

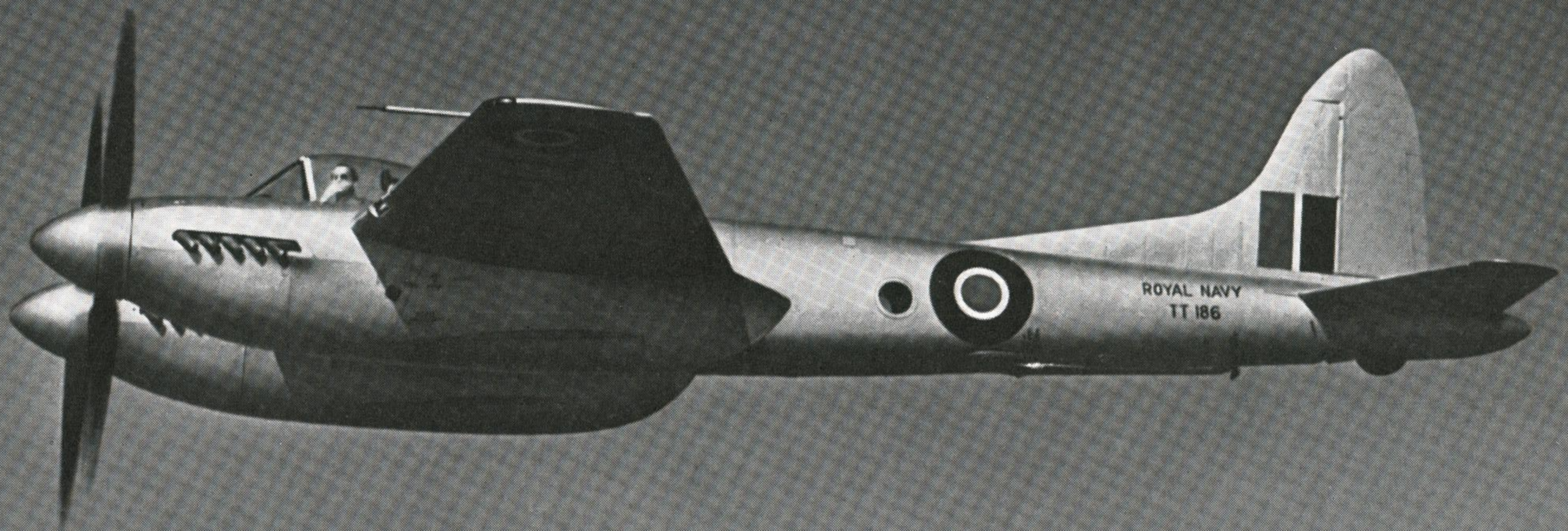
THE INTER



SERVICES

AIRCRAFT RECOGNITION

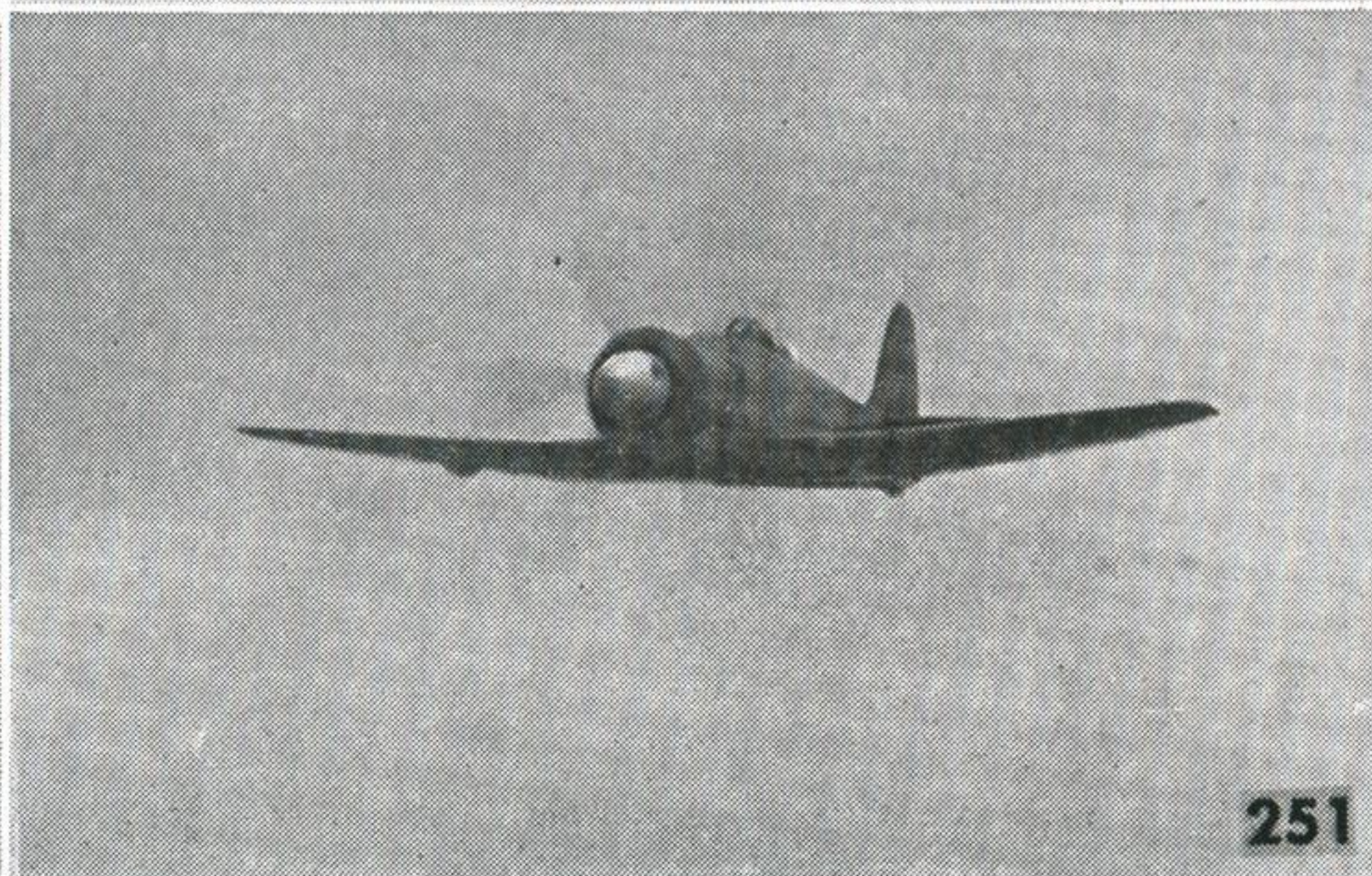
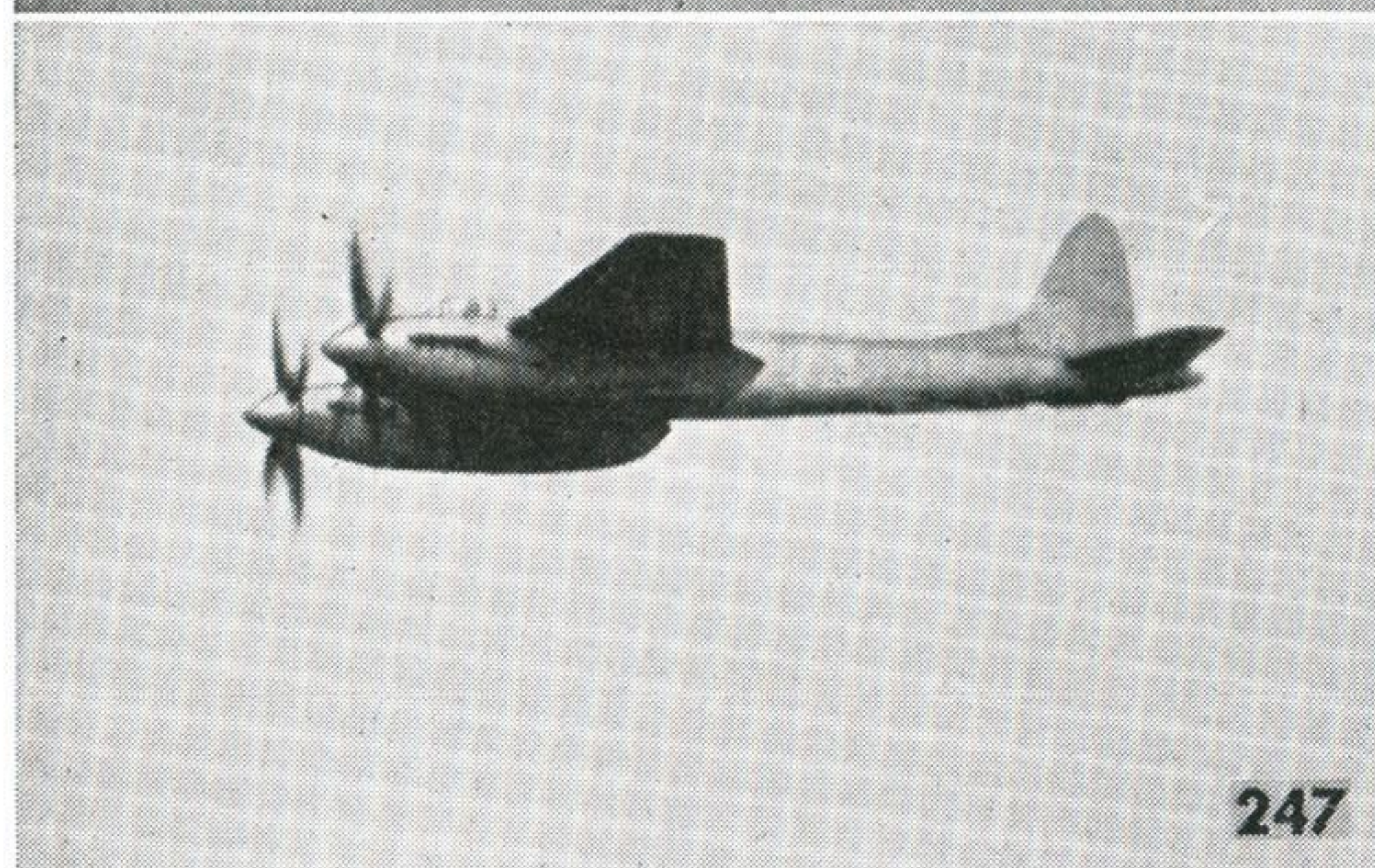
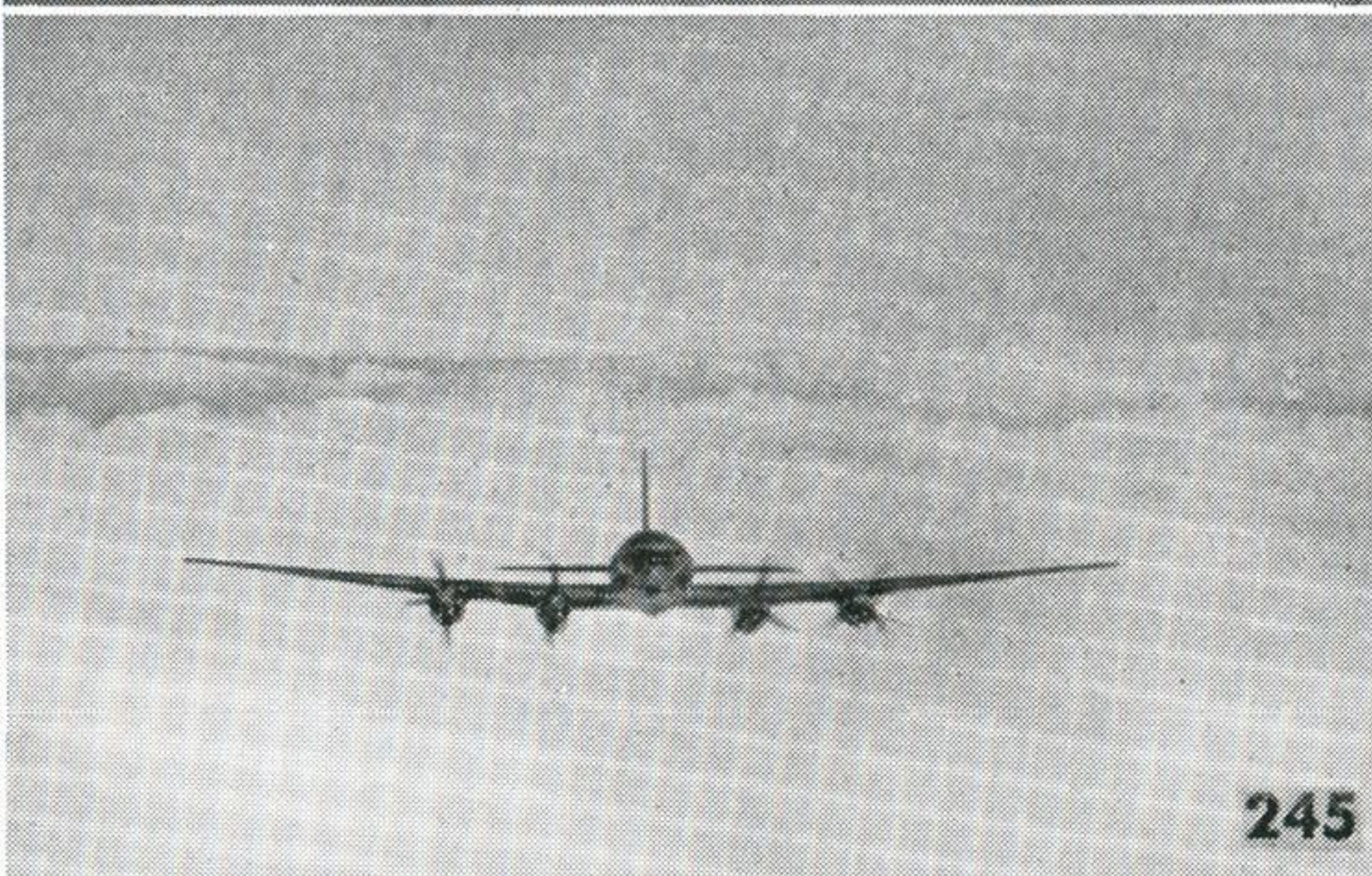
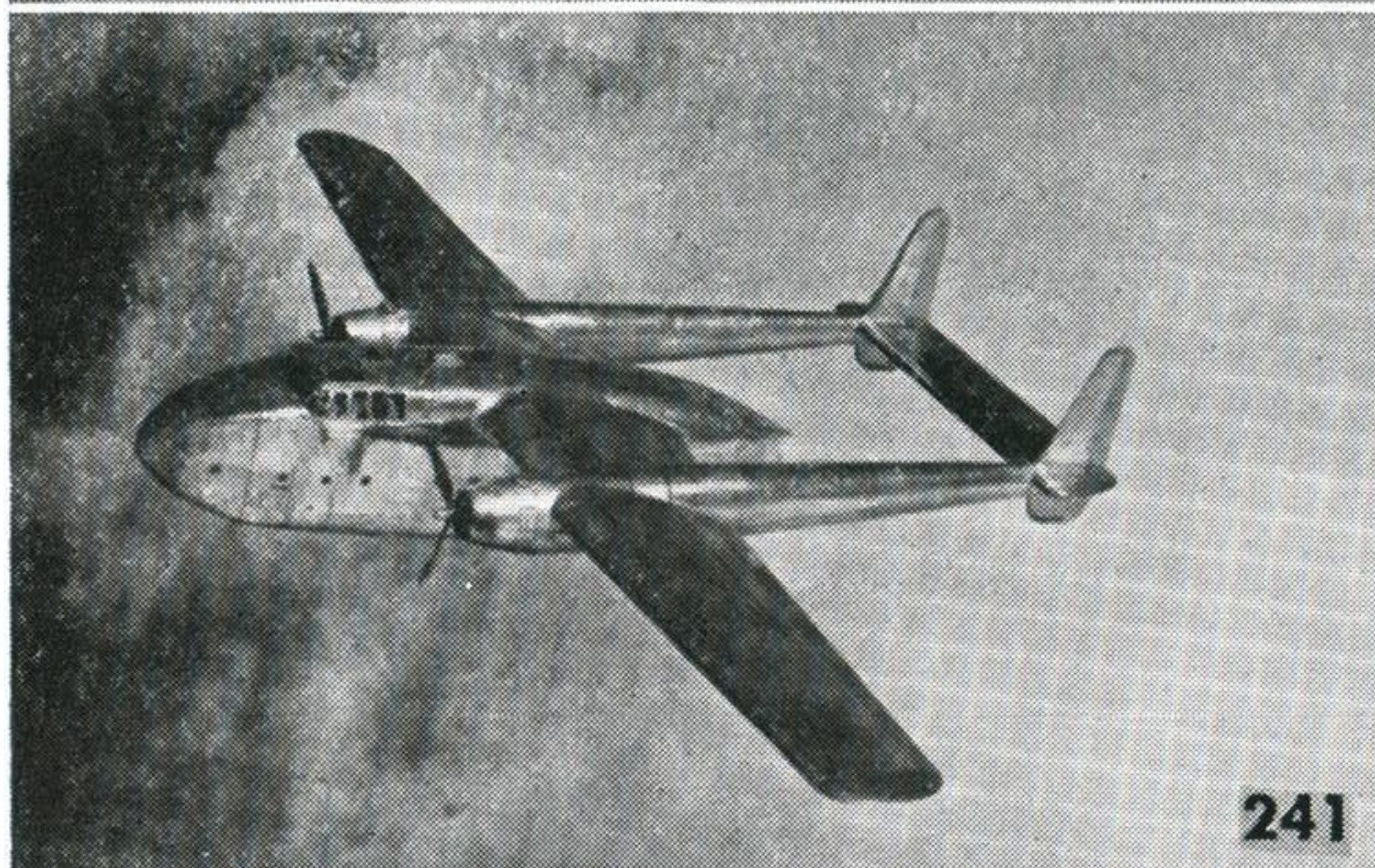
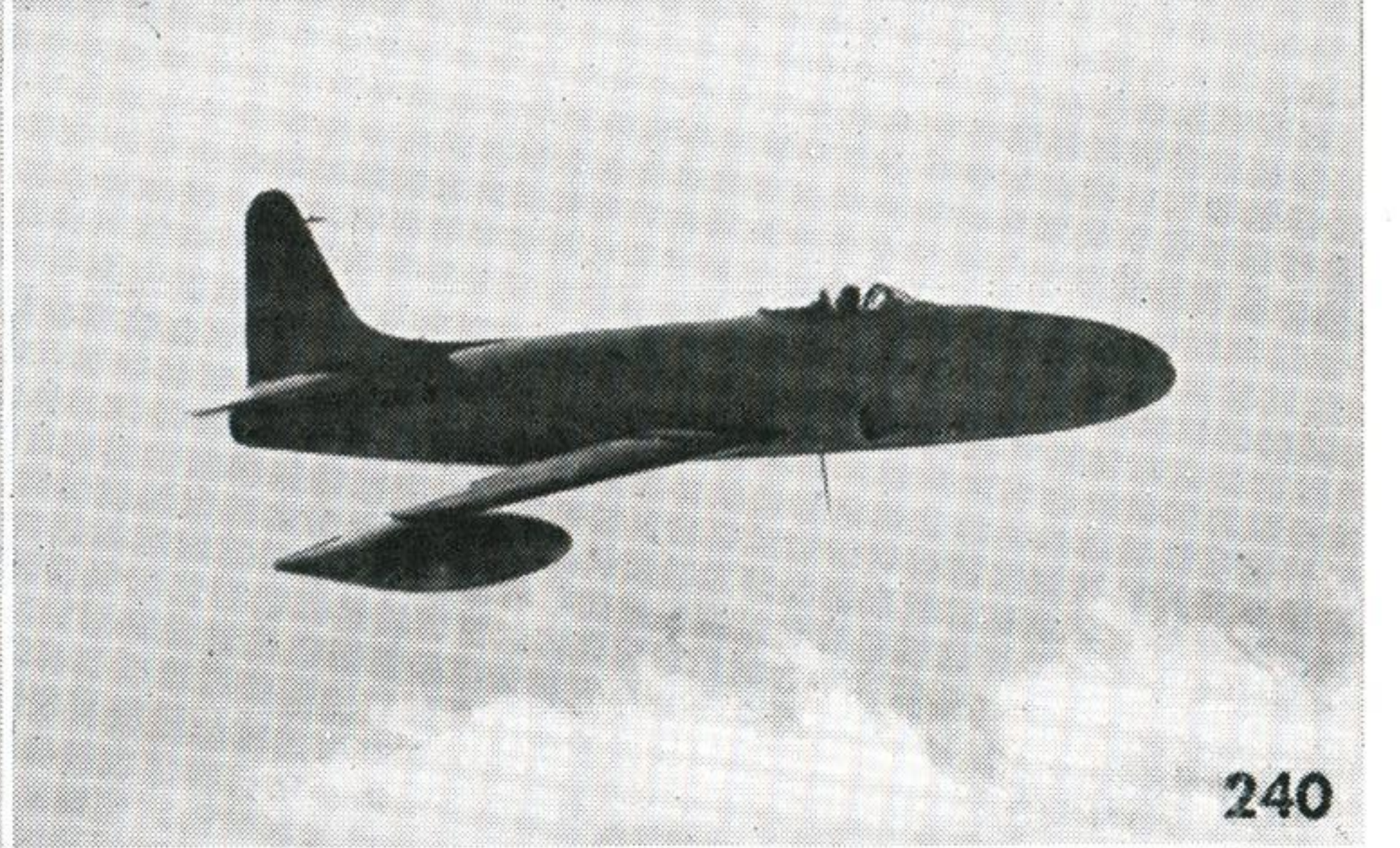
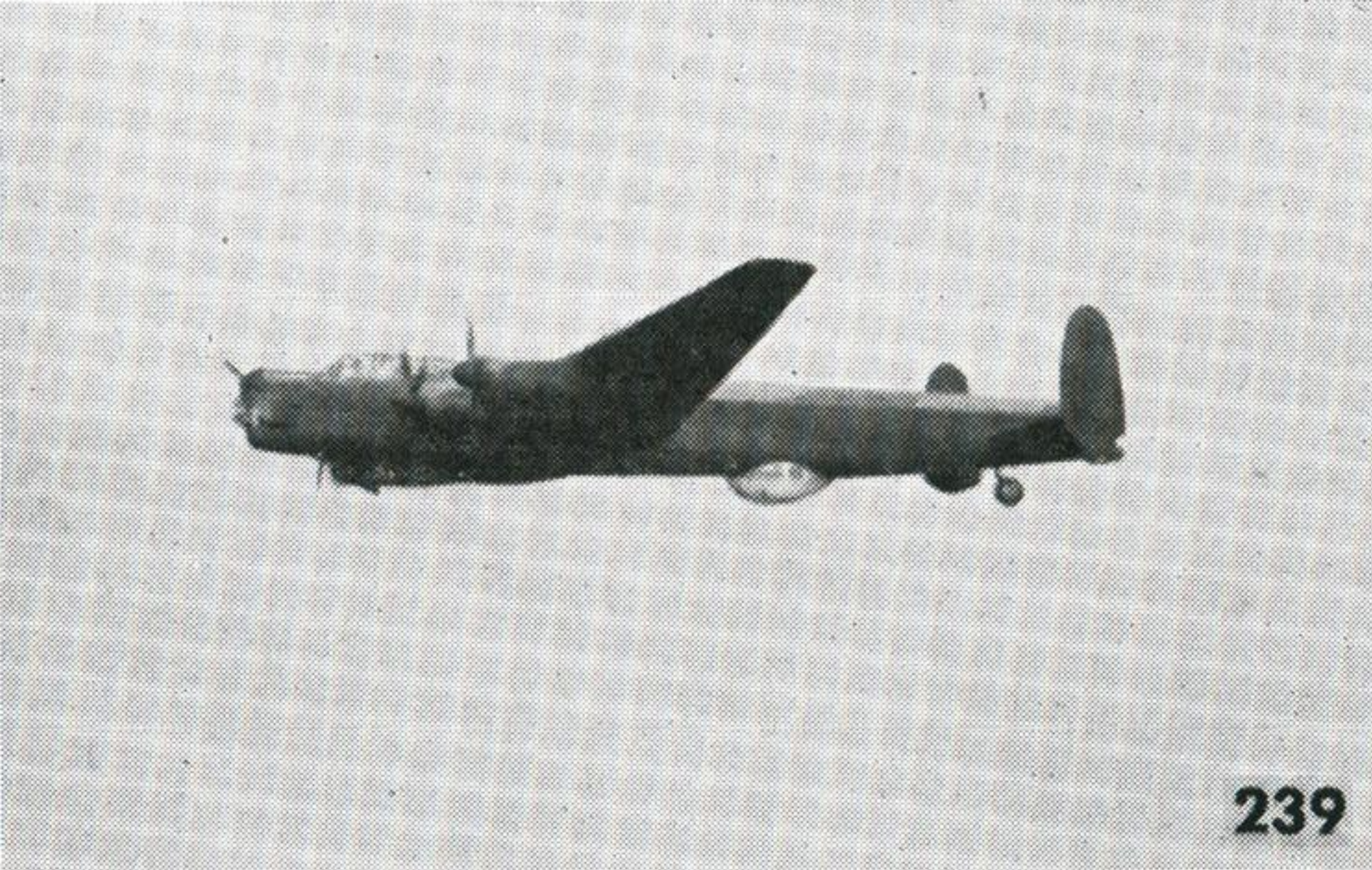
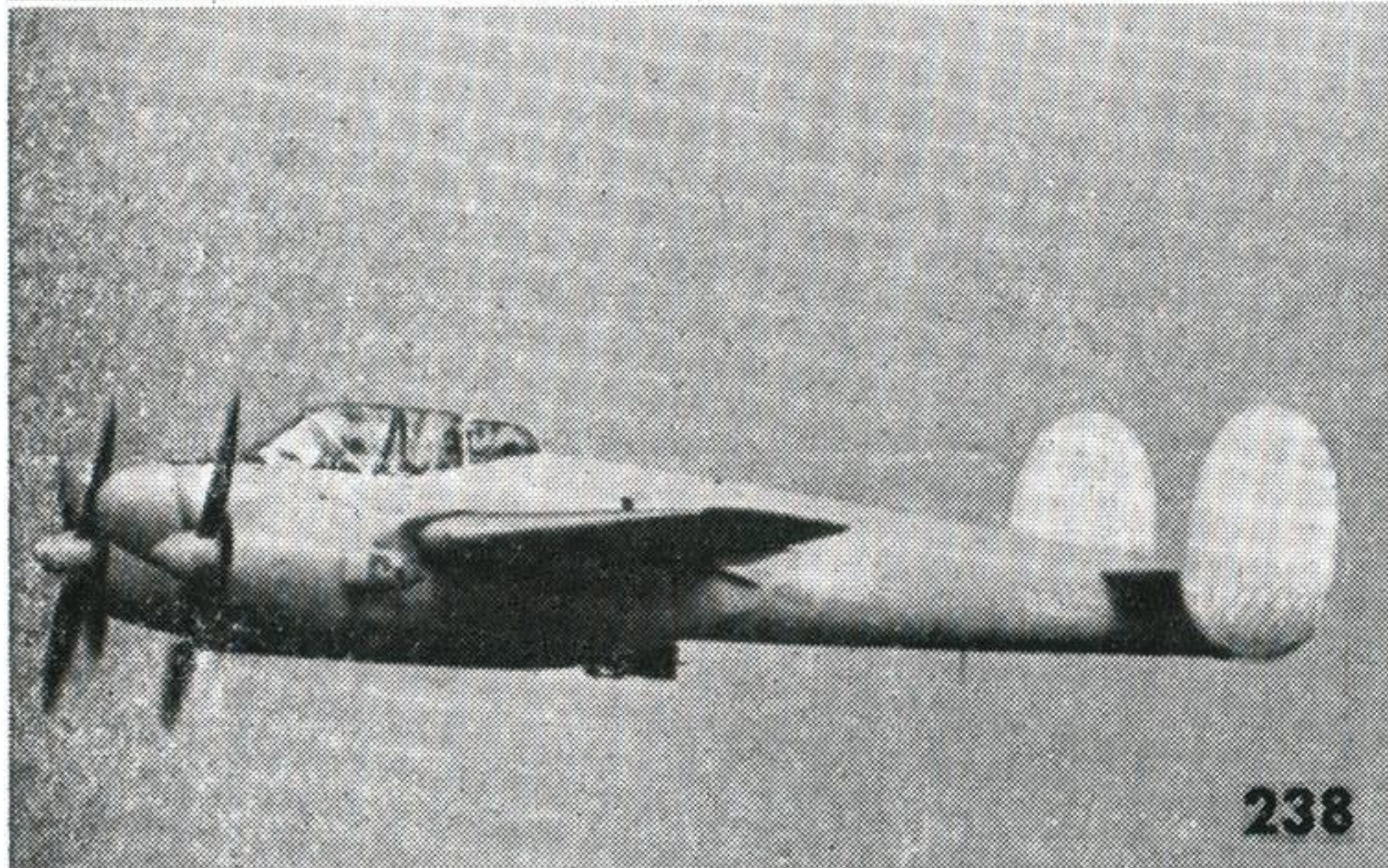
Journal



New Series

SEPTEMBER 1947

Volume 2, No. 2





THE INTER

SERVICES

AIRCRAFT RECOGNITION JOURNAL

(NEW SERIES)

More about Helicopters

LIKE Mr. G. S. Lindgren M.P., who recently flew from St. Albans to Regents Park, we too have "gone to town" on helicopters, albeit in somewhat different fashion. As we said last month, helicopters are "up and coming" and it is time to take them more seriously from the recognition standpoint.

For this reason the article on pages 20 to 23 of this issue, broadly classifies helicopters, for study, into a number of basic types. It also gives a simple and non-technical explanation—as far as this is possible—of the way they work. We must regard helicopters as something more than a mass of whirling blades and whizzing props, and look at those "queer looking" structures and understand the reason for their existence. We hope this article will help spotters to do this and, also, induce a thirst for further knowledge.

For all practical purposes the principles of all types of helicopters are the same; it is the tremendous field open to designers in meeting their aerodynamic and structural problems that allows such wide differences in the, so-called, configurations of helicopters.

The interesting possibilities in the designing field are matched by those in the sphere of commercial and military operating, particularly commercial. The rate of progress being made in study and experiment on commercial possibilities of helicopters leads us to suppose that they will soon begin to be seen in the sky as something more than a novelty.

Skyscrapings

The De Havilland Aircraft Company of Canada are to build a special high-wing float-aeroplane for bush operators. It will be called the **DHC 2 Beaver**. Bush operating conditions call for quick take-off and rapid climb, and these will be features of its performance. Drawings show an un-De Havilland untapered wing, but a decided De Havilland cut to, and mounting of, the tail surfaces.

The **Gloster Meteor**, already successfully tested in rigorous Arctic and desert conditions, is now to be tropically tested in the Far East, under conditions of high humidity.

The Portsmouth Aviation **Aerocar** has flown. It is a high-wing, twin-engined, twin-boom type of monoplane with a rather fat fuselage hanging, gondola-like, from a wide chord, wide span wing (span 42 ft.). It is powered by two Blackburn Cirrus Major III in-line air-cooled motors of 155 horse power each.

The **Armstrong-Whitworth A.W.55** jet transport has been renamed the **Apollo**.

The **Miles Merchantman** prototype has flown. It is an enlarged four-engined **Aerovan**, intended to carry, among other things, two "fully equipped" racehorses. It is, and looks, a utility aeroplane. The tail-boom gives place to a flat, broader, tapering structure and carries a tailplane similar to that of the Aerovan with three vertical surfaces, the centre one of which is a complete oval and extends well below the tailplane.

COMING SOON

Great Britain

The prototype **Avro Tudor VIII** should be flying in a few months time. The Rolls-Royce Nene jet units will probably be mounted in pairs in single nacelles—XB-45 fashion.

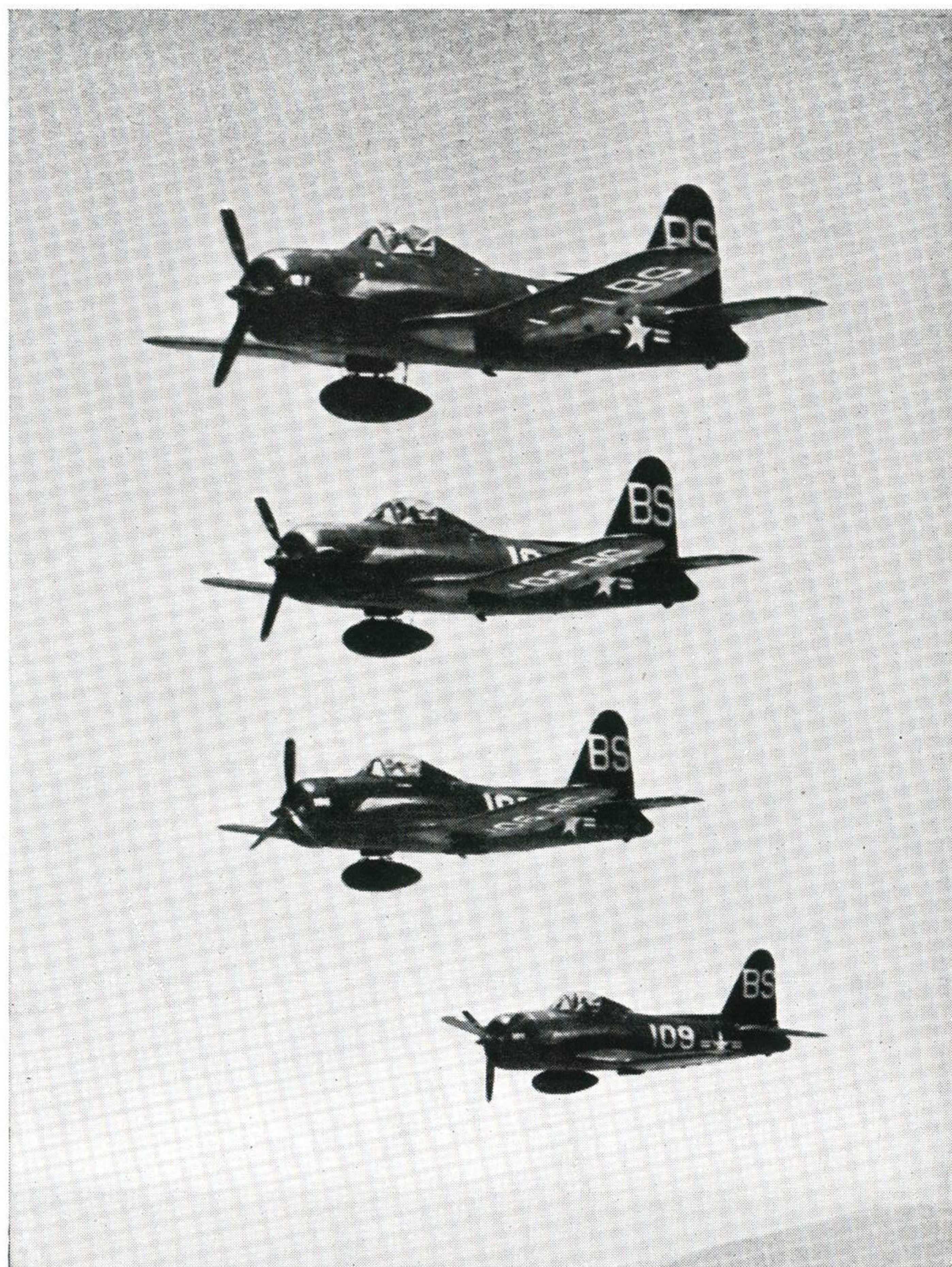
The first **Bristol 167** to fly will be named the **Brabazon**. It will be flying early next year. Further prototypes are being built and will have Proteus prop-jet engines. No names have yet been allotted to these further prototypes.

United States

A long-range transport version of the **Lockheed P2-V**. It will have a larger wing than the prototype and will be powered by two Wright 3350 radials.

McDonnell's XP-85 parasite fighter to be carried in the **Consolidated B-36** is expected to be test flown this autumn. The power unit is Westinghouse 24C of 4,200 lbs. s.t.

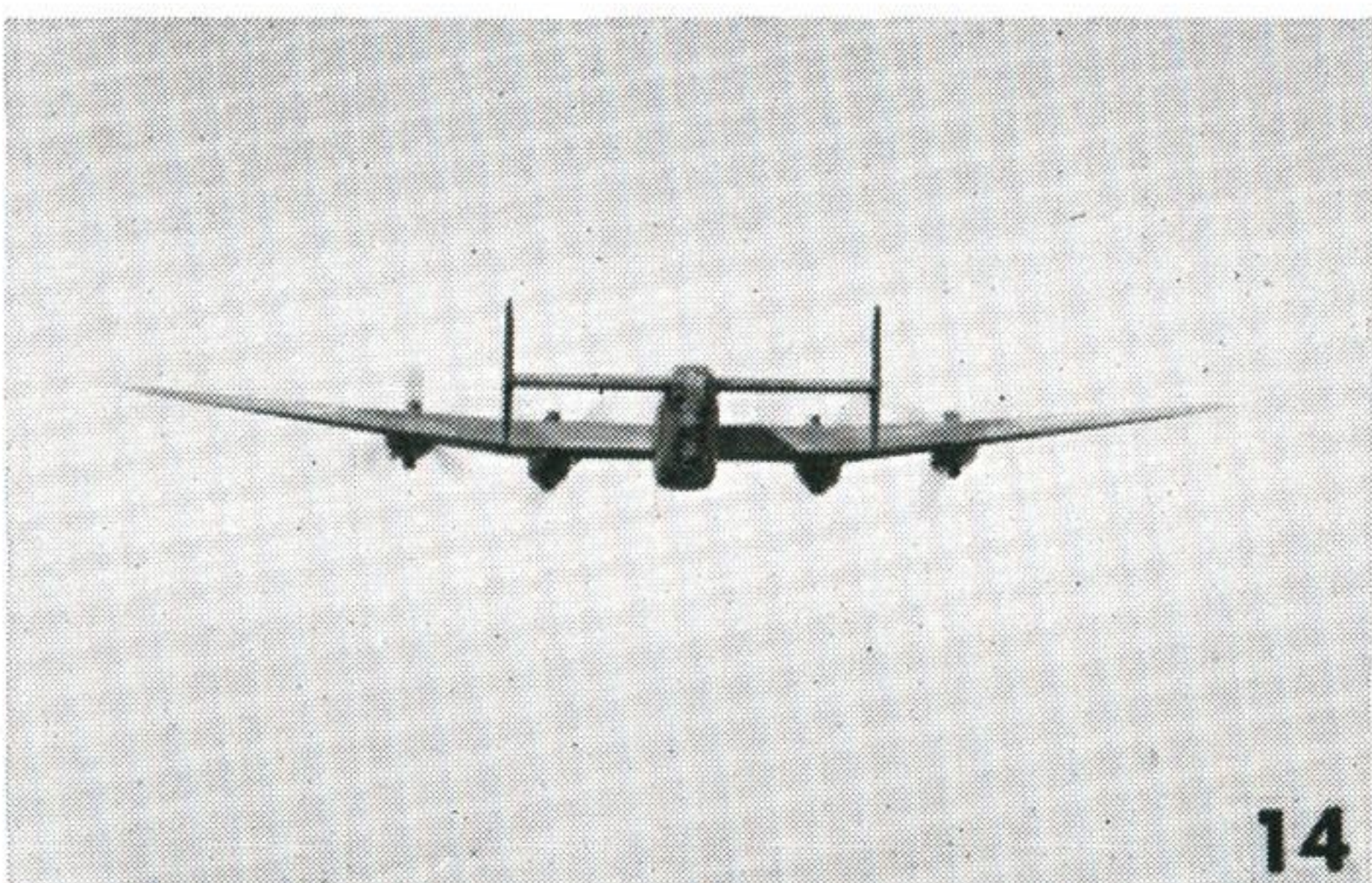
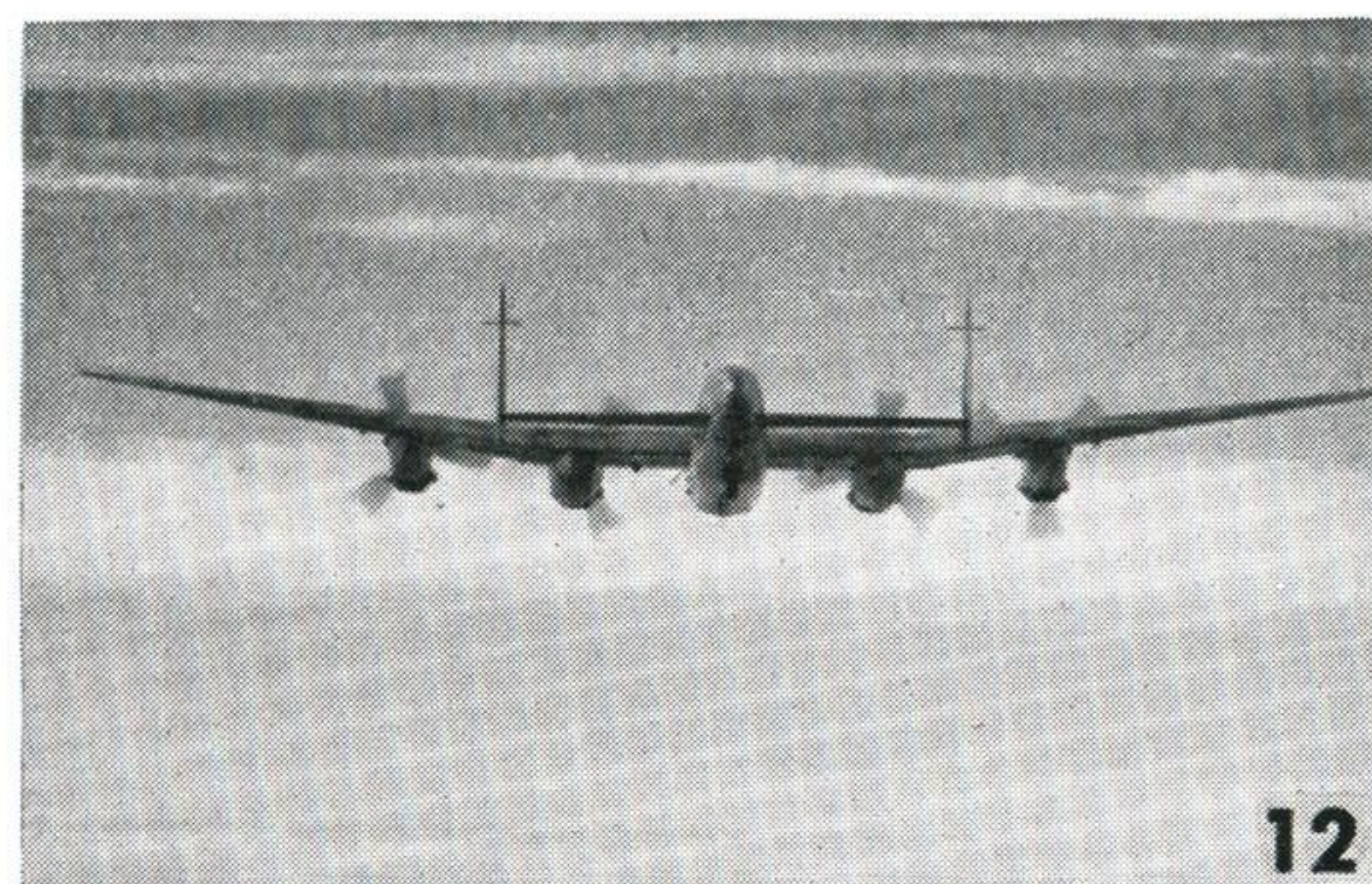
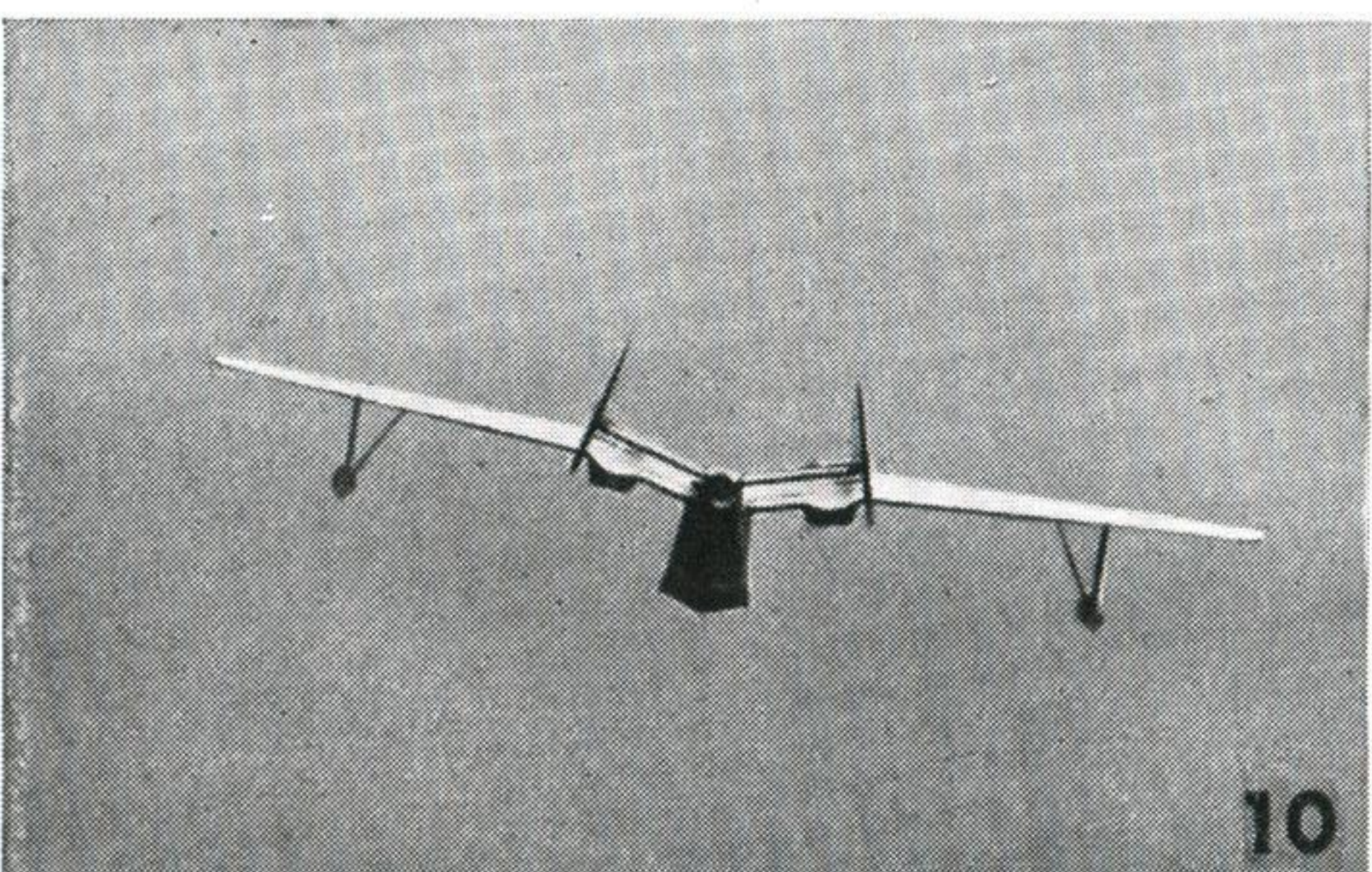
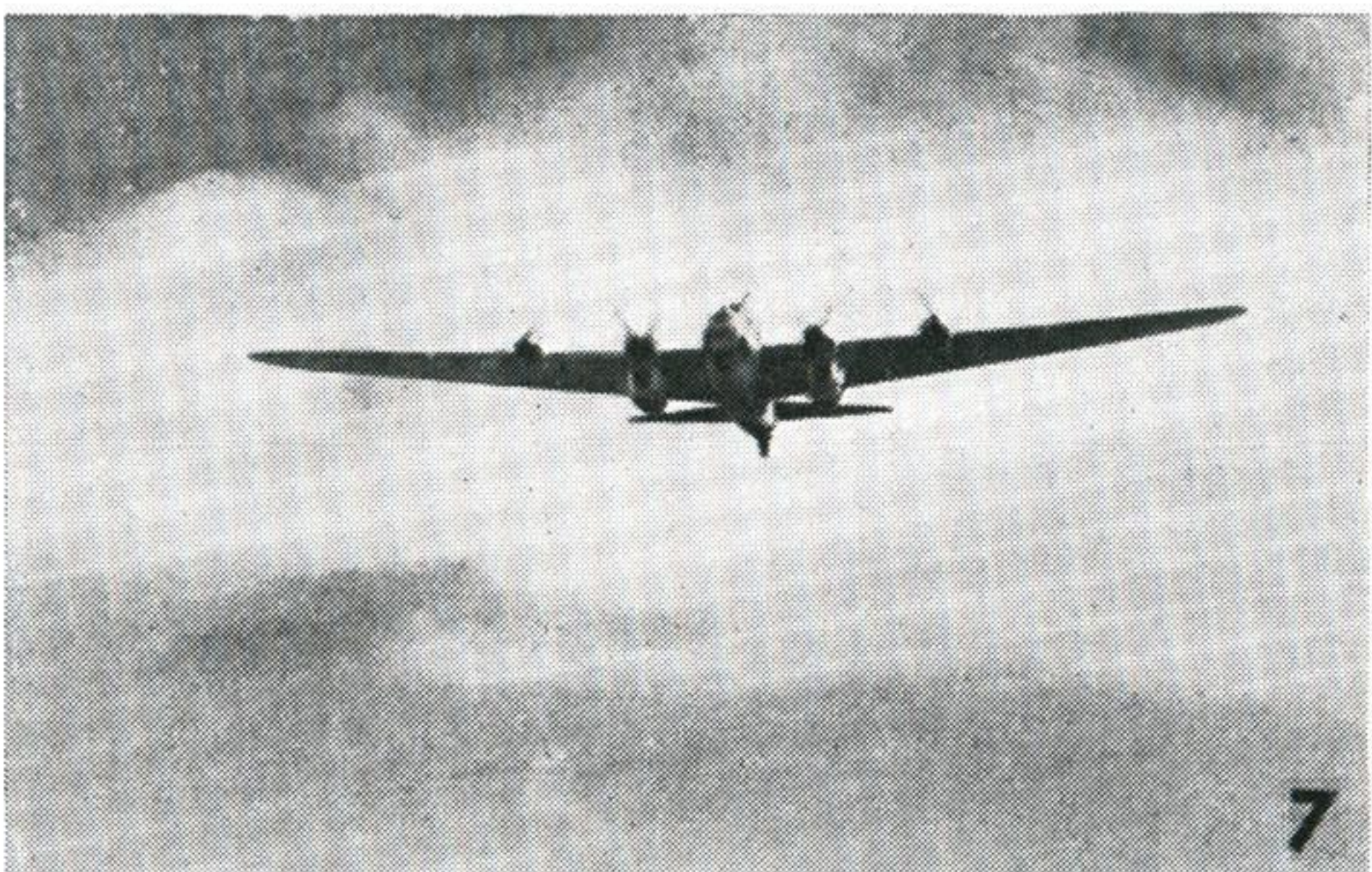
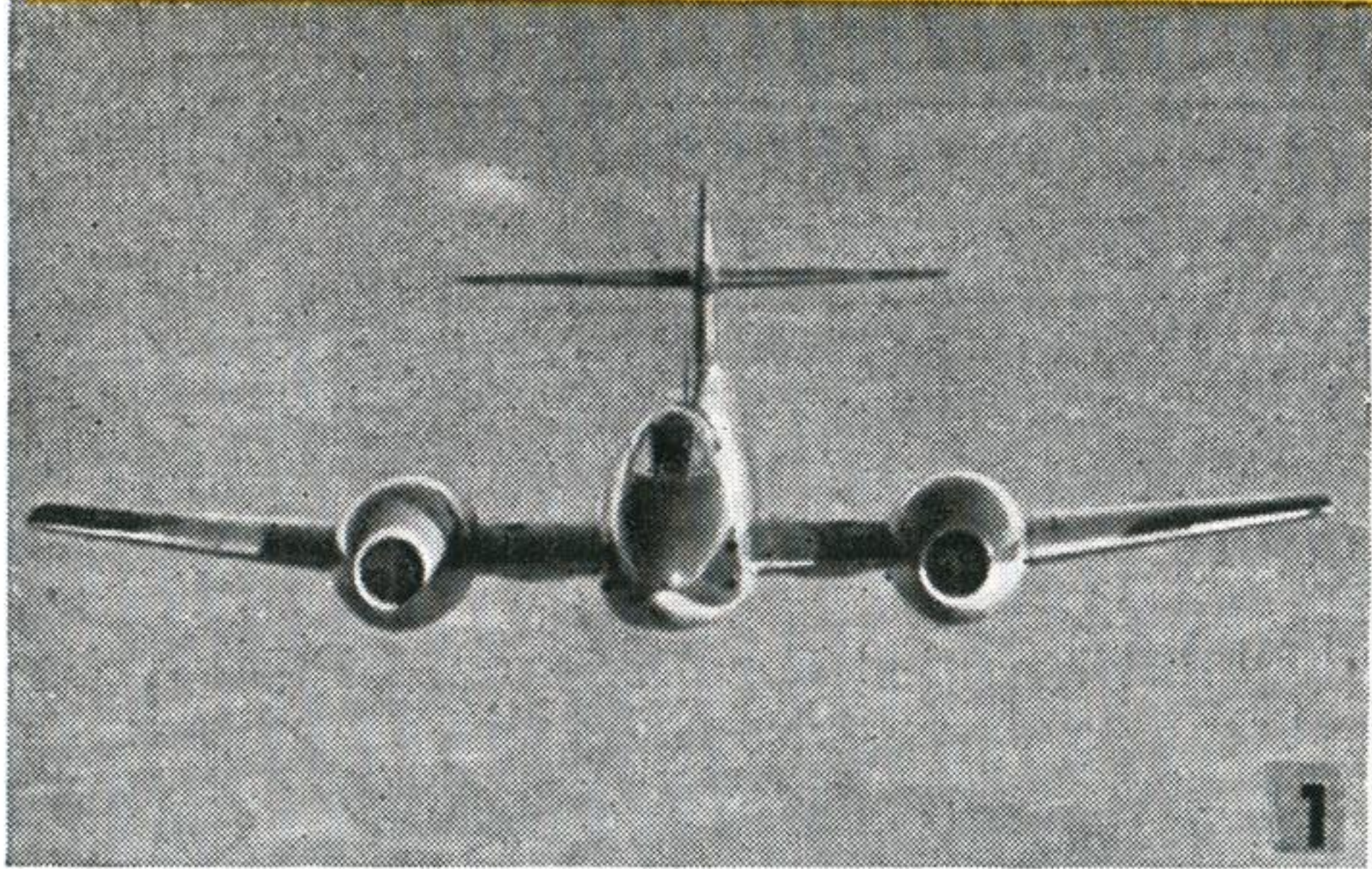
Second prototype **Douglas D 558 Skystreak** with swept back wings.



FOUR FEATHERS. Ryan FR-1 Fireball fighters of the U.S. Navy, forming, quite happily, at 300 m.p.h. with propellers feathered. Flying on the General Electric I-16 turbo jet alone, the Fireball does 300 m.p.h. On its radial—a Wright Cyclone of 1,350 horse power, it does 320 m.p.h. What it does on both, remains a secret. Disregarding ventral tanks, the most noticeable structural features of the Fireball in this particular view are the high "hunched forward" cockpits and large backward leaning fins and rudders. (Span 40 ft.)



eachs or ails



THE fighter boys always ask for tail-on views of bombers : the bomber boys request head-on views of fighters. Here are some of each with a few odd shots of some "civvy" types. Head-on or tail-on views are invariably the most difficult to identify, particularly in the split-second glimpses sometimes obtained in interceptions. Comfortably seated in an armchair, however, you will be able to dwell upon them and absorb some of the details. If each of these aircraft is studied with the aid of a three-view silhouette, the effect of fore-shortening of the shapes of some of the structures will be better appreciated, particularly the effect of dihedral angle upon wing shape (pictures 2, 7, 9, 13 and 15), and the apparent movement of twin fins and rudders relative the rest of the structure. The closer-in you fly, the greater will be their apparent displacement. (See pictures 3, 4, 10, 12, 13 and 14.) Purely as a formality, of course, we are giving the answers opposite, together with wing spans :—

1.	METEOR IV	-	-	-	-	-	-	-	-	37 ft. 2in.
2.	PE-2	-	-	-	-	-	-	-	-	56 " 1 "
3.	NORTHROP P-61 BLACK WIDOW	-	-	-	-	-	-	-	-	66 " 0 "
4.	MESSENGER	-	-	-	-	-	-	-	-	36 " 2 "
5.	NORTH AMERICAN XFJ-1	-	-	-	-	-	-	-	-	38 " 1 "
6.	MOSQUITO P.R.XVI	-	-	-	-	-	-	-	-	54 " 2 "
7.	PE-8	-	-	-	-	-	-	-	-	131 " 3 "
8.	VIKING IA	-	-	-	-	-	-	-	-	89 " 3 "
9.	LA-5	-	-	-	-	-	-	-	-	32 " 2 "
10.	MARINER	-	-	-	-	-	-	-	-	118 " 0 "
11.	F8F BEARCAT	-	-	-	-	-	-	-	-	35 " 6 "
12.	LANCASTRIAN	-	-	-	-	-	-	-	-	102 " 0 "
13.	VAMPIRE I	-	-	-	-	-	-	-	-	40 " 0 "
14.	HALIFAX A.IX	-	-	-	-	-	-	-	-	104 " 0 "
15.	YAK-3	-	-	-	-	-	-	-	-	30 " 2 "

ADVANCED SPOTTING

Recognition Test No. 44



Constellation



LOCKHEED TYPE No. 649

Motors:

4 Wright Cyclones, 2,500 h.p. each

Top speed:

Over 350 m.p.h.

Top Cruising:

Over 300 m.p.h.

Range:

Over 5,000 miles

Wingspan - - - 123 feet

Length - - - 95 ft. 1 in.

Maximum useful load : 22 tons



How Doth the HELICOPTER.

IT doth very well, thank you. For it is a very thimple—sorry—simple thing in theory. Many will jib at the apparent complexity of its structure. But, in truth, if wing “lift” and propeller “pitch” are appreciated, you are well on the road to understanding helicopter flight.

A radial engine, complete with prop, lying on its back, provides the rudest rudiments of a helicopter that we can think of. But there is a little more in it as we said to the barman, who swiped our glass too soon.

Were we to start the engine and slowly open the throttle until the prop lifted it from the ground—assuming the contraption was stable—we should find the engine itself would rotate the opposite way. When they are discussing this tendency, the helicopter experts (short title H.E.) talk of torque.

Talking of torque

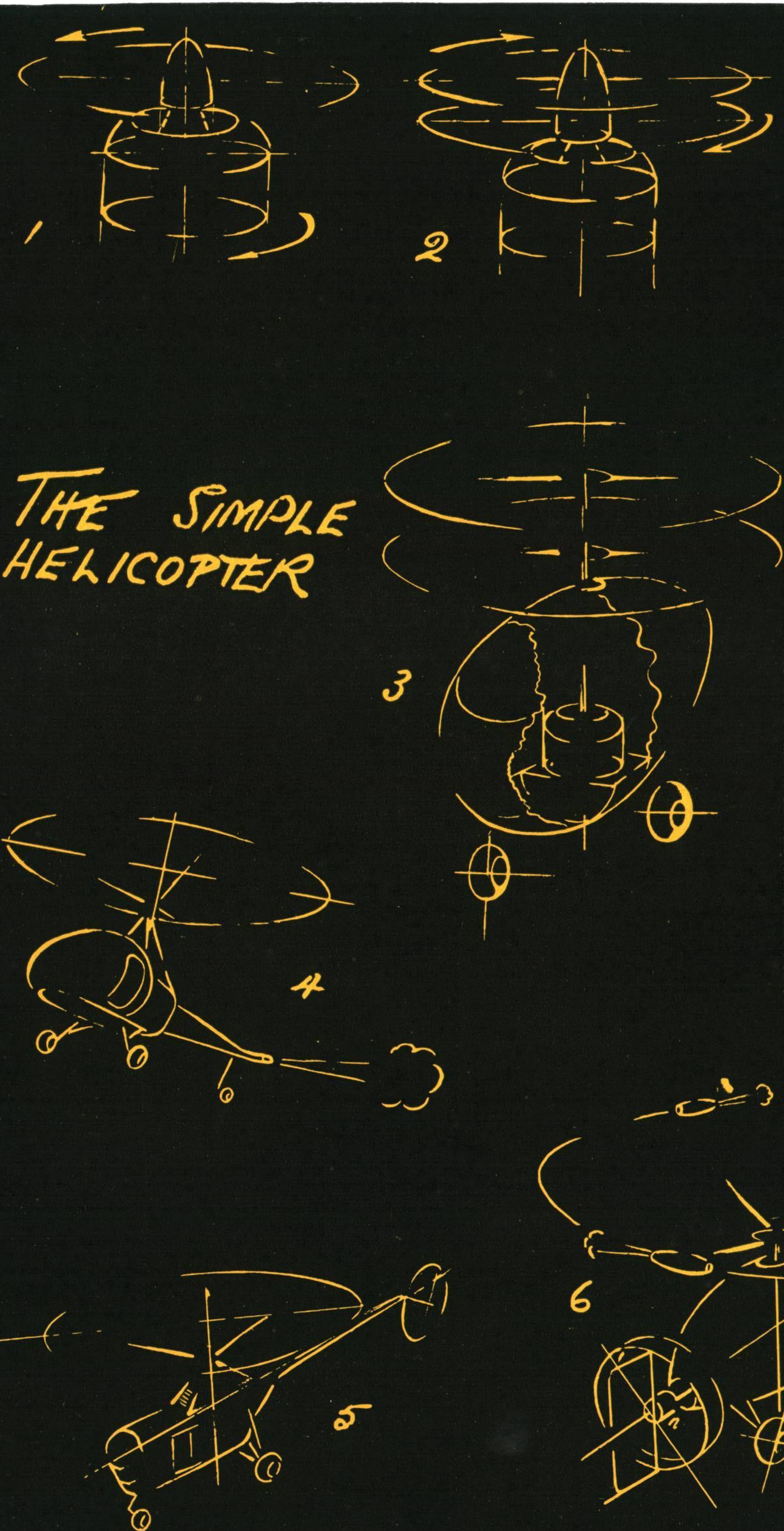
In the orthodox aeroplane we can overcome excessive prop torque by fitting contra-props. All torque then dies a natural death since that from one prop is cancelled by that of the other one. The same thing applies to the helicopter. Fitting “contra-rotors” balances torque. (See figs. 1, 2 and 3.)

To transform our rudimentary idea into a “pukka” helicopter all we need to do is place the engine inside a body, poke a shaft through the roof, mount contra-rotating rotors, connect up controls, fix ourselves a comfortable seat and the job is done. This type of helicopter is known to the H.Es as the “twin superimposed contra-rotating co-axial type” (fig. 3). Theoretically, and in appearance, it is the simplest form of helicopter, though it is by no means the most common type flying.

But before we go on to consider other types of helicopter, we must get to know a few technicalities.

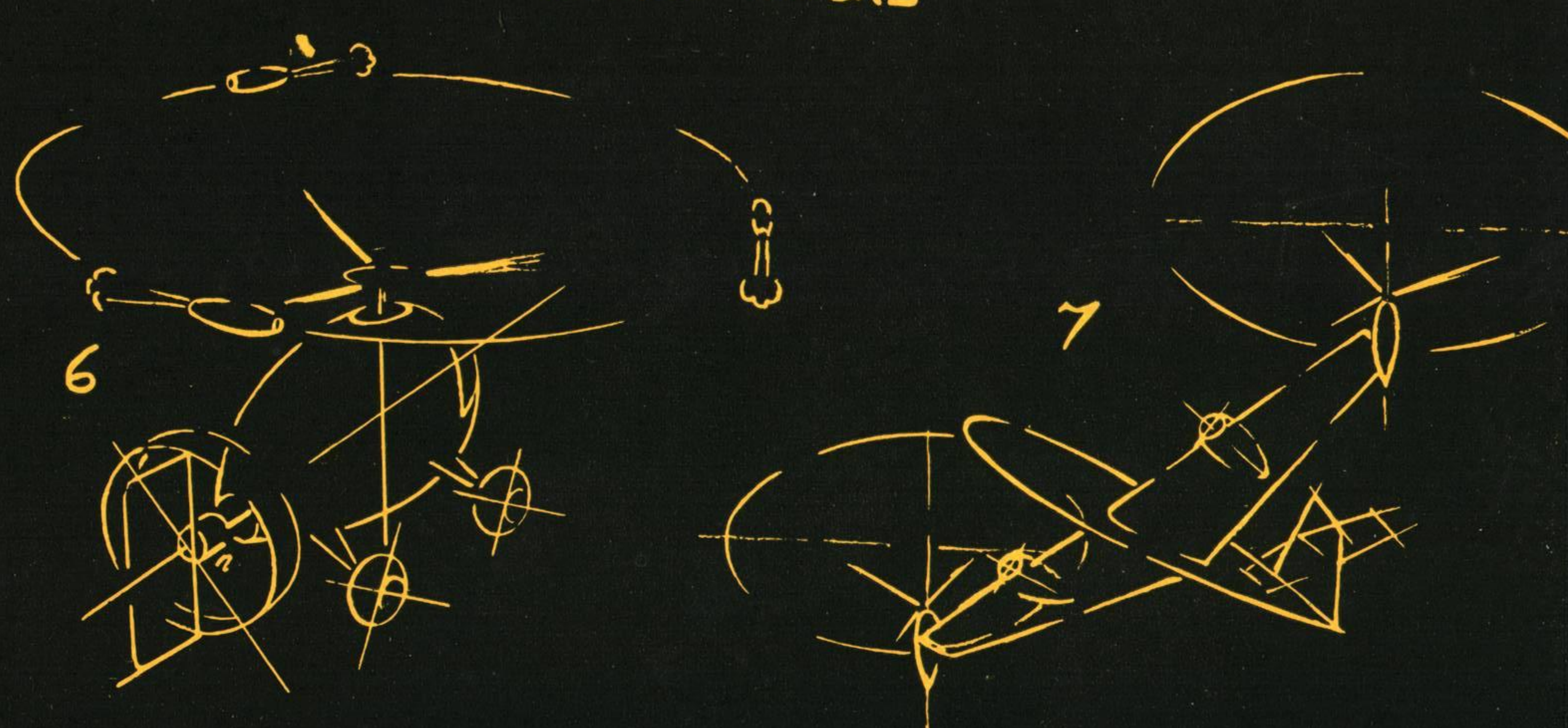
Rotating wings or horizontal props?

The main lifting device of a helicopter is the rotor. In one sense it is a combination of prop and wing, but its blades should be thought of, and in fact are, purely wings, so arranged that the pitch angle or angle of attack can be changed. But, whereas, to obtain lift, the ordinary aeroplane wing is drawn through the air, by a powered prop, the helicopter’s wings are themselves power-rotated. The airflow thus created provides lift even while the whole helicopter contraption remains stationary relative to the ground. Incidentally, the area swept by the rotor is called the rotor disc.



THE SIMPLE
HELICOPTER

SINGLE ROTORS



There are two ways of controlling the lift of a rotor. One is to increase or decrease the engine power—in other words, by use of the throttle. The second is to increase or decrease the pitch-angles of the blades. The two operations are usually combined. In fact, helicopter flight is simply a matter of skilful adjustment of pitch angles and rotor revs. In brief—a matter of power and pitch.

Bags of flap but no panic

Rotor blades are usually articulated—this is merely a fancy name for a glorified hinge. It means that, as they rotate, individual rotor blades are free to rise and fall relative to one another. When they all rise together, as for example, when lifting the helicopter from the ground, they are said to “cone”. The angle between the blades and a horizontal line drawn through the rotor head is called the coning angle.

When a helicopter moves forward, an additional airflow is created over the rotor. This could mean that advancing blades—that is, those swishing forward—could collect extra lift and cant the helicopter sideways. But, to prevent this, each blade “rides high” on the advancing side, and automatically, neutralizes this extra lift. This is what is meant by “flapping.” Incidentally, the blades swishing to the rear are said to “retreat”.

There are some helicopters with rigid blades which do not cone, but in this case the whole rotor head is universally mounted and will “see-saw” instead of flapping.

We are indebted to Flight Lieutenant J. F. Hall of A.D.I. (Tech.) Air Ministry, and to Mr. J. M. Sizer of the Technical Information Bureau, Ministry of Supply, for their technical knowledge and help in preparing this non-technical article, and also for providing some of the illustrations.

The extent to which rotor blades may flap or cone is governed by centrifugal force, set up by rotation, which holds them in balance against lift.

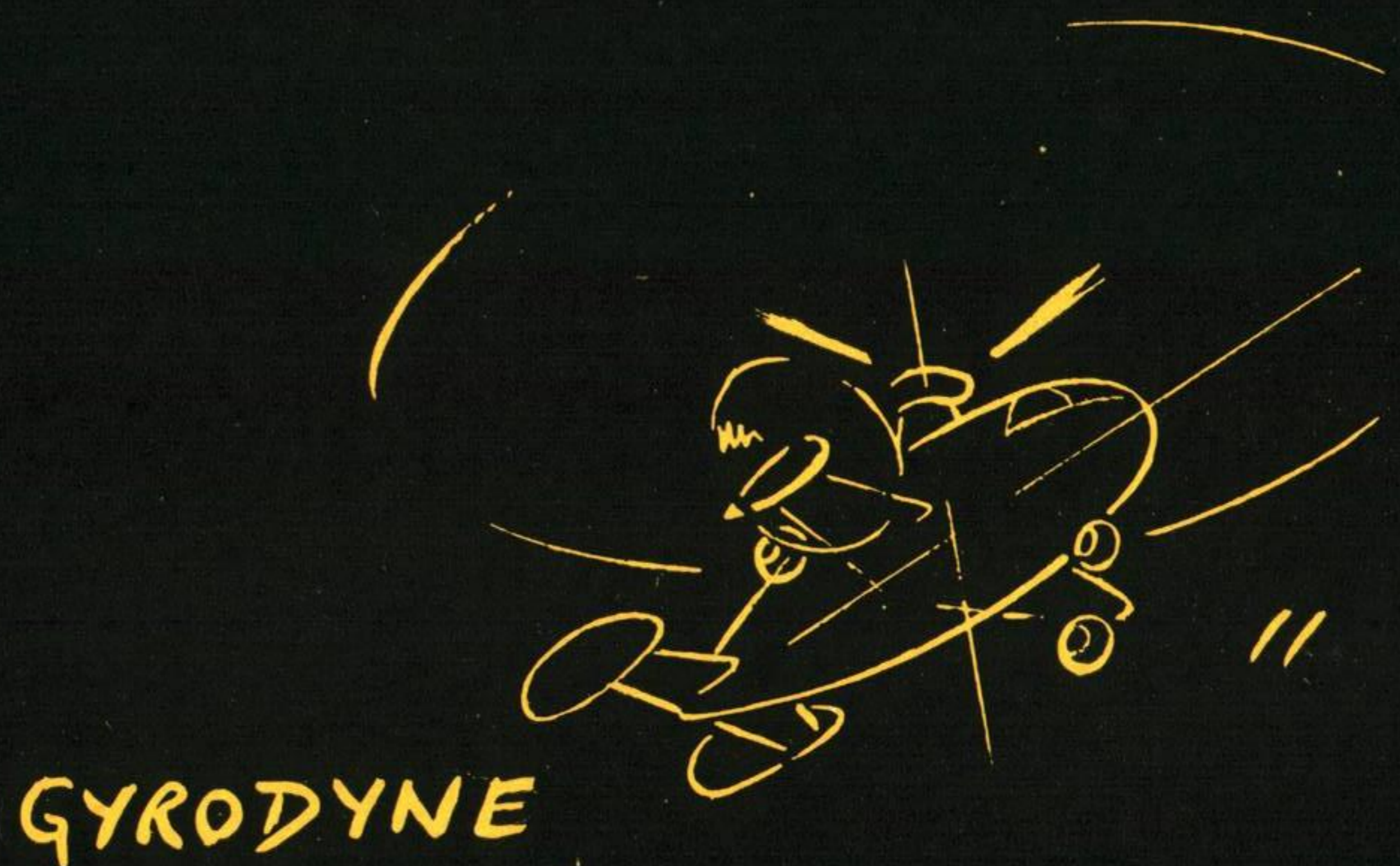
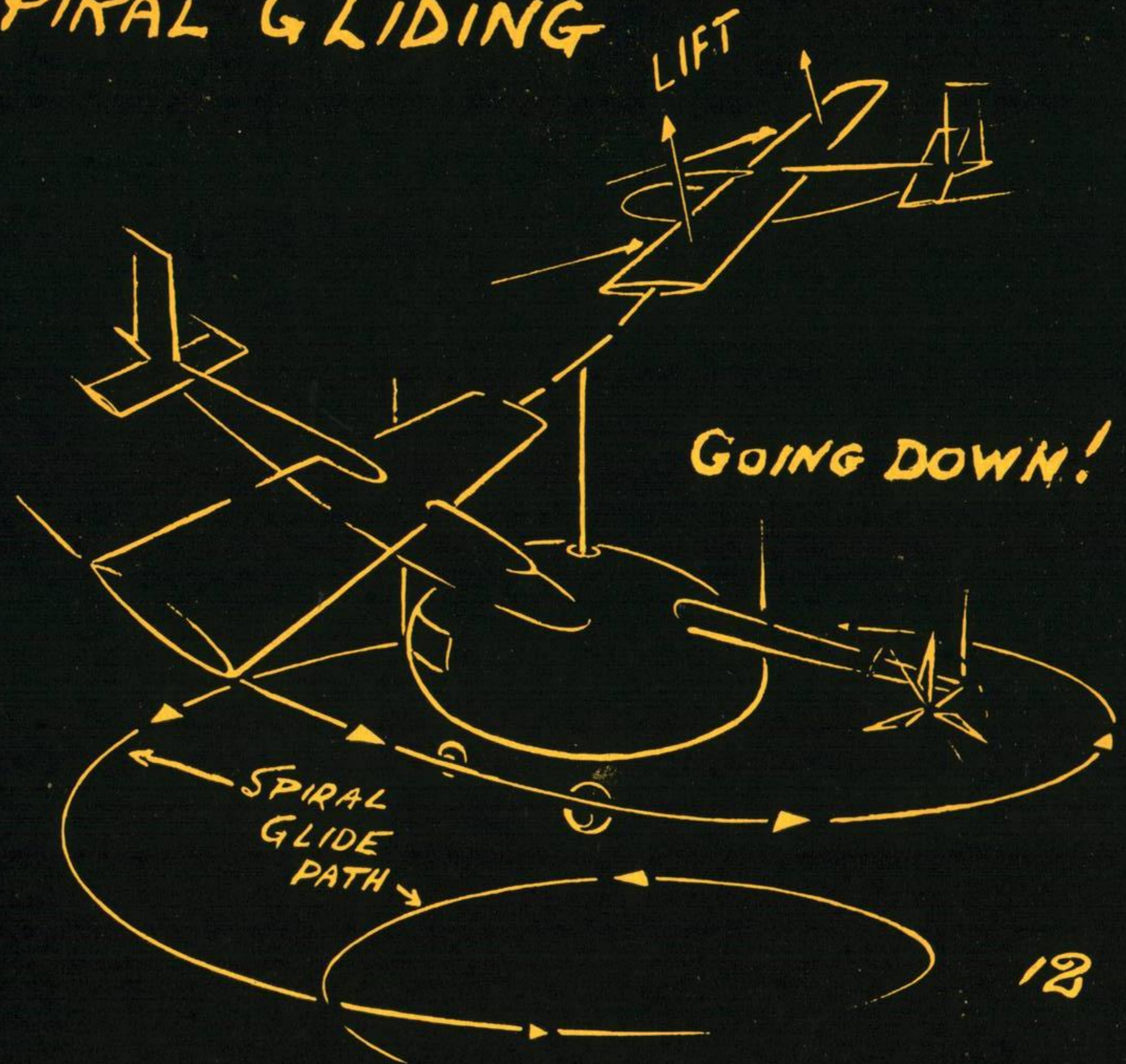
From this it will be seen that it is important to maintain adequate rotor revs. In fact, failure to do so means that the blades will collapse upwards with the direst consequences to helicopter and occupants.

Auto-rotation

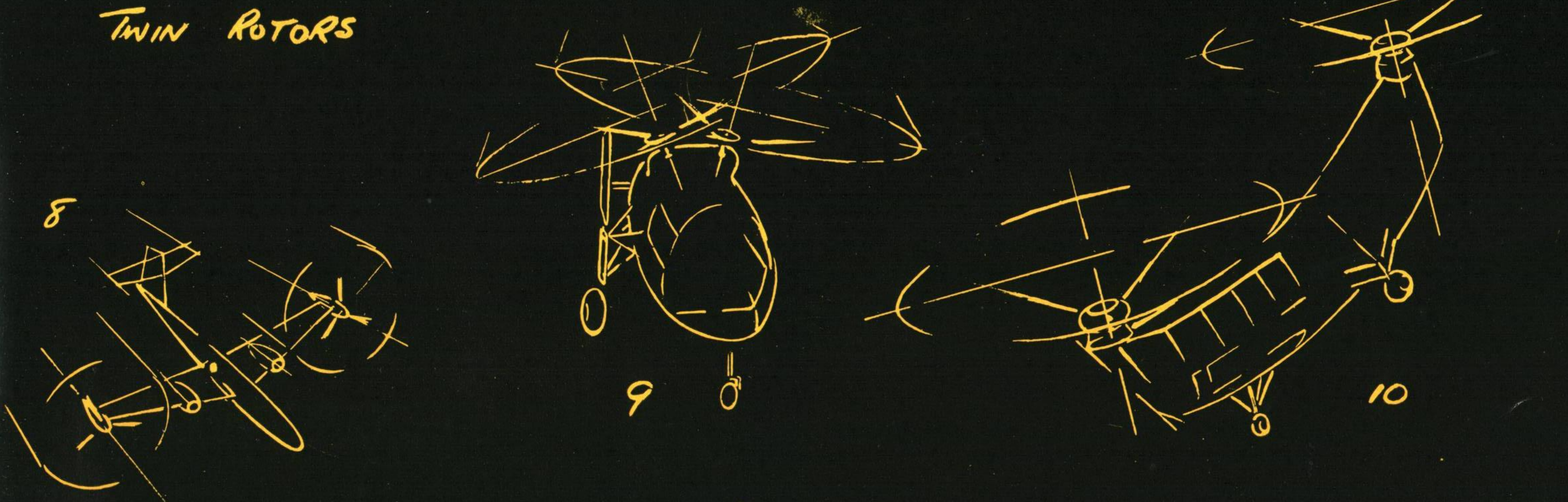
In the event of a “power-cut” the gen is to change the pitch of the blades immediately so that they “attack” the airstream, at a “gliding” angle before they have time to stop rotating. For, with the power off, the helicopter will at once start to sink and the relative airflow will approach the blades from a different direction—from somewhere below. Rotor blades are always very heavy, so they gather considerable momentum under power and do not immediately stop when the power is cut off.

The accompanying drawings, though based upon various existing helicopter designs, are intended only to represent their particular class from the point of view of recognition study. There are other classes, but those shown are among the more important ones. The types represented are: fig. 3—Twin superimposed contra-rotating co-axial type; fig. 4—Single rotor with auxiliary tail rotor; fig. 5—Single rotor with jet reaction at tail; fig. 6—Jet-propelled rotor; figs. 7 and 8—Laterally Disposed rotors; fig. 9—Twin close inter-meshing rotors or “synchropter”; fig. 10—Rotors in tandem; fig. 11—Single rotor with offset tractor propeller, or gyrodyne.

AUTO-ROTATION OR SPIRAL GLIDING



TWIN ROTORS





Coning Angle : A Sikorsky S-51 hovering. The down draught from the main rotor causes a "flap" amongst the spectators. This type of helicopter is to be built in Great Britain by Westland Aircraft. The engine in this particular model is the Pratt and Whitney Wasp Junior Radial. The Westland-Sikorsky S-51 will have the Alvis Leonides radial engine of 500 h.p. (Rotor diameter 48 ft.)



Bubble Nose : In production for the U.S.A.A.F. is the Bell YR-13 helicopter ex Bell 47. This single rotor type with torque-balancing tail-rotor, has only two blades to its main rotor. The blades though "non flapping" are universally mounted and can thus "see-saw", and produce the same result. The gadget rotating beneath the rotor is the stabilizing bar—a device for damping vibrations in the rotor. (Rotor diameter 33 ft. 6 in.)



(Above) **Forward Lifting :** The Sikorsky Hoverfly I is in service with the Royal Navy and R.A.F. This one is dipping its nose as it moves forward. The coarser pitch of the rotor blades as they cross the tail-rotor-boom produces some extra lift at the rear, thus canting the Helicopter on its nose and moving it forward. (Rotor diameter 38 ft.)

(Below) A neat little single-seat helicopter. The Landgraph H-2 has two side-by-side synchronized inter-meshing rotors. Interesting points: blade pitch is fixed, but ailerons are fitted to blades for control; it has a retractable undercarriage. (Rotor system span 27 ft.)



It must be appreciated that this gliding angle is a positive one relative to the airflow, and as the blades sink and turn at the same time, they provide themselves with a certain amount of lift. This lift is not directly vertical; it is partly forward, and it is partly this forward lift that keeps the blades turning. If auto-rotation is difficult to see, consider each rotor blade as a glider wing, as in fig. 12.

As a point of interest, when a helicopter is making a forced landing the blades are suddenly switched to a high pitch angle when the helicopter gets close to the ground. Our old friend momentum keeps the blades turning just long enough to provide a momentary increase of lift sufficient to cushion the landing. A very tricky business.

Auto-rotation must not be confused with windmilling. To windmill, rotor blades must either stop and rotate the other way, or change into negative pitch. Neither of these achievements is considered a Good Thing. In fact, it is probably true to say that anyone achieving "windmilling" has not survived to tell us about it.

Going up !

The first time we left the ground in a helicopter beneath a halo of flailing blades, we were, to say the least, apprehensive. As it turned out this was unnecessary, but that is by the way.

As soon as the rotors start to rotate they begin to lift themselves from that characteristic dismal droop. When maximum rotor revs are obtained (usually not more than 400 r.p.m. because tip speeds get close to the speed of sound) the pitch of the blades is gradually increased. The blades at once lift themselves into a lively cone and gradually take the strain until, eventually, they heave the helicopter clear of the ground. Obviously, a decrease in power or pitch will decrease the lift and allow the helicopter to sink back to earth again. Fine adjustment of power and pitch will enable the helicopter to hover.

In changing pitch for ascent or descent, all the blades change pitch simultaneously. This is done by means of a "collective pitch" control.

Going places

Inside the cockpit of a helicopter is the "cyclic pitch control". In some helicopters this is very much like the "stick" found in the cockpit of an orthodox aeroplane. It is connected to the main rotor blades in such a way that, by its movement, we can momentarily increase the pitch of each blade as it passes a particular point on the swept disc. Thus, if we were to push the stick forward, as each blade passed over the tail boom it would flick into coarser pitch and then flick back again.

Consider the effect of this. The blades pass in rapid succession, and each one produces extra lift for a short period. This causes the rotor to tilt forward. Since the rotor shaft is rigid it tilts the whole helicopter forward on to its nose; well—not quite on its nose. But whereas the whirling blades were previously pulling vertically, they are now pulling forward as well; and since there is nothing to stop it, the helicopter slides forward. By a careful adjustment of the collective pitch in relation to the cyclic pitch controls, it is possible to maintain a constant altitude and to travel forward at the same time.

Pulling the stick backwards merely alters the point on the rotor disc at which each blade changes pitch, and so, shifting the extra lift to the front, we find we can "back-slide." As to sideways flight—well, figure it out for yourself.

Swing it !

There is one more manoeuvre that has to be considered, and that is turning or swinging the helicopter. In the case of the twin-rotor co-axial type we are considering, it is merely a matter of reducing collective pitch control of either the upper or lower rotor to put the torque out of balance and so swing the whole machine one way or the other. We will consider swinging other types when we come to discuss them.

Configurations and Recognition

Torque is one of those things some helicopter designers turn to good account: but others try to kill. It is torque which probably accounts for so many variations in helicopter configuration (as the H.E.s say). This, of course, is a Good Thing, recognitionally.

For the sake of study we can divide helicopters into two main classes: single rotor and twin rotor types. There is also a three rotor type which we shall discuss later. This classification is by no means final and whether or not it will prove to be the best for recognition study, time and experience alone will tell.

The most common type of helicopter flying today is that with the single main rotor and a torque-balancing tail rotor stuck out on the end of a "panhandle" or boom. Of this type, the Sikorsky S-51 is a good example. It is called the "single rotor with auxiliary tail-rotor" type (see fig. 4).

Single rotor types

In this type of helicopter the tail-rotor is driven by a shaft from the main engine. Like a conventional prop it is mounted vertically, but is at 90 degrees to the fuselage. When the tail-rotor spins it pulls the helicopter, by means of the boom, against the torque. Pitch variation of this rotor is used to swing the helicopter, and this type usually has a rudder bar similar to that of the ordinary aeroplane. This works in the same way; the only difference is that in the helicopter it controls tail-rotor-pitch, whereas in the aeroplane it controls the rudder surface.

All other manoeuvres of this type of helicopter are done in the same way as with the twin-rotor co-axial type—that is, through collective and cyclic pitch changes.

An offshoot of this type has a tail jet in place of the rotor. Exhaust gas, plus an engine-driven fan, produce a jet stream which is ejected through an orifice at the end of the boom. The jet orifice is set at right angles to the fore and aft axis of the helicopter. By variations in the strength of the jet, torque balance can be achieved, as well as "unbalance" for turning. The Cierva W.9 is a good example of this type of helicopter. The H.E.s call this type: single rotor with jet reaction at the tail (see fig. 5).

Jet-rotors

There is another single rotor type at present in the early experimental stage. It is one which requires no torque balancing device whatever, simply because there is no torque. On the ends of the rotor blades are small jet units to which hot combustible gases are passed through hollow rotor blades from a compressor in the belly of the helicopter. These tiny jet units are sufficient to turn the blades. Since there is no engine gyrating inside it, the helicopter makes no attempt to twist in the opposite direction.

Turning in this case has to be done by a different method. There is a small engine-driven prop mounted at the back (see fig. 6) which is used to drive a stream of air over a conventional type of rudder; this prop can also be used to drive the helicopter forward. This type is really a combination of helicopter and autogiro.

There is one more single-rotor type that we ought to consider—that is the type that employs one main lifting rotor and a small forward-facing tractor prop (see fig. 11), mounted on a small boom to one side. It is used not only for torque balancing and turning, but also to some extent in forward flying; this, again, is part helicopter and part autogiro. The Fairey FB-2 is an example, and is called the Gyrodyne.

Twin types

We have already mentioned the twin superimposed contra-rotating co-axial type of helicopter. Two rotors, rotating in opposite directions, automatically damp out torque, and that is the reason why there are so many of this type in being or in building.

Side by side configurations (beautiful word) as in the Platt-le-page XR-1A offer interesting prospects (see figs. 7 and 8). With the booms formed into fixed wings they would provide lift in forward flight. On attaining sufficient forward speed the rotors could be tilted forward to form themselves into props. In this way the attributes of the ordinary aeroplane and the helicopter could be combined in one contraption.

But all side by side rotor systems are not headed in this direction. The McDonnell XHJD-1, for example, is built simply to experiment with different sizes of rotors.

In these particular types control is by collective and cyclic pitch changes, though in forward flight control and stability is aided by the additional tail and wing surfaces provided.



The Kellett XR-10, twin-engine transport helicopter, can carry up to ten passengers. Its cruising speed is 90 m.p.h. straight and level, and it has a range of 350 miles. The radial motors are in nacelles—one each side of the fuselage—they look very much like jet units, but are not. Rotors are synchronised and closely intermeshed—uncomfortably so, it might appear from this picture. (Rotor system span 65 ft.)

Tandem types

Twin rotors can also be mounted in tandem; in fact Piasecki has produced several types with this configuration. Torque balance is achieved either by the opposite rotation of rotors or by inclining rotor shafts slightly to left and right and rotating both the same way. Because it is "lifted" at both ends this type is very stable.

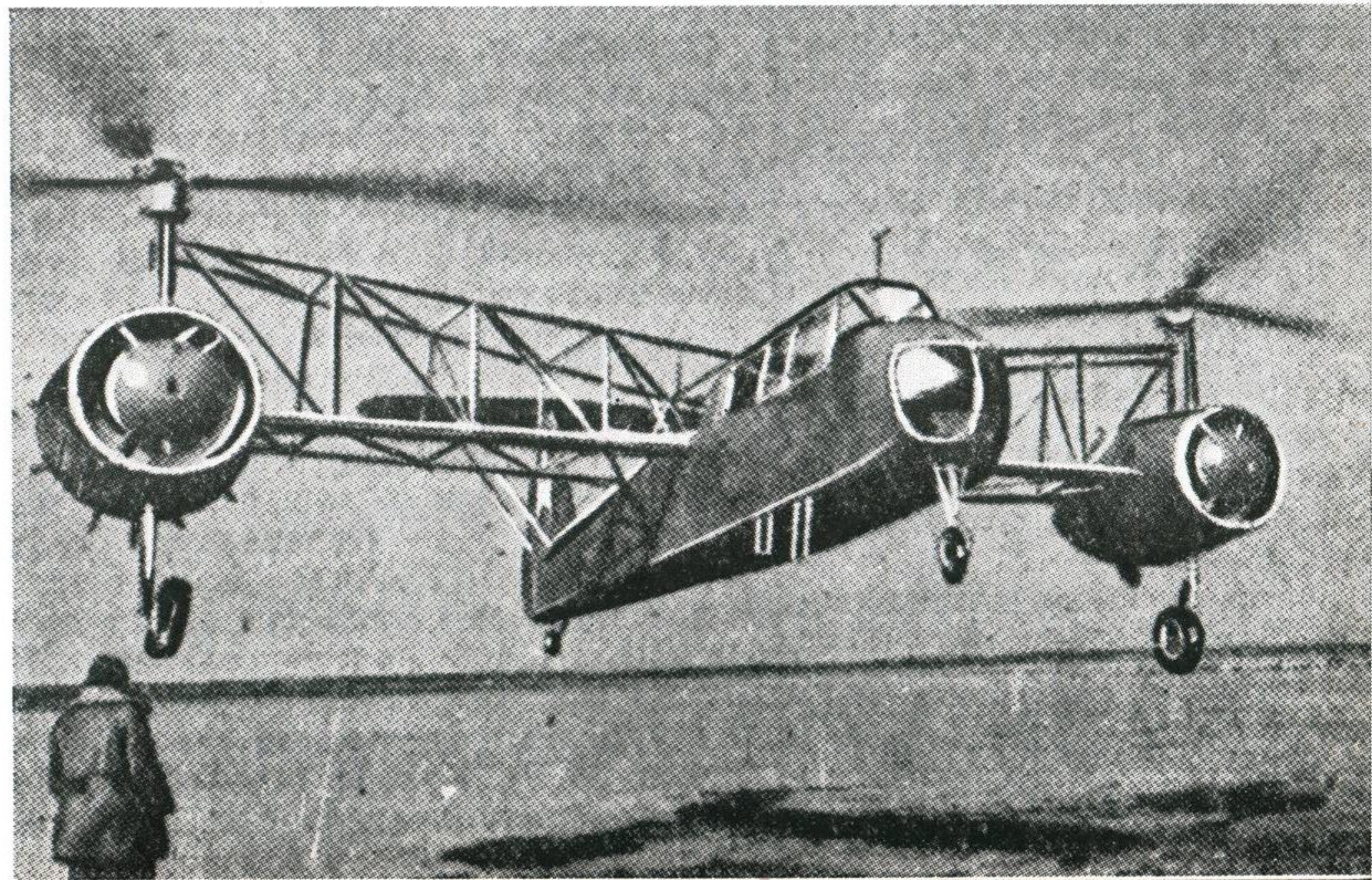
There are many designs of helicopter, at present in the experimental stage, in which the twin rotors closely intermesh. Here, the immediate advantage is compactness and absence of torque because, in order to intermesh, rotors must counter-rotate, and torque balance is thus achieved automatically. Control is achieved as in the other twin rotor types. The Kellett KE-8 is a good example (see fig. 9).

Mention must be made of the Cierva W.11 "Airhorse." The main reason for using three rotors in this case is simply to lift a great weight of insecticide. Two larger rotors in place of the three smaller would, perhaps, mean getting excessive blade-tip speeds. Torque balance is achieved by inclining rotor shafts and rotors, whilst allowing the rotors themselves all to rotate in the same direction. This machine is specially designed for crop-dusting work. A picture of a model of this machine appeared on page 84 of volume I of *The Journal*.

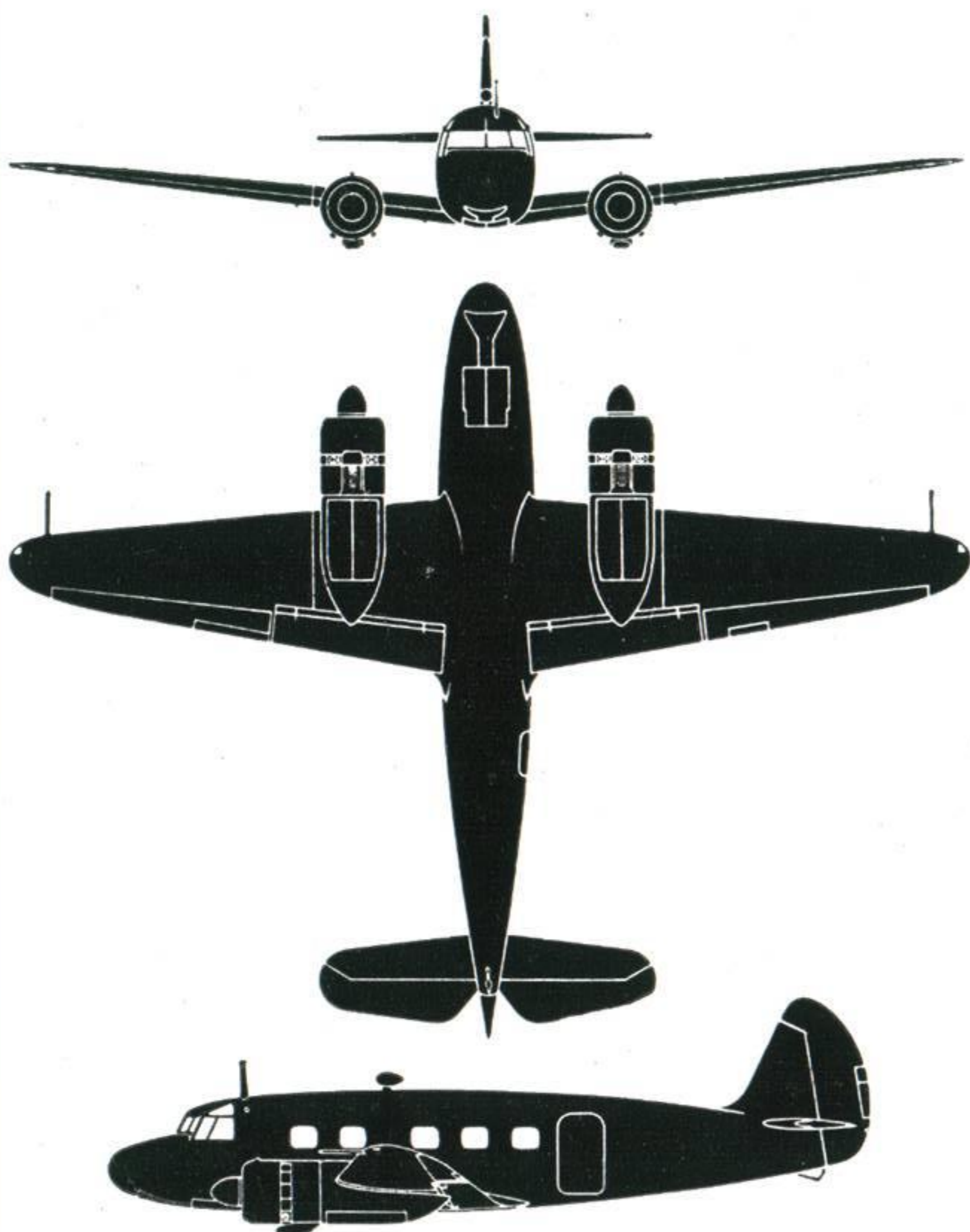
These, then, are some of the main types of helicopter in existence at the moment. There are many offshoots of these designs and our survey is not exhaustive. The essentials of a helicopter are few: a power plant and controls, and a rotor—torque balanced—and its controls. The multitude of methods open to designers in meeting the requirements of helicopters in the aerodynamic and structural fields lead us to suppose that it will be a long time before designs crystallize into fewer types. Everyone is busy experimenting at present, both in matters of design and operation.

In theory, it is possible that, eventually, we shall be able to combine all the safety advantages of the helicopter with the high speed characteristics of the orthodox aeroplane. This would mean some sort of hybrid flying machine—such as H. G. Wells foresaw—which will be able to take off vertically, withdraw, or partly retract, or streamline its rotors after gaining sufficient forward speed; then, by means of jets, fly at high speed to its destination, spread its rotors and alight on the first convenient tennis court or roof top.

The Bratukhin Omega or "flying Bailey bridge" is a potential ambulance, crop-duster, or transport. The crew is two. Two 5-cylinder radial engines, M-11s, provide the power and are situated one beneath each rotor. Tail surfaces provide additional control and stability in forward flight; the top speed is about 115 m.p.h.



CUNLIFFE-OWEN CONCORDIA



British Transport
2 Leonides Radials. Span 56 ft. 7 in.
New Silhouette

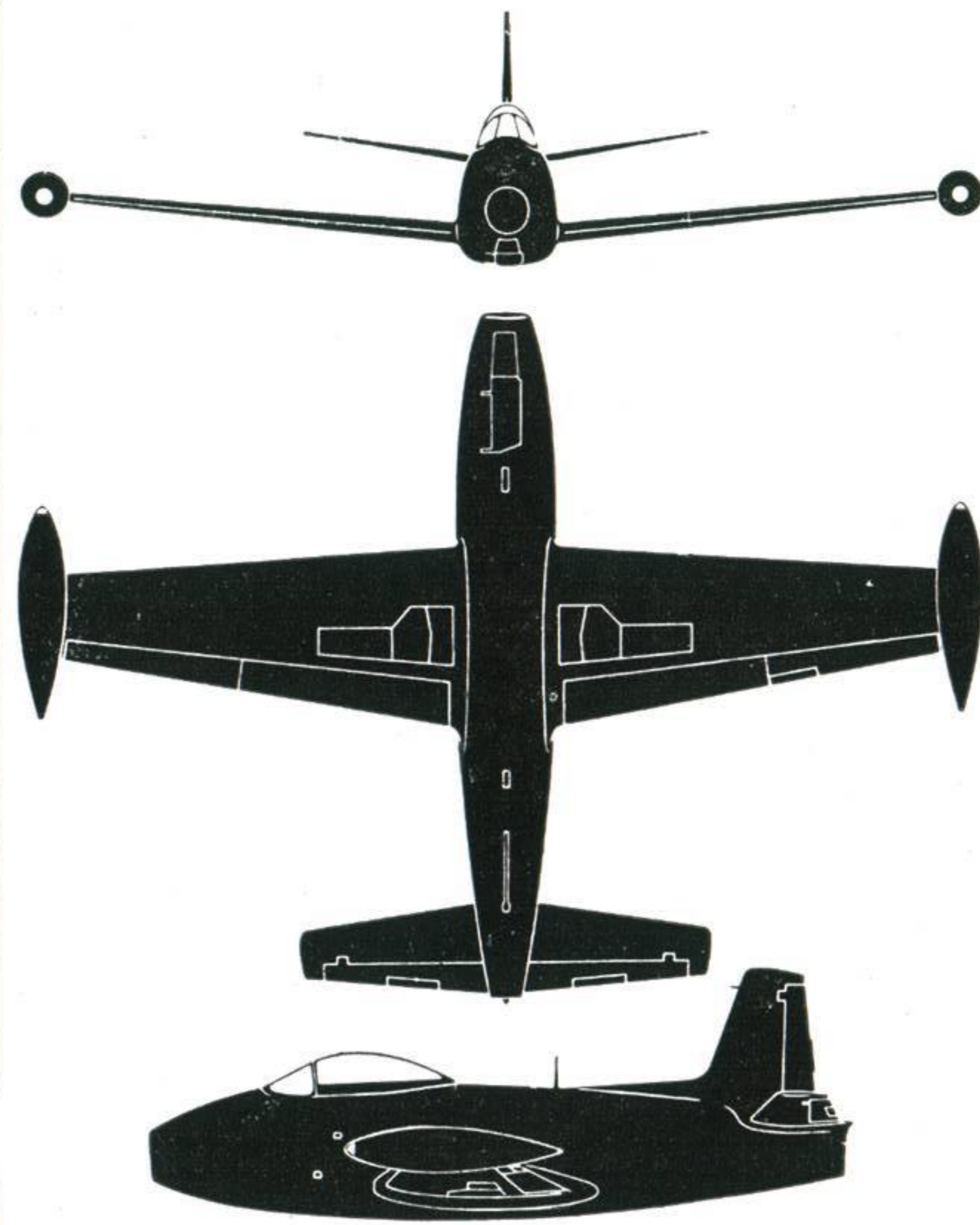


ABOVE—
The Concordia feeder line transport, has a sharp angle of dihedral to its diamond shaped wing. The wide span narrow chord tailplane has a vee cut-out. Top speed 216 m.p.h.

BELOW—
The XFJ-1 jet-fighter, has wide span narrow chord, squared-off wing and tail surfaces, short tubby fuselage. This is the U.S. Navy model. The U.S.A.A.F. will have a swept-wing version called the XP-86.



NORTH AMERICAN XFJ-1



American Fighter
1 G.E. Turbo-jet. Span 41 ft. 0 in.
New Silhouette

FRONT COVER : De Havilland Sea Hornet XX

SOLUTIONS TO RECOGNITION TESTS IN THIS ISSUE :

No. 43 (ELEMENTARY SPOTTING)

- 235. DC-4 Skymaster
- 236. A-26 Invader
- 237. R-4 Hoverfly I
- 238. Brigand
- 239. Lincoln
- 240. P-80 Shooting Star
- 241. C-82 Packet
- 242. Vampire
- 243. Marathon (2nd prototype)
- 244. Seafire 47
- 245. Tudor I
- 246. Bell 47 hovering (left, Bell 47B ; right, Texan)
- 247. Sea Hornet
- 248. AD-1 Skyraider
- 249. Spitfire IXs
- 250. Meteor IV
- 251. Sea Fury
- 252. Constitution

No. 44 (ADVANCED SPOTTING)

- | | | |
|----------------------------------|---------------------|----------------------------------|
| 297. Fury | 309. Dakota | 322. P-80 Shooting Star |
| 298. Halifax | 310. Avenger | 323. Mosquito |
| 299. Beaufighter X | 311. LA-5 | 324. Mosquitoes |
| 300. Firefly I | 312. PB 1-3 Mariner | 325. Superforts |
| 301. Gemini | 313. Mosquito | 326. Meteor (Trent prop-jets) |
| 302. Skymaster | 314. Lincolns | 327. Tiger Moth |
| 303. P-61 Black Widow | 315. Sikorsky S-51 | 328. Navion (background Bell 47) |
| 304. Dove | 316. Vampire II | 329. Dominie |
| 305. Chance Vought XF6U-1 Pirate | 317. Tempest | |
| 306. Firebrand | 318. Meteor | |
| 307. Lancaster VII | 319. Chipmunk | |
| 308. Me 262 | 320. Firebrand | |
| | 321. Buckmaster | |

BLACK ISSUES

Through insufficient cross-checking a number of errors appeared recently. In the June issue we said a Buckmaster was a Brigand, see picture No. 215 of the Elementary Spotting. Worse follows. In the July/August Number, we labelled the silhouette of the North American XB-45 as being of the house of Martin. In the Advanced Spotting, No. 288, we labelled the Martin XP4M-1 the XPBM-1. And, as if that were not enough, we said the North American XFJ-1 was by Chance Vought. This occurred in picture No. 10 illustrating Sgt. Cottee's article "American Military Trends." We do not claim deliberate mistakes. There is, however, one swift and certain method of clearing any slight confusion in the editorial mind and that is to allow it to creep into print. We learn in no time—and how!

We express our regret to all concerned.

AS WE SEE THEM (Left.) The "droop snoot" P-80 Shooting Star USAAF standard fighter. (Centre.) The Douglas D-553 so-called "transonic test-tube" "research only" aircraft. (Right.) The Republic XP-84 Thunderjet, another stub-wing jet-fighter. Fuselage forms are interesting: (left to right) cigar, test tube, milk bottle.

