THE INTER SERVICES

# AIRCRAFT RECOGNITION

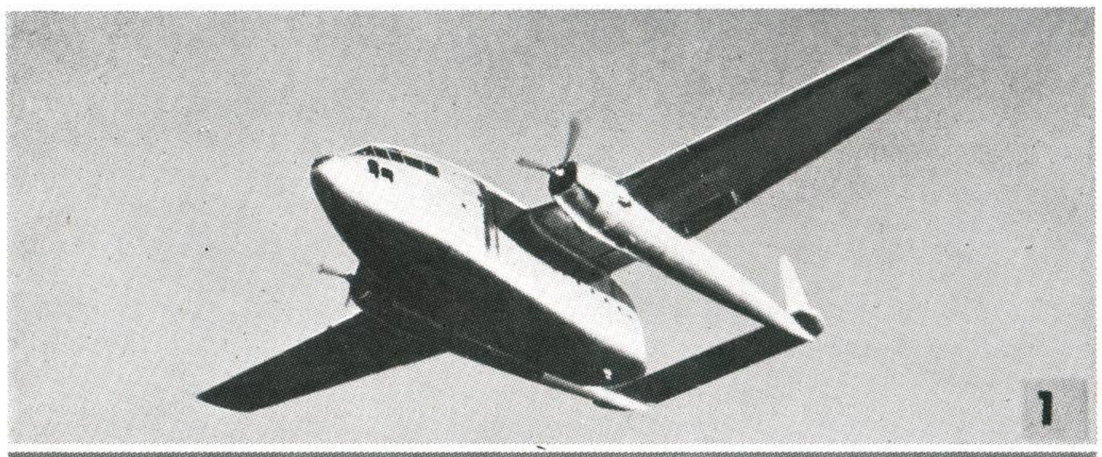
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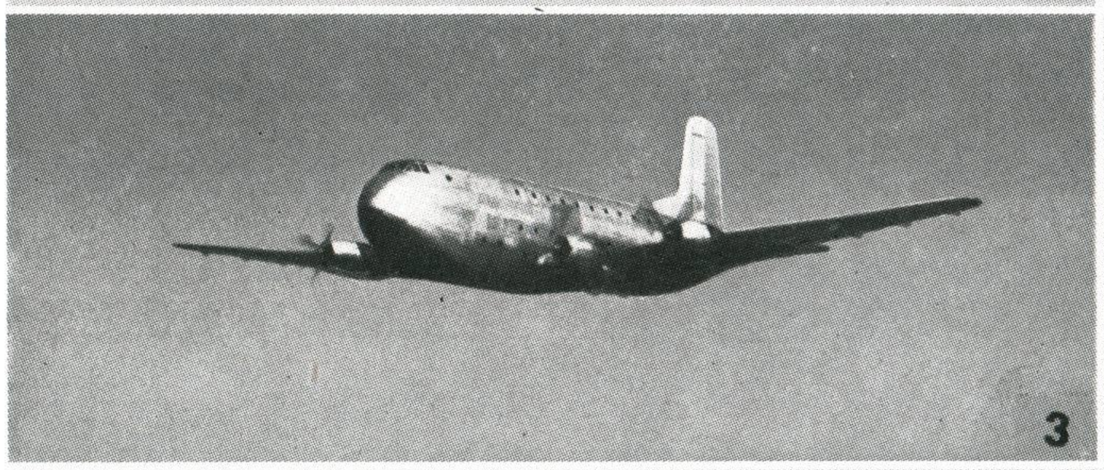
Vol. 4 MAY 1950 No. 9

# R.A.F. Regiment Gunners — AttenSHUN !

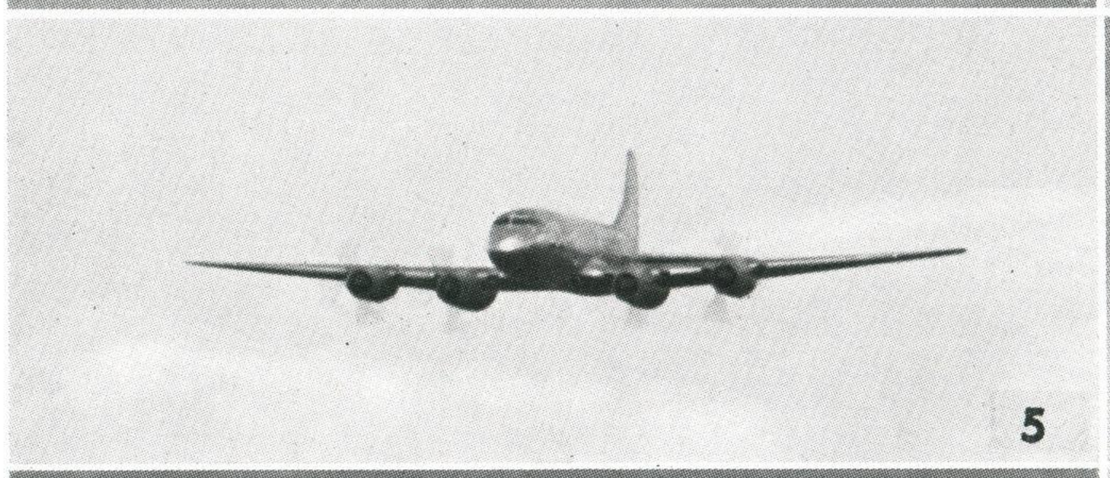
**Defence of vulnerable points against airborne assault demands instant recognition of many types of aeroplane. Here is a selection of transport types. If you cannot identify them, you will find them listed on the rear cover. But don't leave the matter there, find out more about them and keep on familiar terms with them!**

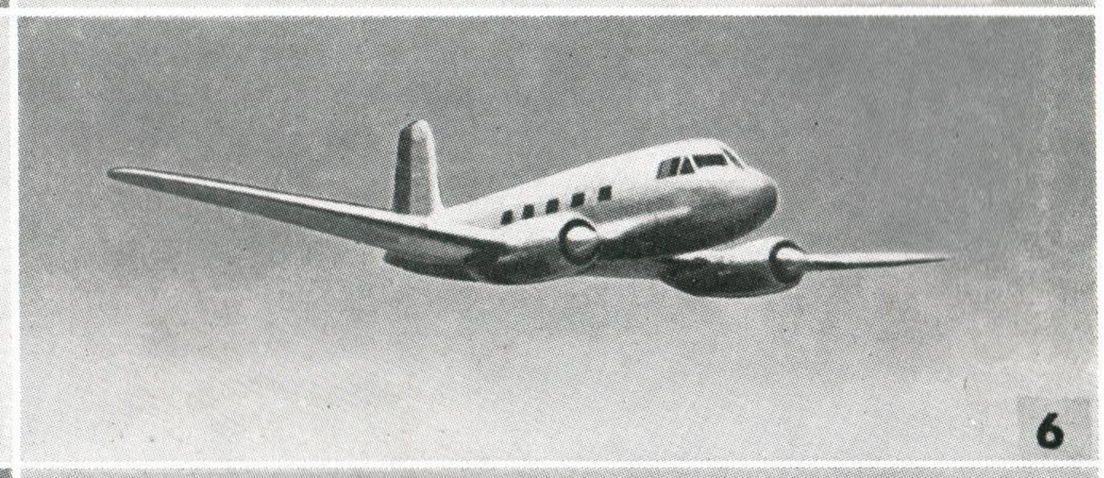

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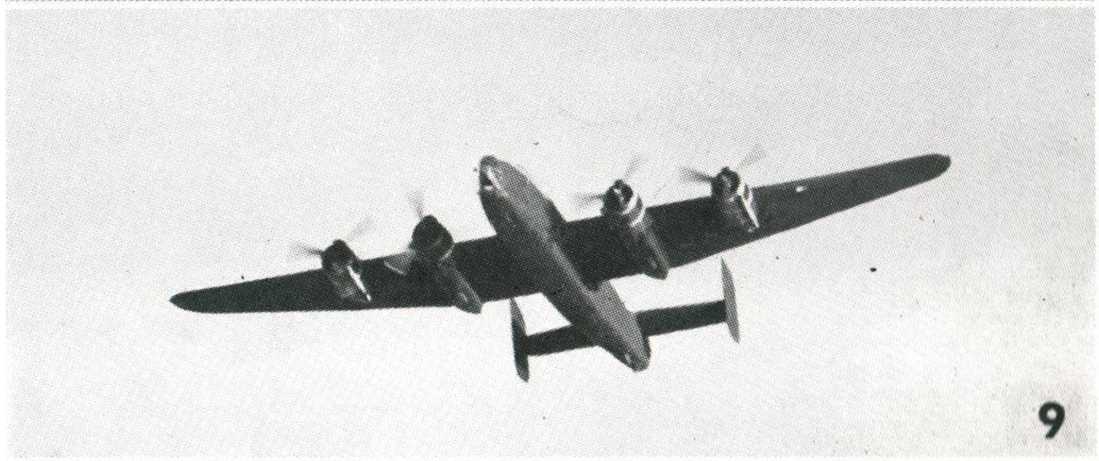

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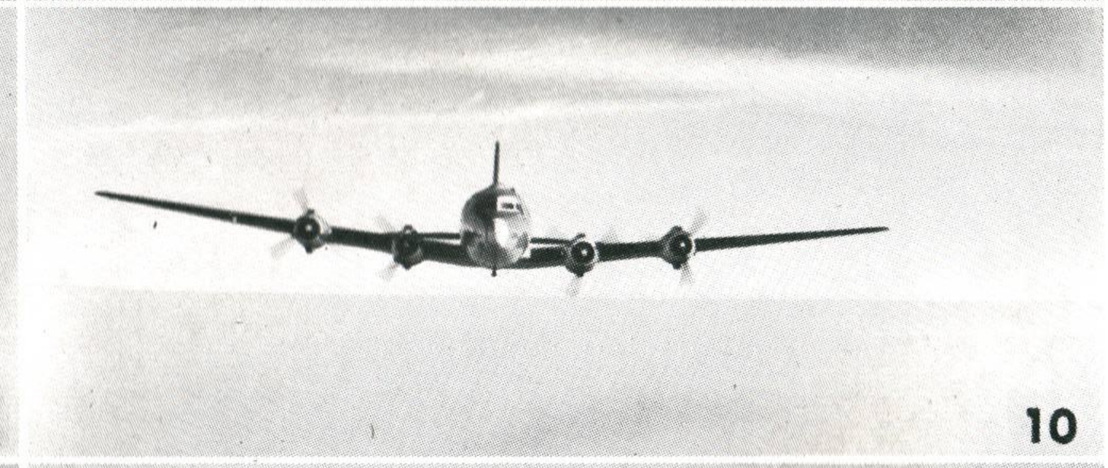

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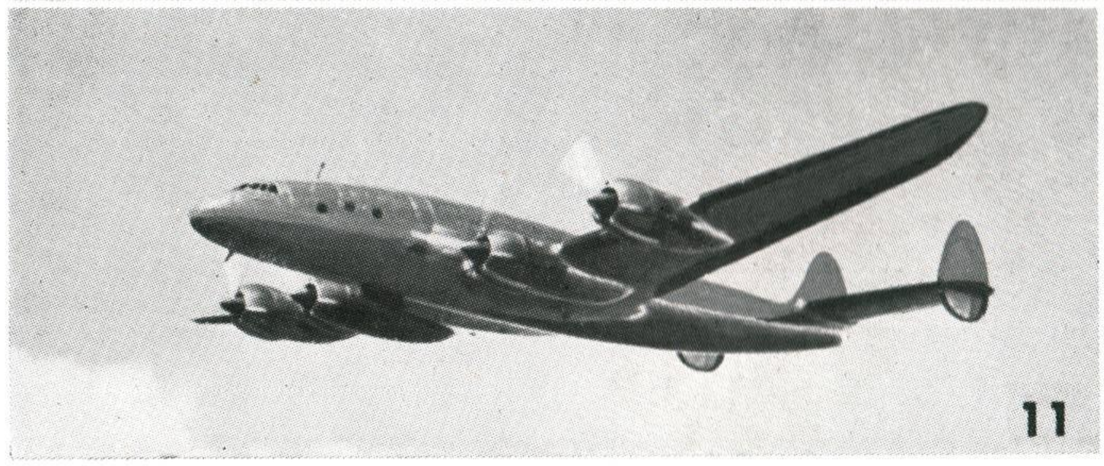

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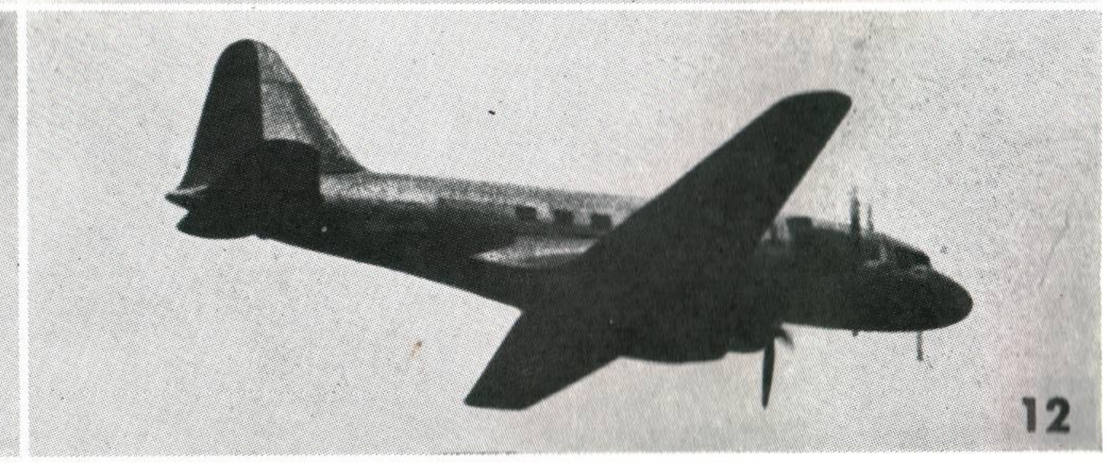

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MAY 1950 Vol. 4 No. 9

THE INTER SERVICES

AIRCRAFT RECOGNITION JOURNAL

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# TRANSPORT RECOGNITION

IT is appropriate to recall in an edition devoted to the recognition of transport aircraft, one of the tragedies of World War II involving aircraft recognition, or, more correctly, the lack of it. We refer to the assault upon Sicily in 1943, when two missions comprising C-47 Dakotas, Waco CG-4 and Horsa gliders were fired upon by Allied Naval and Merchant vessels and by our own batteries already ashore. Much damage and heavy casualties resulted. (We mentioned a more complete account of the incidents in our Book Reviews in the November, 1949 *Journal*).

Circumstances built themselves up against these two missions in an unusual manner. But such things must be expected in war. Safety corridors over the routes to be flown were not arranged, and those defending the ships and shores knew only of their passage as the aircraft passed over them.

It is easy now to say that if all those in charge of defence weapons in the ships or on shore had had more recognition experience, the incident would not have occurred. It is also equally easy to say that had the proper procedures in mutual recognition and identification been carried out, all would have been well. The touchiness of sailors about what flies over their ships in war-time is well known and understood, and in the circumstances, the unexpected arrival of masses of aeroplanes and gliders over a battle area might also provide some excuse for the shore batteries to open fire. Whatever allowances are made, however, it seems certain that a higher standard of aircraft recognition all round would at least have made the operation much less costly in lives and material, and also have relieved everyone engaged of much anxiety.

The incidents are examples of situations in which aircraft recognition practice must be able to stand on its own. When other systems and procedures for identifying friend from foe have broken down, much depends upon the personal recognition prowess of individuals.

Such misfortunes could occur in the future. Today the rôle of the military transport aeroplane is much the same as it was then, and it is unlikely to change. Whatever fighters and bombers may attain in speeds and altitudes in future operations, the military transport must always be slower, lower and often operate well within the range of ground defences. This edition of the *Journal* is designed to give all whose duties call for the recognition of transport aircraft, a closer look at the current types in service throughout the world to-day.



The U.S.S.R. trains thousands of paratroops annually. Initial training is given by a civil organization, run by the State, called DOSAV, which also provides pre-military training of civilians in gliding light-powered flying, parachute training and in other technical subjects. This picture shows fully-fledged paratroops and IL-12 transports of the S.A.F. which are used as paratroopers. The characteristic "built-forward" centre sections of the IL-12s are discernible.



# WORLD TRANSPORT TYPES

**by "CONFUCIUS"**

*The views expressed in this article are not necessarily held officially by the Air Ministry.*

IN any future large-scale military operations, the transport of men, arms, supplies and casualties by air in large quantities is a foregone conclusion. Anyone having read the recently-published official history of the air war in Burma, " Wings of the Phoenix " (H.M.S.O. 5/-) cannot fail to have been impressed by the profound effect upon the campaign of air transports operating in comparatively small numbers. Even more revealing is the lesson of the air supply of Berlin for some 18 months, during which time no supplies entered the city by surface transport. A complete modern community has for that period been fed, clothed, warmed and provided with the necessities of life and trade solely by means of the air transport, and few can fail to read into the Berlin Airlift its deeper significance.

This article, reviewing the transport types flying to-day, includes both military and—nominally—civil types, for the civil airliner is a wolf in sheep's clothing, and has considerable potential military value. That greatest of all military transports, the Dakota, began life as the DC-3 airliner, and other examples spring readily to mind —the Ju 52/3m, the Douglas DC-4, the Constellation ; conversely, the " double-bubble " Stratocruiser started life as a military transport based on the Superfortress. Whereas certain military operations require specialized transport aircraft—paratroop and parasupply dropping, for instance—the straightforward civilian airliner will ever be able to double up for troop and freight transport.

**Home Produce**

Wide circulation has been given to the war-time agreement whereby Britain concentrated upon the development of aircraft for the war offensive to the exclusion of transports, leaving the field clear for the development of transports in the U.S.A. This fact, of course, is the one root cause of our post-war poverty in transport aircraft ; it is the reason why to-day B.O.A.C. flies Constellations, Stratocruisers and C-54 modifications, all of which were wrought on the anvil of American war-time effort. 1950 promises, however, to be a year in which British transports will make their mark.

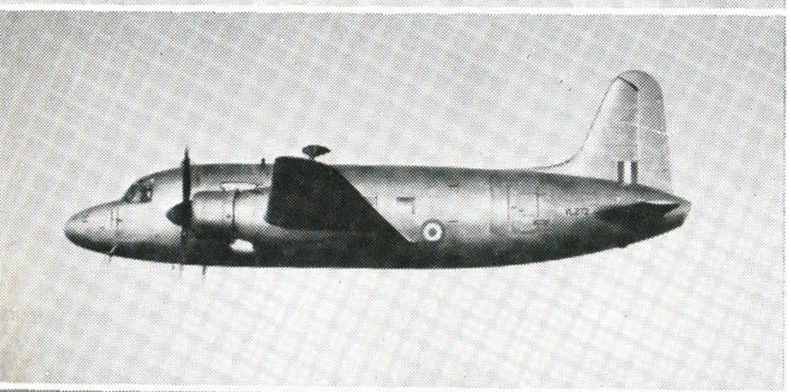
Taking first the piston-engined transports, the Brabazon 1 must surely top the list. As yet, it has been seen around only a little, but spotters can expect to get better acquainted with it as the year progresses. It should provide no difficulty, with its sleek lines, its broad wing well back, with sharp taper on the outer panel leading-edge only, and the classical lines of its tall tail. Intended to carry 70-100 passengers non-stop across the Atlantic, the " Brab " has tremendous military possibilities, too, within the limitations of airfields capable of supporting its 130 tons. Eight 2,500 h.p. Centaurus engines, buried in the wings in pairs and driving four sets of counter-rotating airscrews, giving the " Brab " a cruising speed of 250 m.p.h.

Next in size to the Brabazon is the new Blackburn and General Aircraft Universal freight carrier. This four engined high wing monoplane, with a fixed tricycle under-carriage and twin tail unit on a tapering boom, should cause no recognition problems.

After the Universal Freighter comes the Handley Page Hermes. In its Mk. 4 version the Hermes is in full production and during 1950 will be seen on the B.O.A.C.



Bristol
**FREIGHTER 21**
Civil transport, military glider tug and ambulance
Span: 108′ 0″ Length: 68′ 4″
Engines: 2 Hercules 672 radials



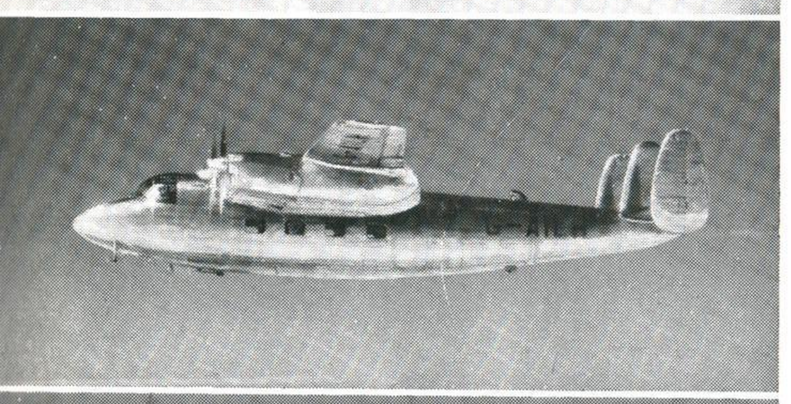
Vickers
**VALETTA 1**
Military transport and glider tug
Span: 89′ 3″ Length: 65′ 2″
Engines: 2 Hercules 290 radials



Vickers
**VIKING 1B**
Civil airliner
Span: 89′ 3″ Length: 65′ 2″
Engines: 2 Hercules 634 or 635 radials



Handley Page
**HASTINGS C.1**
Military transport and glider tug
Span: 113′ 0″ Length: 81′ 8″
Engines: 4 Hercules 101 radials



Handley Page
**MARATHON 1**
Civil airliner
Span: 65′ 0″ Length: 52′ 0″
Engines: 4 Gipsy Queen 71 inline



Avro
**TUDOR 4**
Civil airliner and freighter
Span: 120′ 0″ Length: 85′ 3″
Engines: 4 Merlin 623 inline



Bristol
**BRABAZON 1**
Civil airliner
Span: 230′ 0″ Length: 177′ 0″
Engines: 8 Centaurus 20 radials

route to South Africa and other parts of the Empire. The almost complete disappearance of the Tudor from the skies (the handful still used for experimental flying should keep spotters on their toes) makes the Hermes less liable to confusion. Though a good airliner, it is from the recognition point of view, nondescript, conforming to the recognized airliner formula of long cylindrical fuselage, low wing, single tail unit, four radial engines and tricycle undercarriage. There is no easy way of recognizing the Hermes—it must be learnt by continuous spotting practice.

From the same drawing board comes the only heavy transport ordered for the R.A.F. since the end of the war—the Hastings. This aeroplane was a straightforward military copy of the original Hermes 1 ; whereas the Hermes progressed through the Mk. 2 with longer fuselage to the Hermes 4 with its tricycle undercarriage, the Hastings has not developed, but retains the short fuselage and tail-wheel undercarriage. In the air, the length of fuselage provides instant differentiation between Hermes and Hastings ; in fact the very short nose and squat appearance of the Hastings is a useful clue at all times.

In the twin-engined field, two types need to be noted—the Valetta (and Viking) and the Bristol Freighter. Little needs to be said here of either type ; the Freighter in particular is a " sitting duck " with its bull nose and tall angular tail. These types will soon be joined by the Ambassador in some numbers ; cylindrical fuselage of great girth and triple tail unite to make it distinctive.

Turning to the gas-turbine field, the Comet comes first to mind. Here again, little difficulty should be experienced in recognizing the Comet—providing it can be seen ! At the moment, positive sound recognition is also possible, but as new four-jet aircraft come along, this will cease to be so. A large chord wing with acute leading-edge sweep-back and compound taper and sweepback on the trailing-edge, small, tall fin and rudder, and round, elegant fuselage, add up to the Comet.

The Hermes 5, two of which will be built, is extremely difficult to tell apart from the Hermes 4. It has four Bristol Theseus airscrew-turbines, but is otherwise identical ; short of close examination of the nacelle details, noise is likely to be the best clue. The Viscount and Apollo, both with four airscrew-turbines for power, do not have such significance at the moment from the

Handley Page
**HERMES 4**
Civil airliner
Span: 113′ 0″ Length: 96′ 10″
Engines: 4 Hercules 763 radials

Airspeed
**AMBASSADOR**
Civil airliner
Span: 115′ 0″ Length: 81′ 4″
Engines: 2 Centaurus 661 radials






military viewpoint, but the Viscount especially will be increasingly seen from 1952 onwards in its new Model 700 form with increased span, longer fuselage and greater power. Also coming along is the Brabazon 2 with Proteus airscrew turbines.

**Uncle Sam's Biggest**

When we come to consider the American transports, a division between piston-engined and gas-turbine types is not possible, since the latter are non-existent—at the moment. It is convenient, however, to consider first the " super-transports " and then to pass to the smaller fry.

Biggest of the big boys is the Convair C-99, of precisely the same span as the Brabazon. Using the wing of the B-36, the C-99 has a new fuselage which, the story goes, can carry 400 armed troops. None the less, it is a prototype only, and seems to have no production future. The tremendous bulk of fuselage squatting low on its tricycle chassis with four-wheel main bogeys, and six pusher engines in the mid-wing are identification features.

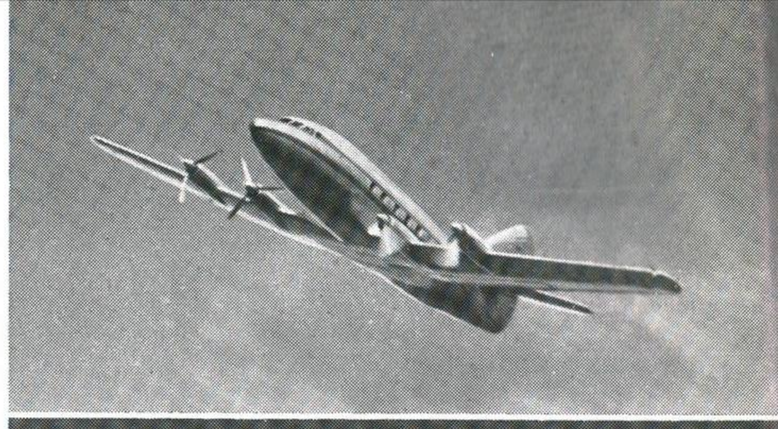
Next to the C-99 monster in size are the two Constitutions built as personnel transports for the U.S. Navy. This type is of obvious Lockheed parentage, despite the double-bubble fuselage and tall, pointed single fin and rudder. Four 3,500 h.p. R-4360 Wasp Major radial engines provide power. The Military Air Transport Service, now responsible for organizing the transport services of both the U.S.N. and U.S.A.F. has indicated that it does not wish to operate the Constitution ; they are, therefore, being offered for sale by the U.S.N. and may be seen in Europe and elsewhere in due course, operated by a commercial airline.

Douglas representatives in the super-transport field are the C-74 Globemaster and its later variant, the C-124. The Globemaster was originally intended as a commercial airliner, and was ordered by Pan American Airways ; this order was later cancelled, however, and only the military version was completed, 14 having been built. The type has been seen in the U.K. and Europe during the past year or more, flying supplies across the Atlantic for Berlin ; actual C-74 operations into Berlin were stopped when the runways began to show wear under the Globemaster's 80 tons. Features are a high aspect-ratio wing and considerable length of fuselage forward of the wing, with a " blister " cockpit, and very tall fin and rudder. The later C-124 uses the same wing but has a

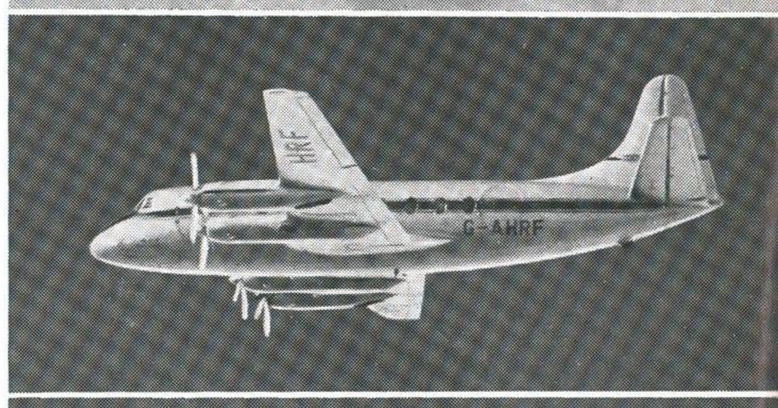
Fairchild
**PACKET**
(U.S.A.F. C-119B)
Military transport
Span: 109′ 3″ Length: 85′ 10″
Engines: 2 P. and W. Wasp Major radials

De Havilland
**COMET**
Civil airliner
Span: 115′ 0″ Length: 93′ 0″
Engines: 4 Ghost turbo-jets

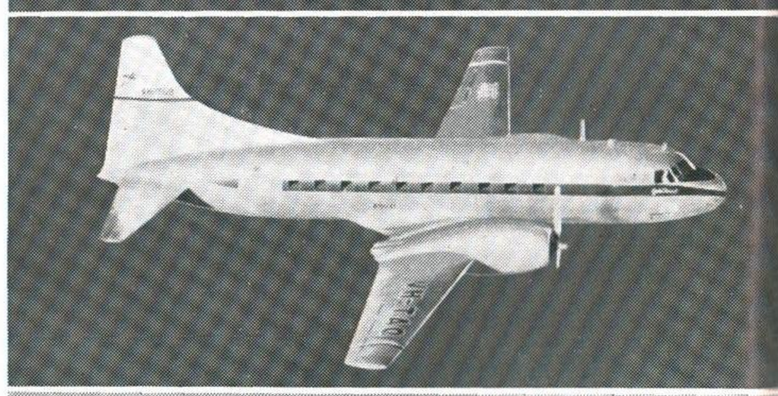
Armstrong Whitworth
**APOLLO**
Civil airliner
Span: 92′ 0″ Length: 72′ 0″
Engines: 4 Mamba airscrew-turbines



Vickers
**VISCOUNT**
Civil airliner
Span: 89′ 0″ Length: 74′ 6″
Engines: 4 Dart 1 airscrew-turbines



Consolidated
**CONVAIR-LINER**
Civil airliner and transport
Span: 91′ 9″ Length: 74′ 8″
Engines: 2 P. and W. Double Wasp radials



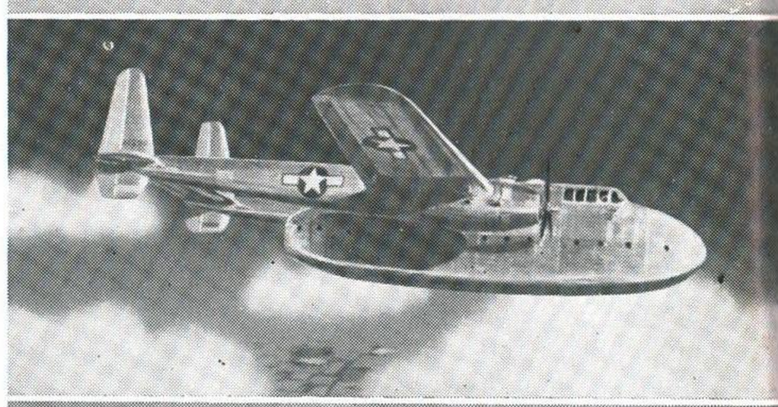
Douglas
**DC-3 DAKOTA**
(U.S.A.F. C-47 Skytrain)
Civil airliner, military transport and glider tug
Span: 95′ 0″ Length: 64′ 6″
Engines: 2 Wright Cyclone radials



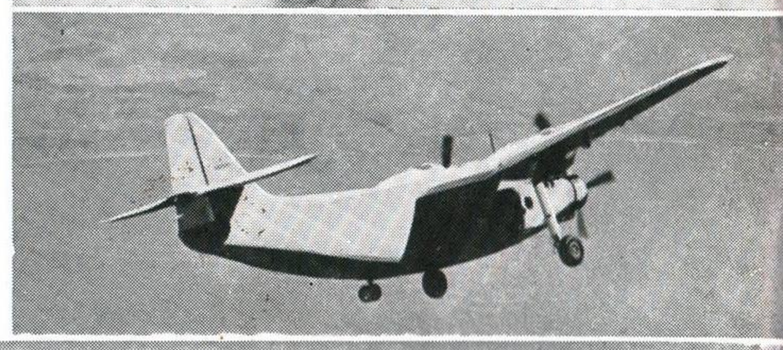
Martin
**2-0-2**
Civil airliner
Span: 93′ 3″ Length: 71′ 4″
Engines: 2 P. and W. Double Wasp radials



Fairchild
**PACKET**
(U.S.A.F. C-82. U.S.N. R4Q)
Military transport
Span: 106′ 6″ Length: 77′ 1″
Engines: 2 P. and W. Double Wasp radials



Northrop
**RAIDER**
(U.S.A.F. C-125)
Military transport and rescue aircraft
Span: 87′ 0″ Length: 70′ 0″
Engines: 3 Wright Cyclone radials











C-124 Globemaster




Constellation



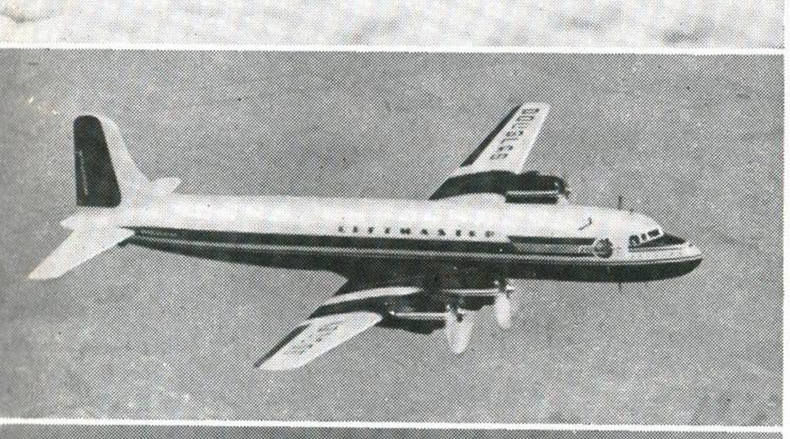
Lockheed
**CONSTITUTION**
(U.S.N. R 60-1)
Naval transport
Span: 189′ 1″ Length: 156′ 1″
Engines: 4 P. and W. Wasp Major radials



Douglas
**DC-4 SKYMASTER**
(U.S.A.F. C-54. U.S.N. R5D)
Civil airliner and military transport
Span: 117′ 6″ Length: 93′ 11″
Engines: 4 P. and W. radials



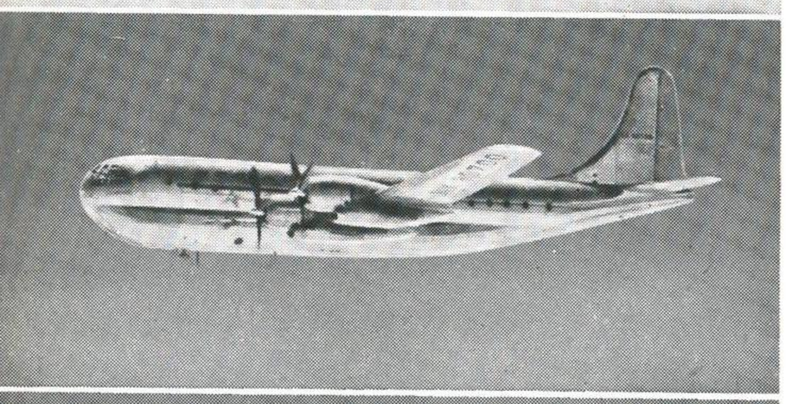
Douglas
**DC-6**
(U.S.A.F. C-116)
Civil airliner and Presidential transport
Span: 117′ 6″ Length: 100′ 7″
Engines: 4 P. and W. Double Wasp radials



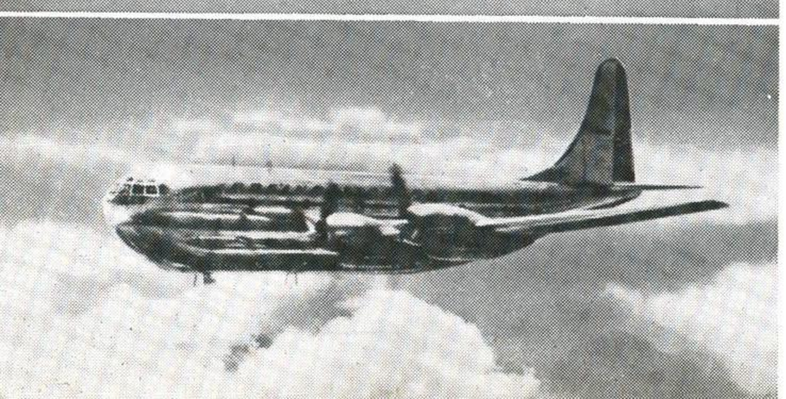
Douglas
**DC-6A LIFTMASTER**
Civil airliner
Span: 117′ 6″ Length: 105′ 5″
Engines: 4 P. and W. Double Wasp radials



Douglas
**DC-7 GLOBEMASTER 1**
(U.S.A.F. C-74)
Military transport
Span: 173′ 2″ Length: 124′ 2″
Engines: 4 P. and W. Wasp Major radials



Boeing
**STRATOCRUISER**
Civil airliner
Span: 141′ 3″ Length: 110′ 4″
Engines: 4 P. and W. Double Wasp radials



Boeing
**STRATOFREIGHTER**
(U.S.A.F. C-97A)
Military transport
Span: 141′ 3″ Length: 110′ 4″
Engines: 4 P. and W. Wasp Major radials

Douglas
**GLOBEMASTER 2**
(U.S.A.F. C-124A)
Military transport
Span: 173′ 3″ Length: 127′ 2″
Engines: 4 P. and W. Wasp Major radials

Lockheed
**CONSTELLATION**
(U.S.A.F. C-121.
U.S.N. PO-1W)
Civil airliner and military transport
Span: 123′ 0″ Length: 95′ 1″
Engines: 4 Wright Cyclone radials

new fuselage. This is deeper and includes a great " bull nose " with clam-shell doors which facilitate cargo loading. This new version is in production for the U.S.A.F.

Little need be said about the Boeing Stratocruiser, which is now a regular visitor to our shores and is easily recognized. A visit to London Airport will reveal sundry sail-like tails protruding from hangars, above offices and breaking the skyline—all of which will be found to belong to Stratocruisers. The U.S.A.F. had a handful of the military version, known as the C-97 Stratofreighter, before delivery of the commercial versions began, and a further batch of C-97s is now in production.

Two flying-boats complete the super-transport list. The Martin Mars, used by the M.A.T.S., is a thoroughly useful four-engined boat of orthodox appearance, and plies westward from the U.S.A. across the Pacific. Not so useful is the Hughes Hercules, an eight-motor giant which is in fact the largest aeroplane in the world. After becoming airborne during an early taxi trial, the Hercules has slipped back into oblivion, and when last heard of was suffering deterioration as a result of lengthy exposure to the elements.

### Smaller Fry

Most of the American transports in the smaller category are well-known and need little description here. These include the Lockheed Constellation in military and civil guise, and the Douglas DC-4 and DC-6 family. Two new versions of the latter aeroplane have recently appeared. The DC-6A Liftmaster is similar to the DC-6 but has a five foot fuselage extension ; it is pressurized and is intended as a commercial freight carrier, carrying a 30,000 lb. payload. A passenger equivalent with the long fuselage is the DC-6B, which will be 15 m.p.h. faster than the standard DC-6 and among the fastest airliners available with piston engines (cruising at 330 m.p.h.).

A little less well-known is the Fairchild Packet, in the C-82 and C-119 versions. Comparable in many ways to the Bristol Freighter, the C-82 is distinctive for its high wing, box-car fuselage and twin booms carrying the tail unit. It is entirely a military transport, being used for paratroop dropping ; the back end of the fuselage pod can be opened in flight for the dropping of jeeps, guns




DC-4M




Languedoc

Canadair

**DC-4M**

Civil airliner

Span: 117′ 6″ Length: 93′ 8″

Engines: 4 Merlin 626 inline

S.E.

**161 LANGUEDOC**

Civil airliner

Span: 96′ 5″ Length: 79′ 7″

Engines: 4 Gnôme-Rhône radials

Douglas

**SUPER DC-3**

Civil airliner

Span: 90′ 0″ Length: 67′ 9″

Engines: 2 Wright Cyclone radials

and supplies. The C-119 is similar with more powerful motors and a longer forward fuselage which does away with the " step-down " at the cockpit.

An interesting development of the Packet is now being built, in which the bulk of the fuselage will be a detachable freight container. These containers will be interchangeable between the C-120, as this aeroplane is designated, and a large helicopter now being developed ; thus delivery of containers right up to the battle areas will be possible.

Northrop's three-engined cargo transport, the C-125 Raider (developed from the Pioneer) has had an unhappy history of contracts and cancellations. Originally planned in two versions, for arctic rescue and as an assault transport, it now seems destined not to be produced after all. The high wing and three engines make it quite unmistakable.

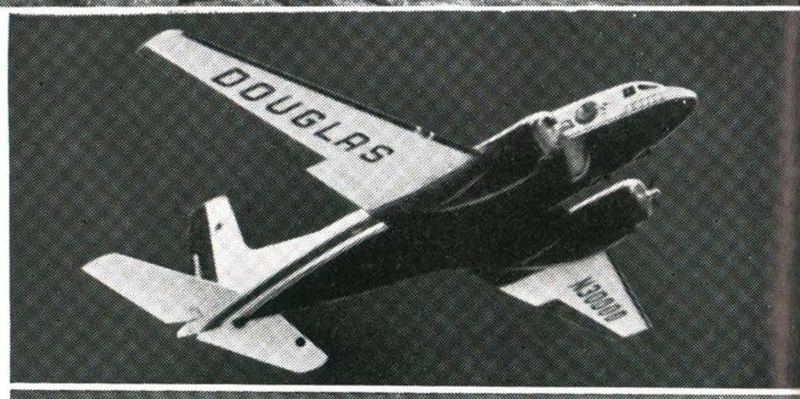
Newcomers to the field are Chase Aircraft Co., who first appeared during the war as designers of small troop-carrying gliders. Continuing this trend, the company is now working on assault craft which are quickly convertible from glider to powered transport and *vice-versa*. The XCG-18A Avitruk glider is the first example, having as its powered counterpart the two-engined YC-122B. More recently the larger XC-123 has made its first flights ; this is a powered version of the XCG-20. The Chase designs are distinctive for their simplicity, with large roomy fuselages and high, unbraced wings. The C-123 figures in current U.S.A.F. purchasing plans and may become important.

## Canada

Any contribution that Canada makes in the field of military air transports is likely to be closely linked to American activities in view of the desirability of a unified arms system on the whole of the American continent. Canadair Ltd. already has a licence for the production of the Northrop C-125 Raider assault transport, likely to prove useful in the difficult Canadian flying country. Canadair also produces the well-known Canadair-Four (B.O.A.C. "Argonaut " class), which is a cross between the Douglas DC-4 and DC-6 with Rolls-Royce Merlin motors added. The R.C.A.F. uses this type in addition to civil operators.

## France

Among the revival plans of the French industry, large transports have not figured prominently. Five types are worth recording, however, of which four made their first




Consolidated

**CONVAIR 37**

(U.S.A.F. XC-99)

Military transport

Span: 230′ 0″ Length: 182′ 6″

Engines: 6 P. and W. Wasp Major radials



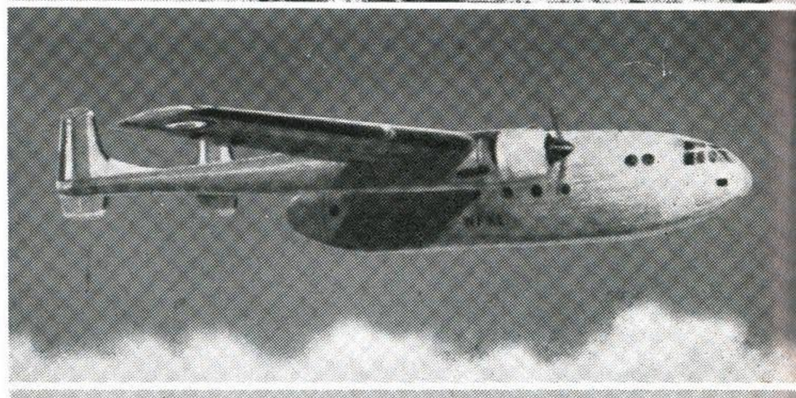
Nord

**2500 NORATLAS**

Military transport

Span: 106′ 7″ Length: 71′ 6″

Engines: 2 Gnôme-Rhône radials



S.E.

**2010 ARMAGNAC**

Civil airliner

Span: 160′ 7″ Length: 129′ 11″

Engines: 4 P. and W. Wasp Major radials



Breguet

**76-1**

Civil airliner and transport

Span: 140′ 10″ Length: 94′ 11″

Engines: 4 Gnôme-Rhône radials



Breguet

**89-2 MERCURE**

Civil airliner and transport

Span: 100′ 5″ Length: 70′ 10″

Engines: 4 Renault inline




N.C.

**211 CORMORAN**

Civil airliner and transport

Span: 144′ 4″ Length: 100′ 0″

Engines: 4 Gnôme-Rhône radials



S.O.

**30P BRETAGNE**

Civil airliner

Span: 88′ 2″ Length: 62′ 2″

Engines: 2 P. and W. Double Wasp radials

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Fiat

**G212 CP and TP**

Civil airliner and transport

Span: 96′ 4″ Length: 75′ 7″

Engines: 3 P. and W. Twin Wasp radials

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Fiat

**G 12 LA**

Civil airliner

Span: 94′ 3″ Length: 67′ 10″

Engines: 3 Alfa radials

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**IL-18**

Civil and military transport

Span: 110′ 0″ Length: 88′ 0″

Engines: 4 A.S.N. 82 radials

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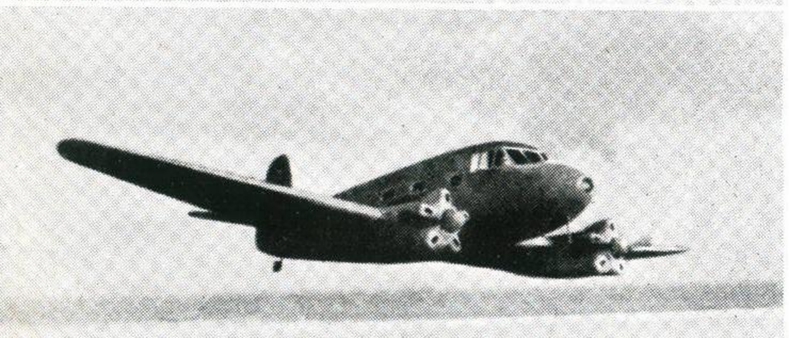
**TU-70**

Military transport

Span: 141′ 3″ Length: 119′ 0″

Engines: 4 M-90 radials

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**YAK-8**

Civil transport

Span: 48′ 7″ Length: 37′ 2″

Engines: 2 M-11 FM radials

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**YAK-16**

Civil transport

Span: 56′ 0″ Length: 36′ 0″

Engines: 2 ASH 21 radials

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flights in 1949. The fifth, which made an unsuccessful first flight in 1948, but which is now flying successfully, is the Aérocentre N.C. 211 Cormoran. This can best be described as a four-motor Bristol Freighter, with its great cargo-carrying fuselage, high wing and squat fin and rudder.

Among the 1949 types, the Sud-Est S.E. 2010 Armagnac must take pride of place as France's first post-war airliner. This is a four-engined low wing monoplane of modern appearance, and flight trials have indicated a satisfactory performance. Four R-4360 Wasp Major radial engines provide power for the Armagnac which in some views bears an uncomfortable resemblance to the Douglas family.

Breguet have flown two new transport types in the last twelve months—the Type 76 Deux Ponts and Type 89 Mercure. The Deux Ponts (literally, " Two Bridges " but indicating the two decks in the fuselage) has a deep oval fuselage, mid-wing and distinctive twin tail unit. The 76-1, 76-2 and 76-3 differ in the type of motors, of which there are four. Smaller than the Deux Ponts, the Mercure is a high-wing monoplane with single tail unit, and is primarily a freight carrier. Whereas the 89-0, now named Mars, has only two engines (Hercules radials) the 89-2 has four (Renault in-lines).

Finally, there is the Nord 2500, which flew recently. This military transport bears a close resemblance to the C-119 Packet, with its long fuselage pod and twin booms.

## U.S.S.R.

In conclusion, two transport types emanating east of the " Iron Curtain " must be mentioned. Whether or not these two types represent the sum total of Russian transports is not known, but other types have yet to be seen. Having copied, with profound skill, the Boeing Superfortress, A. N. Tupolev has come up with a transport version in addition to the straight bomber copy. Known as the TU-70 it has the wings, tail and engines of the Superfortress, but a completely new passenger-carrying fuselage. Rather less is known about the Ilyushin IL-18, another four-motor airliner of modern appearance which seems to bear a general resemblance to the two-motor IL-12. The latter should not be ignored incidentally ; in addition to its use by the Russian, Czech and Polish airlines, it is now in large scale service with the Soviet Air Force for troop transport, paratroop dropping, glider towing, etc.

**SM-95**

Civil airliner and transport

Span: 112′ 5″ Length: 81′ 3″

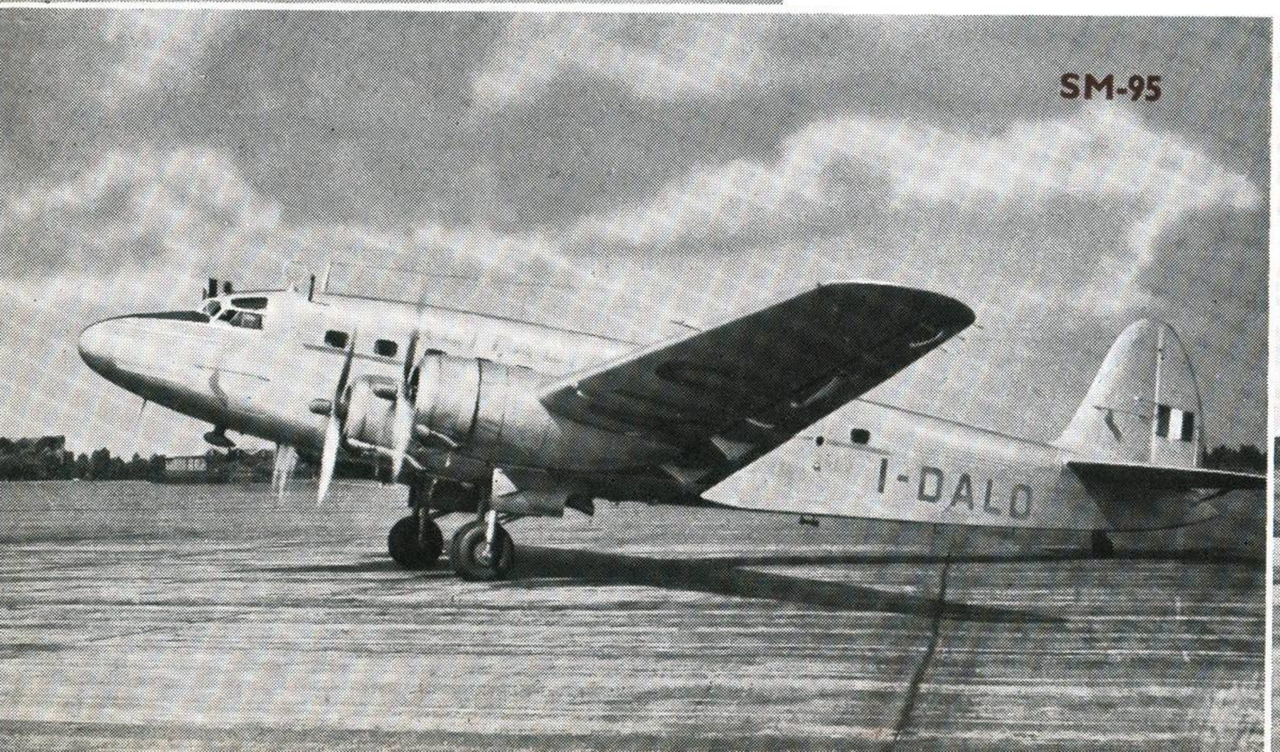
Engines: 4 Alfa Romeo radials

**IL-12**

Civil and military transport

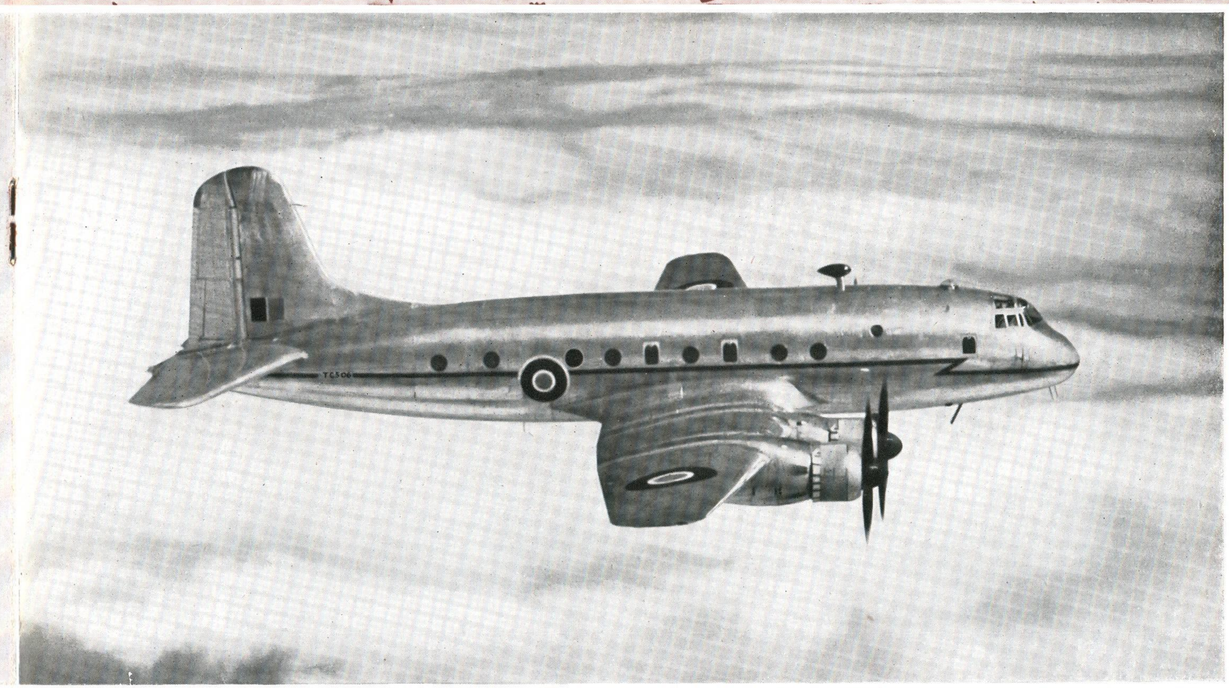
Span: 100′ 0″ Length: 74′ 3″

Engines: 2 ASH 82 FN radials







# TROOP CARRIERS

**Four different conceptions of the Military troop transport of British and American design**



## Fairchild C-119 Packet

**(2 P & W WASP MAJOR RADIALS)**

Twin-engined "pod and boom" type in service with U.S.A.F. Carries 64 fully equipped troops (42 paratroops) or equipment up to approx. 20,000 lbs. (**Span :** 109 ft. 3 ins.)

## Vickers Valetta C Mk. 1

**(2 BRISTOL HERCULES RADIALS)**

Twin-engine mid-wing monoplane in service with R.A.F. Carries 34 fully equipped troops (20 paratroops) or equipment up to 8,800 lbs. (**Span :** 89 ft. 3 ins.)

## Handley Page Hastings C Mk. 1

**(4 BRISTOL HERCULES RADIALS)**

Four-engine low-wing monoplane in service with R.A.F. Carries 50 fully-equipped troops (30 paratroops) or equipment up to 16,000 lbs. (**Span :** 113 ft. 0 in.)

## Douglas C-124 Globemaster II

**(4 P & W WASP MAJOR RADIALS)**

Four-engine low-wing monoplane in service with U.S.A.F. Carries 200 troops, or equipment up to 50,000 lbs. (**Span :** 173 ft. 3 ins.)



# BOOK REVIEWS

**by JOHN W. R. TAYLOR**

An author famous for his books on the Soviet Union once wrote : " There are no experts on Russia . . . there are only varying degrees of ignorance." The truth of this statement as far as the Soviet Air Force is concerned has been shown time after time in the last five years, by the popular guessing game of " How big, how strong and how advanced? " Although Wing Commander Asher Lee, who served as an Intelligence Staff Officer during the war, has not had access to any official information since his release from the Royal Air Force in 1945, he has, by carefully collating and sifting all available evidence, been able to give in **The Soviet Air Force,** the overall picture as he sees it, of its present strength and capabilities, together with an impartial survey of its growth and war-time achievements, and the industry which supplies it.

Upon information available to him, he shows that there are good reasons for believing that the Soviet Air Force is very large and has a formidable aircraft production potential behind it. He says that there is little doubt that, with German help, Russia is steadily reducing the five years' technical lead enjoyed by Britain and America in 1945. Important factors, however, are that the Soviet Air Force is experienced only as a tactical weapon, has never had to fight against modern jet and rocket 'planes, and has had little experience of strategic bombing or the use of radar for defence and attack.

It should be some consolation to readers of this journal who find difficulty with their YAKs and MIGs to read that Russian pilots too have to know their aircraft recognition ! (They certainly seem not to know a Privateer when they see one—Ed.)

A world map on page 195 of **The Soviet Air Force** emphasises the increasingly vital strategic importance of Polar air routes. The story of Bernt Balchen, greatest Arctic flyer of all time, told in **Hitch Your Wagon** is therefore of particular interest.

Balchen is one of the most fascinating and human figures in aviation. Of iron physique, he sacrificed world fame as an Olympic boxer to win his wings in Norway and then achieve even greater fame for his Polar flights with Amundsen and Admiral Byrd. Told from the point of view of the man who did the flying, here too is his story of the flight of the Fokker monoplane *America* across the Atlantic, the first flight over the South Pole, hazardous rescue missions in World War II on the treacherous Greenland Ice Cap, bombing missions against Nazi Germany, and finally the liberation of Norway, his homeland.

It is a fascinating story, and one that has by no means ended yet, for Balchen rejoined the U.S.A.F. in 1948, to command its 10th Rescue Squadron in Alaska, after a period as co-President of the Norwegian Airlines.

Our third book this month is one which few people would care to read from cover to cover, but which is an invaluable addition to any aviation bookshelf—**The Aeroplane Directory of British Aviation** for 1950.

If you want to know Who's Who, What's What, Who's Where or Who does What, then you will find the answer here. Its 574 pages cover every aspect of British military and civil flying, making it a most attractive and useful ten-and-sixpence worth.

" THE SOVIET AIR FORCE," by Asher Lee. Gerald Duckworth & Co. 207 pp. Illustrated. 8*s.* 6*d.* net

" HITCH YOUR WAGON ", by Clayton Knight and Robert Durham. Bell Publishing Company, Drexel Hill, Pennsylvania, U.S.A. 332 pp. Illustrated. $3.50.

" THE AEROPLANE DIRECTORY OF BRITISH AVIATION ". Temple Press. 574 pp. 10*s.* 6*d.* net.

# INTELLIGENCE

**G.A.L.-60 Universal**

By the time readers are reaching for this Journal, it is expected that the Blackburn and General Aircraft G.A.L.-60 Universal will have made its first flight. The Universal is a four-engined heavy passenger and freight transport with twin fins and rudders and a tricycle undercarriage.

**De Havilland Heron.**

Also expected to fly soon is the D.H. Heron, a larger development of the Dove. The Heron is destined for fleet replacement on feeder services, and carries 14 to 17 passengers. Although the same wings, cockpit, main fuselage and empennage units are employed as in the Dove, the Heron is powered by *four* Gipsy Queen engines ; anyone confusing these two therefore would seem to need some new binoculars. When in doubt, remember that the Heron is the larger bird.

**De Havilland Comet**

The prototype D.H. 106 Comet has recently made tests with bogey-type undercarriage units. Instead of large single wheels, each main unit carries two pairs of smaller wheels in tandem. It is understood that all production Comets will have bogey-type landing gear.

**Airspeed Ambassador**

Routine structure test for the Airspeed Ambassador includes the new technique of lowering the fuselage into a deep sea dock for pressurization tests. Underwater tests make it possible to discover exactly where a failure will take place should one occur. These tests, which have so far proved satisfactory, are carried out concurrently with prototype test flights. The high wing layout of the Ambassador permits maximum passenger comfort and, of course, bearing in mind the streamlined fuselage, underslung Bristol Centaurus radials and triple fins and rudders, it also facilitates quick recognition. Twenty Ambassadors are on order for B.E.A. for use on short routes of high traffic density, and the first production aircraft is expected early next year.

**Handley Page Marathon**

For short routes of low traffic density B.E.A. has ordered 12 Marathons as a replacement for the Rapide on Scottish and inter-Channel services. Up to 20 passengers can be carried. First deliveries are expected early next year.

**Vickers Viscount**

On longer stages B.E.A. plan to use 30 to 40 Vickers Viscounts. Special feature of the Viscount is the vibrationless power derived from four slender Rolls-Royce Dart turboprop engines. First deliveries of this 40 seater are scheduled for 1952.

**Convair Turboliner**

Transport talk in U.S.A. is of the Convair Turboliner, turboprop version of the Convair-Liner. Consolidated Vultee anticipate that little inconvenience will be caused to airline companies wishing to install the new Allison T-38 turboprop engines in their Convair-Liners. So far over 200 Convair-Liners have been produced for 12 different airline companies.

**Martin 404**

Visually contemporary with the Convair-Liner, the Martin 404 is the latest pressurized improvement on the Martin 202. The 404 is slightly larger and heavier and is designed for ultimate power conversion to turboprops. The 202 is at present operated in America by Northwest Airlines and 65 404s have been ordered jointly by two other American airlines. (We also hear that the Boeing Stratocruiser is to have turboprops.)

**Avro C-102 Jetliner**

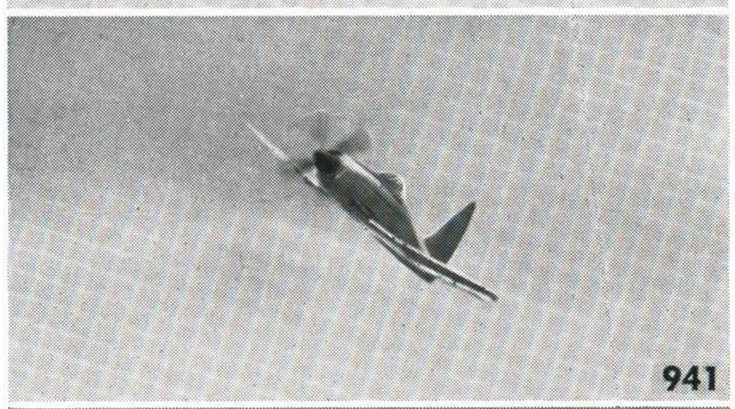
Interesting newcomer to the S.B.A.C. Air Display this year will be the Avro C-102 Jetliner four-jet transport. For other details of the C-102 see page 87 January Journal.

# ADVANCED SPOTTING


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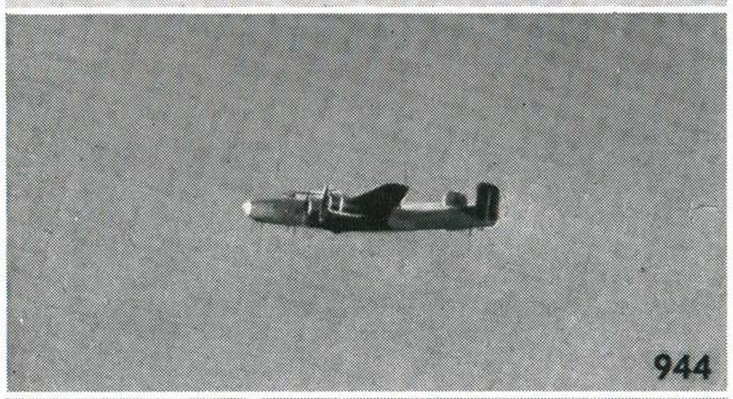

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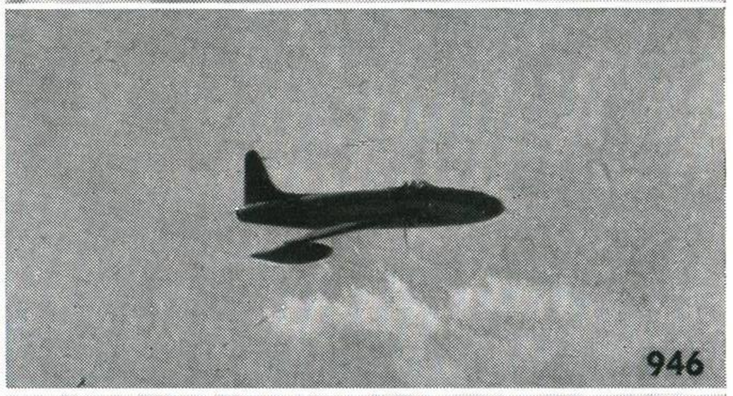

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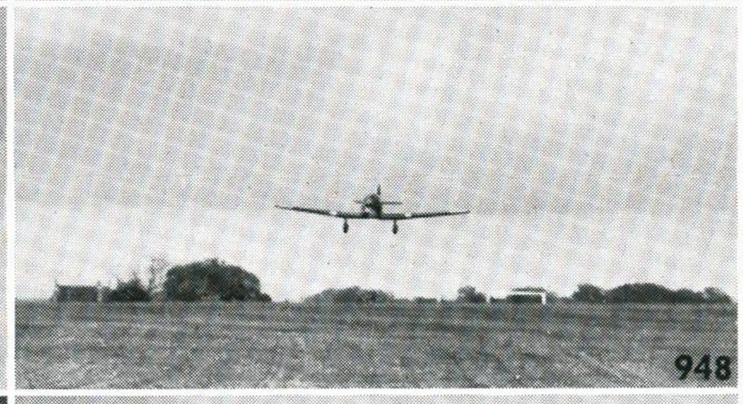

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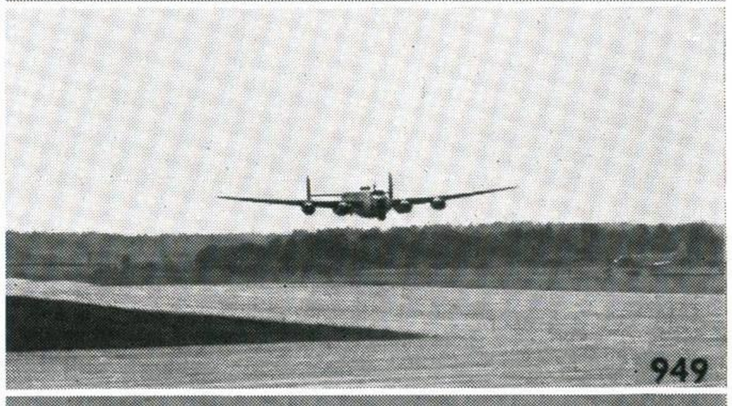

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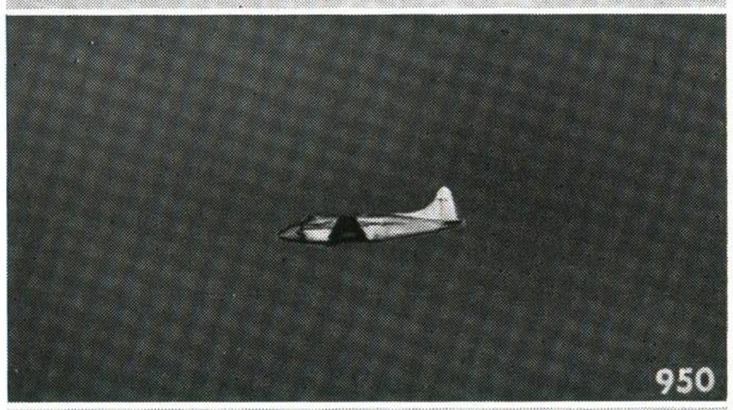

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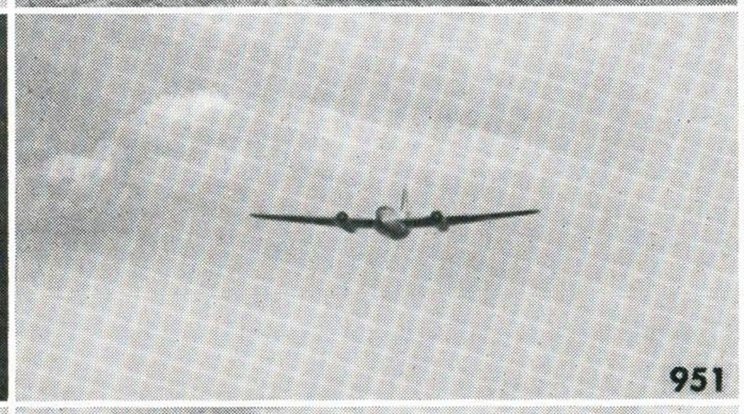

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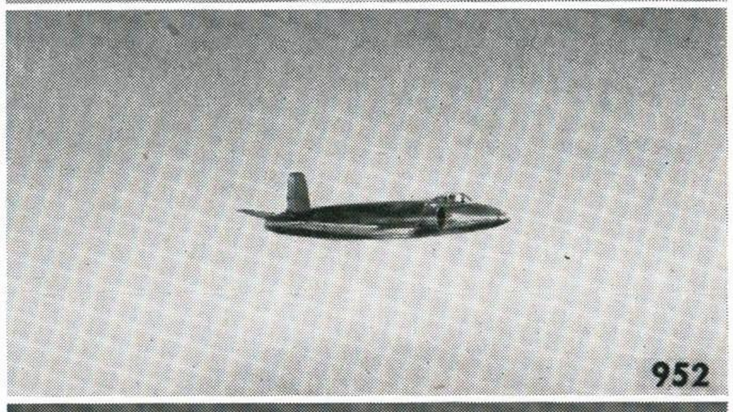

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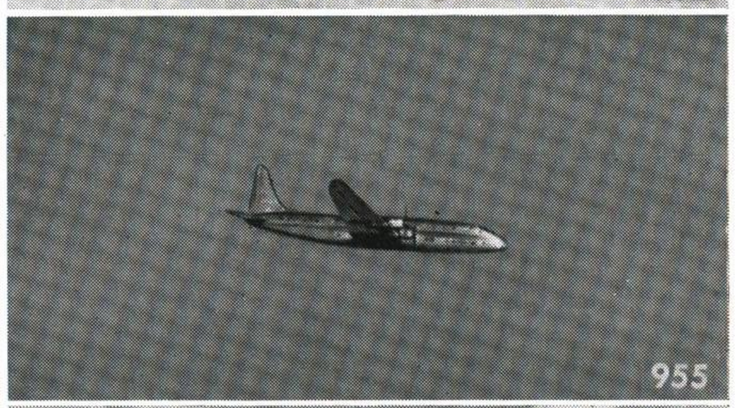

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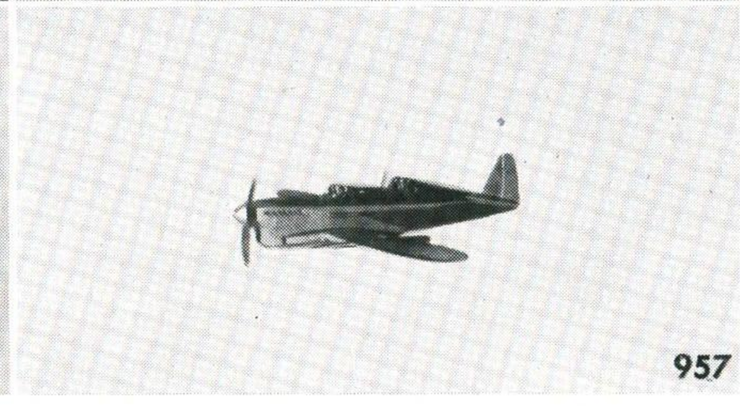

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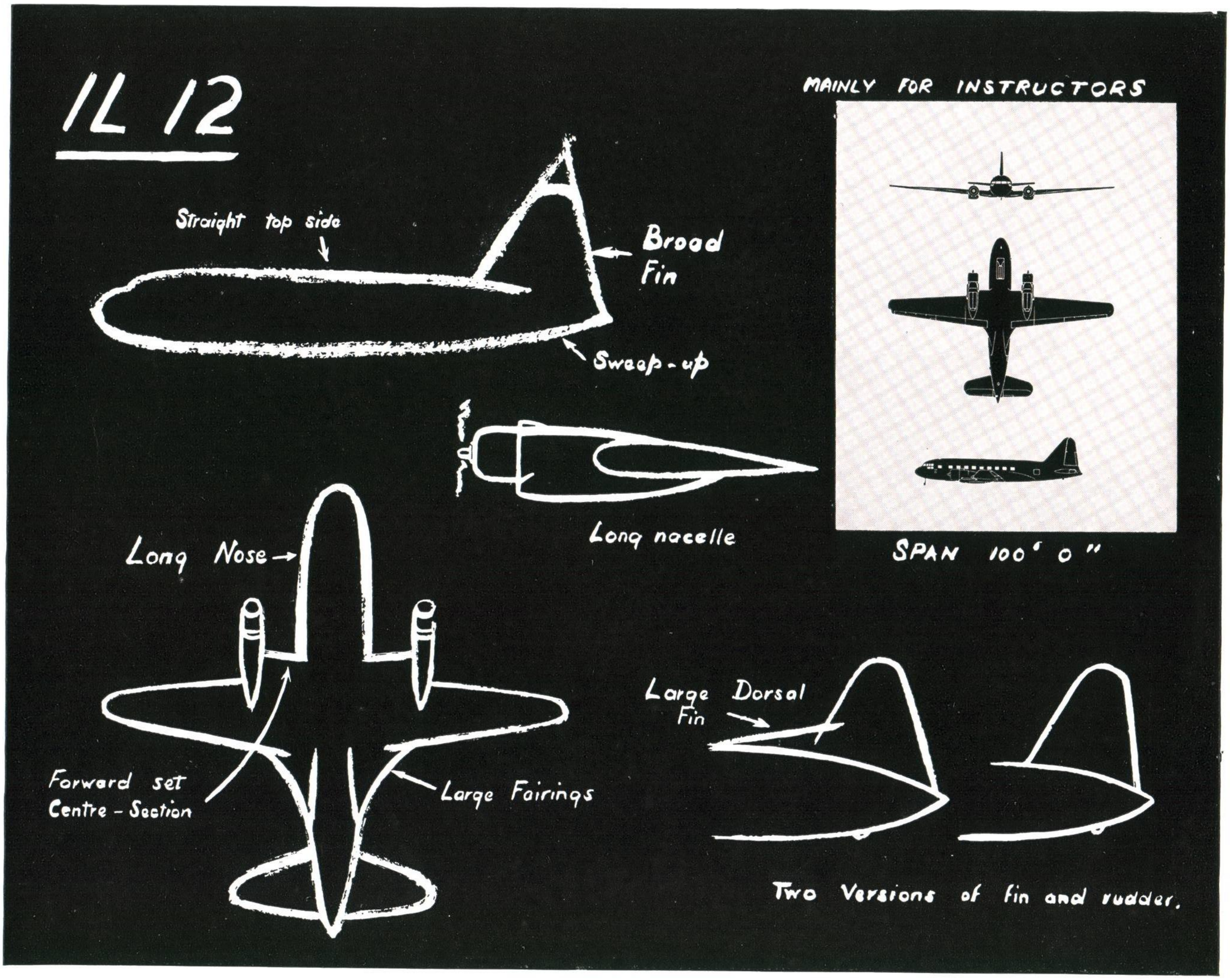

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# THE ILYUSHIN IL-12

## by "CONFUCIUS"

WHEN one begins to talk or write or think of Russian aircraft, one almost immediately comes to a question mark. Not only is the overall picture of Russian aviation development extremely patchy, but our knowledge of every individual type is incomplete.

The one post-war type which is almost an exception to this rule is the Ilyushin IL-12, Russia's two-motor medium-range airliner comparable to the Vickers Viking and the Convair-Liner. Although not everything is known about the IL-12, at least the dossier is reasonably complete. The reason for this is twofold. In the first place Russian policy has allowed the publication in Russia and Eastern Europe of photographs and data ; secondly, the IL-12 is one of the few types Russia has exported—though only to Czechoslovakia and Poland.

The airlines of both these Iron Curtain countries still operate services across the curtain itself, and consequently the IL-12 has been seen in Helsinki, Sofia, Paris and on one memorable occasion, Northolt. This last-mentioned event was on September 12, 1949, when Ceskoslovenské Aerolinie operated a single service into London with an IL-12, expecting more traffic than the usual Dakota could handle. It gave the author an opportunity to examine the structure and also the unusual privilege of flying in a post-war Russian aeroplane on a short demonstration flight.

Ilyushin, the designer, is best known for his war-time series of Stormovik ground-attack monoplanes, the IL-2, IL-3 and now the IL-10. The IL-12 seems to be quite a sudden departure, though we do not know what other transports he may have designed and perhaps even built in prototype form.

Anyway, what is apparently his first design in this sphere is certainly not a bad effort, and it is proving extremely useful to Russia. Up to 1946, Aeroflot, the Russian state airline, had been entirely dependant on the LI-2s (Dakotas) built in great numbers in Russia during the war. Obviously, some replacement had to be found, and this requirement was directly responsible for the IL-12. Now, in addition to being used in some hundreds by Aeroflot, the IL-12 is also replacing the LI-2s in service with the Soviet Air Force as paratroop and troop transports as well as being used in Poland and Czechoslovakia as already stated.

Most readers of this article should already be familiar with the IL-12 in basic appearance, as it has been featured more than once in this Journal. It is a low-wing monoplane with a large " dunces-hat " fin and rudder to which a dorsal fillet has—of course—been added. The engine nacelles are distinctive because of the lip-type air-intake underneath, reminiscent of the Wasp Major cowling on Stratocruisers and

the B-50. Another distinctive feature, though seldom seen, is the wing chord which is greater inboard of the nacelles than outboard ; that is to say, the leading edge is further forward between the fuselage and nacelles (like the Mosquito).

Fuselage lines of the IL-12—which is a big aeroplane—are pleasing, being well proportioned and unbroken. The inclusion of two windows each side below the usual " strip " windows round the cockpit aid pilot-vision and make another detail aid to recognition.

Layout of the IL-12's cabin is for a maximum of 32 passengers seated in pairs on each side of a central aisle. Passenger entrance is through a door in the *starboard* side of the fuselage, which is a Russian custom and not usually found elsewhere. Motors are designated ASH-82-FN, being modern 14-cylinder air-cooled two-row radials, probably incorporating design details learnt by Russia the easy way. Likewise the four-bladed metal airscrews.

Although it has been stated above that the IL-12 has only visited England once so far, it is undoubtedly a type that should be on everybody's basic list. The Czech airline will eventually have a dozen IL-12s and when the full fleet is operating, there is much more likelihood of the type being put on the London service. Apart from this, however, the IL-12 is the basic Soviet Air Force transport of to-morrow, for freight and troop transportation and glider-towing.

As a footnote it is worth recording that Ilyushin has aimed even higher and produced a four-motor transport as well as the twin. This is the IL-18, which in many respects resembles the IL-12, apart from being scaled up in all respects. The IL-18 is not important recognitionally at present ; but its existence should be remembered.

**TECHNICAL DATA :**

*Type :* **Low wing, twin-engine monoplane with single fin and rudder.**

*Duties :* **Transport.**

*Designer :* **S.V. Ilyushin.**

*Span :* **100 ft. Length : 74 ft. 3 ins.**

*Engines :* **Two ASH-82FN radials.**

*Performance :* **Max. speed : 252 m.p.h. at 8,200 ft.**
**Max. range : 1,865 miles.**

**RECOGNITION DETAILS :**

*Wings :* **Low-set, short span, narrow, straight taper, forward-built centre-section, large root fillets, duo-curve tips, moderate dihedral.**

*Engines :* **Centrally mounted, long radial nacelles with swollen fairing to house undercarriage.**

*Fuselage :* **Cigar shaped, long nose with " snub " tip and step formed by cockpit.**

*Tailplane :* **Marked taper on leading edge, straight trailing edge, rounded tips, slight dihedral.**

*Fin and Rudder :* **Broad, triangular, faired to fuselage (some models fitted with a dorsal fin).**

*Main Features :* **Narrow wing outboard of centre-section, fat fuselage, long nose, triangular fin and rudder.**

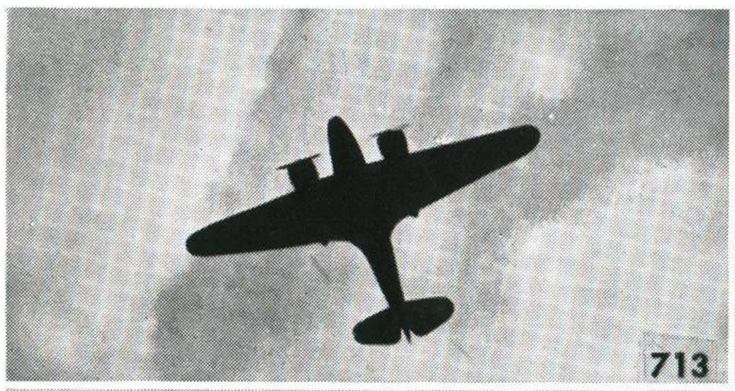


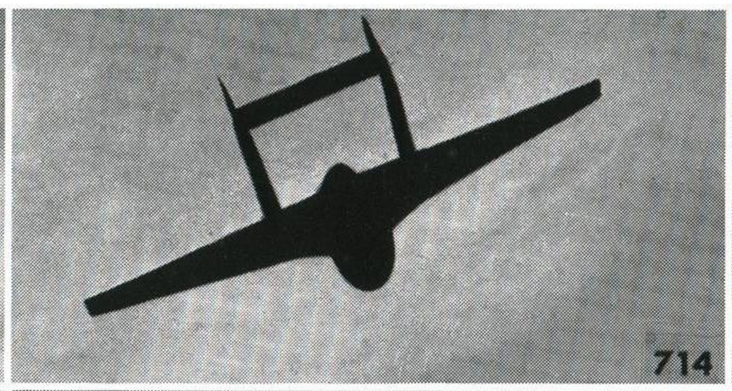


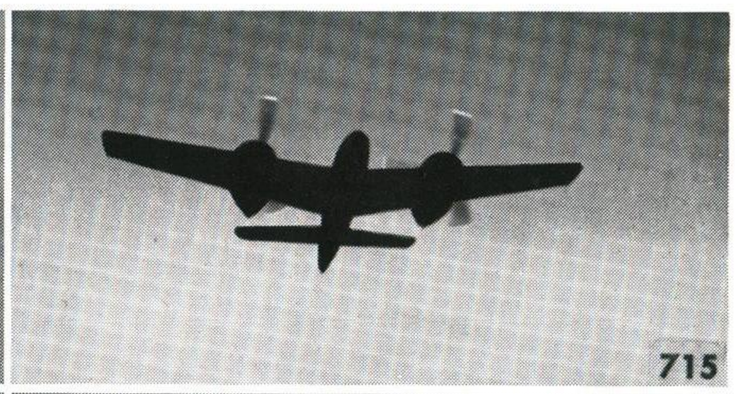




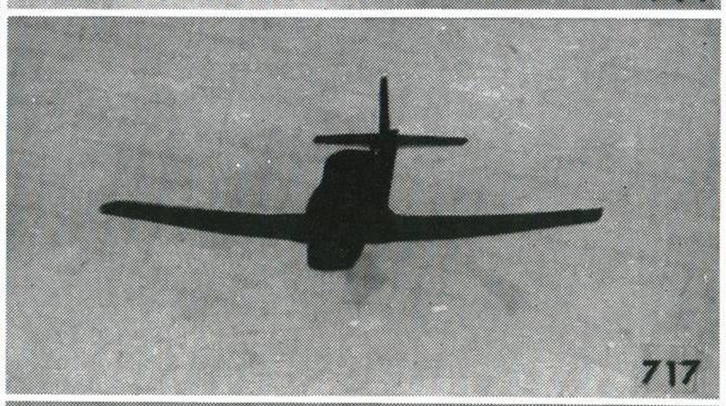
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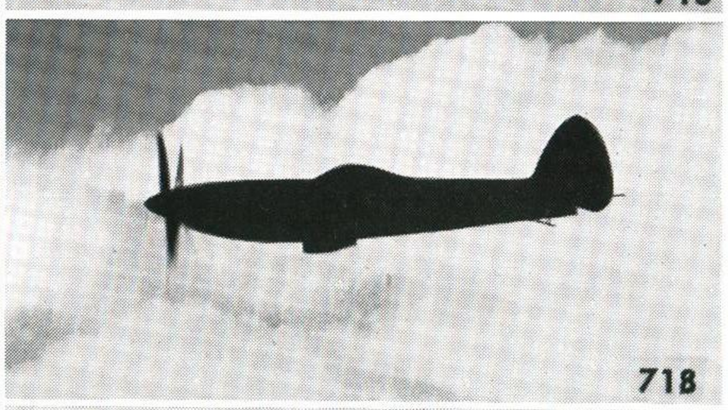

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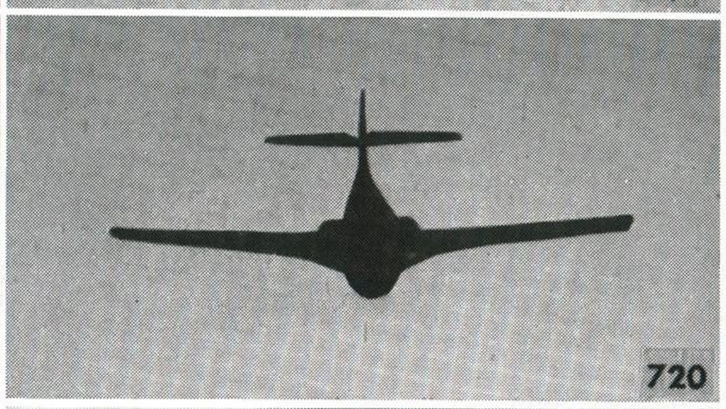

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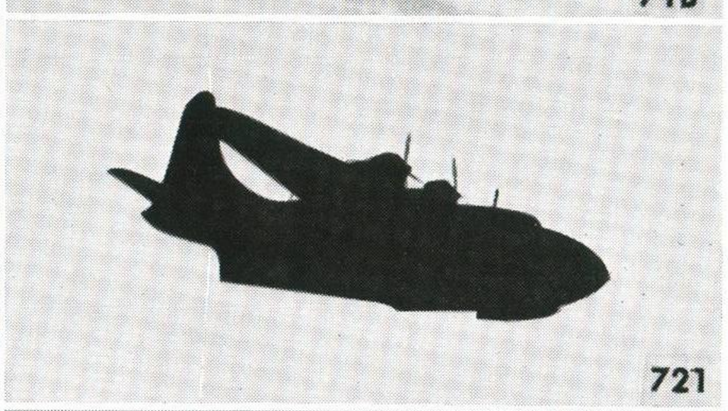

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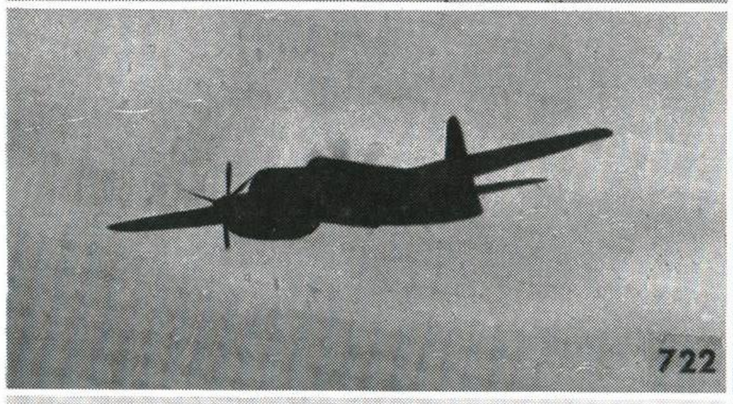

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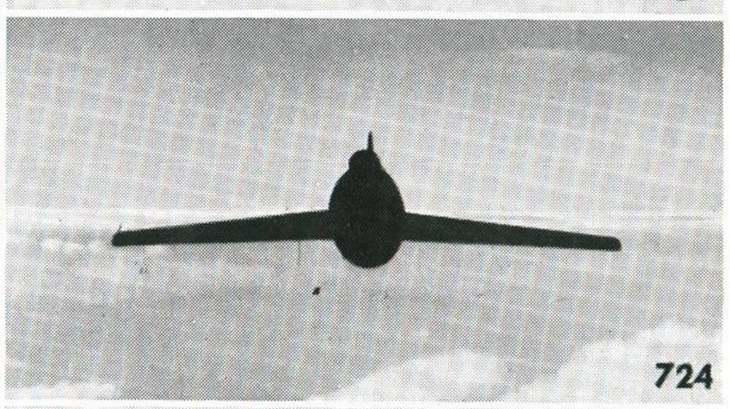

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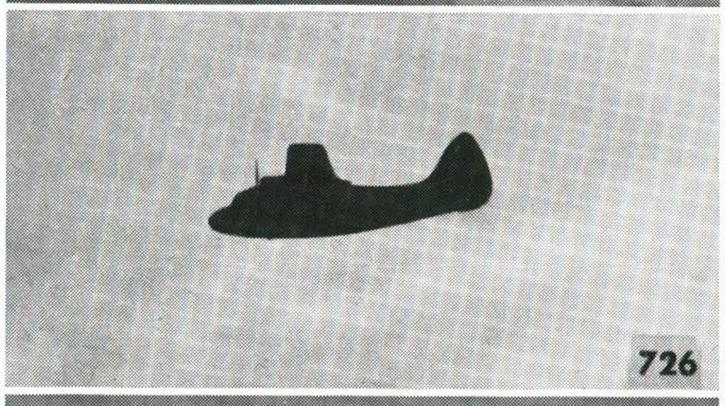

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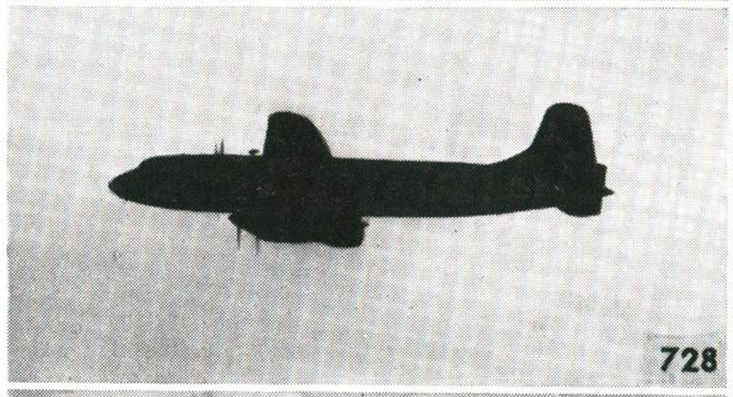

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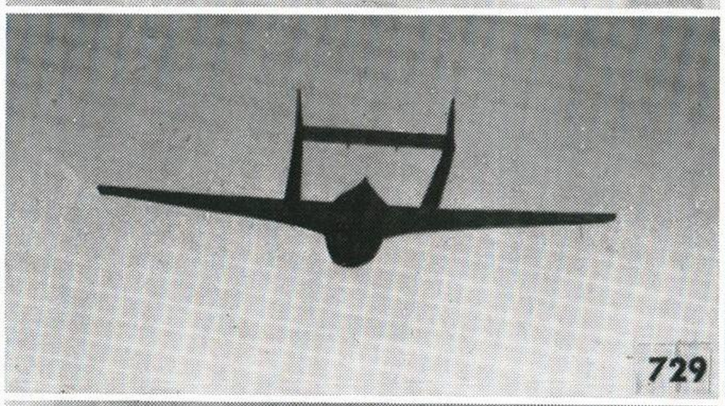

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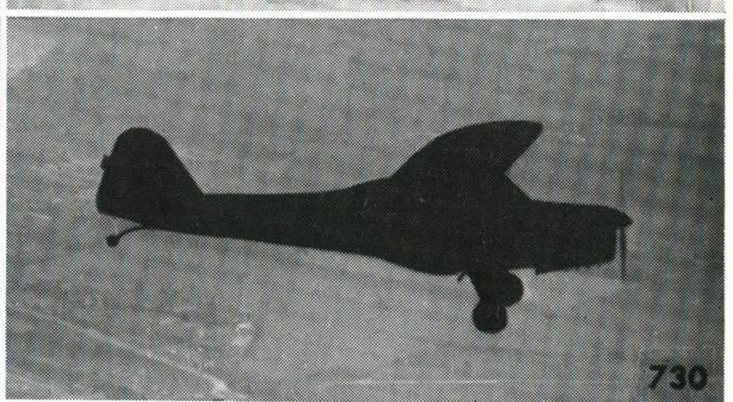

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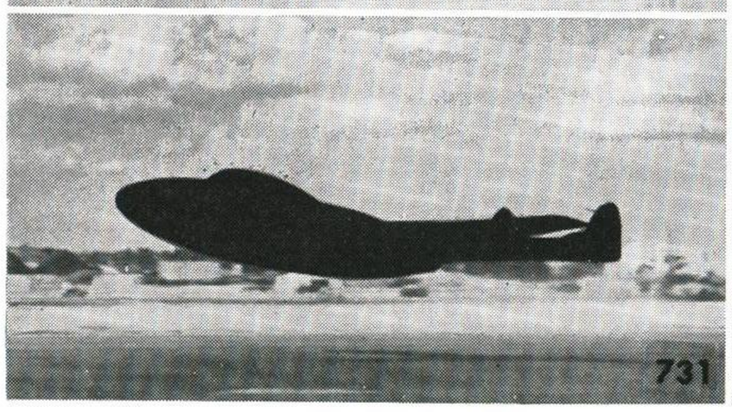

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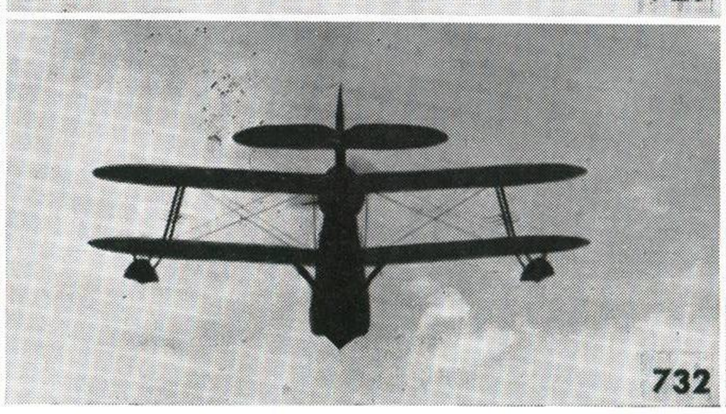

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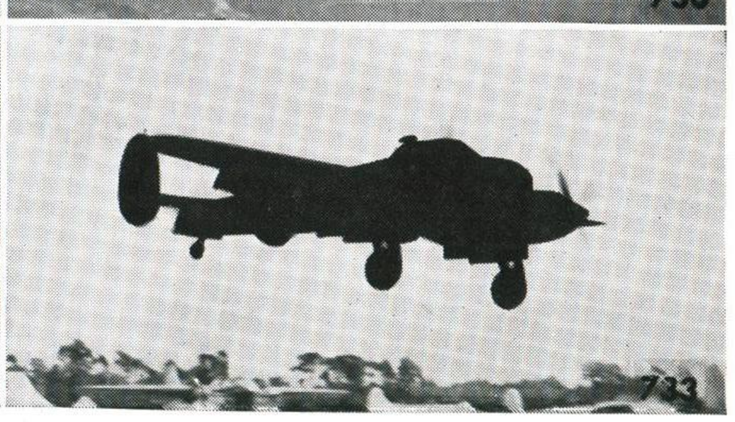

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## New Aircraft Recognition Material

The undermentioned new Air Diagrams and Models are now available and initial distribution has been made. Applications for supplies should be made through normal official channels, quoting reference numbers as shown below :

1/72ND SCALE MODELS

Stores Ref. 52/897 IL-12.
52/902 F-84 Thunderjet.
52/960 P2V-2 Neptune.
52/907 F-82 Twin Mustang.
52/936 C-119 Packet.

1/72ND SCALE MODEL WORKING DRAWING

A.D. 4963 Chipmunk T Mk. 10.

LARGE SILHOUETTES

A.D. 4983 Wyvern TF Mk. 2 (R.O.C. only)
4984 Canberra B Mk. 1 ,,
4986 Viscount ,,
4987 Sea Hawk F Mk. 1 ,,
4988 Balliol T Mk. 2 ,,
4989 Constitution ,,
4991 Comet ,,
4992 Athena T Mk. 2 ,,
4996 DC-6 ,,
4995 SO. 95.
4990 B-47 Stratojet.
4985 Shackleton GR Mk. 1.

NIGHT SILHOUETTES

A.D. 4944 C-119 Packet.
4950 Firefly FR and NF Mk. 4.
4951 F84 Thunderjet.
4953 B-50 Superfortress
4949 P2V-2 Neptune
4952 Hastings C Mk. 1.
4954 C-69 Constellation.
4955 C-97B Stratocruiser.
4956 Brigand TF Mk. 1.
4958 Halifax A Mk. 9.
4959 B-29 Superfortress.
4960 York C Mk. 1.

❖ ❖ ❖

## U.S.A. Spotting System

The Western Air Defence Force headquarters of U.S.A.F. announces that 50,000 volunteers are required to operate an air raid warning and aircraft spotting system throughout the Pacific Coast area of the U.S.A. Volunteers are also invited for a similar civil defence organization in the industrial Northwest.

## Spotting Logs

OBSERVER R. O. MACDEMITRIA of M2/Group 4 writes: " I feel I ought to let you know that 25 types in a day is nothing ! "—and goes on to quote from his log :—

March 27th, 1950

| | | |
|---|---|---|
| Auster | Firefly | Dakota |
| Avenger | Brigand | Viking |
| Rapide | Spearfish | Valetta |
| Dove | S-51 | Autocrat |
| Tudor | Hornet | Lockheed 14 |
| Meteor | Mosquito | Oxford |
| Vampire | Welkin | Sea Fury |
| Anson | Gemini | Attacker |
| Ace | Halifax | Mitchell |
| P.1040 | Lincoln | Tiger Moth |
| Proctor | Lancaster | Sturgeon |
| Spitfire | York | Harvard |
| Seafire | B-17F | Buckmaster |

and April 1st, 1950

| | | |
|---|---|---|
| Dakota | Viking | Messenger |
| Avro XIX | Convair 240 | Lincoln |
| Tiger Moth | C-54 | Rapide |
| Anson | Tudor | Meteor |
| Languedoc | Constellation | Parnell Elf |
| Stratocruiser | Proctor | Me.108 |
| DC-4M | Dove | Gemini |
| York | Fury | Firefly |
| Lancastrian | Tempest | Hastings |
| Magister | Consul | Harvard |
| Avenger | Spitfire | DC-4 |
| Halton | P.1040 | P.1052 |

The record now stands, therefore, at 39 different types positively recognised in one day ; Can YOU break it with an even higher score ?

❖ ❖ ❖

## Quotes

An attack of the quotes is sometimes a good thing. Leafing leisurely through the war-time Inter-Services Aircraft Recognition Journals the other day we noted several " pearls of wisdom " printed within those hallowed pages. We were forthwith seized with the idea of handing them on to our readers in the hope and wish that they will find echoes in harmony with readers' thoughts on recognition training. We shall publish one per month. The first is :—

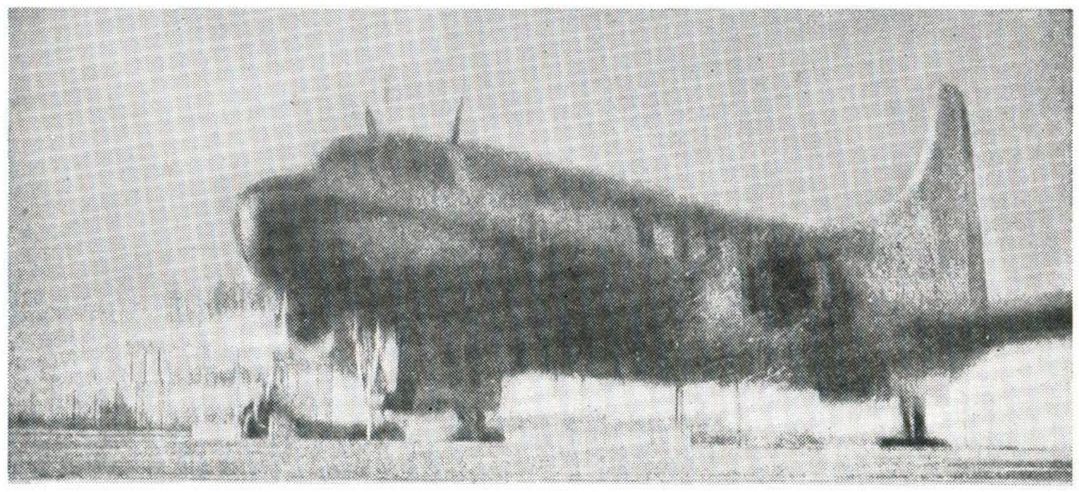
> ". . . these varied methods upon which skill in aircraft recognition is built add up to one thing. It is *know each aeroplane*—not as a silhouette, not as a photograph, not as a film—but as a living image."
>
> *Inter-Services Aircraft Recognition Journal, October*, 1942.

❖ ❖ ❖

## Accent on Balloons

According to a recent press report, we note that at the Royal Aeronautical Society's annual " Garden Party " on May 14th an accent will be made in a hydrogen spherical balloon !

## Aerogram



Rain in clover (Answer on rear cover)

# CHARACTER STUDY

## No. 4—The Vickers Valetta

THE Vickers Valetta has one outstanding recognition feature which is visible from nearly every angle—its robust and mighty girth of stern. No other aircraft aflight remains so fat for so far, and it is this stern girth that says Valetta (or Viking) to the mind without a second glance. Incidentally too much stress should not be laid on the manx tail effect of the Valetta—it is evident, yes ; but not always immediately or from afar. But that great heavy-ended fuselage tells anywhere, because it is so optically unexpected.

The rest of the Valetta is good-looking air-meat, but every other feature can be confused individually or collectively with other aircraft. But it is worth going over with a comb. The high aspect-ratio wings, straight tapered to the familiar Wellington tips, with more taper on trailing than on leading edge, are distinctive Vickers shapes in plan view. The low mid-wing dihedral is from the roots, and quite marked.

Engines are cowled and nacelled into two nicely swelled eggs, set firmly into the wings and prominent above and below and with no trailing-edge protrusions.

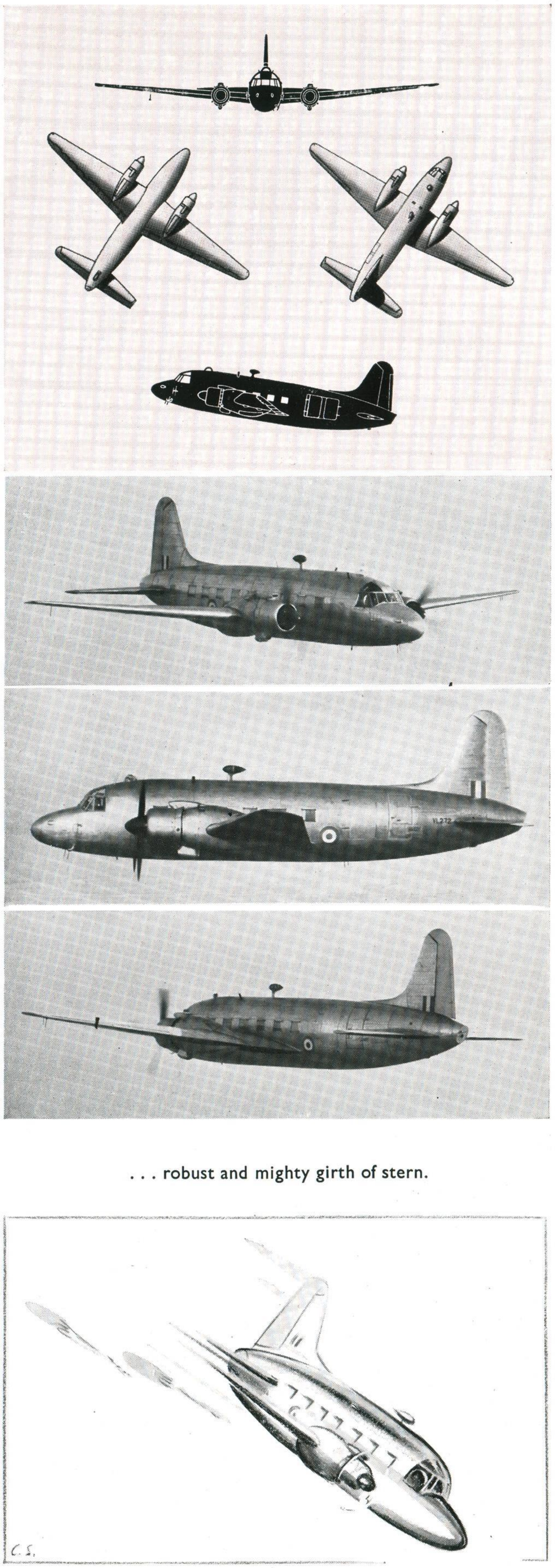
The fuselage is a noble cigar pinched into inquisitiveness in front and sliced obliquely at the rear ready for smoking. This cigar has also been flattened and the great and continued depth marks it off from all other brands. Basic lines are long and smooth and the underside has a noteworthy sweep.

The fin and rudder, which have difficulty in clinging on to the steep down-slope of the fuselage, is a somewhat inelegant sugar-loaf. The leading edge has an abruptly curving line as it stretches its extended finger along the aircraft's smooth spine. With the fully rounded tail plane tips it makes a robust trio of surfaces.

All in all, the Valetta is a clean and unbumpy monster, a combination of long straight lines and long curved lines, with a good optical balance in all its parts, save perhaps for the fin and rudder. But stern girth is the chief recognition clue—at any distance.

The Valetta, like its elder brother the Viking, is the offspring of the famous Wellington and can be used as freighter, troop transport, paratroop transport, ambulance or glider tug. It first flew in 1947, the Viking having been born in 1945. The engines are Hercules, and the cruising speed 183 knots. Span is 89 ft. 5 ins. Maker is Vickers Armstrongs. It is now replacing the Dakota in the many rôles necessary to a service transport. Valetta, by the way, is the capital of Malta when spelt with two " ls ".

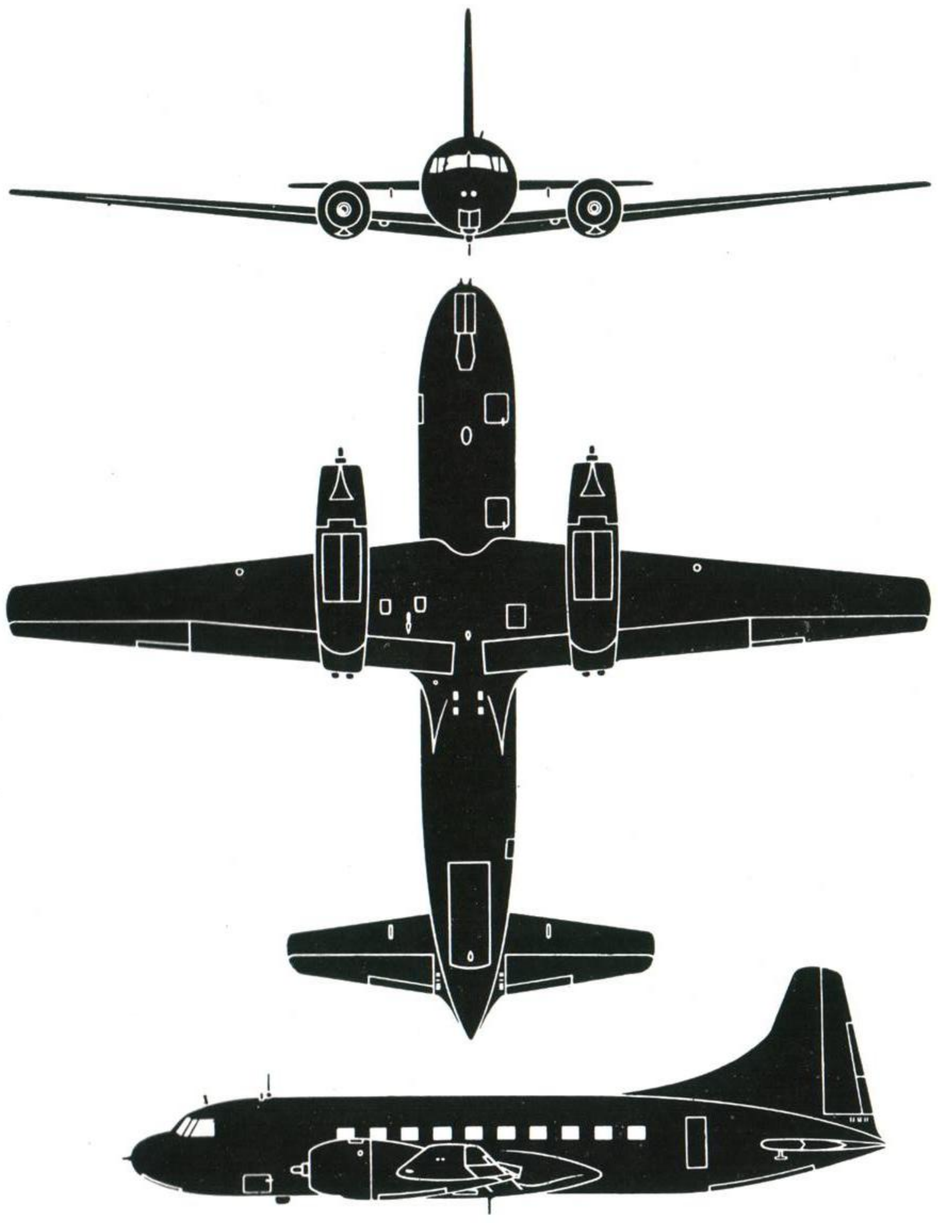
C. H. GIBBS-SMITH



. . . robust and mighty girth of stern.

# SILHOUETTES — CONFUSABLE TWINS

## CONVAIR-LINER



American Transport
Engines : 2 Double Wasp Radials
Span : 91 ft. 9 ins. Length : 74 ft. 8 ins.

*Recognition Points :*

**Wings :** low, set well back on fuselage, moderate dihedral from roots, thin section, narrow chord, equi-straight taper, blunt tips.

**Engines :** high central mounting, egg-shaped nacelles, augmenter ducts breaking line of trailing edge.

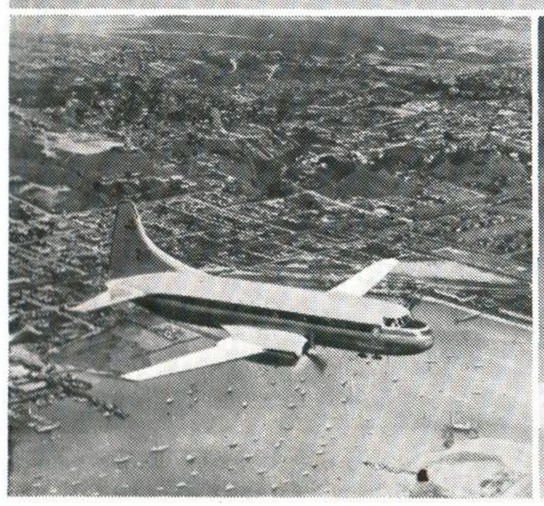
**Fuselage :** large, cigar-shaped, tail cone protrudes aft in plan view.

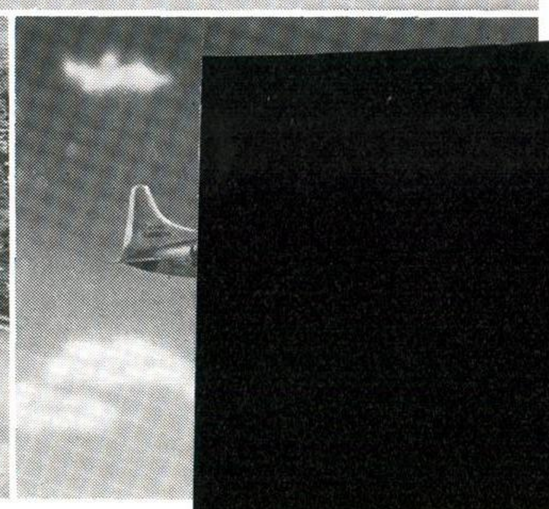
**Tailplane :** straight taper, blunt tips.

**Fin and Rudder :** tall, pronounced leading edge curve, straight trailing edge, blunt tip.

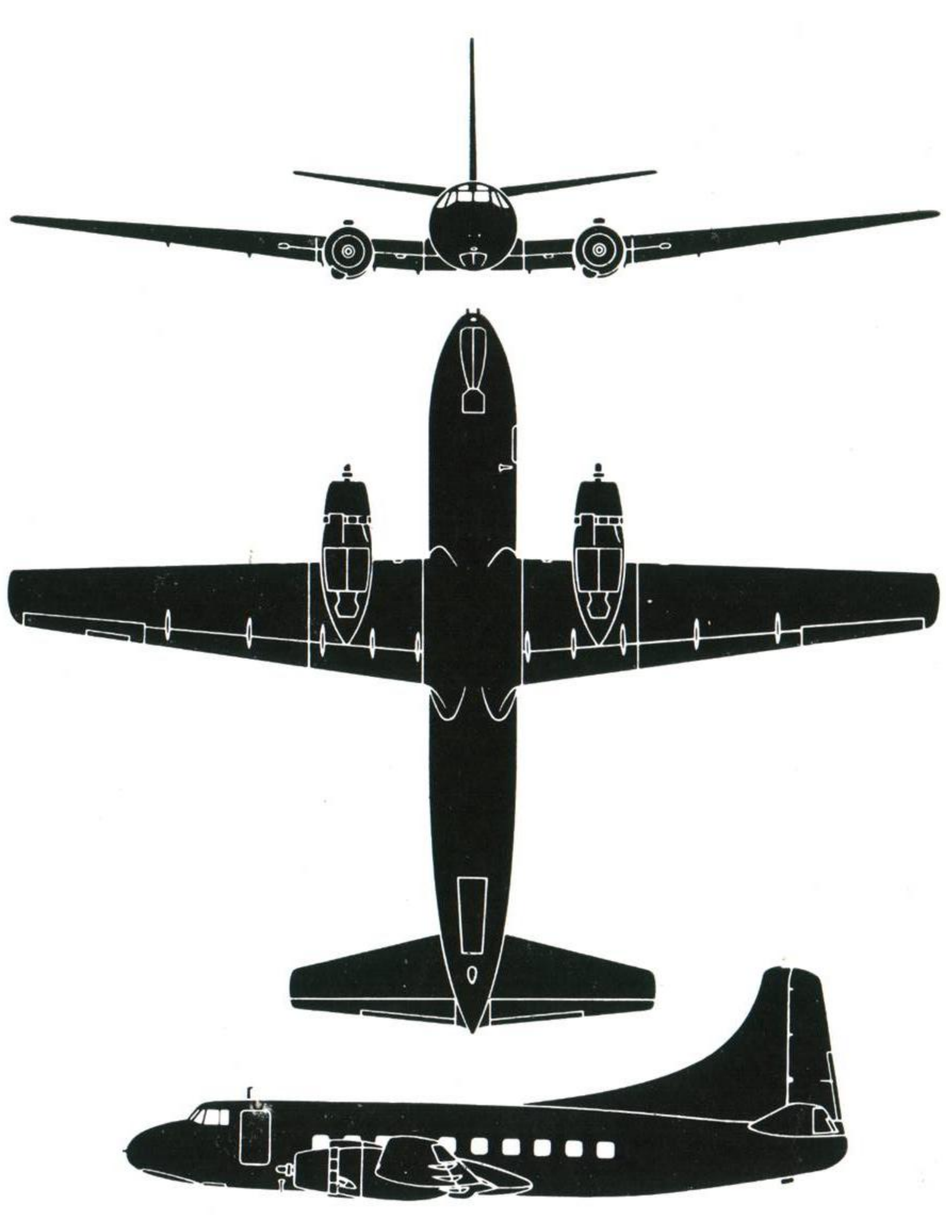
**Detail :** stepped-up cockpit above stub-nose.







## MARTIN 202

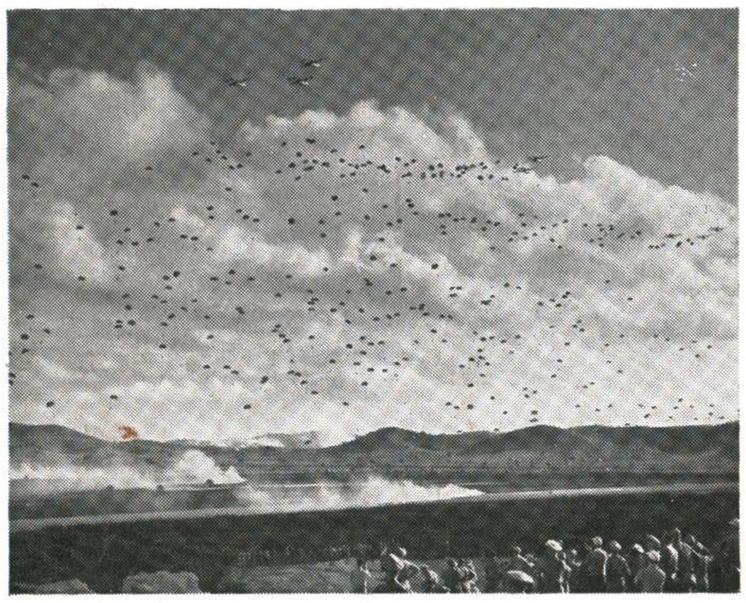


American Transport
Engines : 2 Double Wasp Radials
Span : 92 ft. 9 ins. Length : 71 ft. 4 ins.

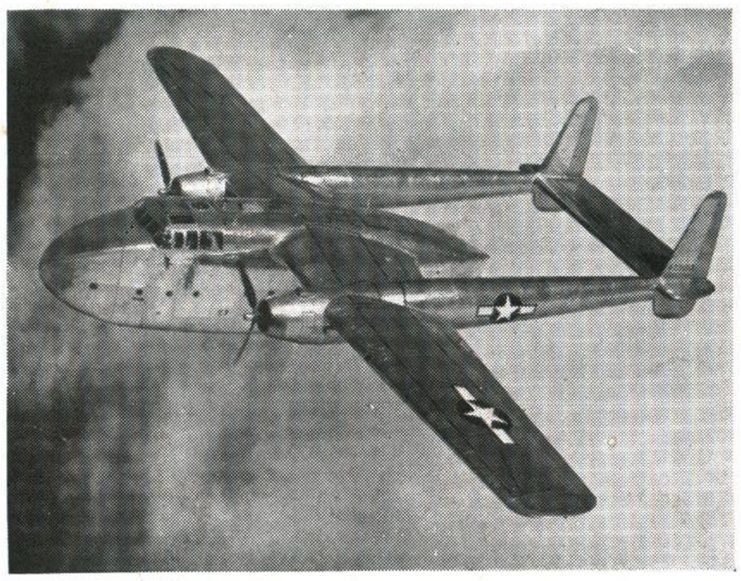
**Wings :** low, set
roots, thick sect
taper on trailing e
**Engines :** central
**Fuselage :** large,
**Tailplane :** straig
marked dihedral.
**Fin and Rudder :**
trailing edge, blu
**Detail :** stepped-



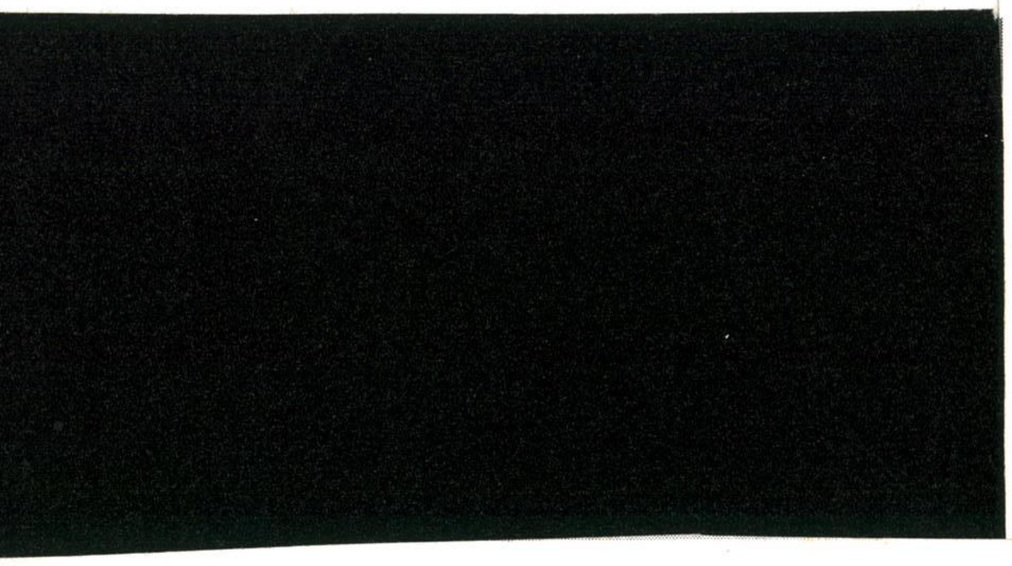




COVER : Nine C-82 Packets fill the sky with paratroops during Exercise Portrex, recently held in the Pacific by U.S. armed forces.



C-82 Packet military transport can carry 42 paratroops with full equipment and is designed to land and take-off from rough ground with jeeps, field guns, or light tanks as required.



C-119 Packet military transport is a larger and faster version of the C-82 with flight deck modifications to give better all round vision for formation flying and paratroop dropping.

# SOLUTIONS TO RECOGNITION TESTS IN THIS EDITION :

### R.A.F. REGIMENT SPOTTING TEST

1. C-119A Packet
2. Valetta C Mk. 1
3. C-124 Globemaster 2
4. IL-18
5. Hastings C Mk. 1
6. YAK-16
7. C-71 Globemaster 1
8. C-82 Packet
9. Halifax A Mk. 9
10. C-54 Skymaster
11. C-121 Constellation
12. IL-12

### ADVANCED

938. Venom FB Mk. 1
939. A.W. 52
940. Meteor 4 (reheat)
941. Wyvern TF Mk. 2
942. Vickers 510
943. Comet
944. Halifax A Mk. 9
945. Tempest FB Mk. 2
946. F-80A Shooting Star
947. Chipmunk T Mk. 10
948. Proctor T Mk. 4
949. Shackleton GR Mk. 1
950. Dove
951. Canberra B Mk. 1
952. Attacker F Mk. 1
953. Athena T Mk. 2
954. Sealand
955. Constitution
956. Canberra B Mk. 1
957. Firefly T Mk. 1
958. Barracuda TBR Mk. 5

### SILLOGRAPHS

713. Oxford
714. Vampire FB Mk. 5
715. F7F Tigercat
716. Brabazon
717. Balliol T Mk. 2
718. Seafire FR Mk. 47
719. Sunderland GR Mk. 5
720. Sea Hawk F Mk. 1
721. Solent
722. Sturgeon TT Mk. 2
723. Hastings C Mk. 1
724. Vickers 510
725. Viscount
726. Prince
727. P2V-2 Neptune
728. Hermes 4
729. Sea Vampire FB Mk. 20
730. Autocrat
731. D.H. 113
732. Sea Otter ASR Mk. 2
733. Brigand B Mk. 1

### TRICKY TRIO

Left to right : Valetta 1 ; IL-12 ; Viking 1B.

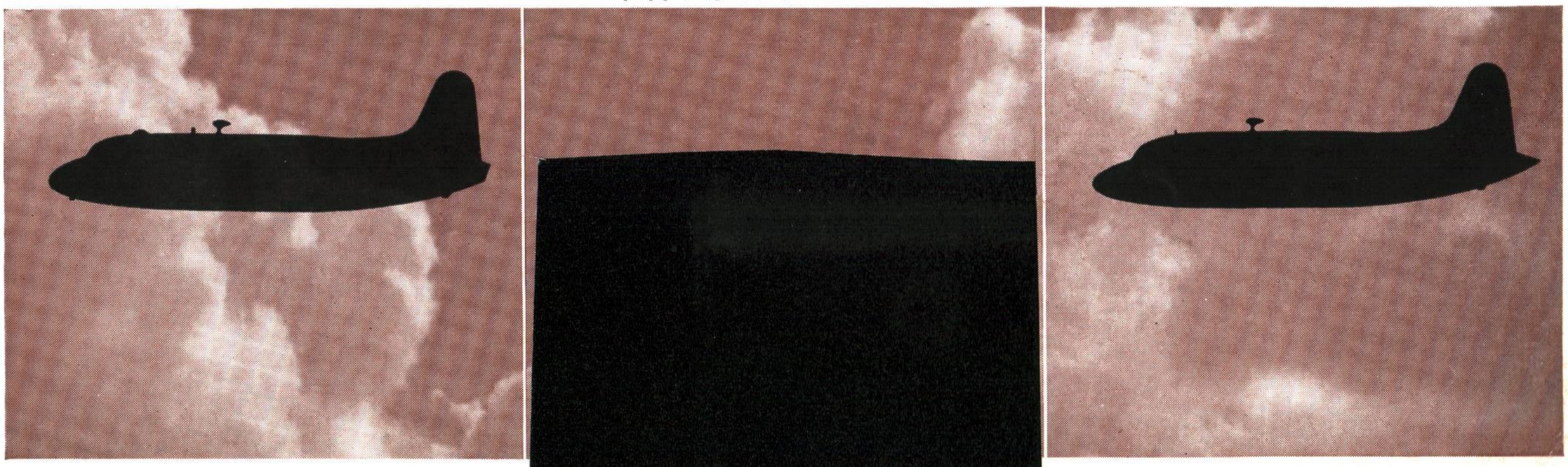
**Acknowledgement**

We are indebted to Mr. F. G. Swanborough for the use of his photographs of the IL-12 on page 175 ; and of the Noratlas, the Armagnac, the Breguet 76-1, and Mercure, and the Cormoran on page 168.



**AEROGRAM :** RAIN IN CLOVER = CONVAIR-LINER

## TRICKY TRIO



52M 5/50 38-241-0

*y of H.M. Stationery Office by Fosh & Cross Ltd., London*