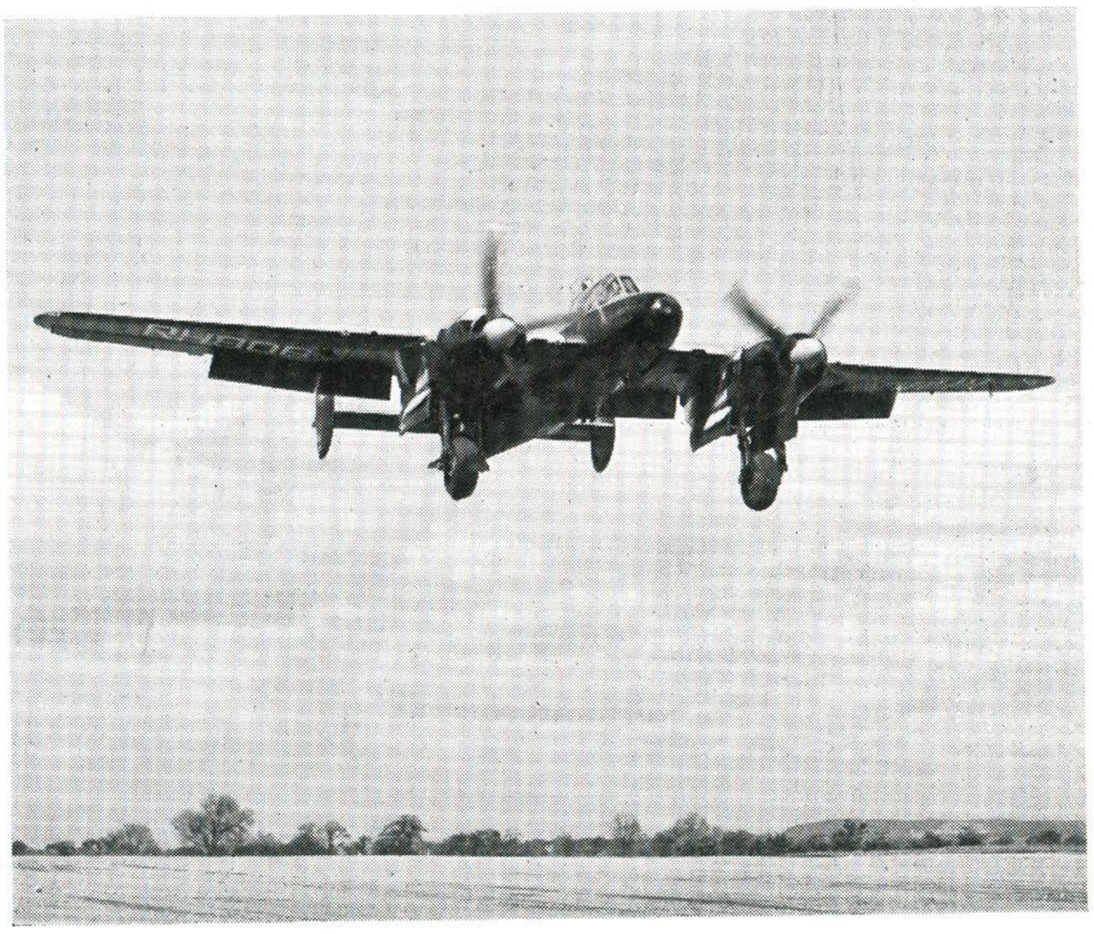
ADVANCED

802. Anson 19
803. Dove
804. Mosquito T. Mk.3
805. Buckmaster T. Mk.1
806. F6F Hellcat
807. Brigand B. Mk.1
808. Vampire F.B. Mk.5
809. Prentice T. Mk.1
810. Sea Hornet F. Mk.20
811. Hastings C. Mk.1
812. Lancaster B. Mk.7
813. Gemini
814. Stratocruiser
815. B-47 Stratojet
816. Viscount (*P*)
817. FR-1 Fireball
818. Athena T. Mk.1 (*P*)
819. Wellington T. Mk.10
820. Lancastrian
821. Meteor F. Mk.4
822. Barracuda T.R. Mk.5

(*P*) Prototype

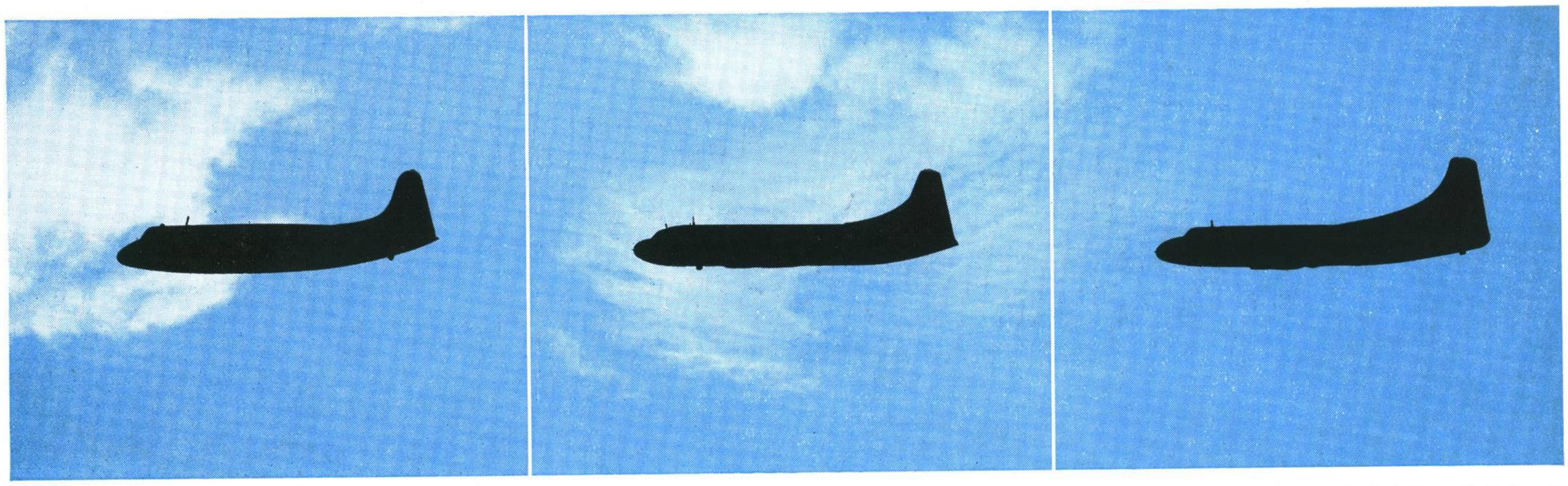
TRICKY TRIO

Left to right: Vickers Viscount ; Convair-Liner ; Martin 202.



A Bristol Brigand B. Mk.1 alighting. Wheels, wheel-doors, and flaps all fail to disguise the characteristic "set" of this pugnacious-looking bomber. (See article in this edition.)

TRICKY TRIO



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