

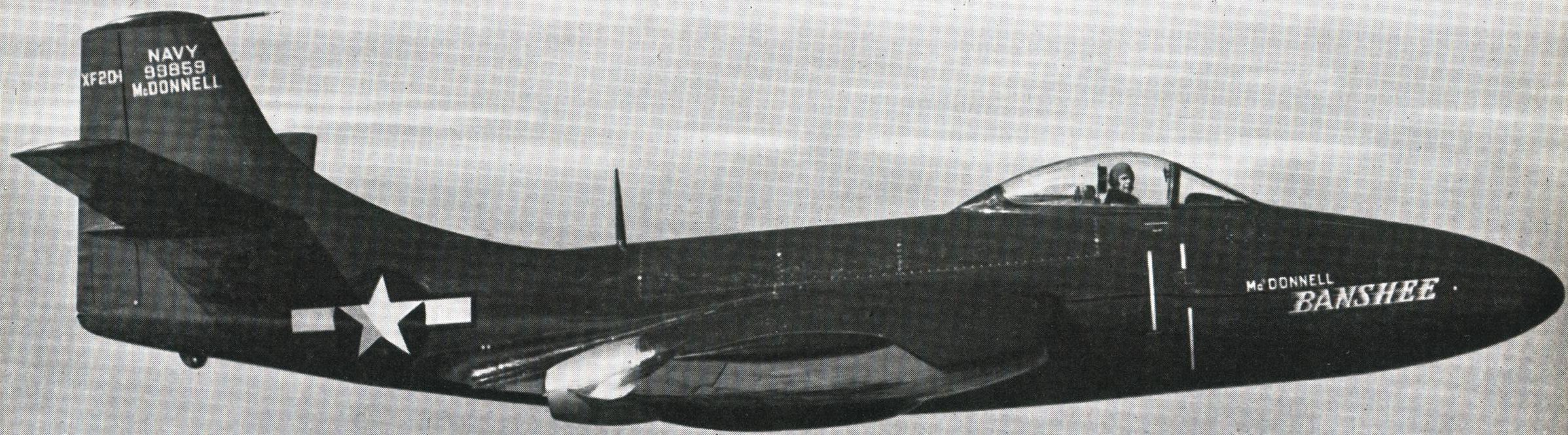
THE INTER



SERVICES

AIRCRAFT RECOGNITION

Journal

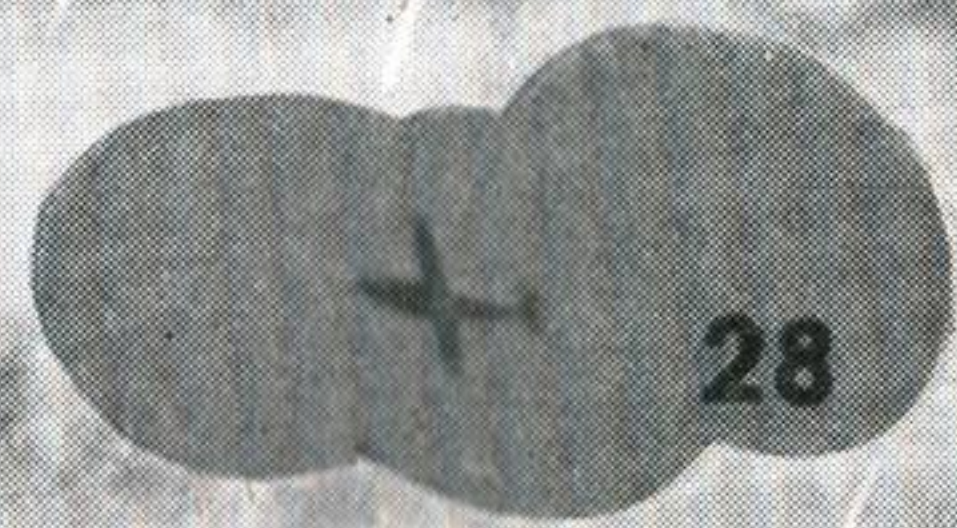
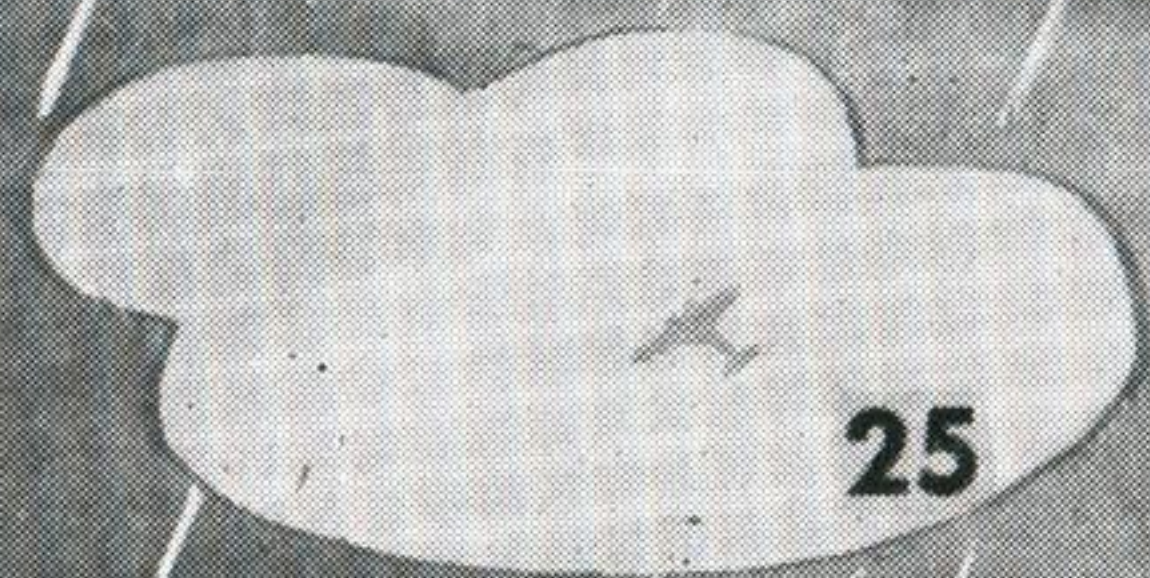
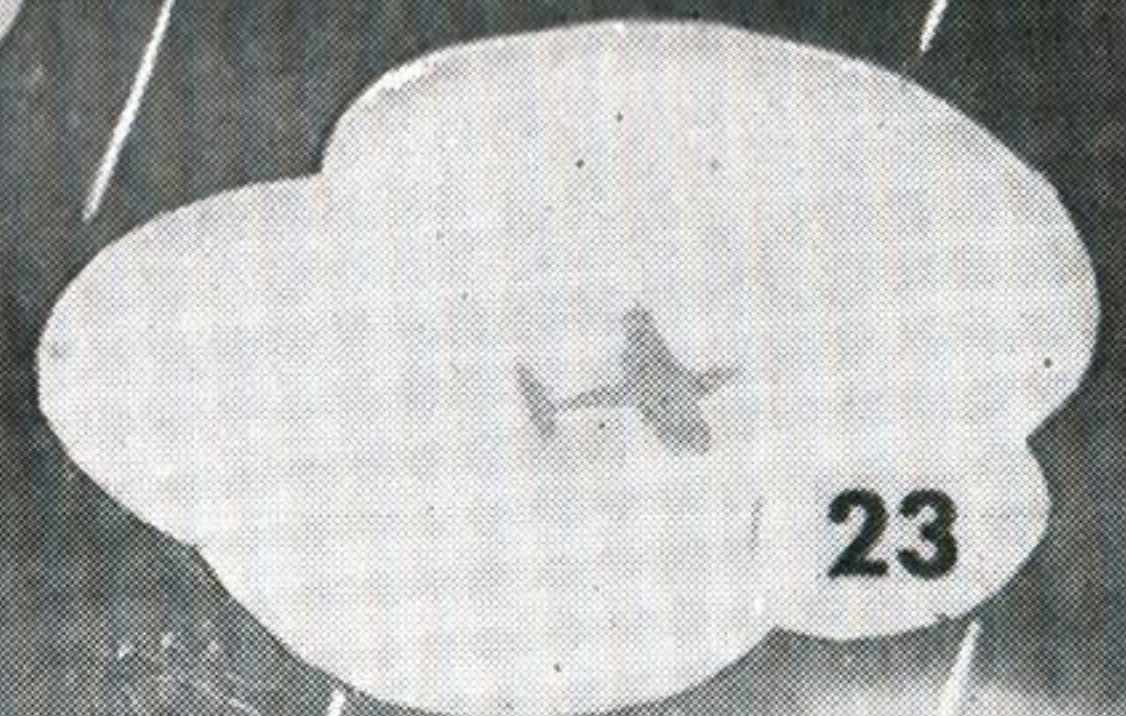
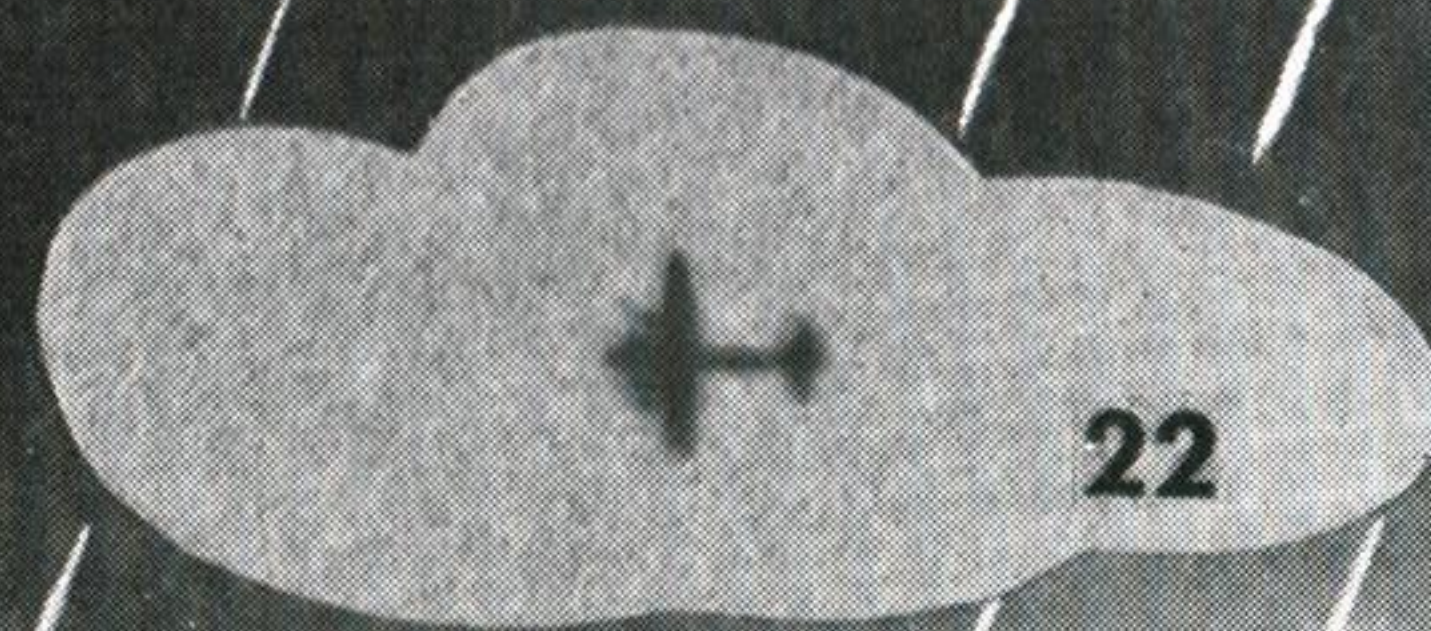
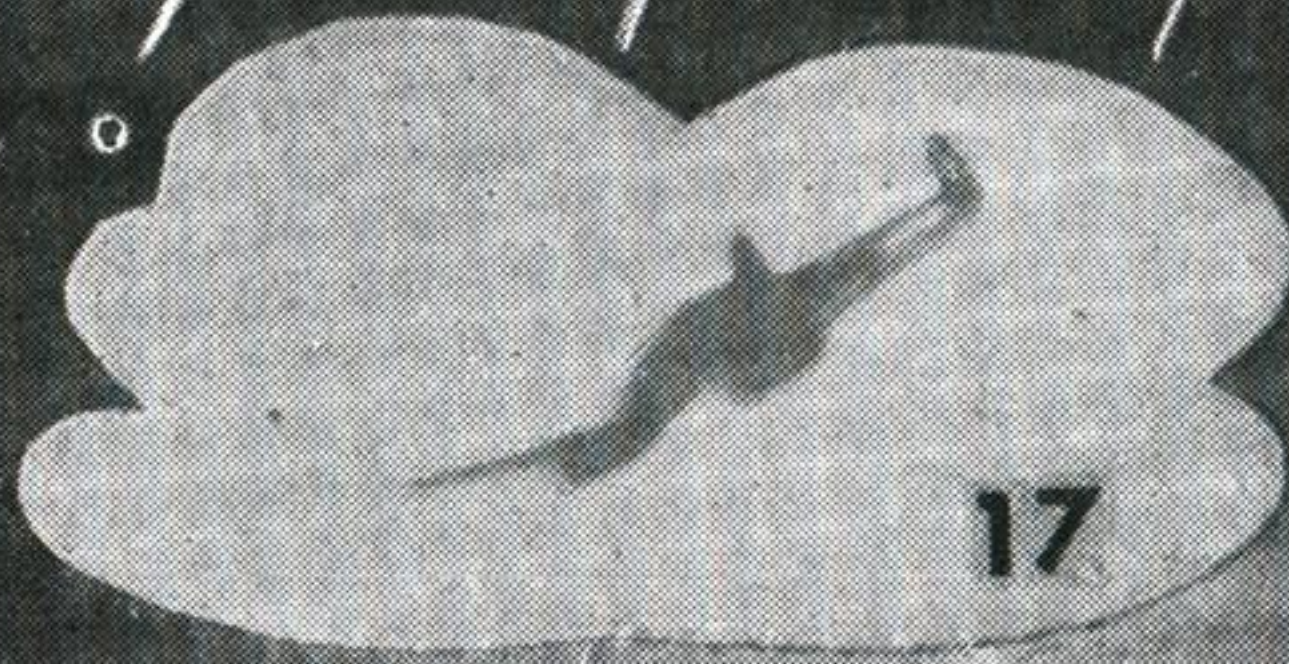
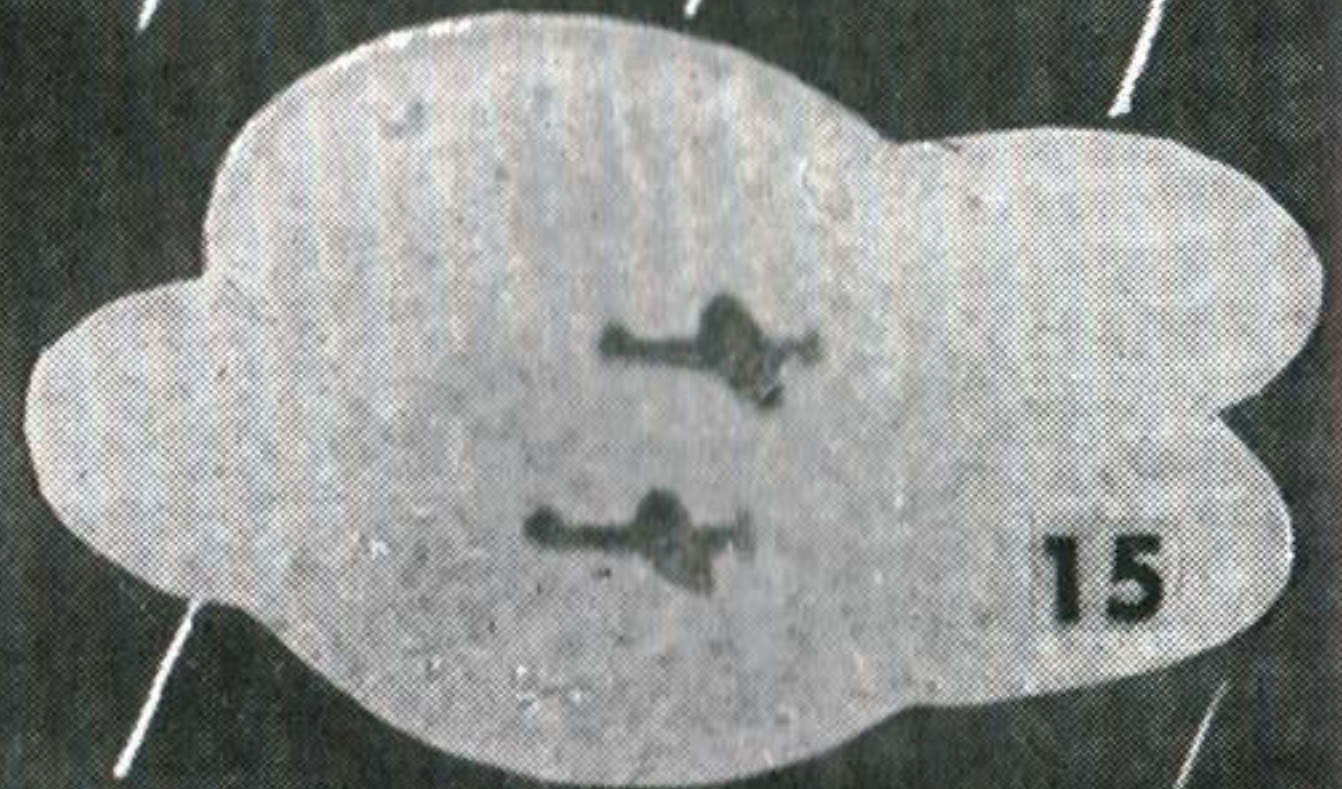
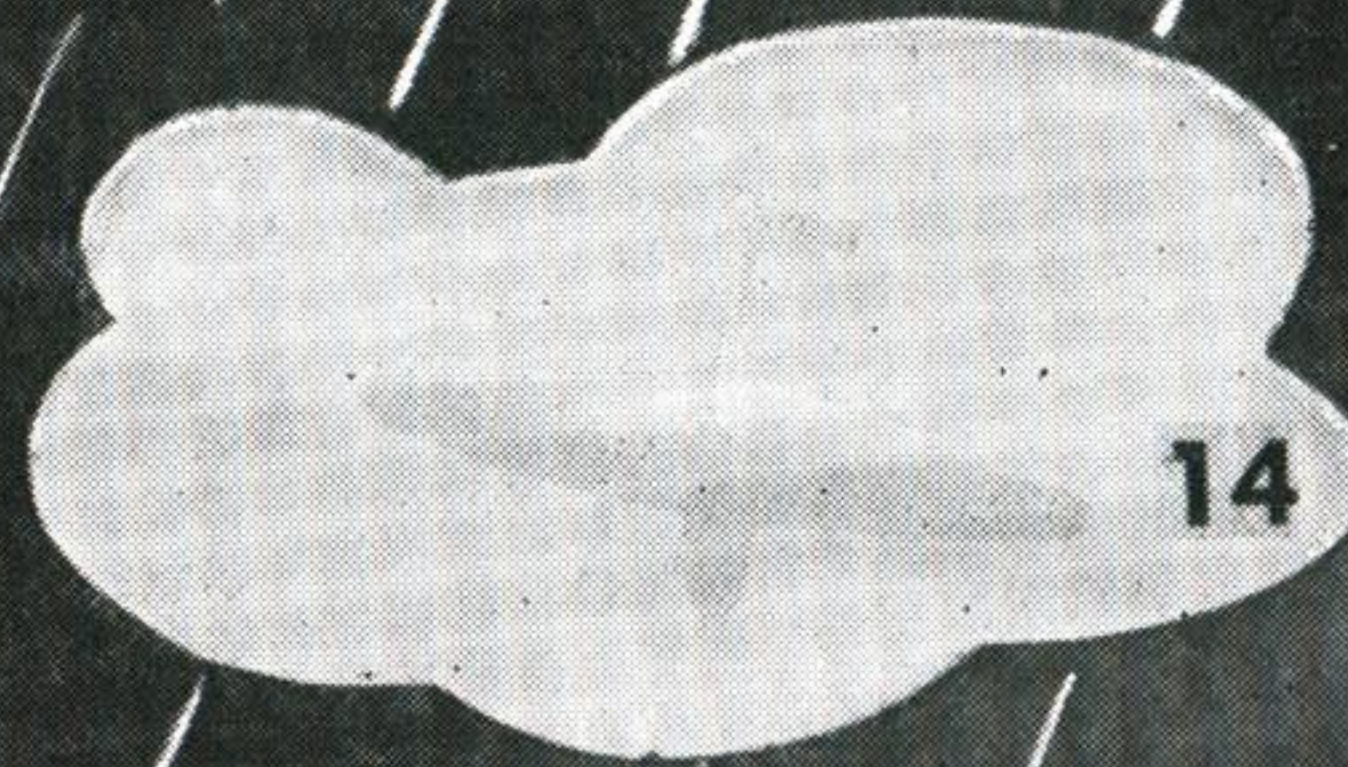
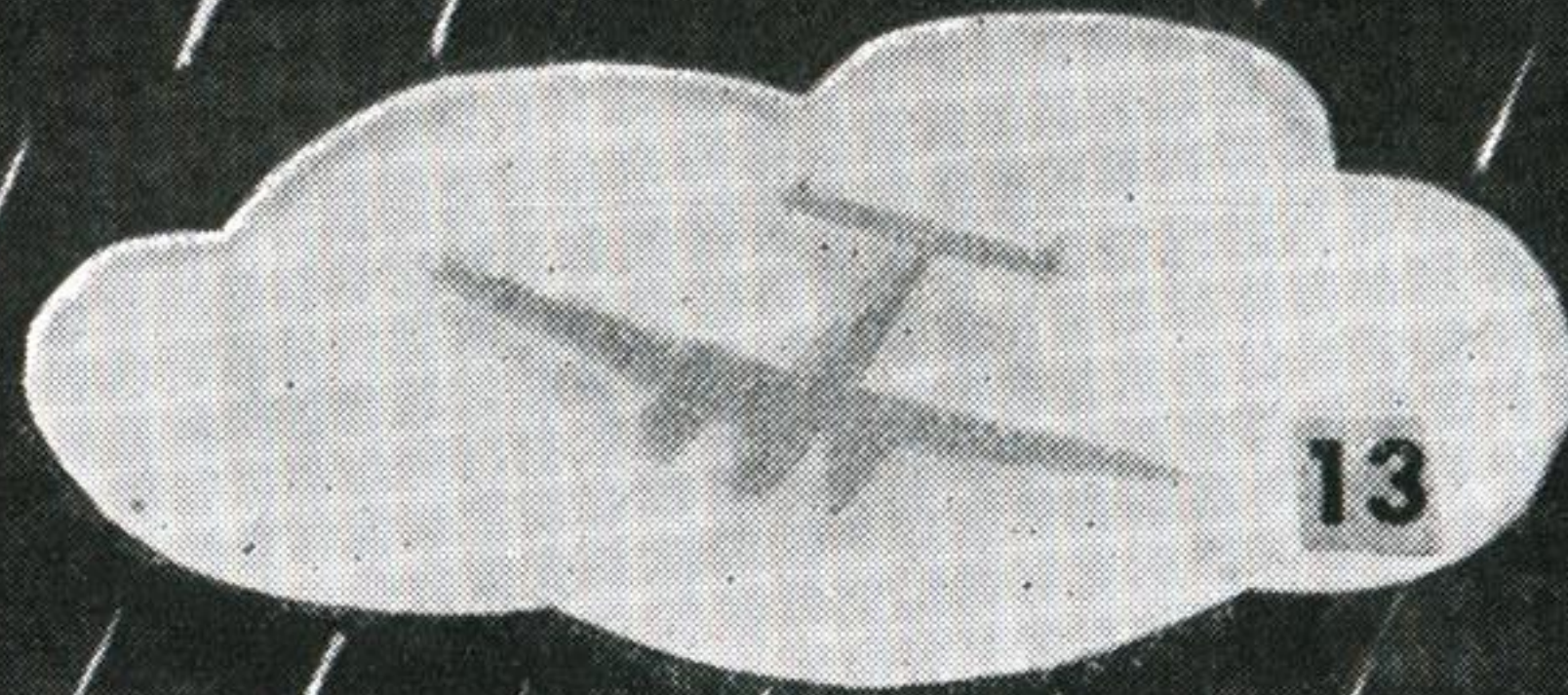
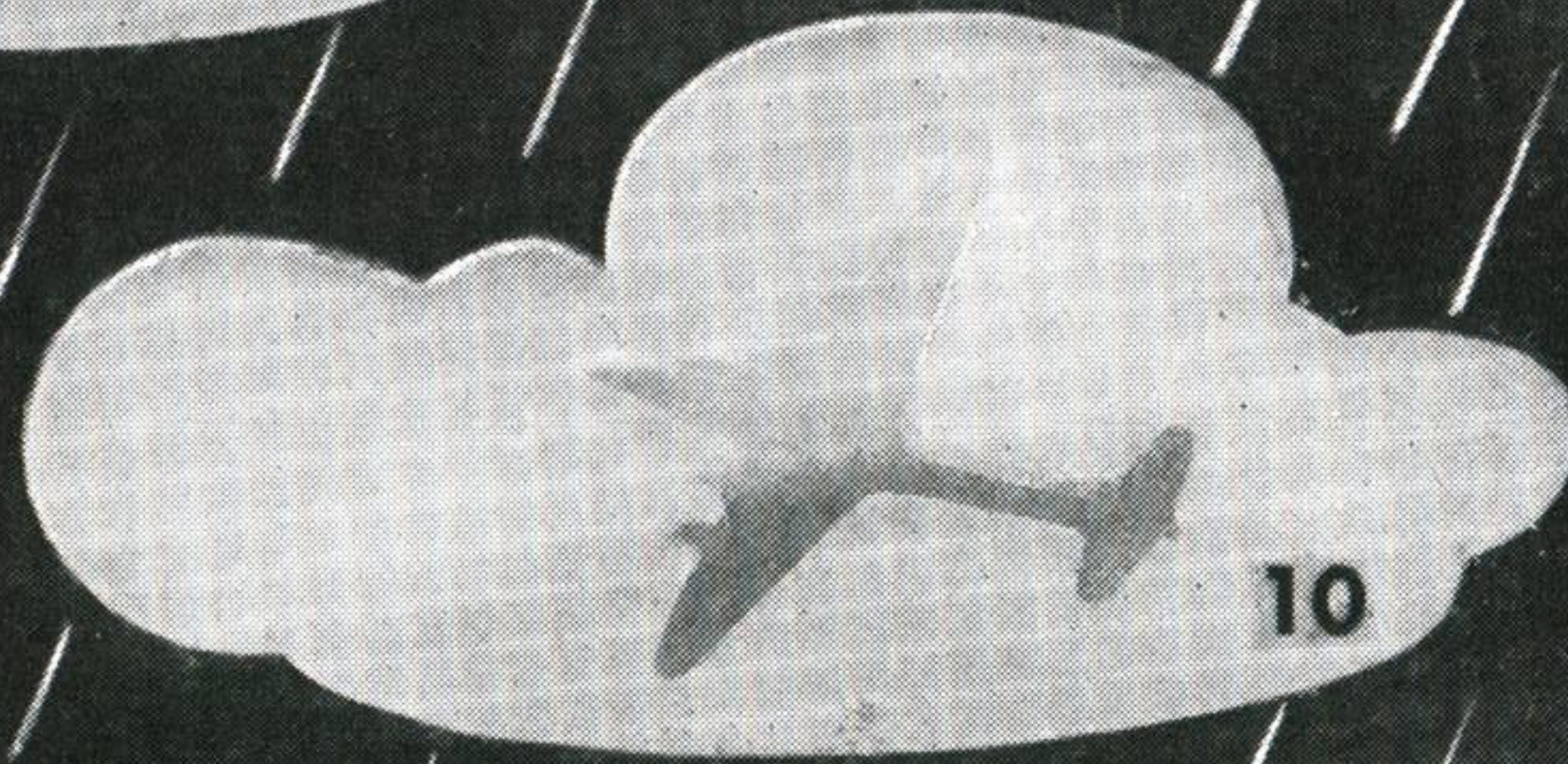
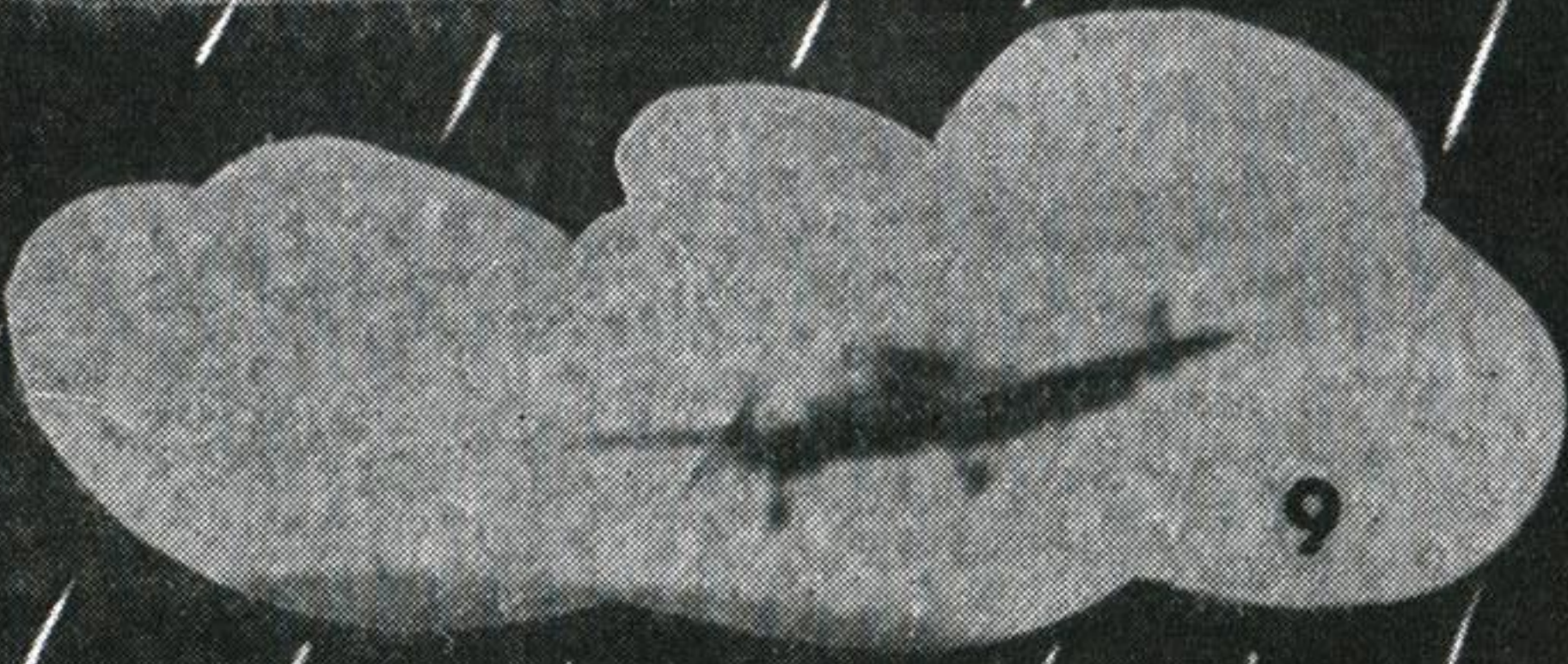
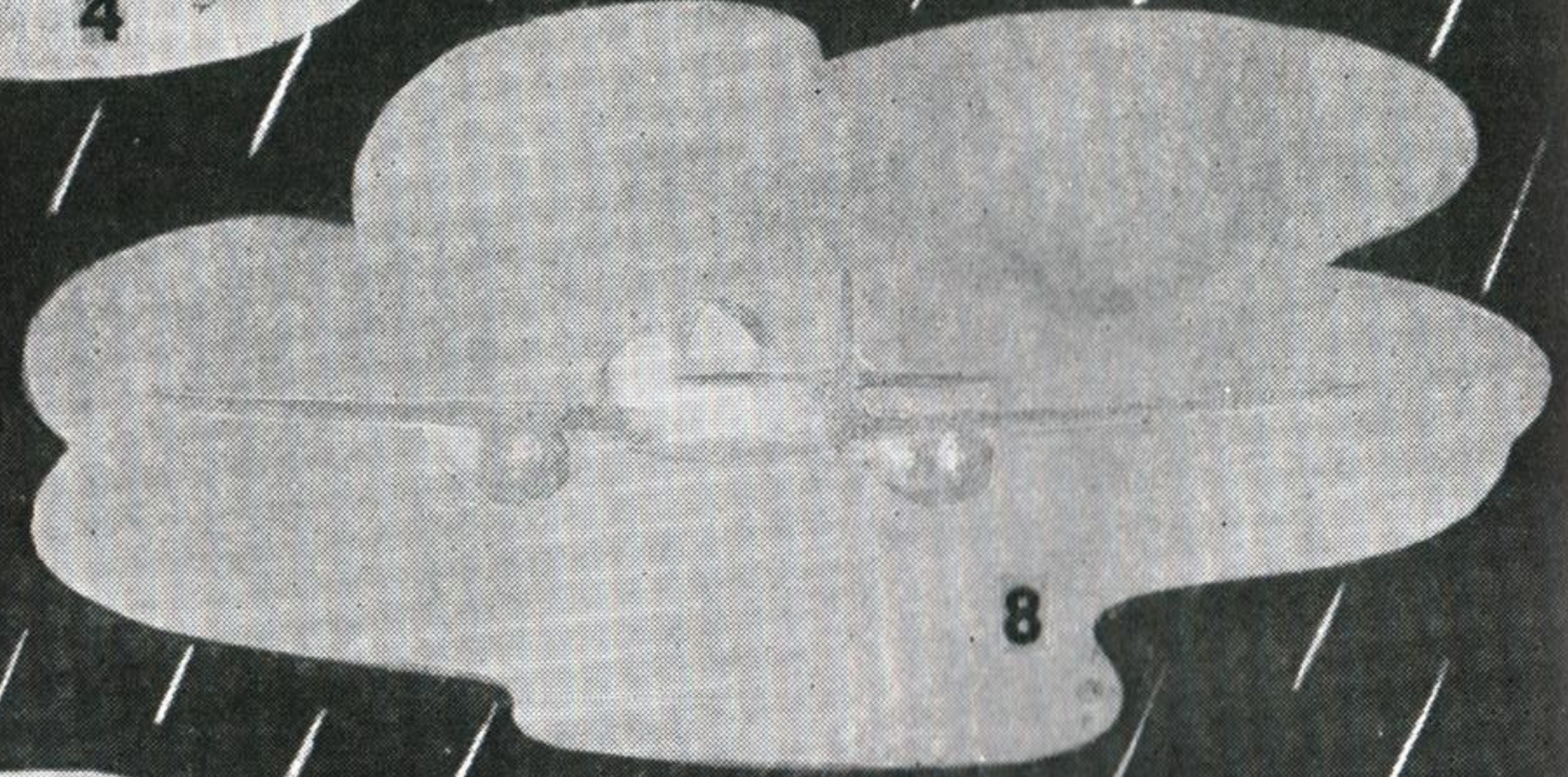
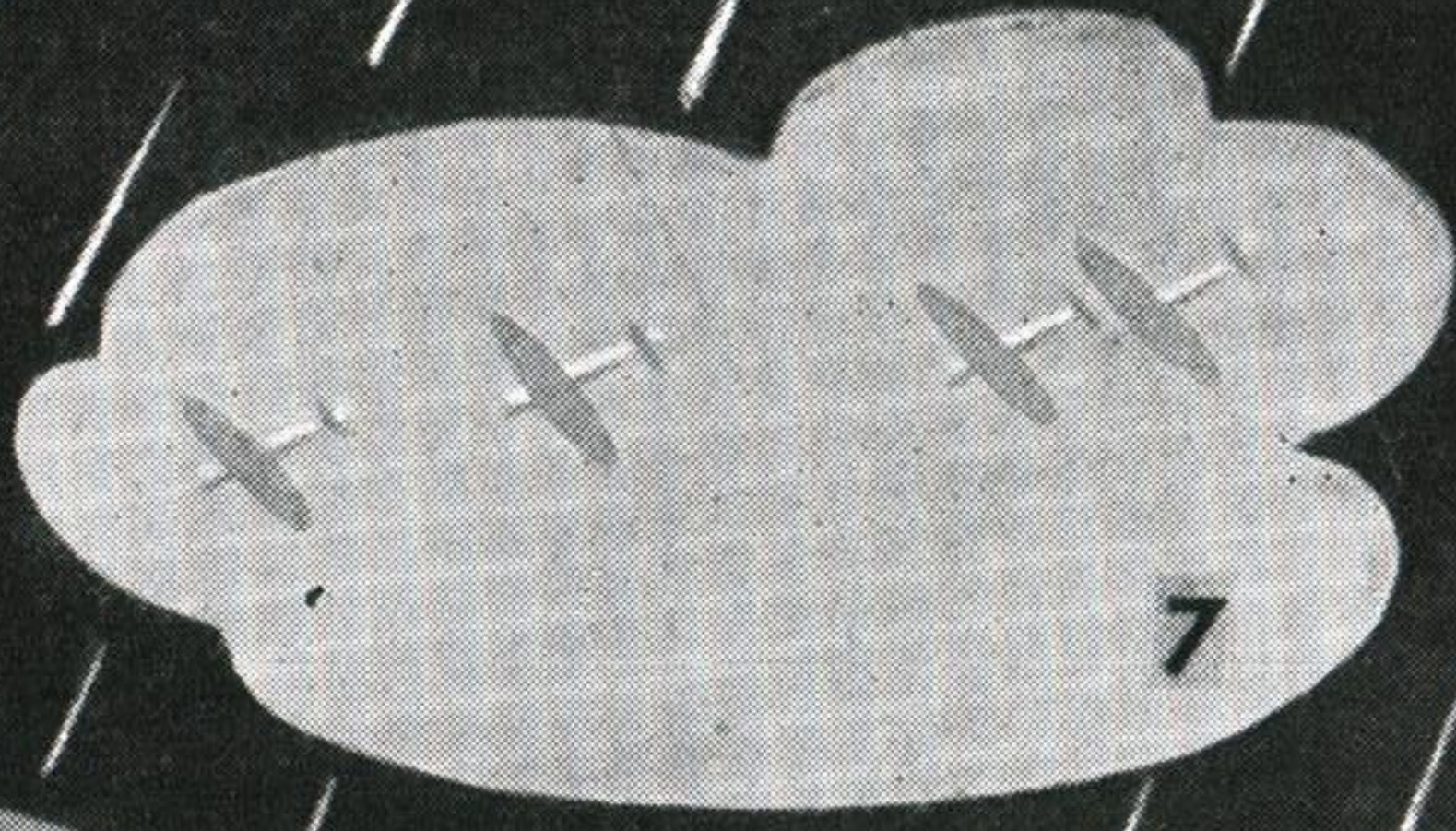
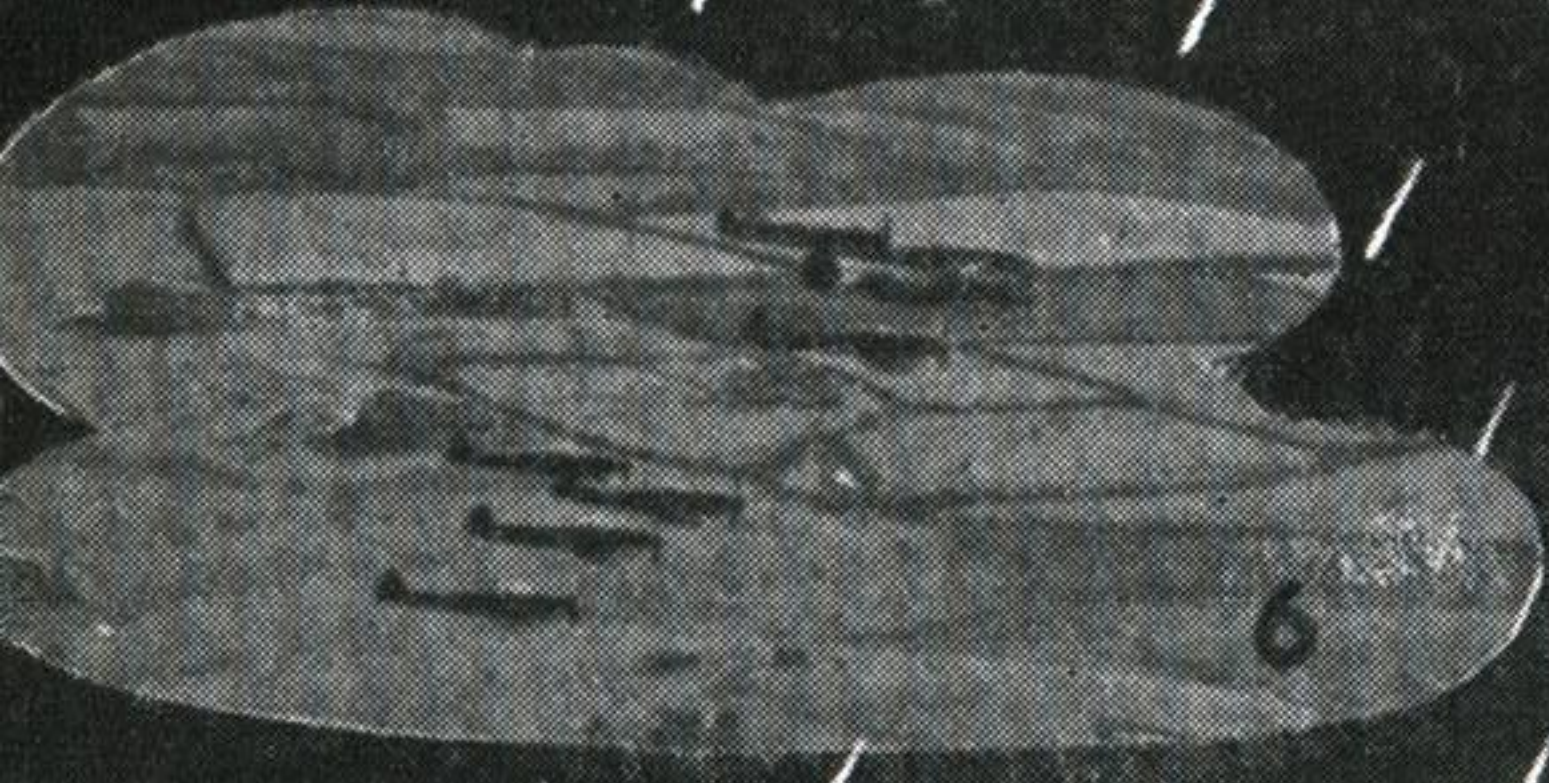
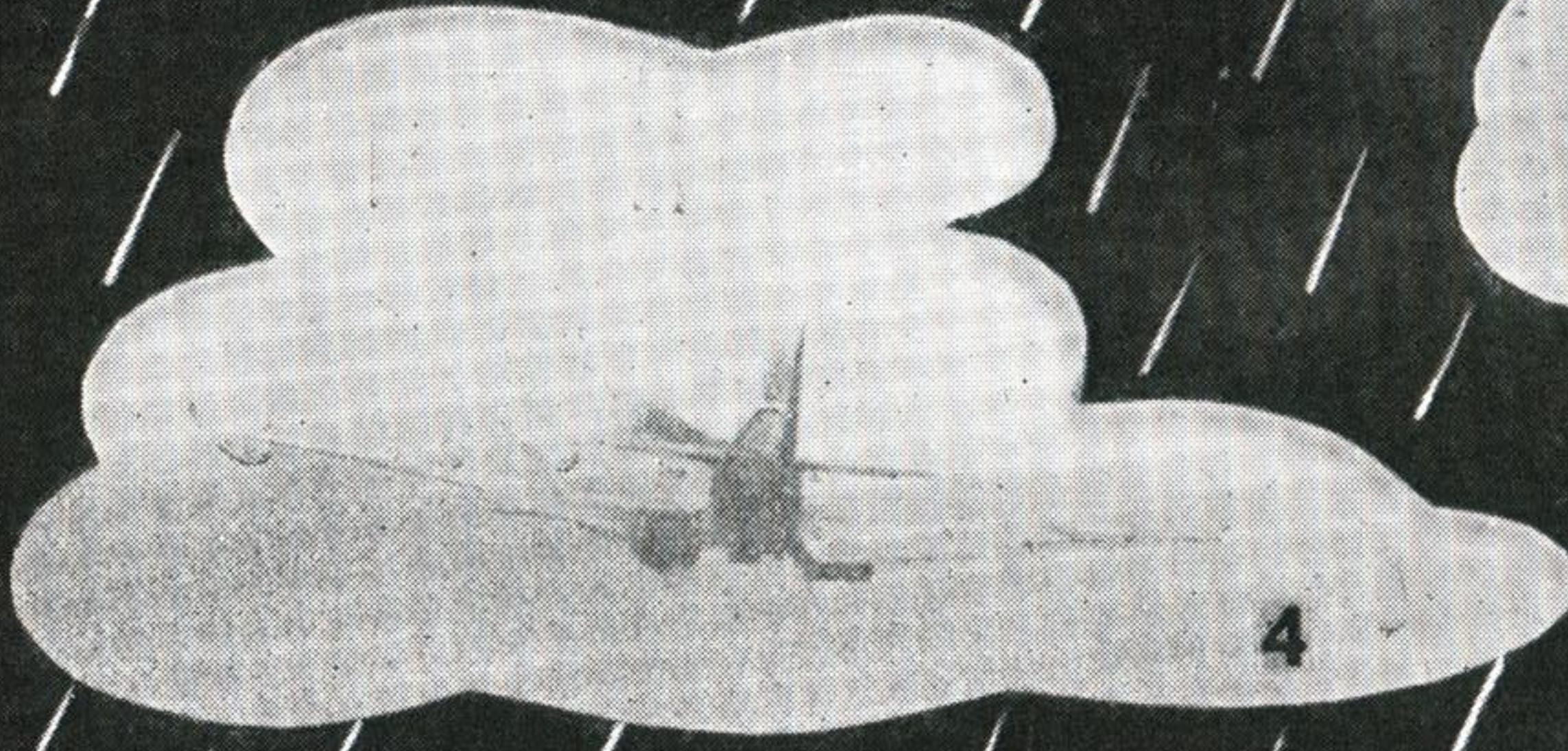
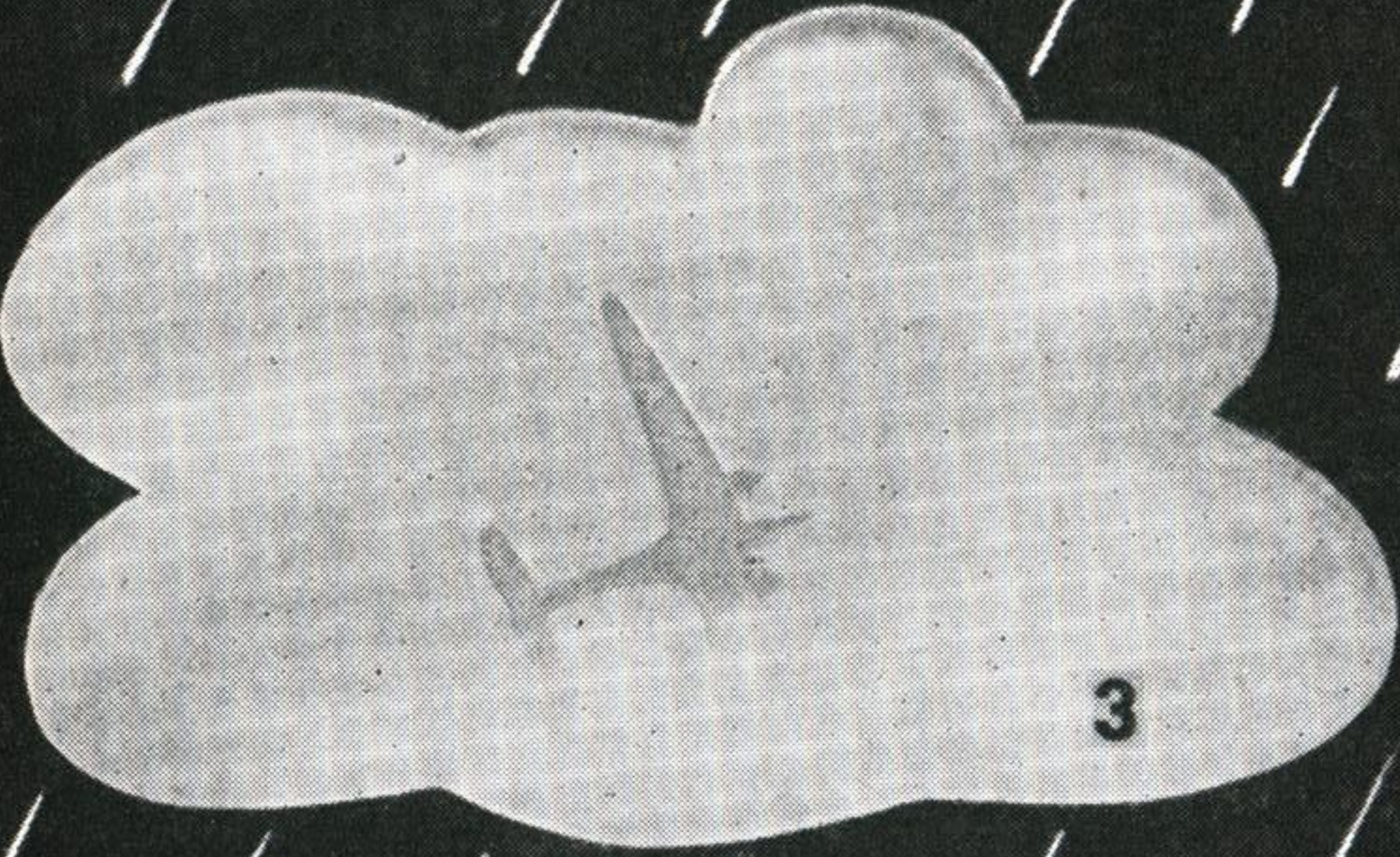
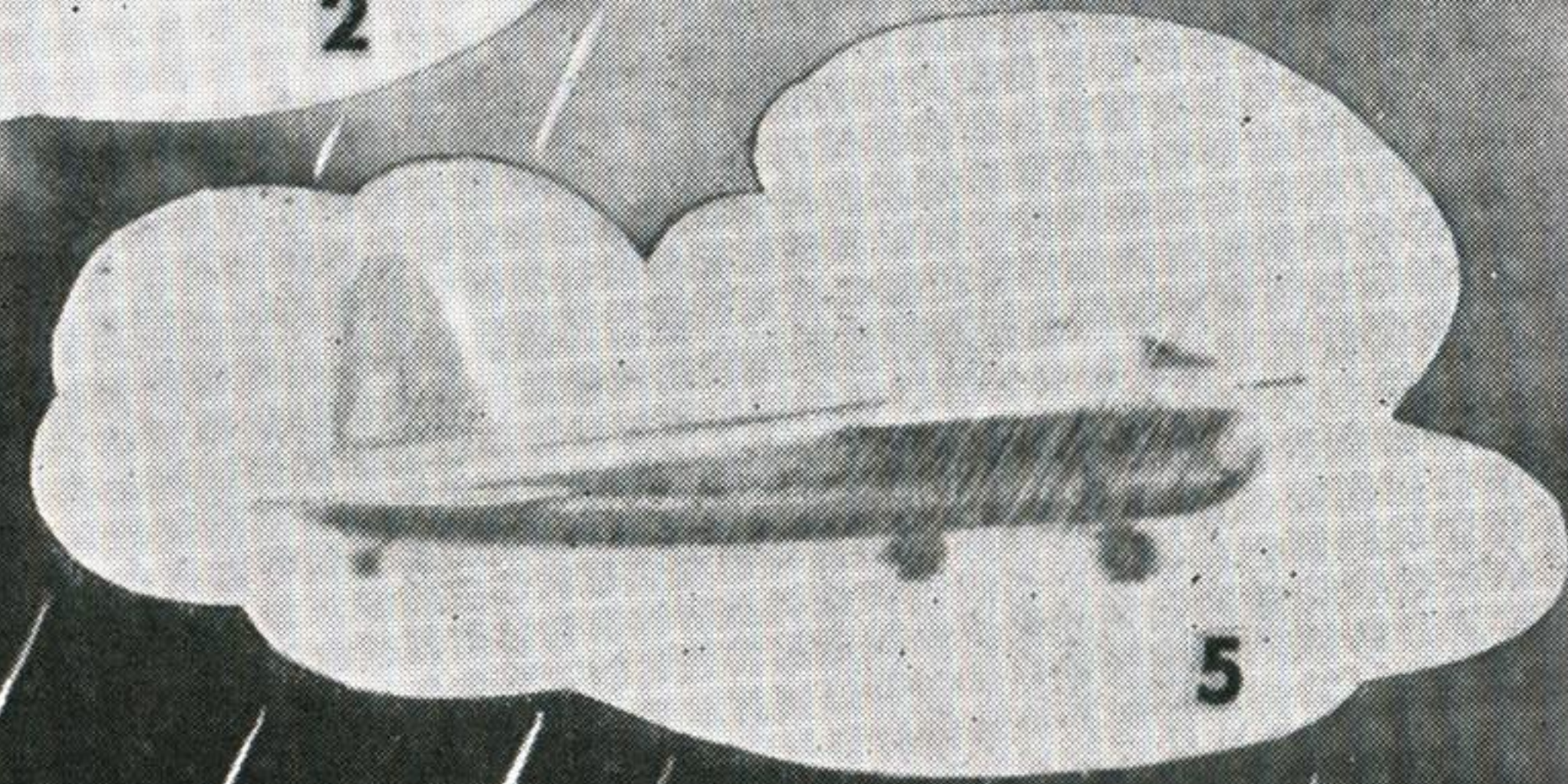
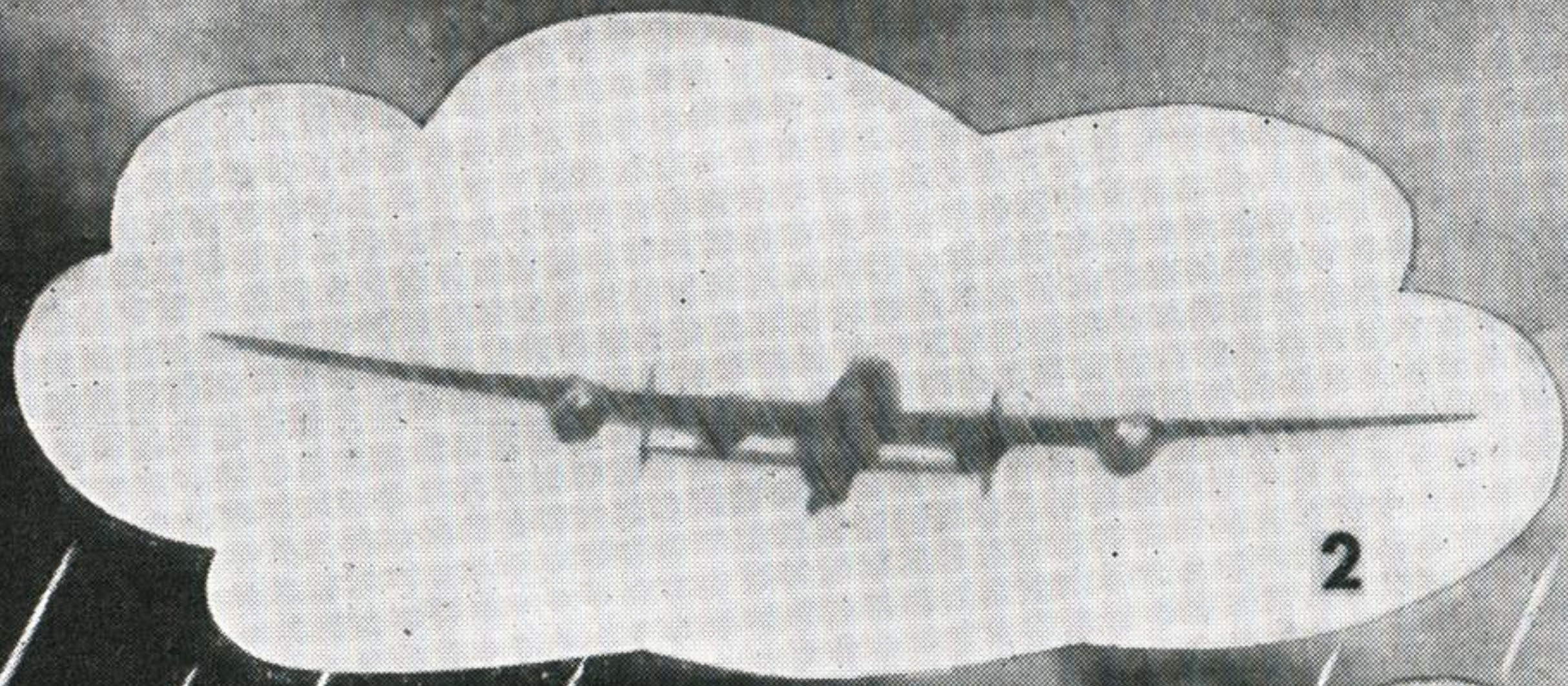
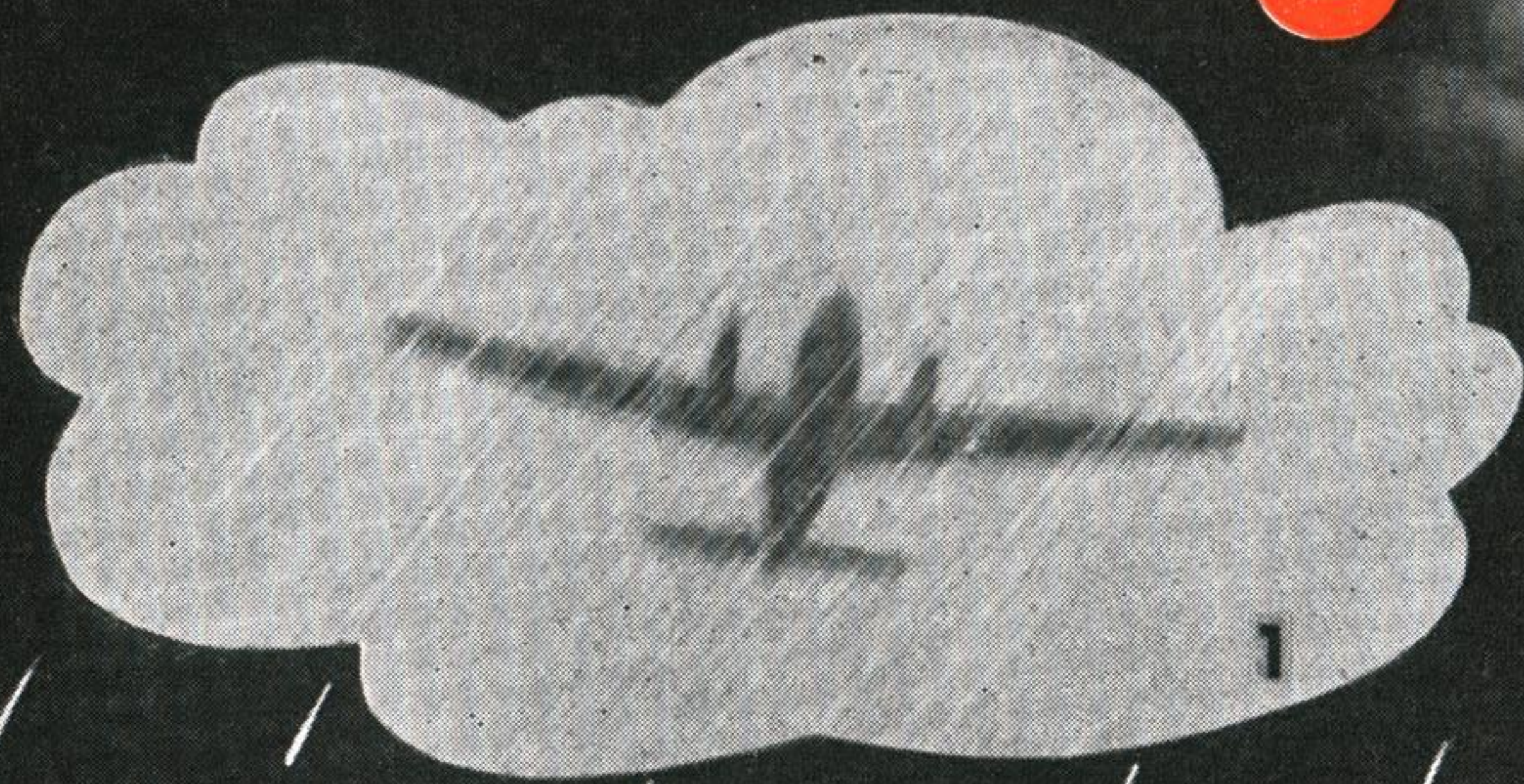


New Series

NOVEMBER 1947

Volume 2. No. 4

Taking a Dim View





THE INTER

SERVICES

AIRCRAFT RECOGNITION JOURNAL

(NEW SERIES)

Jet-Bombers

THE development of jet-bombers in the United States proceeds apace. Already they have at least half a dozen types in existence, of which one is about to go into production and others may be ready to do so. Behind the scenes there are probably more of them in project.

The Douglas XB-43 Jetmaster—a direct descendant of the XB-42 Mixmaster—was the first American jet-bomber to fly and took the air for the first time in 1946. It has two G.E. J-35 turbojets in the fuselage. Another, the North American XB-45, was America's first four-jet bomber to fly. Its maiden flight was on 18th March, this year. This one has four G.E.-Allison J-35 turbojets mounted in pairs in wing nacelles, and a top speed of over 480 m.p.h. has been mentioned in the Press. The Convair XB-46, another four-jet type fitted with J-35s, flew on 2nd April last. Press reports mention a photo/recce version of this one called the F-21. The Boeing XB-47, which has six J-35 turbojets—four in pairs in nacelles, and one on each wing tip—is credited with a speed of over 600 m.p.h. Martin has produced the XB-48, mounting six J-35 turbojets mounted in groups of three in nacelles on the wings. The Northrop XB-49, developed from the XB-35 flying wing, is nearing completion. This one is powered by eight J-35 turbojets, four inside each wing.

The U.S. Press has also mentioned a Consolidated XB-53, but no details are given. It seems reasonable to assume that there are also XB-51 and XB-52 designs somewhere around.

Some of these American X (Experimental) Bombers, the 45, 46, and 48, for example, have conventional layouts, that is, wings, fuselage and tail unit, with the turbojets hung upon the wing, in nacelles. The XB-43 is also conventional in its own way, and so is the XB-47 save for its swept surfaces. As to later ones, time alone will tell us. Exactly what form British jet-bombers may take cannot be discussed at present, but we are glad to be able to publish a few facts about their development, which is proceeding.

There are on order, for the Ministry of Supply, two types of jet-bomber. One, a medium-range type, powered by two turbojets, and a longer range type powered by four; no other technical data is yet available.

The medium-range type was ordered about two and a half years ago. The specification demanded that its speed should be approximately twice that of the Lincoln. The four-jet type—the order for which was placed about a year ago—is to be a longer range heavy bomber of a performance similar to the two-jet type.

In giving this information, the Ministry of Supply point out that further demands by the Air Staff for ever increasing performance in speed, range, and operating altitude are leading to further studies of the jet-bomber problems, and to meet these new demands it will probably be necessary to adopt some new and unorthodox wing shape. In this connection, some research work has already been completed, and upon the results so far achieved the Ministry of Supply say that it is quite probable that orders for two of these new types will shortly be placed.

Among the many problems involved in building high performance jet-bombers, say the Ministry of Supply, are those of structure strength, because, it appears, to get the required performance, the aircraft will have to be large; pressurization will be necessary so that crews can perform their duties at high altitudes; and because of high altitude and high speeds some new form of navigating will have to be adopted, probably involving the use of radar.

We shall look forward to the first flights of these British jet-bombers with the keenest anticipation and not a little impatience. The quality of our jet-fighters is renowned: there is no reason to suppose that our jet-bombers also, will be anything but second to none.

The Boeing XB-47 swept-wing six-jet-bomber on its recent first appearance. Note the new type mountings for the inner pair of jets; presumably designed to avoid interference with airflow over the wing. The thin wing seems to flex under the weight of the turbojets.



There is an infinite variety of bad weather conditions in which we may be called upon to recognize aeroplanes. We can only reproduce a few of these "duff" conditions here and then not very accurately. In these conditions, the time available to see, to sum up, and to get an answer—in other words, "to react"—to what actually does appear out of the murk, is very short. Sometimes we are presented with a "solid bulk" with no clear details and no salient features (see Nos. 1, 11 and 20); sometimes we see a very hazy outline (see Nos. 14, 23 and 28); sometimes we see only parts of the aeroplane because the rest is lost against the background (see Nos. 3, 4 and 5). If we are lucky some salient feature may give the show away (see Nos. 16 and 17). For ground to air observers aircraft sound will be most helpful, not only as an aid to positive identification, but also in "tracking" the aircraft so that it can be sighted at the earliest moment. Remember that aircraft are usually ahead of the apparent source of noise.

Whatever the conditions, however, one thing is certain, we want both a good knowledge and quick reactions. It is suggested that these pictures can be brought nearer reality by using them with an epidiascope and "flashing" them for short periods only.

We reproduce these pictures for the benefit of all who must recognize aircraft either from the ground or from the air—but in particular, we recommend Air Traffic Control staffs to "have a bash". The answers are on the back page.

Sikorsky S-51



Westland Aircraft Ltd. of Yeovil, England, are putting this helicopter into series production. The production model will be called the Westland-Sikorsky S-51. Igor Sikorsky has been actively interested in helicopters for a long time. He built his first in 1908—in Russia. He later went to the U.S.A. and designed and built a long line of very successful flying boats. In 1940, rekindling his interest in helicopters, he designed, built and himself flew, the VS-300. Since then he has progressed through the VS-317 (U.S. Army XR-4); the YR-4A; the YR-4B; the R4B, which we have in service with the Royal Navy and the Royal Air Force (Hoverfly I); to the R-5, from which design the S-51 more or less directly descends. He also has a later S-6 design, (R.A.F. Hoverfly II); and is still designing at fairly high pressure. Ungainly in appearance—but what helicopter is not—it is a very useful aircraft, as our pictures show. It is, in fact, in regular commercial service in the U.S.A. Its individual structures are well shaped and the boom fairs neatly to the cabin structure. The motor is a radial—in this model a Pratt & Whitney Wasp Junior of 450 h.p. The air intake for cooling is at the front of the pylon structure. The main rotor span is 48 ft. and the overall length of the machine plus rotor is 57 ft. Its top speed at sea-level is 103 m.p.h. This type of helicopter is classified as the type *Single Rotor with Auxiliary Tail Rotor*.





RECOGNITION AND RADLETT

On the 9th, 10th, 11th and 12th, of September this year, at Radlett aerodrome, the Society of British Aircraft Constructors held its annual flying display of the most recent types of British civil and military aircraft produced by the industry. Thousands of guests, British and Foreign, were invited to see them fly, and almost every nation was represented. In every sense of the word they came to recognize British Aircraft.

AS was to be expected the Jet aircraft stole the show, not only by their impressive turns of speed and by their majestic and spectacular climbs—they do not really climb at all, they just seem to shoot into space—but also by the beauty of their conception and form. Also impressive in their own massive way were the “big fours”, for although potential passengers may not have been very thrilled to see these large machines doing anything but straight and level flying, the experts undoubtedly were; and, anyway, it was an experts' show.

The first lesson we had was in the head-on recognition of some of these large aeroplanes. They took off and formed a circus, from which they took it in turns to beat up the place. As they came swiftly, in head-on, the Tudor, Hastings I, and Hermes II, we were again reminded that there is a world of difference between the leisurely spotting of tests printed in *The Journal* and in actual outdoor experience. One can never know too much detail of head-on aspects of types of aircraft as similar as these.

The long nose of the Hermes II (four Bristol Hercules radials), a research-only aircraft in aid of the Hermes IV, was very noticeable and quite “Tudorish”. But in the views in which this feature was clear other differences were also clear, so there should be no confusion on this point.

It was during this part of the flying that the Bristol Freighter XI E (two Bristol Hercules radials) was seen to have acquired rounded wing tips. (See photograph above.) This also applies to the later marks of Wayfarer.

The Vickers Valetta (two Bristol Hercules radials) the “troopship” version of the Viking, had one rounded and one clipped tail-plane tip (see photograph above). This was done to help overcome the icing trouble from which this aircraft has now quite recovered.

For sheer beauty of line and form, the Airspeed Ambassador (two Bristol Centaurus radials) was, in our view, far away ahead of all. Its very graceful lines were matched by a discreet and graceful flying performance. It is distinctive in many ways, partly because of its high wing layout, the widespan narrow chord wing, also its tell-tail unit with the triple fins and rudder with their characteristic sharp corners. Once we thought them ugly but they seem to grow on one.

The Percival Prentice (D.H. Gipsy Queen) has undergone some modifications in coming into service. Outstanding recognition features are the large size of the cabin—to hold three—and the cut of the tail surfaces, particularly the elevators. Incidentally, the tailplane is fitted with anti-spin fairings extending along the fuselage. The turned-up wing tips sometimes produce a very unusual effect in flight because one wing looks squared-off and the other looks rounded. We have managed to capture this point in one of the pictures above.

In watching the Fairey Firefly IV (one Rolls-Royce Griffon in-line motor) we were impressed by the complete “give-away” caused by the “deckled” leading edge of the wing. There are so many minor structures upon the leading edge of the wing, intakes, guns, tanks, radomes, etc. We caught it in the act as you will see if you look at the bottom row of pictures. Note also that this particular model had contra props. This may become standard.

The happy family of Miles aircraft was well represented by the Aerovan, Gemini, Marathon, Merchantman, Messenger and M.68. Of the tadpole-like trio, we have a special set of illustrations elsewhere in this issue. All these aircraft were in great form and were demonstrated with great zest, particularly the Messenger.

What appeared the fastest machine of all was the Vickers Attacker. (See centre spread for Sea Attacker.) We were assured that the Attacker is slower than the Meteor and the Vampire, but to us it looked faster than either of them; perhaps because of its very clean, lean and streamlined body-form.

Of all the jet aircraft present, the most delightful to look at in our humble opinion, was the swept-wing D.H. 108 (one D.H. Goblin turbojet). Darting across the airfield at high speed just about knee-high, it swept round and into the sky and was flying inverted at several thousand feet in almost less time than it takes to write about it. To sit behind its windscreen and see alternate views of Heaven and Earth in such rapid succession must be an inspiration, if nothing else, to its pilot. The D.H. 108 is a research aircraft for the D.H. 106 transatlantic type (see photo bottom row).

Westlands displayed the Wyvern (one Rolls-Royce Eagle in-line engine). A good, sturdy-looking easily distinguished aeroplane. It has a near-elliptical wing slightly cranked; a short humped fuselage, the pilot sitting well forward; a wide span tail and a very long nose exaggerated by the big spinner and contra-props. The sloping top line of the motor gives the machine a “down in the mouth” look. If you look closely at our picture you will probably be able to get this impression. You will notice we have caught it with its flaps down.

Flown in a very dashing manner was the Boulton Paul P.108 high-speed three-seat trainer (one Bristol Mercury). The Mercury is a temporary power plant in the P.108; a prop-jet is to be fitted later and the aircraft will then be known as the Balliol. It has square-cut wing and tail surfaces and the fin and rudder are ahead of the tailplane. The rear fuselage is a cone, the tip of which turns up slightly. It has rather severe lines generally, but looks well all the same.

Humps are now all the rage in naval aircraft. They make for good forward view. The Blackburn S.28/43 Firecrest (one Bristol Centaurus radial) dive bomber-torpedo carrier, has the pilot situated on a small hillock just over the wing. Together with the cranked wing which has a back-swept leading edge, this aeroplane is quite distinctive even at fair distances. Note the characteristic tail unit in the photograph at the bottom of the page.

Surrounding the De Havilland stand at the exhibition were models of some of the De Havilland types of aircraft built since 1915. There were about 30 in all, and all but two had the same basic characteristic fin and rudder shape. The two exceptions were the Flamingo and the Vampire I. The Flamingo's fins and rudders were practically oval and were not, therefore, very far removed from the basic shape. The Vampire III is now up and about, and sports the true D.H. fins and rudders. Pictures later on.

You can get many miles into 30 inches. At the Gloster stand, we saw a model of a modified Mk. IV Meteor. It has a lengthened nose in which the “miles” can be carried in the shape of extra fuel. It also has two wing-drop tanks. Apart from the lengthening of the nose, this Meteor was exactly like the current Mk. IV. We had hopes of seeing the new Gloster fighter or, at least, a model of it, but all we saw, when we enquired, was the bland smile of Squadron Leader Waterton, the Gloster test pilot.

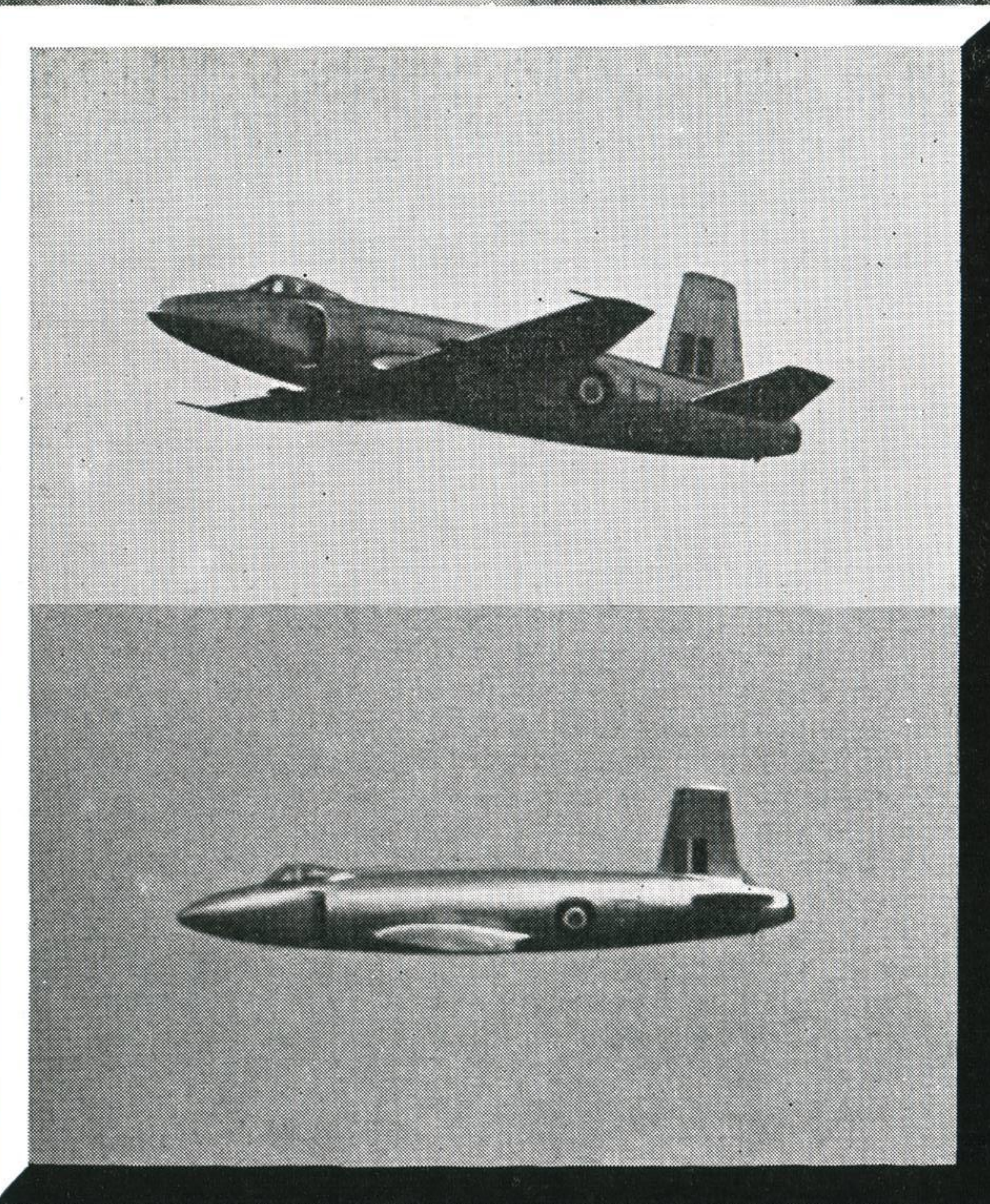
At Hawker's stand we did see a model of the new Hawker jet N7/46—and we hope to be able to publish photographs of it later on. Also on view was a model of a two-seat version of the Fury, which aircraft we were given to understand, was now in production.

There were many other interesting models there, among them were those of the Tudor VIII (4 Nene Turbojets in pairs); the Saunders-Roe SR.45 (10 Bristol Proteus airscrew turbines); the Short Sealand amphibian (2 Gipsy Queens) which will very shortly make its first flight; the Vickers Viscount (power plant at present unspecified though airscrew turbines are almost certain); and the Bristol 167 Brabazon (4 pairs Bristol Proteus airscrew turbines). Of all these, and of others, we shall shortly publish photographs and further information.

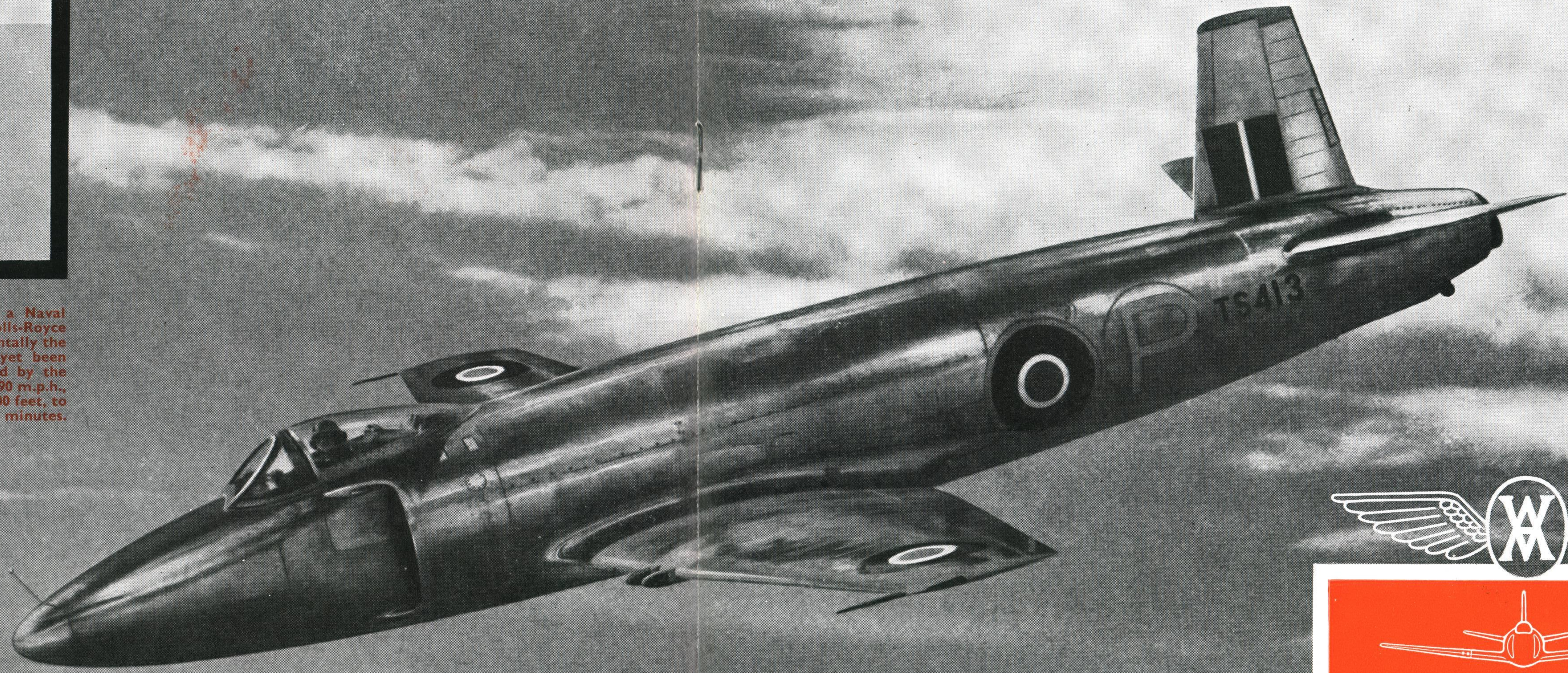
(To be concluded)

Photos—(top row): Ambassador, Valetta, Hastings C. Mk. 1, Prentice, Freighter XI. (Bottom row): D.H. 108, Firefly IV, Wyvern. P.108. Firecrest. (Background): Hermes II.





The Vickers Armstrongs E1/45 Sea Attacker, a Naval version of the E10/44 Attacker, is powered by a Rolls-Royce Nene Turbojet of 5,000 lbs. static thrust. (Incidentally the names Attacker and Sea Attacker have not yet been officially adopted.) Performance figures issued by the constructors indicate that the Attacker can do 590 m.p.h., in level flight, at sea level, and 538 m.p.h. at 30,000 feet, to which height it can climb in just under 6½ minutes.



The SEA ATTACKER



Span 36 ft. 11 ins. Length 37 ft. 6 ins.



Aerovanity

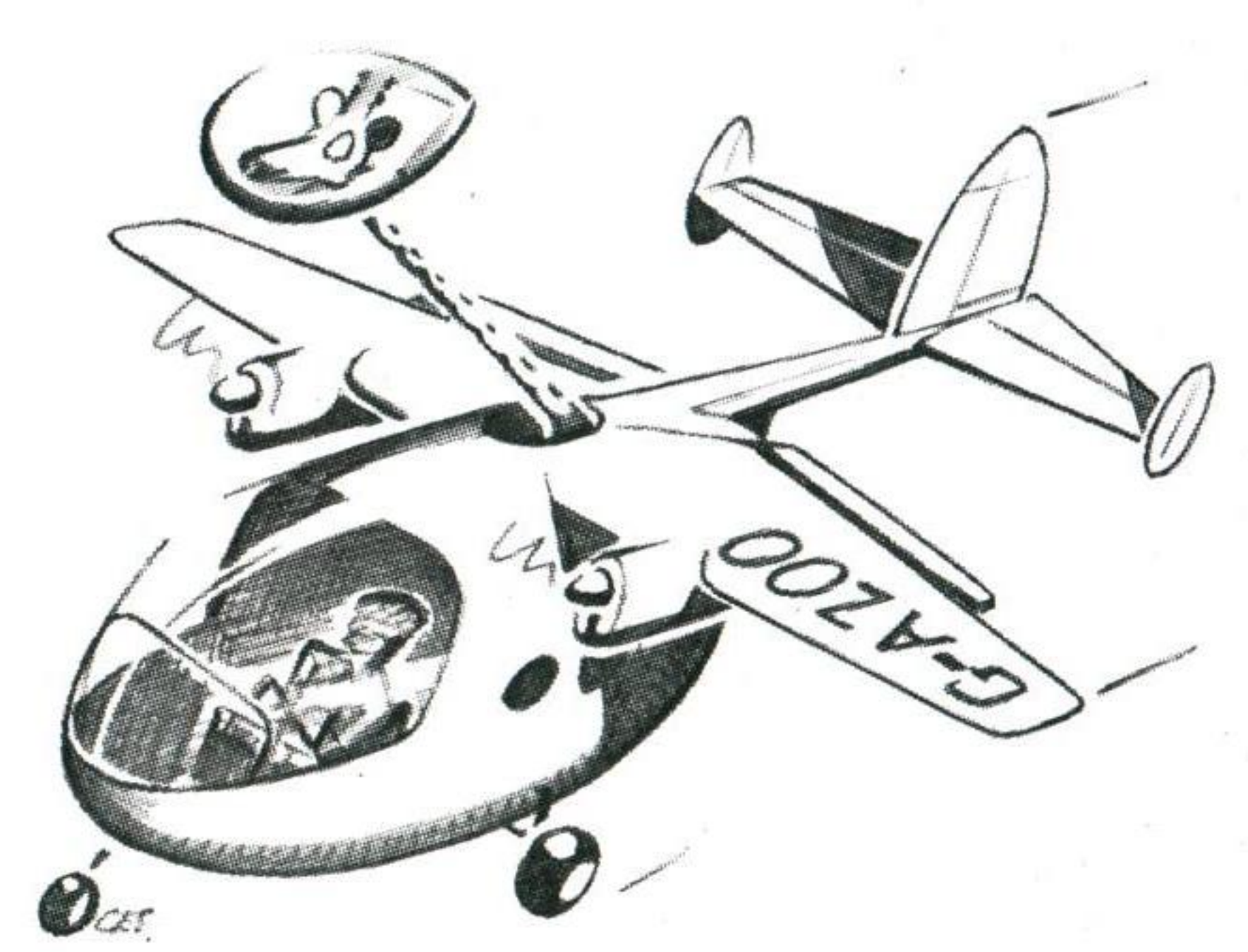


CONFRONTED with the problem of transporting an awkward load, say a sick cow, or for that matter a motor car from A to B, Mr. George Miles hit upon the idea of fitting wings on his loads. For this purpose he first designed and produced the Aerovan, and highly successful it is too, and both in appearance and in function it could not be more aptly named. Successive successful steps were the production of the M.68 and the Merchantman.

Of composite wood and metal construction, the Aerovan is a high wing monoplane. Fitted with two Blackburn Cirrus Major III engines which drive fixed pitch wooden propellers, it carries a one ton pay load, and cruises at 112 m.p.h. The fuselage, to all intents and purposes, could be described as being in egg-form, although it is rather more practical than that, because the cross-section is nearly square. It contains 530 cubic feet of space, which can be devoted to the stowage of cargo of infinite variety, or used as a flying ambulance, operating theatre, caravan, perhaps as a class-room or work-shop, or simply for carrying passengers on business or pleasure bent. The Aerovan can carry up to nine passengers in comfort, six in absolute luxury.

The main wing looks very stubby, and the things which emphasize this point are the outstanding Miles auxiliary aerofoil flaps. Mounted high, the wing is most conveniently placed for airscrew clearance, unobstructed fuselage, passengers' view, loading, etc. Its span is 50 ft.

The tail unit, one of the Aerovan's most distinctive features, is mounted upon a short thin tapering boom. It supports a wide span, forward-tapered tail plane carrying triple fins and rudders. The outer ones are completely oval, the centre one, of half-egg-shape, sits on the tail plane and does not extend below it.





We recently saw an Aerovan, stripped of all but the bare necessities for flight, take-off with a load of 3,545 lbs. This included a 186 lb. test pilot, Ken Waller (who did not forego his breakfast either) and fuel for a 150-mile flight. It took off in 235 yards. This same Aerovan was later unloaded and flown empty (same pilot, same conditions). From a stand-still it took off in 24 yards and, climbing at an incredible angle, put up the most undignified and unladylike performance that an Aerovan could, all in the space of one small corner of the airfield.

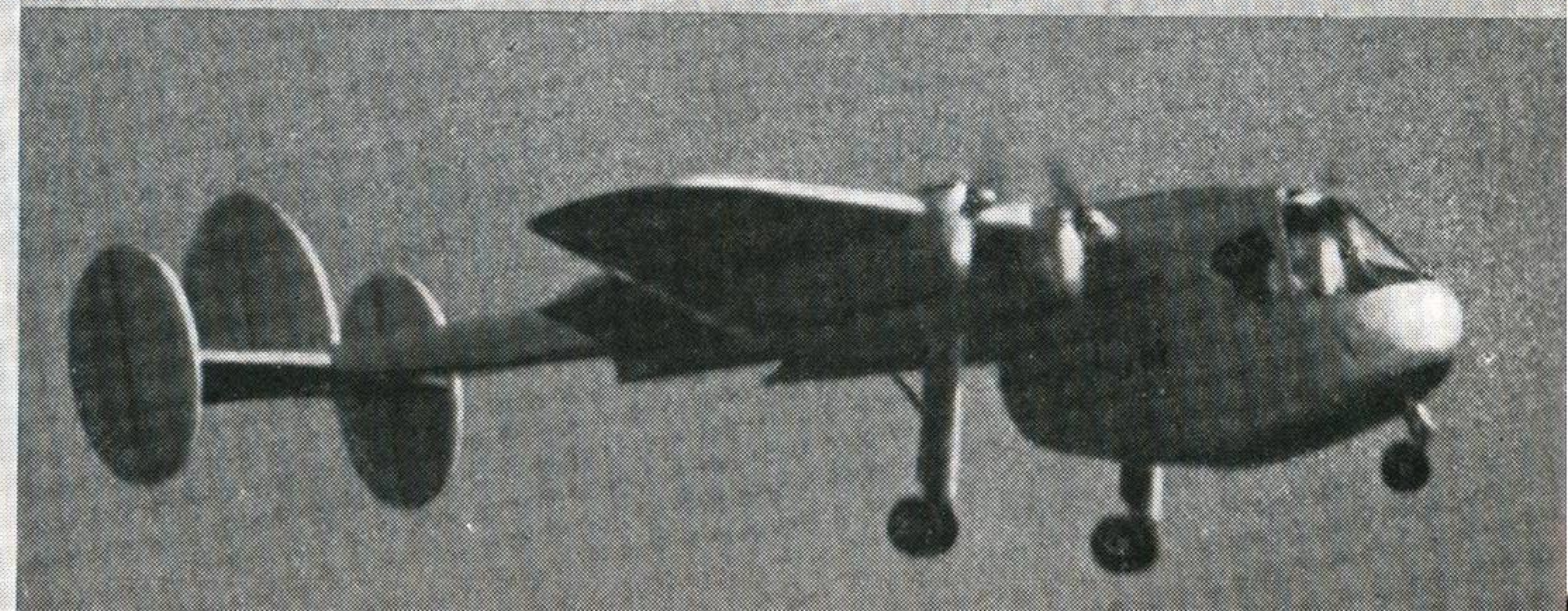
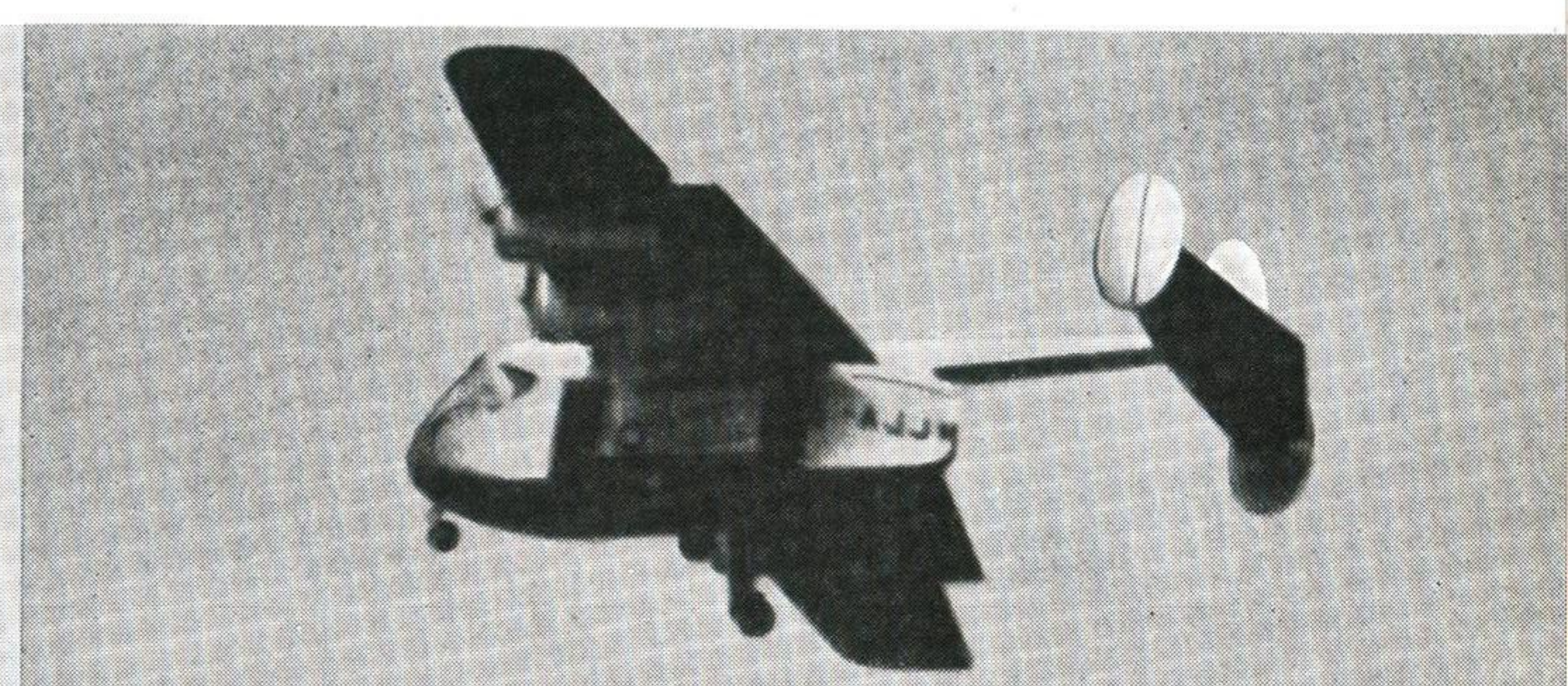
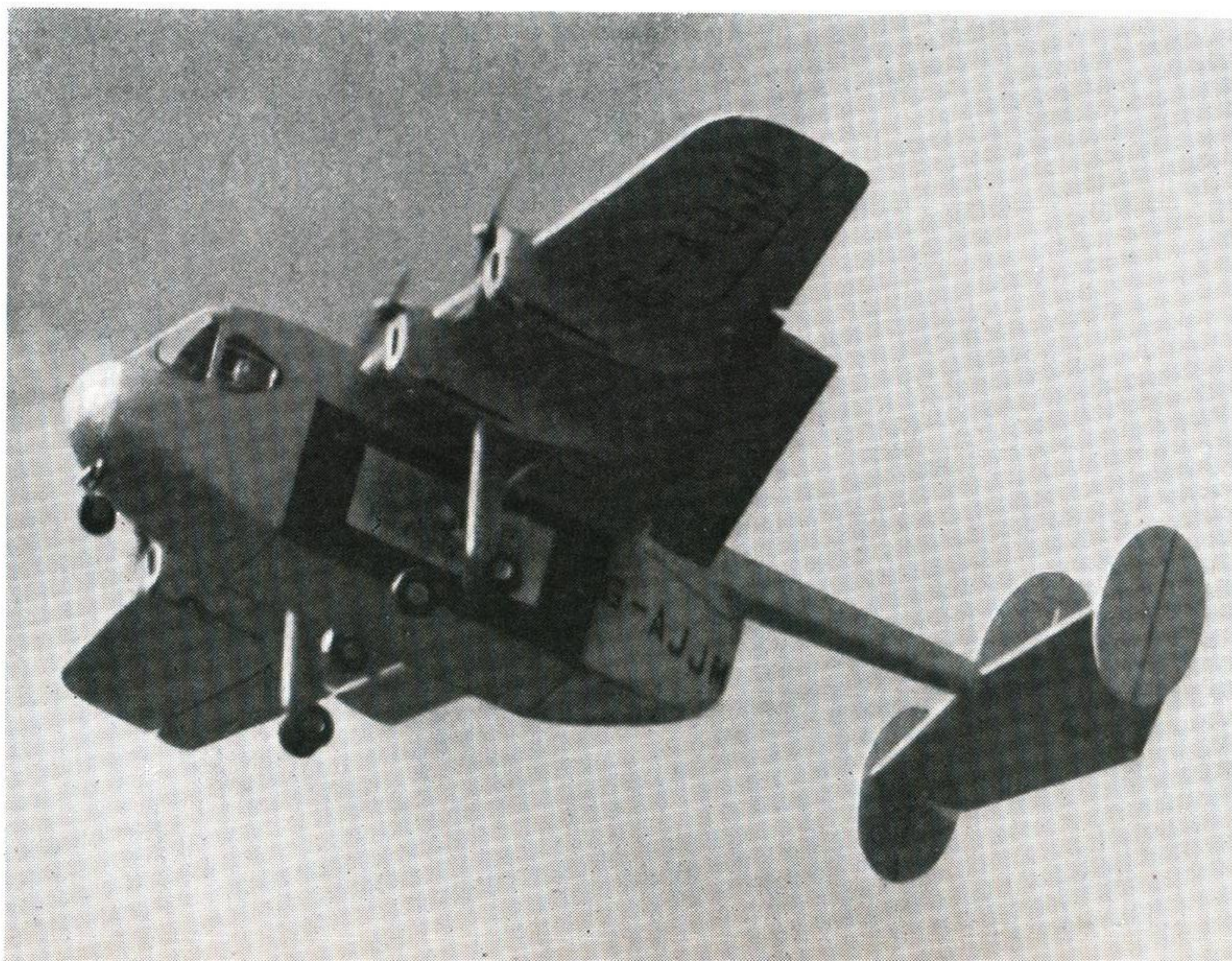
The **Miles Merchantman** is really a bigger Aerovan. Characteristically similar, it has four engines, and whereas in the Aerovan you could carry one horse, or one motor car, in the Merchantman you could carry two. The most noticeable differences, recognitionally, between the Merchantman and the Aerovan, apart from motors, are the different type of tail boom and the full span stepped-down wing flaps. The wing shape of the Merchantman is basically the same as that of the Aerovan, although it is less stubby. (Span 66 ft. 6 ins..) The differences in tail structure are in the centre fin which has a long fairing extending nearly to the trailing edge of the wing. Originally the centre fin extended below the tail plane, but as it got in the way when loading operations were going on, the lower part was replaced by a fairing extending along the boom.

The Merchantman will carry two tons of freight or 20 passengers. The motors are De Havilland Gypsy Queens. It cruises at 153 m.p.h.

Described by Miles themselves as revolutionary, the **M.68** (four 100 h.p. Blackburn Cirrus Minor motors) is probably as near to the idea of attaching wings to freight as any one could get. Retaining many of the recognition features of both Aerovan and Merchantman, the M.68 has a detachable freight compartment which fits snugly into the fuselage. Fitted with wheels and tow-bar it can be detached from the aeroplane complete and towed away; at the same time another loaded container can be put in its place and the aeroplane sent off at once. Alternatively, the aeroplane can be sent elsewhere to pick up a container, because the tail fairing fits directly onto the cockpit. It leaves a rather starved and gaunt looking, but nevertheless flyable, aeroplane.

The M.68 has the same characteristic wing shape, including the outstanding flaps, as in the Aerovan. It is relatively longer in the body than the other two when carrying its container. Another small difference is that the main under-carriage legs are attached at the inner engine nacelles, and the container carries wheels also. The wing span of the M.68 is 50 ft. It cruises at 140 m.p.h.

It is probably true to say that Mr. George Miles has done more for aircraft recognition than any other aeroplane designer. His distinctive designs are easily recognized. We should not dismiss them lightly on that account, for they provide us with some very interesting and appetizing food for thought. We eagerly await his next design in this line.



ADVANCED SPOTTING

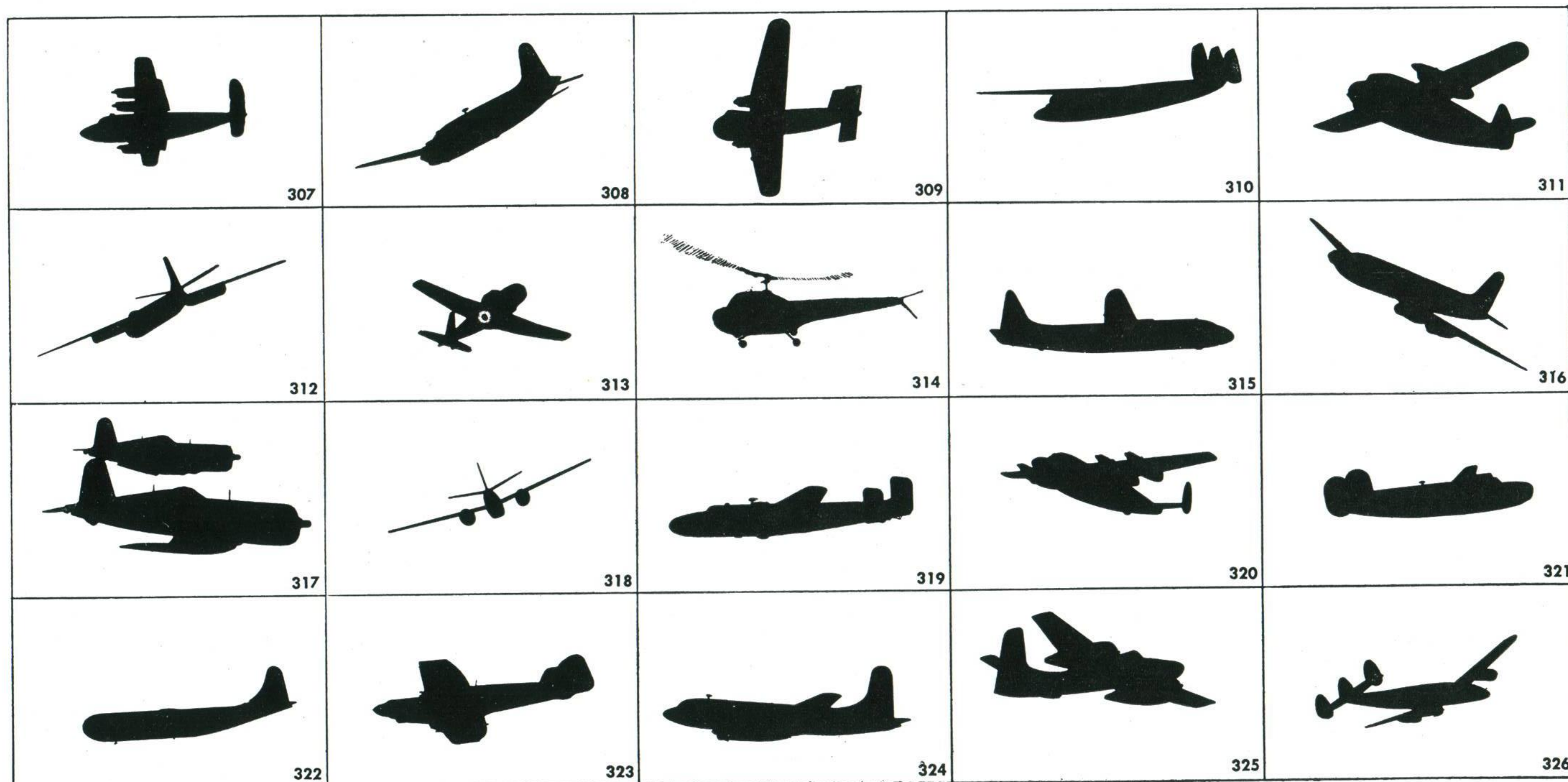
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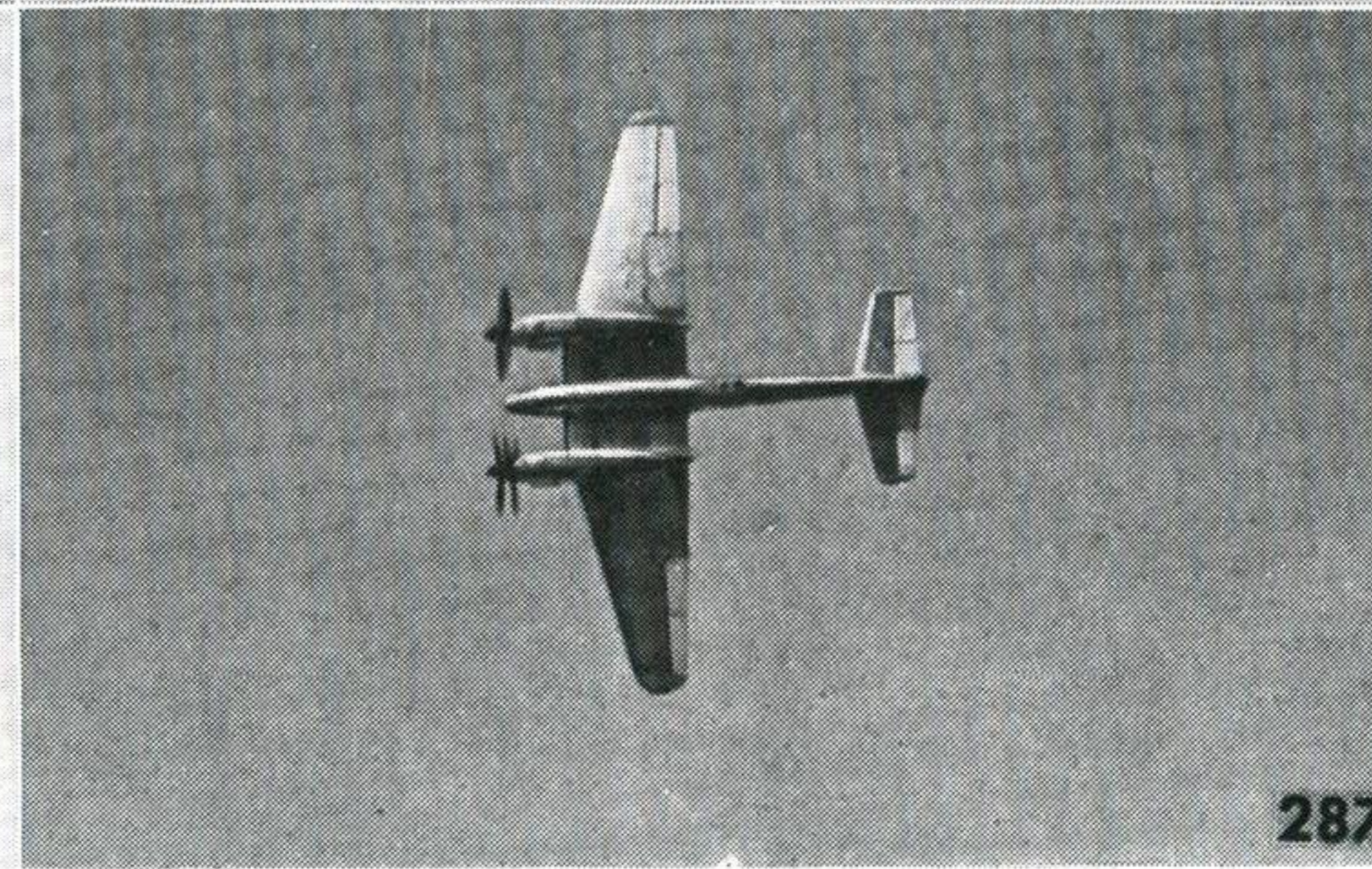
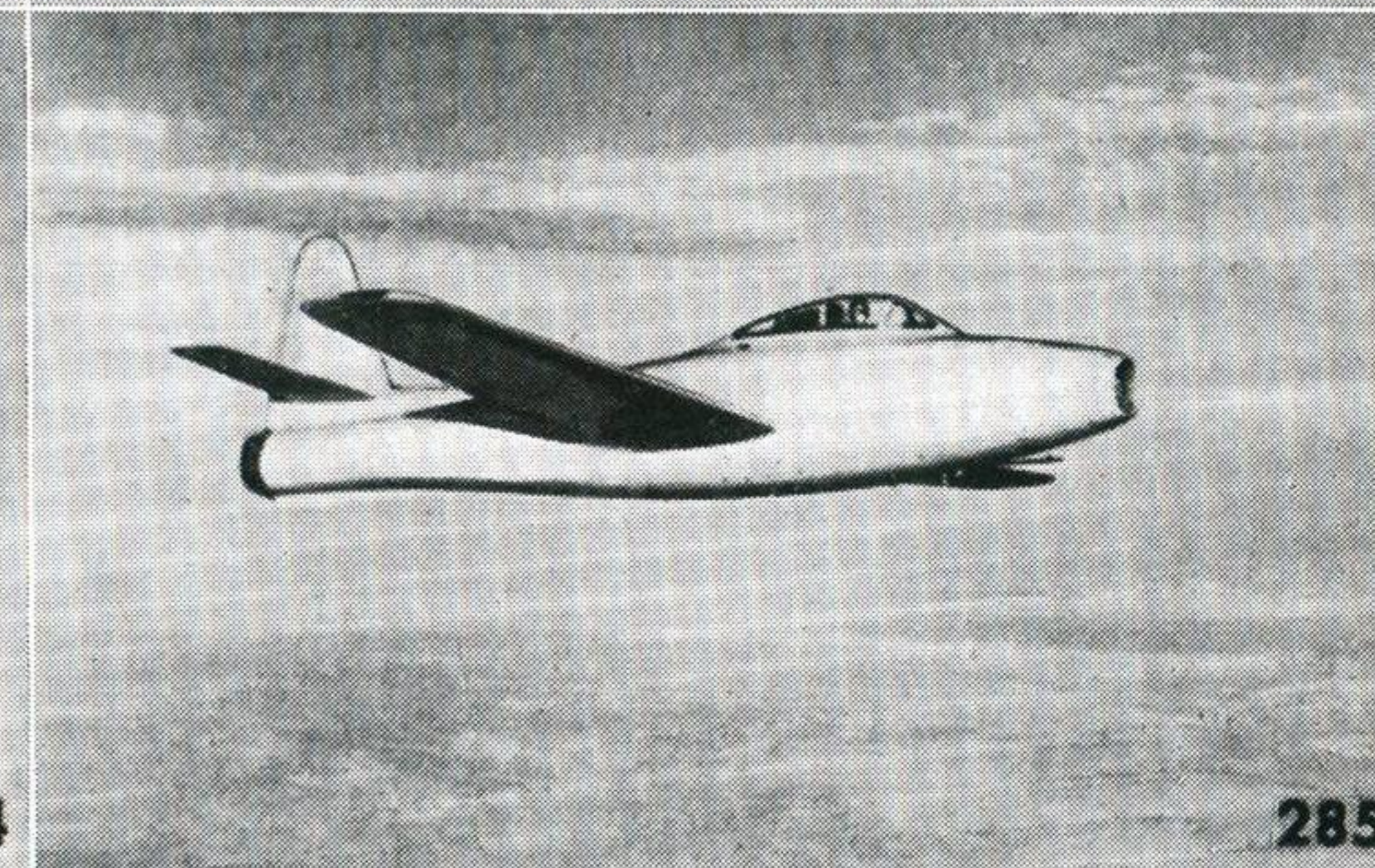
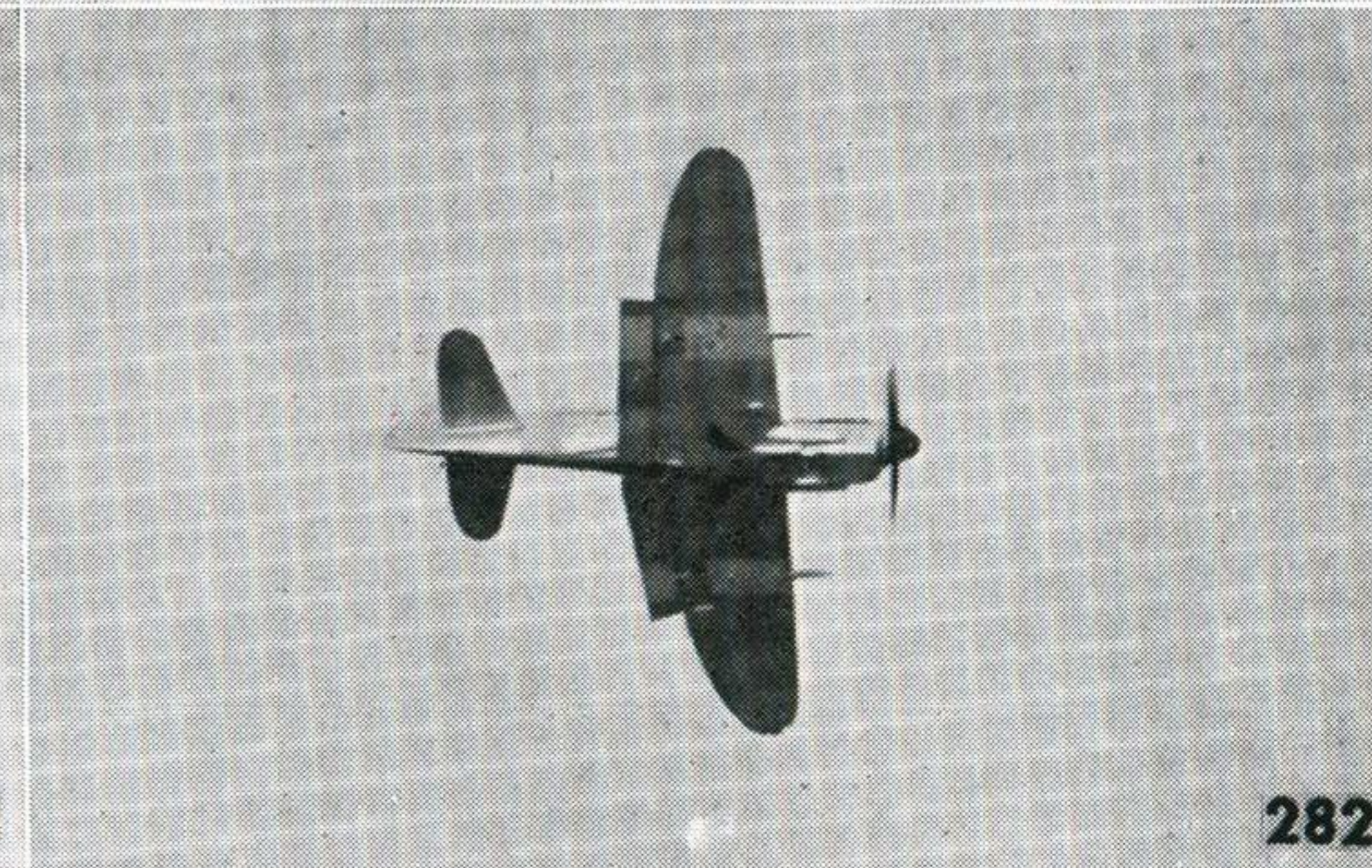
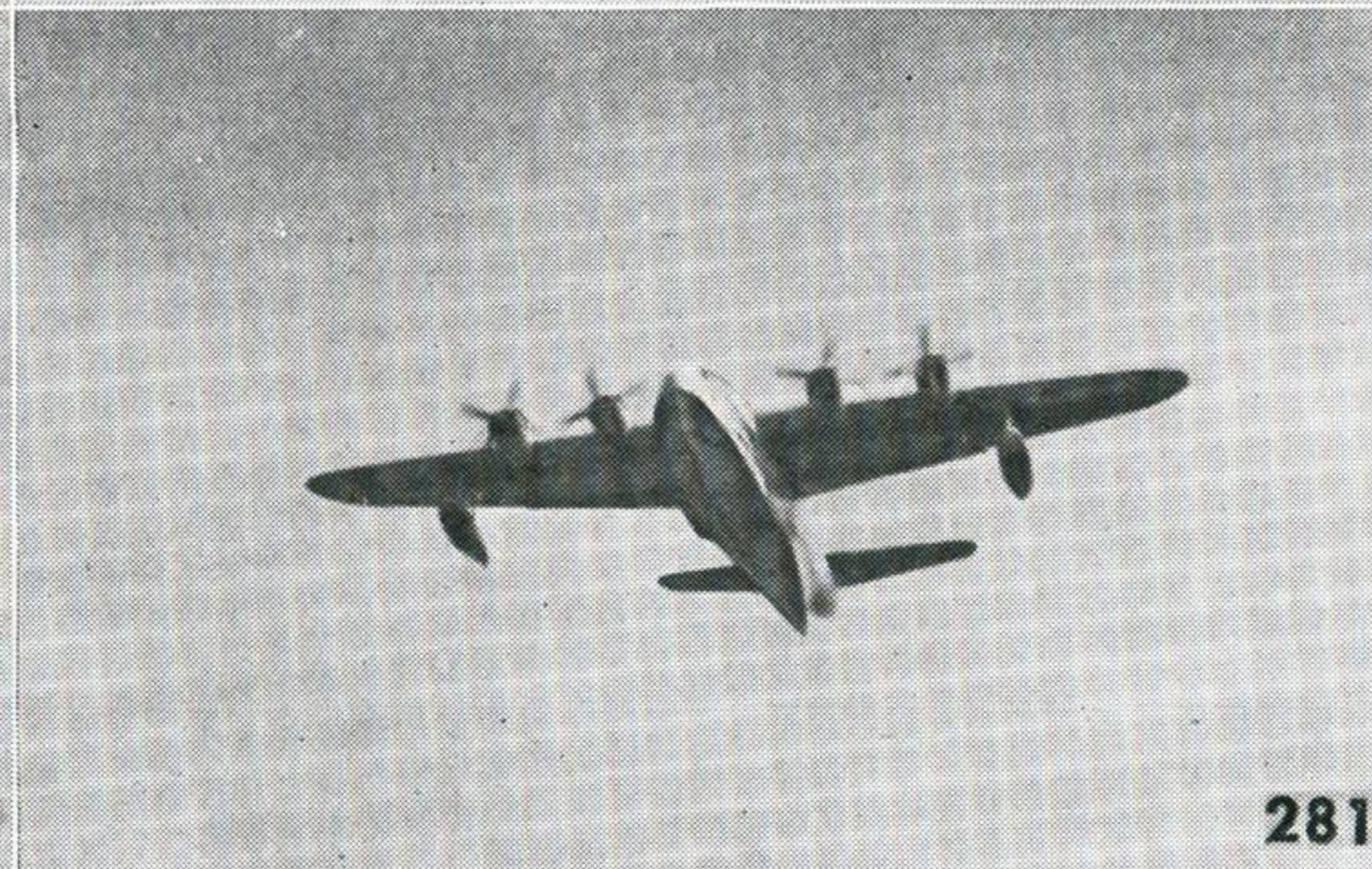
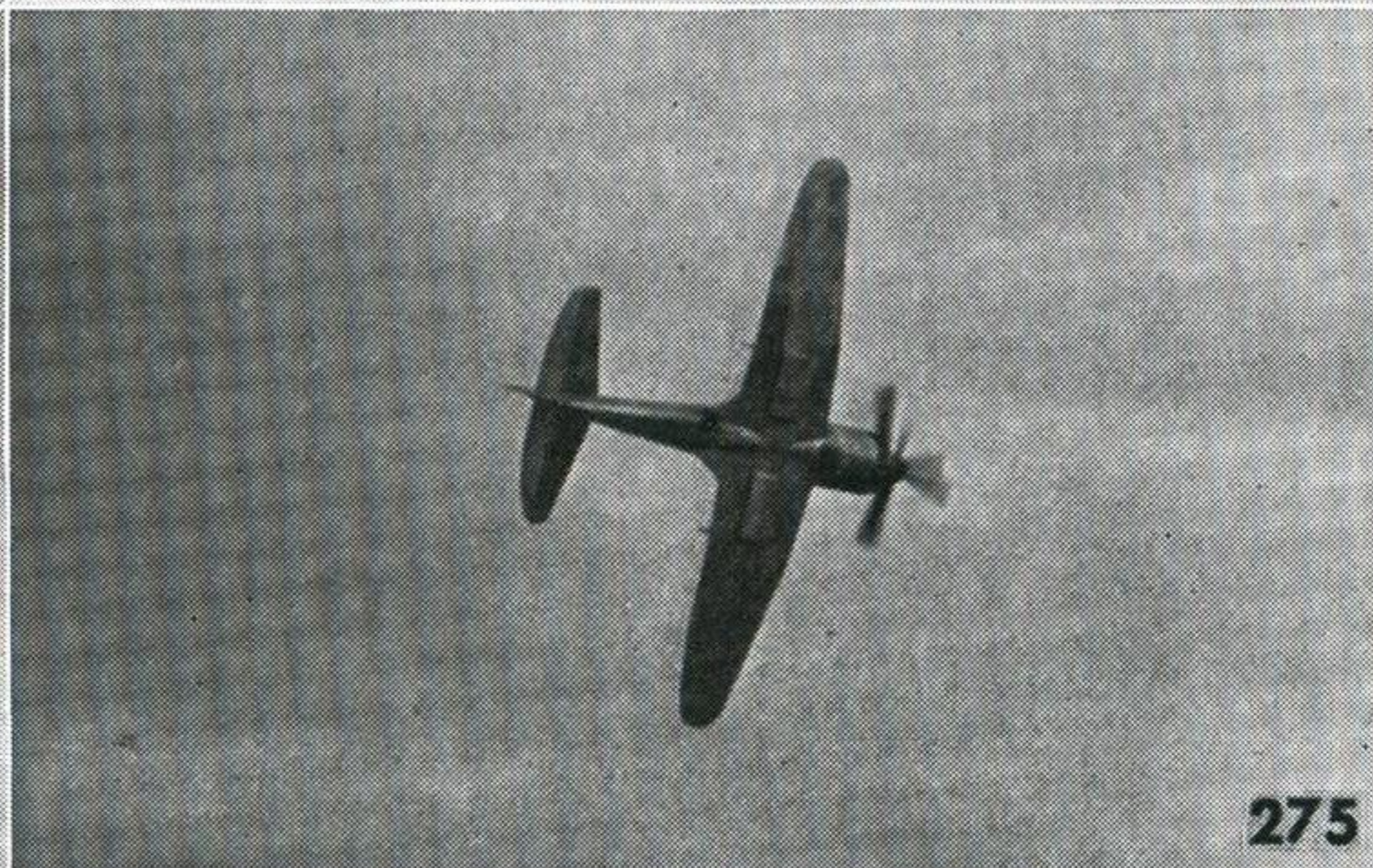
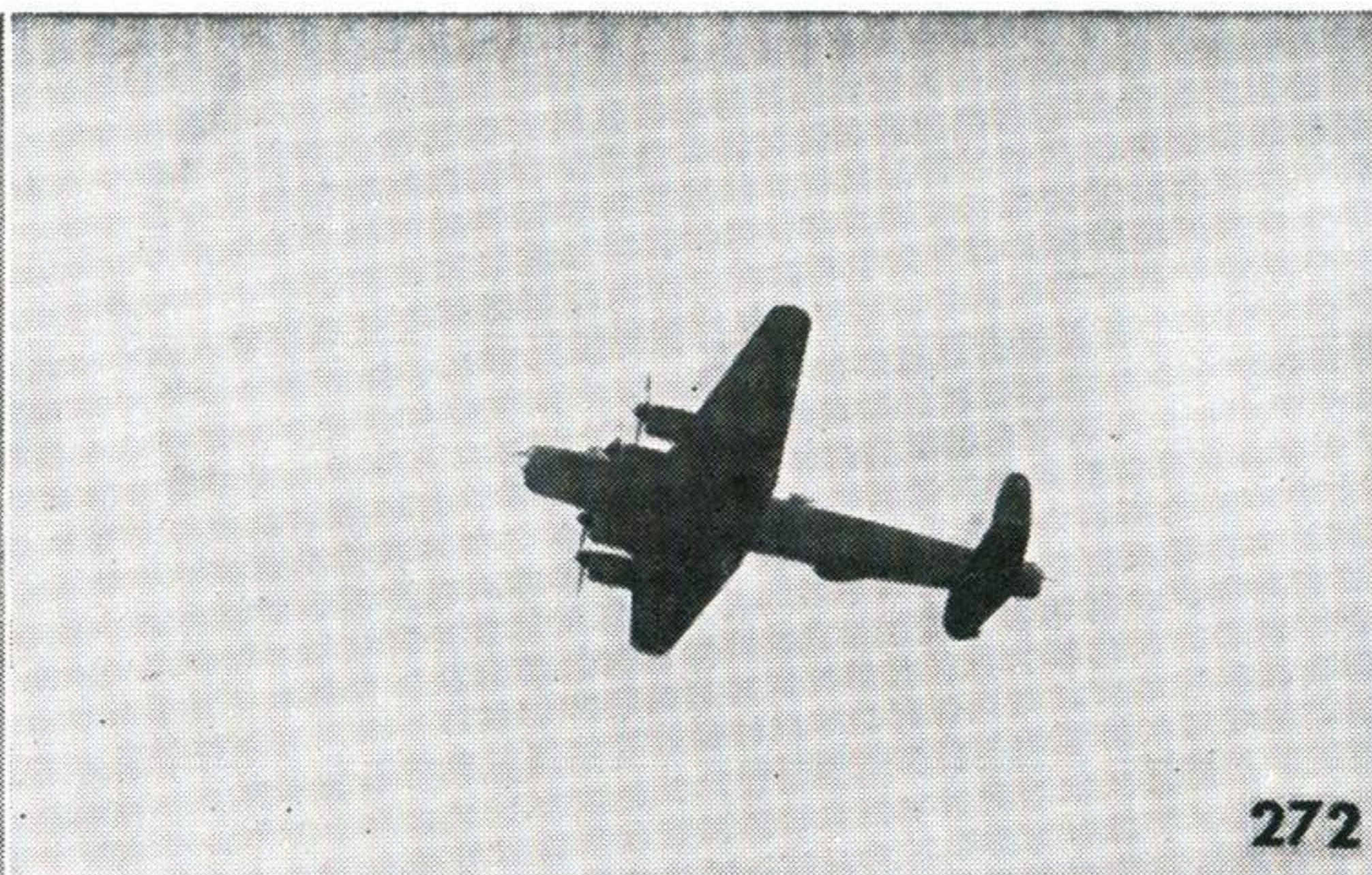
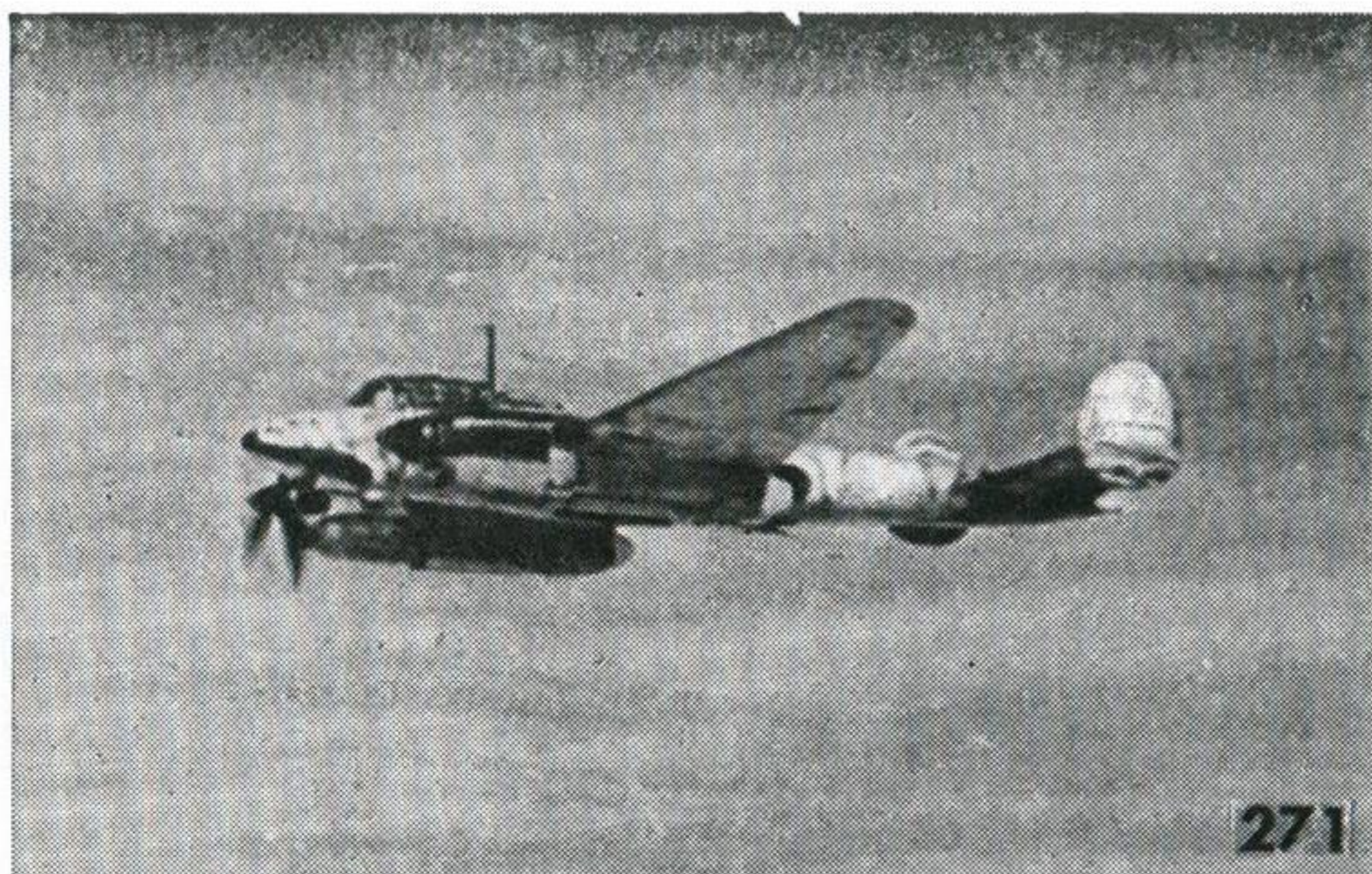
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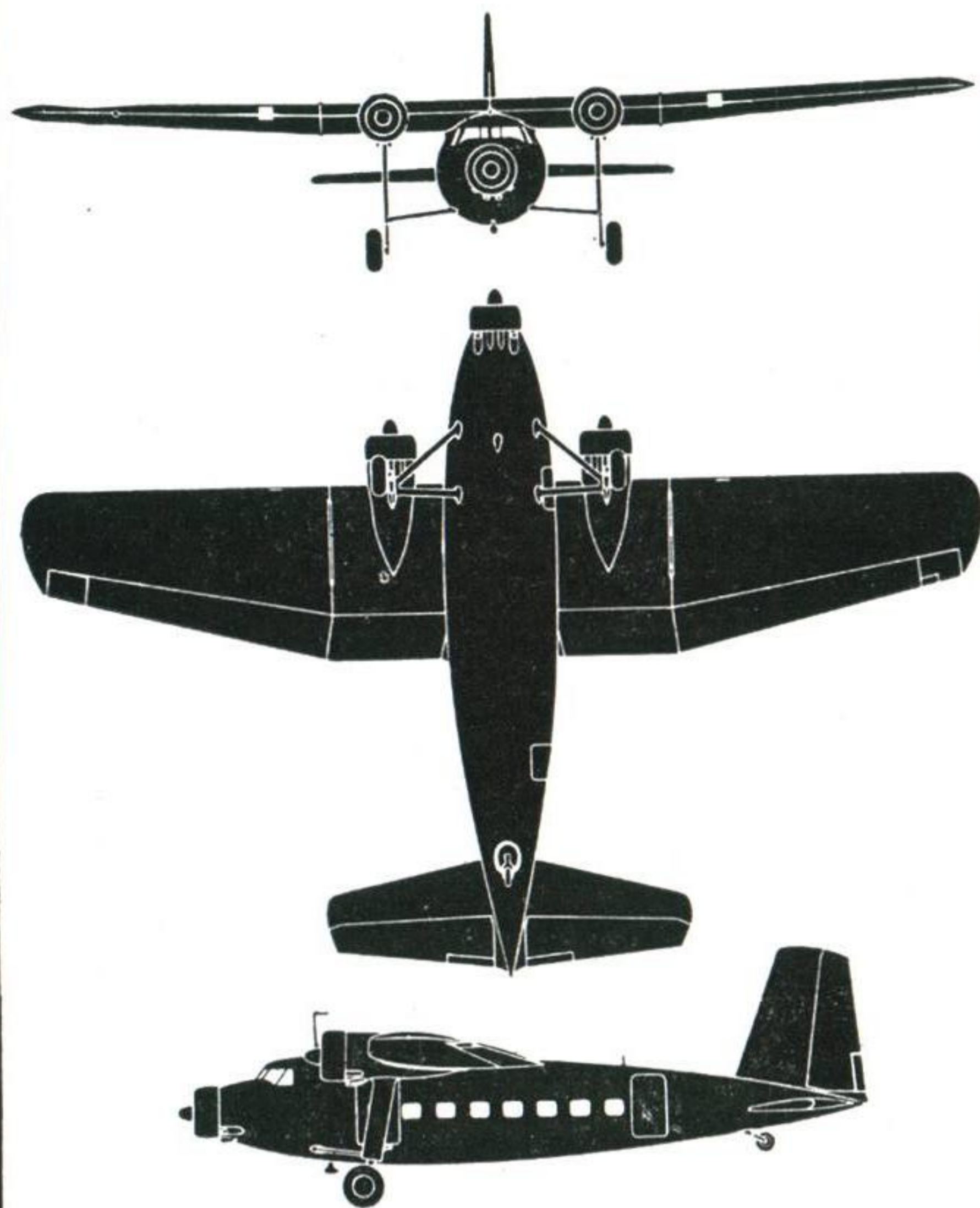
SILLOGRAPHS

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NORTHROP PIONEER

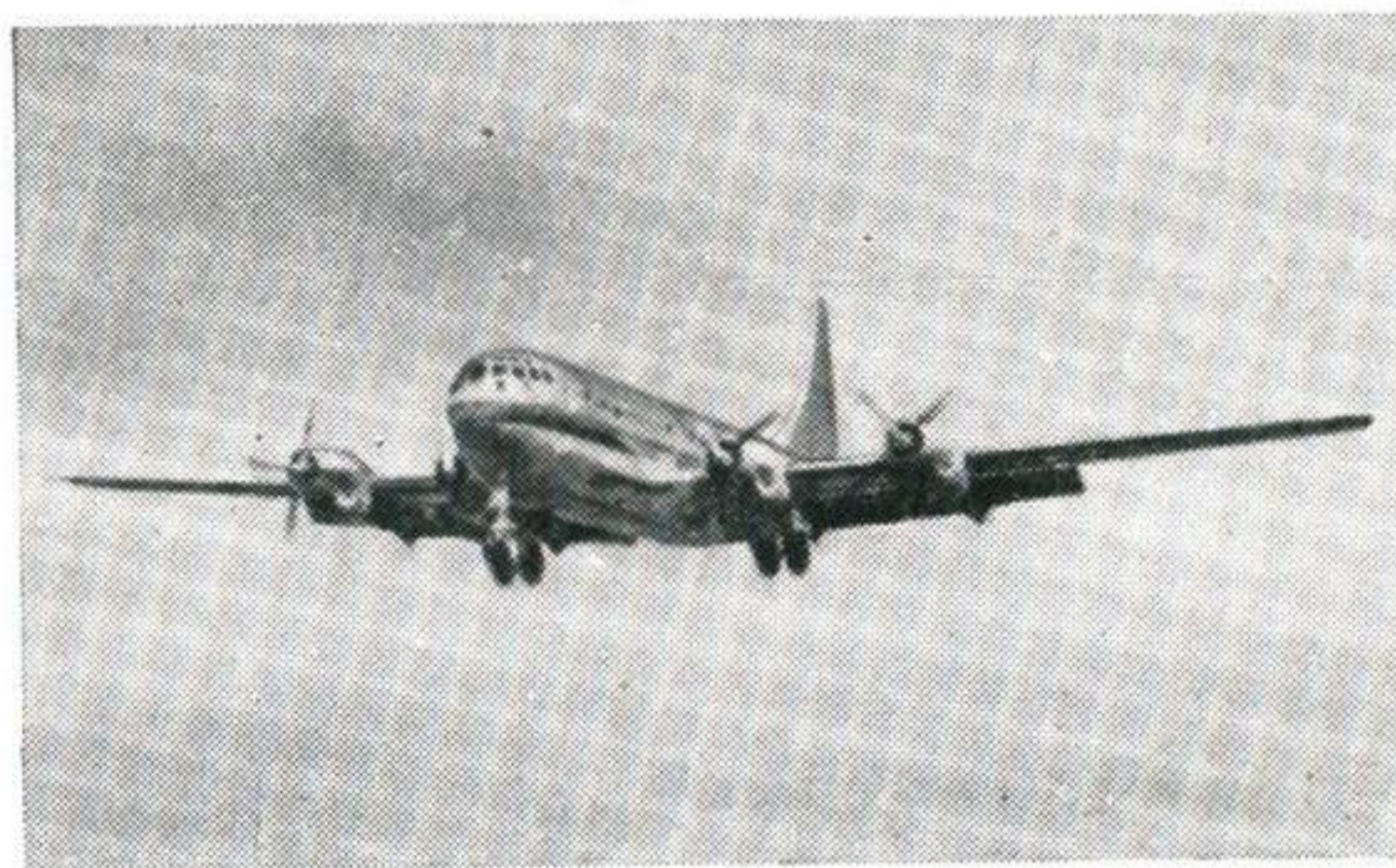


American Transport
3 Cyclone Radials Span 85 ft.
New Silhouette

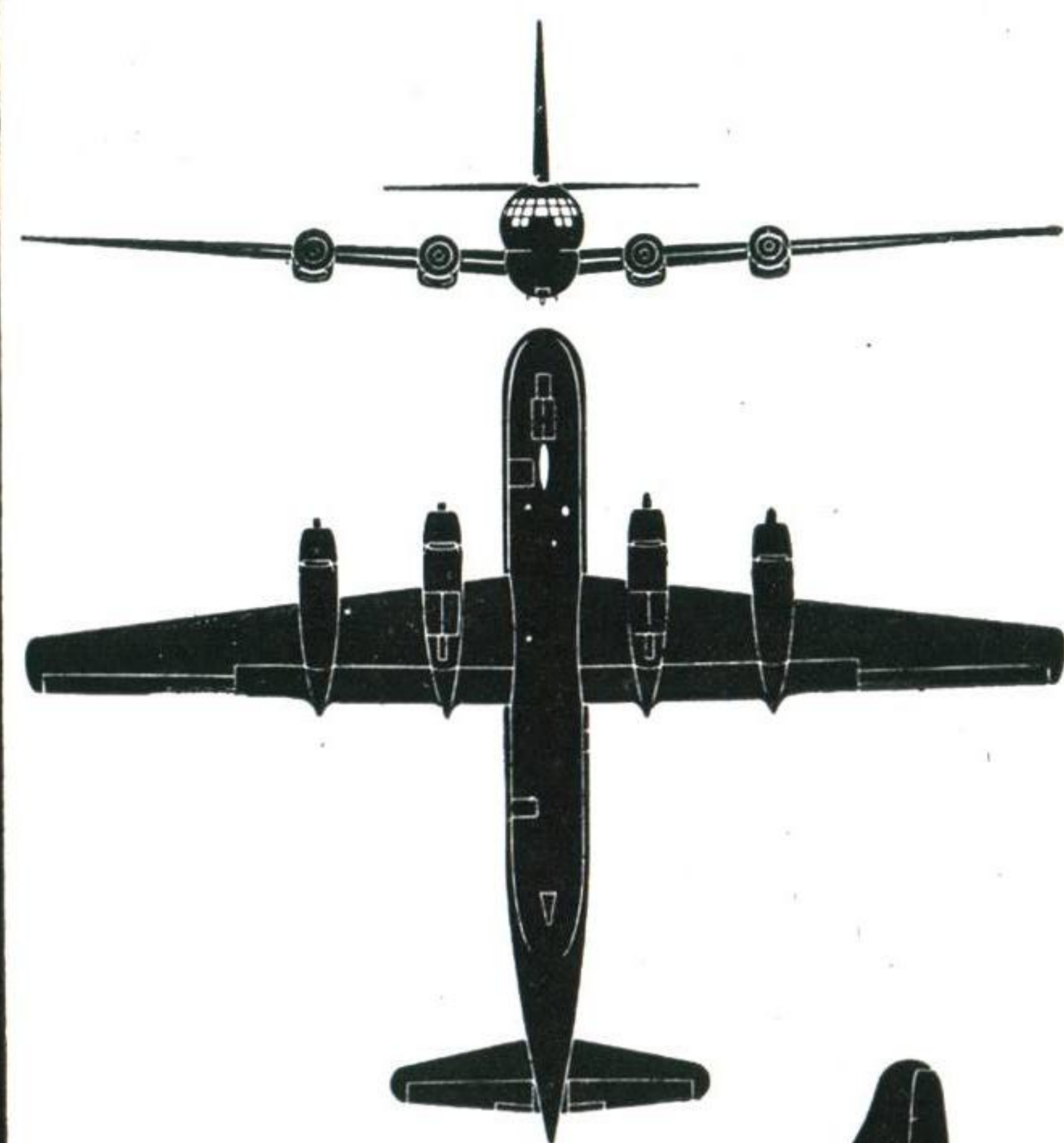


PIONEER POINTS: fixed undercarriage—large highwing tapered forward, rectangular centre-section—three motors—bulky but streamlined fuselage form—blunt wing and tail surface tips. Max. Speed 168 Knots (193 m.p.h.).

STRATOCRUISER POINTS: "double bubble" fuselage, finely shaped and tapered up aft—high fin and rudder (folding) basically conical with extensive fin fairing—four radials, high set, with large intakes beneath—nacelles just break trailing edge of wing—long span narrow chord wing. Max. Speed: 325.5 Knots (375 m.p.h.).



BOEING STRATOCRUISER



American Transport
4 Wasp-Major Radials Span 141 ft. 3 ins.
New Silhouette

FRONT COVER : McDonnell Banshee

No. 48 (ADVANCED)

- | | |
|-------------------------|------------------------------------|
| 355. Magister | 368. Lancastrian |
| 356. Lancastrian | 369. Domini |
| 357. Hornet | 370. Saro SR/AI |
| 358. Piasecki PV-3 | 371. Lincoln (Theseus) |
| 359. Meteor IV. | 372. Meteor III |
| 360. DC-4 Skymaster | 373. Vought V-173 or XF5U-1 |
| 361. Meteor IV. | 374. Meteor (Trent) |
| 362. Firebrand IV | 375. Aerovan |
| 363. Magister | 376. Russian jet fighter (LA type) |
| 364. B-29 Superfortress | 377. Black Widow P-61 |
| 365. Vampire I | 378. Barracuda |
| 366. Mosquito | 379. Thunderbolt P-47D |
| 367. Firefly I | |

SOLUTIONS TO RECOGNITION TESTS IN THIS ISSUE :

No. 49 (SILLOGRAPHS)

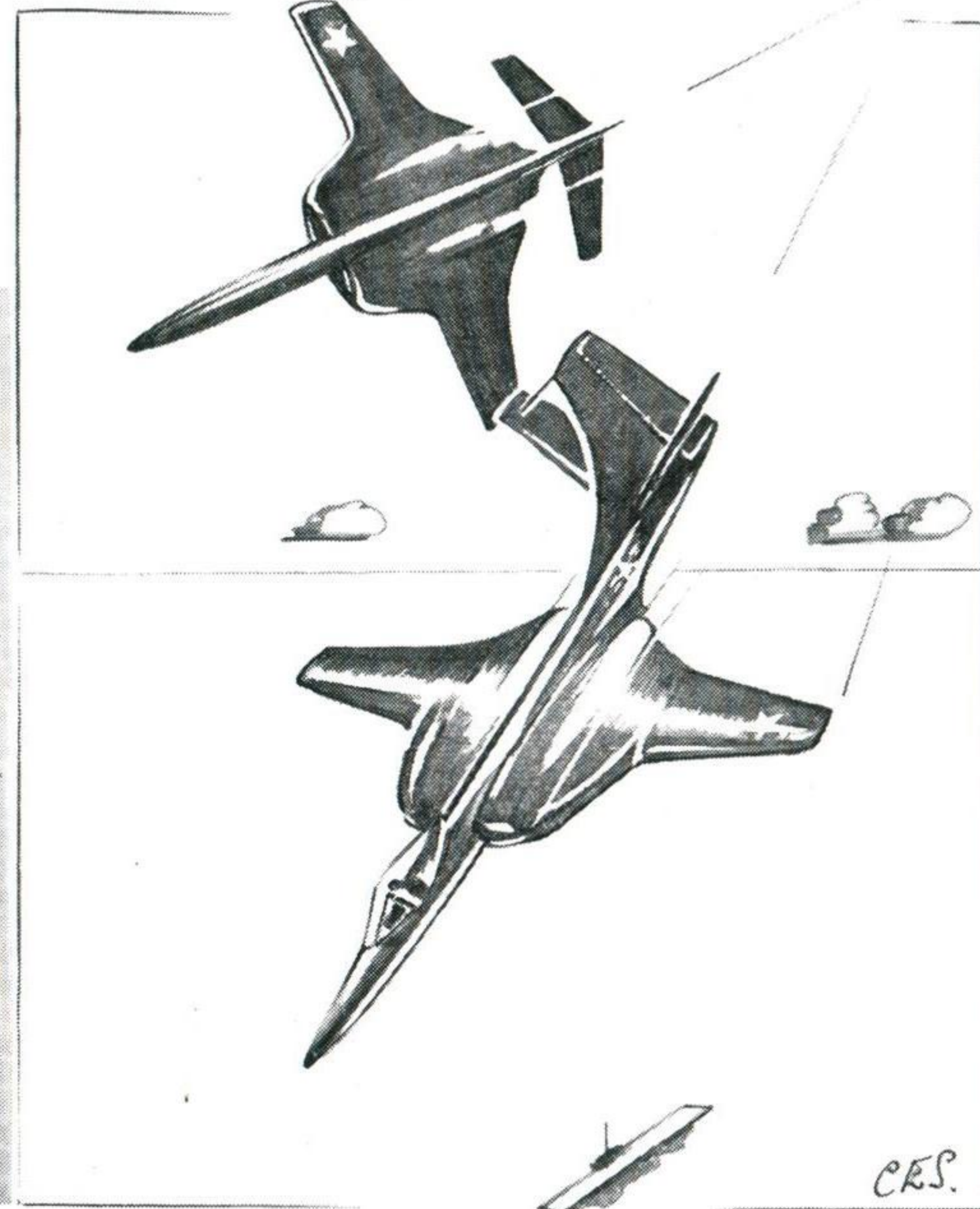
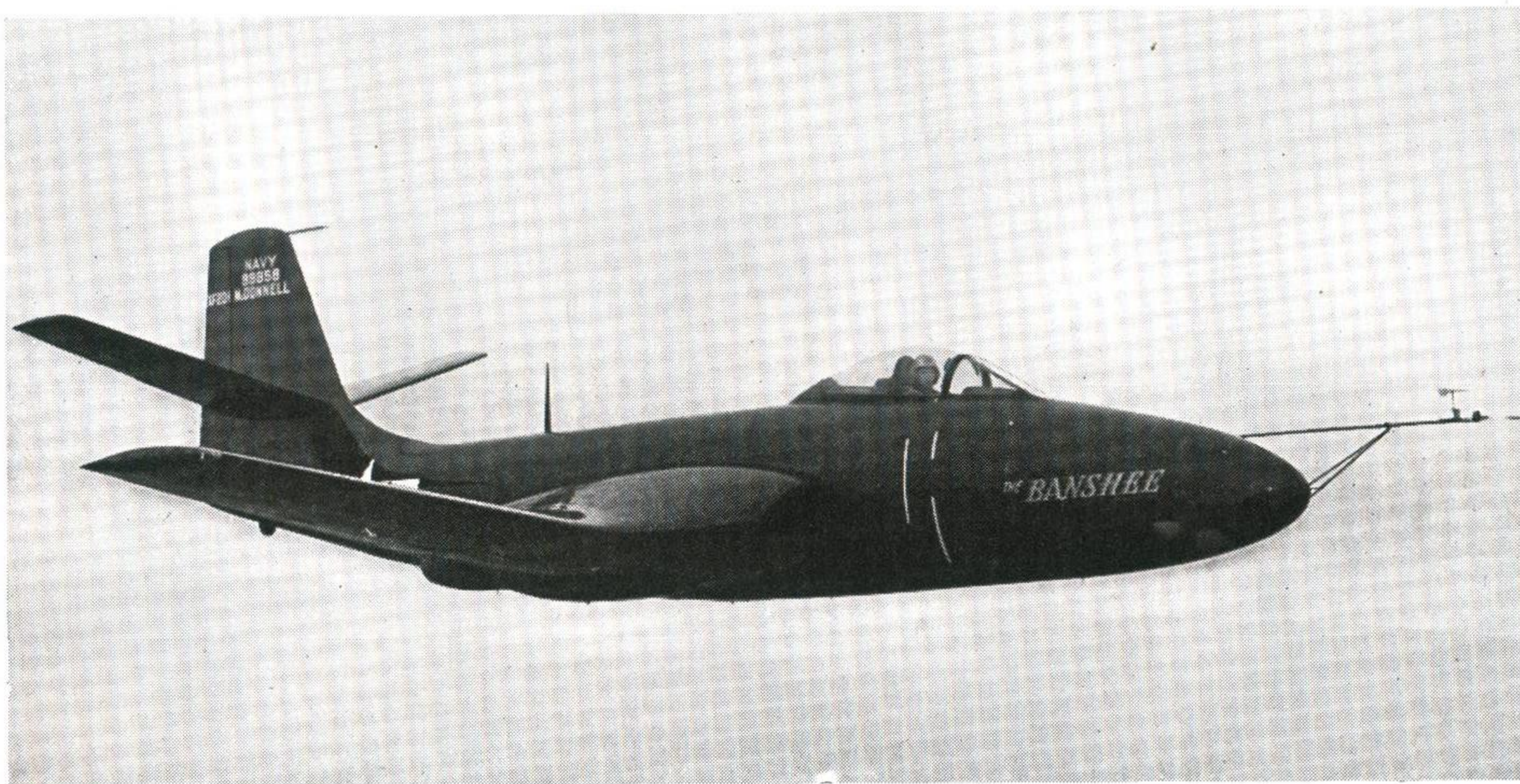
- | | |
|---------------------------|----------------------|
| 307. Marathon | 317. F4U-4 Corsair |
| 308. Valetta | 318. A-26 Invader |
| 309. Bristol Freighter XI | 319. Halifax A IX |
| 310. Ambassador | 320. Marathon |
| 311. Meganser | 321. Liberator C-87 |
| 312. XB-48 | 322. Stratocruiser |
| 313. P-108 | 323. Firefly IV |
| 314. Bell 47 | 324. Tudor IV |
| 315. Constitution | 325. F7F-I Tiger Cat |
| 316. Hermes | 326. Constellation |

No. 50 (ELEMENTARY)

- | | |
|-----------------------|----------------------|
| 271. PE-2 (modified) | 280. Hermes II |
| 272. Lincoln | 281. Solent |
| 273. Freighter XI | 282. Firefly Trainer |
| 274. Valetta | 283. Mauler AM-I |
| 275. Wyvern | 284. Tudor VII |
| 276. Ambassador | 285. P-84 Thunderjet |
| 277. Dove | 286. Brigand I |
| 278. Marathon | 287. Sturgeon |
| 279. S28/43 Firecrest | 288. DC-4 Skymaster |

DIM VIEWS : 1. Dove. 2. Theseus Lincoln. 3. Dakota. 4. Spitfire IX. 5. Freighter or Wayfarer. 6. 7 Spitfires and Firefly I. 7. Spitfires. 8. Me 262. 9. Gemini. 10. DC-4 Skymaster. 11. Meteor. 12. DC-4 Skymaster. 13. Lockheed 14. 14. Aerovan. 15. Spitfires. 16. Saro SR/AI. 17. Gemini. 18. Sikorsky R4. 19. Auster. 20. Oxford. 21. Aerovan. 22. B-17 Fortress. 23. Messenger. 24. Dominie. 25. Anson. 26. Sikorsky S-51. 27. Sea Fury X. 28. Saro SR/AI.

AS WE SEE IT. Mr. McDonnell will not thank us for trying to improve his Banshee. However, if he designs aeroplanes with jets in the wing-roots, such striking wing-shapes, such large angles of dihedral in the tailplane, and such elegant lines to the fuselage, then really he is asking for it. Honestly Mr. McDonnell, it has been a pleasure to produce this extravaganza. But just to show readers how the aircraft really looks we reproduce a photograph of a new Banshee on a test flight. Incidentally, the gadget on its nose is not radar gear, its a "yaw-meter"—a device for answering that all important question : " what's yaws ?"



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