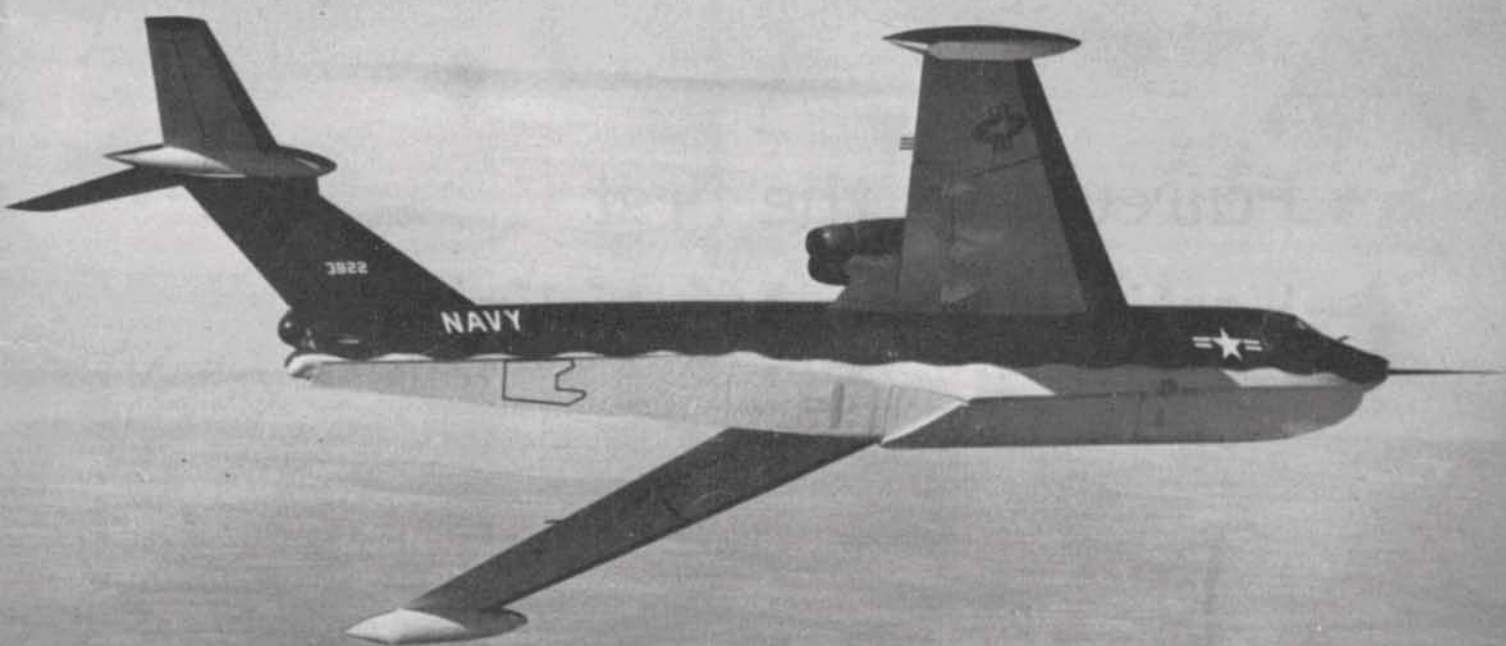


AIR *Pictorial*

and **AIR RESERVE GAZETTE**

MARCH, 1958

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Fairey flies the first Vertical Take-off Airliner

Adding achievement to achievement, Fairey Aviation have now built potentially the most important transport aeroplane in the world, the Fairey Rotodyne.

Carrying 48 passengers or $4\frac{1}{2}$ tons of freight it takes off vertically as a helicopter and having gained height flies forward as a normal twin-engined airliner.

It is the most adaptable rotary-wing aircraft in the world and the first to offer operating economy directly comparable to that of fixed-wing aircraft over ranges of up to 400 miles.

The arrangement within the Rotodyne's capacious fuselage can readily be adapted to suit civil or military applications.

Powered by two Napier Eland propellor-turbines with Fairey Pressure-Jets at the rotor-tips for take-off and landing.

FAIREY

Rotodyne

**48 passengers • 185 m.p.h. cruising speed
400 miles maximum range.**

The Virtue of Learning

By Sir Miles Thomas, D.F.C.

A Member of the Council of the Air League

THERE is no area of activity in our complex modern society more important today than that of training in engineering. Not only our national security but our prosperity as well depend basically on there being forthcoming a regular and dependable supply of engineers and technicians who can not only evolve and develop but can also manufacture and maintain the increasingly ingenious and intricate mechanisms and systems that this day and age demand.

Not so long ago, certainly within the span of a half-century, the engineer was looked down upon as a man of doubtful social status. It was the poet, the artist and the music-maker who were revered and lauded as the intelligentsia. Landed gentry, sturdy of stock and hard of physique, were roots of the social system. They paid due regard and reverence to the intellectuals; they patronised the writers and men facile of speech. It was not until they were driven to the use of mechanised equipment on their land and found that even their kitchens had to be invaded by mechanical substitutes for the serfs and skivvies that had hitherto pandered to their needs that they had to recognise as important units in the social system men who could effectively use spanners, screwdrivers, and occasionally a brazing lamp or a soldering iron.

The engineer also had to fight for recognition against the claims of the "professional man". The white-collared worker, tripping nattily to his City office; the solicitor; doctor; accountant; all these and others laid claim to the attention of the young man on the threshold of life who had to decide, either in the light of his own inclinations or by virtue of the advice that he was given, which

particular walk of occupation he would tread.

Maybe it has taken two wars, world inflation and the threat of space domination to bring into proper relief the sterling qualities of engineering as an essential thread in the variegated web and warp of our modern turgid civilisation.

Now among the various kinds of engineering which open the gateways to personal advancement and prosperity, the science of making and maintaining aircraft ranks high. Not merely because an aircraft has to have weight saved in every possible way, not only because structural strength and mechanical reliability are *sine qua nons*, but because every aircraft reflects in fact the very soul and substance of its sponsors is aircraft engineering a thoroughly good training for the young man who wants not only to express himself and make his impact on the community in which he lives, but who also has the natural healthy desire to eat well at regular intervals. It is a resilient springboard for a launch into life.

Engineers have to be well disciplined. Better indeed is it if they are self-disciplined; and nothing teaches this admirable trait more readily than aircraft engineering.

When, as a result of the Sandys axe, grave and in part realised fears about the future of manned bomber and fighter aircraft assailed people's minds there was a natural reaction that training in aircraft engineering was not now such an attractive syllabus.

To take such an attitude would, in my judgment, be wrong, because the kind of requirement that qualification as an aircraft engineer demands is of great value in other spheres.

Accuracy; a sensitivity to the characteristics of various materials; an eye for line; an appreciation of economy of structure, and the ability to design components that are capable of being made at prices that are not exorbitant; all these are features that command respect and reward in all walks of life.

While recognising that the financial benefits that are likely to accrue out of the aircraft-making industry over the next decade in terms of manufacturing fighters and bombers are likely to be less numerous—and ergo less attractive—than they might have been had a manned-aircraft programme continued to develop apace, there is no doubt at all that the guided rocket, whether it is used for the purpose of carrying missiles or, as may well be, for the purpose of swift global carriage of the written missive, means that there should be plenty of scope and outlet for the young man trained in engineering to the high standards that these fields of endeavour demand.

There thus should be no slackening of effort on the part of sponsors for training in aircraft engineering and no fall-out in the student body. Socially, economically, and in terms of a good life, well spent among intelligent and appreciative colleagues, there is a worthwhile future in aircraft engineering.

THIS MONTH'S COVER

THIRD prototype of the Martin YP6M-1 SeaMaster has begun test flights and differs from the two earlier aircraft in having outswept engines and a modified tail unit. The black outline on the rear hull arm is one of a set of hydroflaps for water manoeuvrability.



Unless there is a sudden change of Government policy the S-R.177 will not be built, and it is to be regretted that this interesting design has been shelved owing to lack of funds and foreign orders. The history of the development of the 177 is in itself of interest, and it is published here by kind permission of Saunders-Roe.

The Saunders-Roe S-R.177

THE story of the S-R.177 began when Saunders-Roe started a serious study of aircraft for combat at extremely high altitudes. The company had put forward proposals for a water-based transonic fighter aircraft which was a natural development of the S-R/A.I. jet-propelled fighter flying-boat.

Whilst these proposals did not receive interest and support the work which had been done did enable the company to break new ground and turn to the design of mixed rocket and jet-powered aircraft.

Its design team had already investigated the requirements of aircraft designed to fly at 100,000 ft. and had irrefutable proof of the advantages of a mixed unit configuration. In particular, the two most important characteristics of performance—climb to height and duration at altitude—were improved by the addition of a jet engine to the all-important rocket engine.

These advantages were borne in mind when the Ministry of Supply invited tenders for a pure rocket-propelled, high-altitude interceptor, Saunders-Roe was one of the companies awarded the contract, and when the specification was later amended to include provision of a jet engine, the way was clear for the mixed unit interceptor, although at that stage the turbojet was intended only to allow the rocket aircraft to cruise back to its base after a sortie.

With the basic concept laid down, the next step was to determine the best engineering method of meeting the requirements. Various engines—some in the development stage, others little more than proposals—

were considered, and it was obvious from the start that the choice of the oxidant to be used was a vital factor. H.T.P. was studied, so were Nitric Acid and Liquid Oxygen. The natural qualities of each, both pros and cons, were carefully evaluated, and the final choice of H.T.P. was one that we have never regretted.

So, the S-R.53 was conceived with the Spectre rocket engine and the Viper which was the most suitable jet engine at that time.

This aircraft was in no way a research project. It was built to a Royal Air Force requirement. Its performance and armament were designed to be in harmony with existing and proposed ground equipment and radar installations. It was built to intercept an attack a little higher and faster than that which could be mounted by existing bombers—and this it could easily do.

However, although most people realise that it takes a team to design an aircraft, it is not so well known that it takes the combined efforts of the best brains of the Services, the Ministry of Supply and its establishments, such as the Royal Aircraft Establishment and Radar Research Establishment, to ensure that the finished aircraft integrates into the whole complex, highly-technical pattern of our air defence system. At no time must the continued development of the complete ground-air interception network be held up because of the limitations of any one component.

So, as design and construction of the S-R.53 proceeded, careful note was taken of all ideas, suggestions and hints of future

requirements that were made at the frequent discussions and meetings with the Services and the Ministry of Supply. These meetings were followed up by friendly visits to R.A.F. stations, and one fact which soon became clear was the eventual necessity for air-to-air radar, homing devices and electrical equipment which would be independent of altitude.

Yet the design of much of this equipment was only beginning, and if full provision had been made for it in the S-R.53, it would have been out-of-phase with the time scale.

Thus, late in 1953 and in parallel with the design and construction of the S-R.53, Saunders-Roe began to design a direct development of this aircraft. This was known as the S-R.177.

Proposals for this very advanced interceptor were placed before the Ministry of Supply in 1954, and the design contract for this aircraft was finally received in 1955.

The S-R.177 is aerodynamically similar to the S-R.53, the main differences being in its armament, interception equipment and automatic pilot equipment. In addition, by combining the cruising economy of a much more powerful turbojet with the great high-altitude thrust of the Spectre, it can make much wider use of the advantages of the mixed power formula than can the lower-powered S-R.53.

The basic ideas which led to this Saunders-Roe mixed unit conception are simple. An interception operation calls for the aircraft to perform a flight sortie that involves periods of low and medium speed flight and also calls instantly for high acceleration and rates of climb and turn. To achieve this, high thrust is essential, especially at altitude.

This can be achieved in many ways . . . by propeller . . . by jet . . . by rocket . . . by ramjet. But whatever method is used the basic quantities are, "the weight of engine to give one pound of thrust at the height required", "the weight of fuel consumed by this pound of thrust for every minute it is used". Evaluation of these two quantities and choice of the most efficient engine installation points the way to the best aircraft for the job; and if the problem is confined to interception, and the required sortie pattern is considered in relation to the range of possible threats, a simple choice emerges.

The choice narrows to the turbojet, the fully-variable-thrust rocket engine and the ramjet engine. The importance of acceleration narrows the field still further to either the turbojet with reheat and the rocket engine or all three types of powerplant, which might be considered as the next step in the development of the mixed unit principle.

Looking at the reheated turbojet, these engines have reached the stage where for every pound of thrust at sea-level the engine weight is about 0.20 lb. But the same engine at 60,000 ft. and Mach 1.0 delivers only some 4 per cent of its sea-level thrust. If, under these conditions the engine weight is 1.39 lb. for every pound of thrust, each

pound of thrust is using about .035 lb. of fuel per minute.

In the case of the rocket engine each pound of thrust at sea-level involves an engine weight of about 0.05 lb. What is more important is that this thrust is maintained and even increased with altitude, so that at 60,000 ft. the rocket gives 50 per cent more thrust than at sea-level. This must be balanced against the high fuel consumption of the rocket engine, in which about 0.25 lb. of fuel and oxidant are consumed every minute for each pound of thrust.

However, the supersonic duration and acceleration time available to deal with the threat of a high-speed bomber, demands that the final attack period at high speed and altitude should last only a few minutes and, consequently, the rocket fuel consumption need take place only during this time.

A calculation to optimise the aircraft size and versatility reveals that a smaller and lighter aircraft can be obtained by combining a single large jet engine with a rocket engine rather than using two large jet engines.

The particular advantage of the mixed unit aircraft is its versatility. For example, its total engine installational weight may be only about 10 per cent of the take-off weight; whereas the corresponding figure for the pure-jet type is about 25 per cent. It is true that the mixed unit aircraft will carry

a greater percentage of its take-off weight in fuel and oxidant. But the landing weight, the rocket propellents consumed, is very low and the by-product of this apparent disadvantage is the ability to land on comparatively small runways. Take-off from the same runways naturally presents no obstacle in an aircraft with such a reserve of power.

Yet this is merely the start of a long list of advantages offered by a mixed unit interceptor. There is, as we have said, ample thrust in flight, particularly as the aircraft climbs to extreme altitudes. Heights like 60,000 ft. or 70,000 ft. can be achieved in a very few minutes and, for the first time in this sort of problem, performance is not dictated by aerodynamic drag. In fact, put another way, it is essential to have a fully-variable-thrust rocket under the simple control of the pilot, because the application of full thrust in level or near-level flight would cause the aircraft to accelerate rapidly, the peak being limited as a rule by fuel carried.

With drag no longer the dominant factor, an increase of drag will entail only more throttle and, hence, greater fuel consumption. So equipment such as the radome can be designed for maximum overall operational efficiency rather than minimum drag. Fuselages, or wings can be designed to take bulkier equipment, within aerodynamic stability limits. A typical example is that bulky, low-pressure landing gear could be

fitted for operation from hastily-prepared aerodromes with only a small loss of supersonic duration but no loss of speed.

However, the S.R.177 is not just another fighter aircraft, it was designed as a weapons-system vehicle in such a way that it could easily keep pace with systems, developments, and operational requirements of increasing severity. It was designed so that during each stage of its development it could be a highly effective weapon capable of giving continuous protection against the existing and anticipated threats. It was designed with the maximum versatility to take full advantage of its inherently large internal fuel capacity so that the same vehicle could be used for a wide variety of long-range strike support, photo reconnaissance and ground attack duties as an all-kerosene aircraft operating on its jet engine alone.

Its flight-control system—designed and under development by Smiths, Messier and Saunders-Roe—will, in its final form, be capable of development to the stage where it will offer full automatic guidance. Security requirements prevent any enlargement of this but we believe that the ultimate guided weapon can be achieved most efficiently by this method of approach, and that the 177, more than any other form of defence, will provide reliable, efficient and continuous protection until such time as the ultimate weapon has been perfected.

Britain Enters the Space Age

Air League Conference

THE world stands on the threshold of space travel. Three man-made satellites circling the globe on the fringe of space have turned fantasy and fiction into fact; space scientists, branded as cranks a few years ago, have become prophets whose predictions have proved to be right—rather sooner than perhaps some of us would have liked.

These satellites are a direct extension of guided weapons techniques and guided weapons may be said to have sprung from the V1 and V2 of the last war. Today, every newspaper reader is aware of the scientific jargon of rocketry—ICBM, IRBM, sustainer motors, boosters, beam riders—terms like these are commonplace to us all.

The Air League, in its role as a national watchdog on aeronautical matters, has observed these developments with concern and is anxious that the young people of today should realise the full significance of guided weapons and space travel. Where does Great Britain stand in all these matters—can she afford to stand back from space travel? Questions like these spring readily to mind and need to be carefully studied by all of us.

With all this very much in mind, the Air

League has arranged a conference at the Royal Festival Hall, London, on Monday, 14th April next, at which His Royal Highness, The Duke of Edinburgh, Patron of the Air League, has consented to speak. Marshal of the Royal Air Force Sir Dermot Boyle, Chief of the Air Staff, will be Chairman at the conference, which will be addressed by experts from the Royal Aircraft Establishment, and from industry. The conference will close with a Brains Trust when members of the audience will be invited to put questions to the experts.

Among subjects to be covered by the experts will be the techniques of launching sputniks, design and construction problems, control systems and methods of propulsion.

The conference will last from 10.30 a.m. to 1.30 p.m. (doors open 10 a.m.). It is intended for senior students from schools and technical colleges and for the younger people like apprentices and junior scientific officers from industry.

The Air League is a non-profit-making body, and in order to cover the costs of the conference, a charge of 7s. 6d. has to be made for tickets. Reduced rates are available for parties.

ALL-ENGLAND CONTEST RESULTS

THE eleventh All-England Contest held in the Lecture Theatre of the Royal Institution on Saturday, 18th January, held many surprises, and the result probably caused as much surprise to the Royal Netherlands Air Force team, who went home covered with glory and four magnificent trophies.

THE AWARDS

The Silver Hurricane

Awarded to the team scoring highest aggregate marks

THE ROYAL NETHERLANDS AIR FORCE

The B.E.A. Viscount Trophy

THE ROYAL NETHERLANDS AIR FORCE

The Silver Heracles

Awarded to the leading team of cadets of the Air Training Corps or Combined Cadet Force

No. 276 (CHELMSFORD) SQUADRON, A.T.C.

The Bristol Britannia

Awarded to the competitor obtaining highest marks

A. VAN NIEKERK (ROYAL NETHERLANDS AIR FORCE)

The Royal Netherlands Trophy

A. VAN NIEKERK (ROYAL NETHERLANDS AIR FORCE)

Winner of the Air Pictorial Trophy, now awarded to the highest-scoring A.T.C. or C.C.F. competitor was Cpl. C. M. HOWLETT of 276 Squadron, with 32 marks.



The S.S.W. RVIII was a large aircraft, as can be appreciated by the way it dwarfs the men standing in front of it (Fig. 47).

Siemens-Schuckert Aircraft 1909-1919

By Peter M. Grosz and Egon Krüger

Part II

FOR the next year and a half the Nürnberg branch busied itself with the repair of aircraft, at the rate of about twenty-five LVG, Albatros C and B types per month and the manufacture of 100 Albatros CIIIc (S.S.W.) biplanes under licence agreement. Not until the summer of 1918 did the Nürnberg works build S.S.W. aircraft again, when it was commissioned to produce the S.S.W. DIV fighters.

In the meantime development work proceeded at Siemensstadt in Berlin, resulting in a series of remarkable experimental aircraft which were the forerunners of the famous S.S.W. DIII and DIV fighters. The work began when Idflieg expressed interest in an aircraft of superior fighter performance utilising the new and promising but still experimental Sh 3 engine which was being assembled at the branch works of Siemens-Halske. The eleven-cylinder Sh 3 was in many ways a remarkable engine possessing a high horsepower-to-weight ratio, superior altitude performance and the curious feature, like all Siemens engines, that the propeller rotated in one direction while the cylinders turned in the other (i.e., counter-rotating). Although this arrangement did not eliminate the torque reaction, the gyroscopic precession was compensated, i.e., there is no change in trim of pitch (fore and aft) between right- and left-hand turn. This gave superiority in air combat with rotary-engined enemies. The Sh 3 engine had a maximum output of 240 h.p., and a continuous output of 160 h.p. up to 3,700 metres.

Three experimental fighters designed around the Sh 3 engine were built, the S.S.W. DII, DIIa and DIIb. Although these machines were ready in early 1917, the prolonged delivery of acceptable Sh 3 engines delayed the flight-test programme until June 1917, at which time excellent results were obtained, particularly the climb rates. For instance, the DIIb reached 5,000 metres in 15.5 minutes as compared with

the times required by contemporary German and Allied machines to reach an equal height: Albatros DII, 29 min.; Pfalz DIII, 25 min.; DH5, 30 min.; Sopwith Triplane, 21 min.; Sopwith Camel, 23 min.; Spad VII, 27 min. (German figures).

Further refinement of the DII series was vigorously pushed by Idflieg and S.S.W., resulting in the completion of the following fighter prototypes in late 1917: the S.S.W. DIIc-short, DIIc-long (Fig. 37) and the DIIe; the latter is noteworthy for being one

of the first fighters, experimental or otherwise, to use duraluminium wing spars.

While work was proceeding to perfect the DII series into a front-line fighter, several unusual aircraft were built or projected. The intriguing S.S.W. DIc was among the latter, a parasol pursuit proposed to Idflieg in the summer of 1917. At the time, it was not regarded with enthusiasm, presumably because the unbraced parasol configuration was considered unsafe for combat. It is probable, however, that had

Top: The S.S.W. B (Fig. 16) high-speed tactical reconnaissance unarmed biplane. This photograph was inadvertently left out of the previous instalment of this story. Bottom: One of the S.S.W. DIV prototypes (755/17) with Sh 3a engine (Fig. 41).



the design been adopted, the D1c with its Sh 3 engine would have been superior to any fighter then at the front, in the same way that the Fokker DVIII (which was very similar) was far ahead of its contemporaries a year later. S.S.W. finally did build three high-wing monoplanes based on the D1c design in the summer of 1918, as discussed later in the article.

In keeping with the trend of the times, S.S.W. also completed a triplane, the S.S.W. DrI fighter (Sh 1) about which little is known, except that it utilised a D1 fuselage and, with a wing span of 8.6 metres, carried a total area of 18.1 square metres. After a crash, the DrI was completely rebuilt while the area was increased to 21 square metres. Further development was dropped. A second triplane designated S.S.W. DrII did not proceed past the project stage.

Among the most unique aircraft built during the war was the curious experimental S.S.W. DDrI (Fig. 32), a triplane fighter powered by two Sh 1 engines (over-compressed to give 120 h.p.). Characterised by an outrigger tail and a pod fuselage with engines at either end, the "Flying Egg" crashed on its maiden flight in November 1917 and was not rebuilt. Engine control problems and poor stability revealed during its short test programme resulted in the cancellation of the projected S.S.W. DDrII equipped with the more powerful Sh 3 engines.

Towards the close of 1917, the D11c-long was chosen from among the experimental fighter types as the prototype for the new S.S.W. DIII fighter. Although flight tests were still in progress, Idflieg placed an order for twenty DIII production machines (Fig. 43) in December 1917, followed by an additional order for thirty DIIs in February 1918, in spite of the fact that the test programme required constant airframe changes. Nevertheless production continued on an increased scale and the third production series DIII (Fig. 43a) reflected how the process of constant modifications greatly changed the appearance (and performance) of the machine. Simultaneously the first S.S.W. DIV fighters (Fig. 41) were completed, partially using rebuilt DII and DIII airframes; these differed only slightly from the late DIII series, as a comparison of photographs shows. The primary differences were in the wing, which had a smaller chord, less area, and an improved rib section. Outwardly the DIV was refined by smoothing out its lines, as is evident in the cowl, wing and tail outlines, further enhancing its warlike appearance. Of the DIV prototypes, the D11c-long (7551/17)

(Continued overleaf)

Right, top to bottom: The D11c-long 7551/17, direct ancestor of the famous DIII/DIV series, later redesignated S.S.W. DIII, then DIV, then DIVa (Fig. 37); the curious S.S.W. DDrI which crashed on its maiden flight and was not rebuilt (Fig. 32); the first S.S.W. DIII 8341/17, one of the first production machines (Fig. 43); a late production series S.S.W. DIII 3008/18 (3007-3026/18), showing lower portion of cowl removed (Fig. 43a).





SIEMENS-SCHUCKERT (Continued)

had a most colourful career, for initially it was redesignated DIII (7551/17), then after a crash it was modified to become the prototype of the DIV series (7554/17), which after still another crash and changes was flown as the DIVa (7554/17) in the June 1918 fighter competition at Adlershof.

Last of the experimental biplane fighters was the S.S.W. DV (Sh 3 engine), essentially a twin-bay version of the DIII/DIV series

but fitted with duralumin wing spars. It competed at Adlershof in May 1918 but was not chosen for further development.

During April/May 1918 enough DIII aircraft were ready so that a group could be sent to Jagdgeschwader II for combat trials. Although flown only on the German side of the lines to prevent them from falling into enemy hands, the DIII showed excellent combat characteristics. Jagdgeschwader II, however, complained about the unreliability of the engines, due primarily to poor-quality

Left, top to bottom: The largest aeroplane of its time, the S.S.W. RVIII with six internally-mounted engines—it never flew (Fig. 47); the last fighter built by Siemens-Schuckert, the S.S.W. DVI, showing the jettisonable fuel tank under the fuselage (Fig. 50); note the tractor engines instead of the usual pushers on this Gotha GIV (S.S.W.) built under licence (Fig. 51); the Caproni-inspired S.S.W. LI—it did not see action (Fig. 46).

pistons and inferior "ersatz" oil. Inefficient cooling was rectified by cutting a section from the lower half of the cowling, a fix that was standard on later production models (Fig. 43a). However, the first batch of thirty-five DIII machines was recalled to the factory for replacement of engines and defective parts; but by July 1918 deliveries were under way again with improved engines mounted in modified airframes. The majority of the DIII fighters, of which eighty-odd examples were built, were now almost exclusively assigned to Kampfeinsitzerstaffeln (home-defence fighter squadrons) 2, 4a, 4b, 5, 6, 8, and Jagdstaffelschule 1, whereas the DIV was delivered to front-line squadrons, notably Jagdgeschwader II, Jagdstaffel 14, 22, and some to Marinejagdgruppe (Osterkamp). By the end of the war a total of 119 DIV aircraft had been delivered out of a total of 280 on order.

Front-line and home-defence squadrons were soon able to report first successes with their new, fast-climbing DIII and DIV fighters, which could out-perform the Mercedes-engined Fokker DVII on almost all counts. Even S.S.W. test pilots occasionally saw combat; for, in order to demonstrate the qualities of the S.S.W. fighters, company pilots visited various squadrons, and it was during one of these trips that Vizefeldwebel Rodschinka (later a captain in the Lufthansa) attacked twenty-four De Havilland D.H.4 bombers over Frankfurt and succeeded in shooting down two (7th September 1918). A report from Jagdstaffel 22 claims that it was impossible to fly in the same formation with the Fokker DVII; the S.S.W. DIV being superior to any aircraft at the front. For example, Lt. Lenz, leader of Jagdstaffel 22, climbed to 6,000 metres with full tanks in 14.5 minutes, above an English observation aeroplane at 6,200 metres and then proceeded to outclimb the patrolling S.E.5 in the turn and shoot it down. Almost all pilots who flew the S.S.W. DIV thought highly of it. What then prevented it from becoming a bigger factor in the air war? Primarily, the delay in producing a serviceable Sh 3 engine proved a severe hurdle in the development of the DIII and DIV. Secondly, the method used in building the plywood fuselage was time consuming as compared with the simpler and faster welded steel-tube technique used by Fokker. Perhaps the most significant factor, but one that has never and can never be fully substantiated, is that rival manufacturers paid large sums to bribe certain aces, who because of their fame and the fact that they flew all experimental types at Adlershof

(Continued on page 107)

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DEVELOPMENTS S IN AVIATION

GREAT BRITAIN

FIRST test of the Rolls-Royce rocket engine intended for the D.H. IRBM, is expected to take place this month. The engine is built by Rolls-Royce under licence from North American Aircraft.

It is reported that Jordan is interested in obtaining Hawker Hunter jet fighters for its air force. A Hawker representative may visit Jordan soon.

The de Havilland company is to manufacture the General Electric T58 turboshaft engine under licence. It will be known as the Gnome.

Both the Handley Page Victor and Avro Vulcan jet bombers will be fitted with the de Havilland Spectre rocket motor—two per aircraft—in jettisonable nacelles.

New local-service Viscount is designated Model 790 and will seat sixty-five passengers.

New shaft-turbine from Napier is named the Gazelle Junior. It is a scaled-down version of the Gazelle and will develop initially 920 s.h.p.

Unable to find a manufacturer to take over the Accountant, Aviation Traders have "mothballed" the aircraft. The Accountant made its last flight on 10th January.

The Blackburn N.A.39 naval strike aircraft will be powered by two de Havilland Gyron Junior turbojets. First prototype N.A.39 is nearly complete and expected to fly soon.

It is reported that Saunders Roe are to develop a new turbine-powered helicopter.

An improved version of the SR.53 is now flying. It has enlarged fuel tanks, giving the Spectre rocket engine a longer endurance.

Hunting Aircraft has been getting the views of the airline companies for a forty/forty-eight-seat passenger transport capable of cruising at 460 m.p.h. The aircraft would be designed primarily as a feeder-liner able to operate from small fields. It will be, if constructed, a low-wing monoplane with tricycle undercarriage, pressurised cabin, high-set tail and twin Bristol Orpheus turbojets.

In a recent White Paper the Minister of Defence, Mr. Duncan Sandys, said that the R.A.F. may adopt the Blackburn NA.39 strike fighter in preference to the P.1.

A continuous flight at supersonic speed, lasting for twenty-three minutes, was recently achieved by the Avon-powered English Electric P.1B.

AUSTRALIA

NEWEST product of the Avions Fairey Company is a small lightweight single-seater named Nipper. It is powered by a Volkswagen engine, will cruise at 66 m.p.h. and have a range of 187 miles.

A mixed powerplant version of the Jindivik target drone is under consideration. The rocket engine will be mounted externally and allow the Jindivik to reach heights of up to 70,000 ft.

According to reports, de Havilland Air-

craft plans to put a four/five-seat executive-type aircraft into production.

AUSTRIA

THE Simmering-Graz-Panker, A.G., Company is designing a twin Lycoming executive aircraft which is expected to make its first flight before the end of the year.

EAST GERMANY

A NEW medium-range turboprop transport is reported to be under development, and is designated the BB-153. The first BB-152, to be built in both forty- and seventy-seat versions, is scheduled for completion in May.

FRANCE

PROTOTYPE of the Nord 31500 army observation aeroplane was flown for the first time on 20th January.

Prototype of the Breguet 905 competition glider will make its first flight on 15th April. A pre-production and large production series are scheduled.

HUNGARY

PROTOTYPE of an all-metal glider is now under construction. It has a wing

(Continued overleaf)

Top: An artist's impression of the Dassault Méditerranée, a ten-seat, twin-jet executive transport, to be powered by two Dassault R-30 turbojets. Prototype, now under construction, is expected to fly some time this year. Centre: The Mooney Mk. 22, now in the development stage and soon to make its first flight. Prototype is powered by two Lycoming 150-h.p. engines. To get the prototype into the air for test purposes the fuselage of a Mooney Mk. 20 was married to a new wing. Large dorsal fin was added for stability. Bottom: Photograph shows for the first time the Boeing B-52E, which differs from its forbears by having a larger fin and improved bombing, navigation and electronics systems.





(Continued from previous page)

span of 41 ft. 0 in., a length of 19.3 ft., and a V-shaped tail assembly.

Flight trials of the first prototype of a helicopter are planned for this summer. No details of the machine have been released.

ISRAEL

It is reported that the French Government is prepared to give a portion of its twin-jet S.O.4050 Vautours to the Israeli Air Force. Israeli pilots are now being trained on the Vautour at the French air base at Tours.

ITALY

The Agusta Company and the Bell Aircraft Helicopter Division are co-operating on the technical design of one of the two helicopters Agusta is developing for the Italian Air Force. The Bell-Agusta project will be powered by a Pratt & Whitney piston engine, while the second project, completely designed by Agusta engineers, is larger and powered by three gas turbines. The former is designated Model 102 and the latter Model 101D. The AZ-8L Zappata four-engined transport, developed by the same company, is nearing completion and expected to make its first flight this month.

The Piaggio P-166, landplane version of the P-136 Amphibian, has nearly completed its flight test programme. The 166 has the same powerplant, wing and undercarriage as the Amphibian, but the fuselage is larger.

An air-sea rescue version of the Piaggio 155 flying-boat has been ordered in prototype form by the Italian Government.

JAPAN

BASIC agreement has been reached for Kawasaki Aircraft to produce forty-two Lockheed P2V Neptunes for the Japan-

One of a number of "Buddy" refuelling systems now being developed in America is the one shown here fitted to a Republic F-84 Thunderstreak. Developed by the Republic Company it consists of two auxiliary wing tanks, one containing fuel and the other consisting of two compartments. The forward compartment of the latter contains fuel and the rear the refuelling mechanism. As can be seen, this is a short boom to which a length of hose and a drogue are attached. Fuel can be drawn from all tanks of the tanker rather than just that from the buddy tank alone.



Latest offering from the Italian aircraft company of Aviamilano is the F.14 Nibbio four-seat touring aircraft. Its relationship to the earlier F.8.L Falco is apparent. Full details of the Nibbio will appear in next month's *Air Pictorial*.

ese Defence Force. Cost will be shared by Japan and the United States.

The Fuji T1F2, Japan's first home-designed and built two-seat jet trainer, made its first flight on 19th January. An improved LM-1 Nikko liaison aeroplane, designated the LM-2, is under development, and the prototype is expected to fly in June. Engine will be a Lycoming GSO-480 of 340 h.p.

RUSSIA

It is reported that Russian technicians are working on an aircraft "not subject to the laws of gravity" for space flight. Name of the aeroplane is said to be "graviplane".

New long-range jet bomber has successfully made its first flight, and Russian claims state that it has flown higher and longer than any other aircraft of its type.

The supersonic bomber code-named "Backfin" is now flying in prototype form. For further details of this machine see pages 88/89.

Details are now available of the MAK-15 powered glider, which has a span of 35.6 ft. and length of 16.5 ft. Gross weight is 680 lb.

U.S.A.

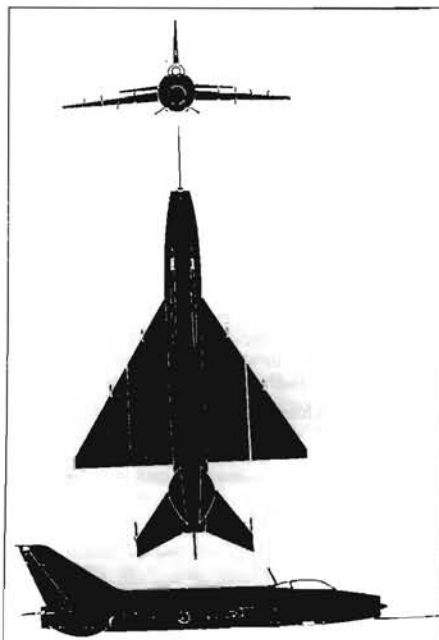
THE Robertson Aircraft Corp.'s VTOL has started tethered flight trials. Developed as a private venture, it is a twin-engined, high-wing monoplane with single fin and rudder and tricycle undercarriage. The aircraft makes use of a vectored air-

stream in much the same manner as that on the Ryan Vertiplane.

A plane-only version of the Aerocar Model 2 will be produced by the Aerocar Company. The new version is being built, and it will retain the folding wings of the prototype.

First test firing and flight of the Marton Titan ICBM is scheduled for next October.

First Convair B-58 Hustler has been turned over to the Air Force for performance and stability tests.



Another addition to the Soviet Air Force is the "Fishbed B", a delta-wing supersonic interceptor, believed to be capable of speeds approaching Mach 2. Details of dimensions, weights, etc., are not available.

Grumman Aircraft have been awarded a contract for the development of a new high- and low-altitude, two-place, turbojet-powered, carrier-based attack aircraft.

The Fairchild M-185 private-venture executive transport project has been shelved in order that the company can concentrate on production of the licence-produced F-27 Friendship.

First flight of the North American X-15 high-altitude research vehicle is planned for

January 1959. It will be a glide test only, with rocket tests scheduled to begin three months later.

Proposals for a new, more powerful version of the T34 turboprop engine has been put to the Air Force by Pratt & Whitney. Engine will carry the designation PT2G-6.

Chance Vought has received a 100-million-dollar contract to develop and produce the F8U-3 all-weather fighter for the Navy.

Air Force is providing funds for the development of the Bell vertical take-off jet fighter, now under development for the Navy.

Northern Aircraft Inc. is reported to be developing a six-seat executive transport jet-powered aircraft in the 500-m.p.h. class.

New long-range version of the Martin Matador missile is now under development.

Another version of the Ryan Firebee target drone is being developed, and it will have a larger fuselage, more electronics and a better performance.

The Vertol twin-turbine helicopter is nearly completed and expected to make its first flight this month. Project is a completely new design.

Designation of the WS-110A chemical-fuel bomber which will be developed by North American, is B-110.

Work on the Convair Wizard anti-missile weapon has been dropped in favour of the Douglas Nike-Zeus.

The second Lockheed Electra was rolled out on 3rd January, three weeks ahead of schedule. More details of the Electra appear on page 95.

Bensen Aircraft are now producing a new version of the Gyro-Copter, known as the Model B-8M. It is similar to earlier models but has a more powerful engine. A detachable cockpit cover can be fitted.

A new, more powerful engine is being flight-tested in the Temco TT-1 jet trainer.

Left is the Gluraheff portable one-man helicopter, powered by tip-mounted jets of the two-bladed rotor. It is strapped on by means of a harness and has a range of 25 miles. Right is the latest version of the Bensen Gyro-copter—the Model B-8M. More sophisticated than the Gluraheff, it can be fitted with a cockpit cover and has a range of over 100 miles.



This Republic F-84F is equipped with tailhook arrester gear which is being evaluated by the U.S.A.F. It is claimed to be safer than the parachute braking drogue, eliminating skidding on wet and icy runways.

It is the Continental YJ-69-T-25, which provides 1,925 lb. thrust.

It is reported that the Bell and Vertol helicopter companies are considering a merger, with Vertol becoming a division of Bell.

Some details have been released of the Northrop N-156F fighter version of the T-38 trainer. Wing span 26 ft. 5 in., length 41 ft. 7½ in., height 13 ft. 0 in. Take-off weight will be 11,500 lb. and range 1,700 miles.

Aero Design and Engineering Company is working on a turboprop-powered version of their Commander. Engines will probably be Lycoming T53s.

The Lockheed F-104 Starfighter has been delivered to the Air Force in quantity and will shortly be fully operational. In a recent series of high speed test flights, it maintained supersonic speed for more than one hour continuously.

An order for large quantities of the Nord SS.10 anti-tank missile has been placed by the Army with the French company. The SS.10 is wire-controlled.

Prototype of the North American T2J-1 is now flying in the orange and white

colours of the Navy. Further details of this aircraft will appear in next month's *Air Pictorial*.

The Air Force Base at Manston, in England, is to close down, and aircraft and personnel will be withdrawn by the middle of this year.

Second prototype of the Lockheed Jet-Star utility transport will be powered by



The De Bernardi two-seat version of the original P-53 Aeroscooter made its first flight on 16th November last year. Dimensions: Span 31 ft. 1 in., length 27 ft. 2 in., height 5 ft. 6½ in. Gross weight 1,035 lb., empty weight 595 lb.

Bristol Orpheus jets instead of the four Fairchild jets scheduled.

It is reported that Pan American Airways are interested in the de Havilland DH.121, and representatives of both companies are soon to meet for discussions.

A new air-to-surface missile—the GAM-77—being developed by North American will have a much greater range than the Bell Rascal. It will probably be based on the Navaho.

The Advanced version of the Boeing Bomarc will be powered by a solid propellant instead of the present liquid propellant.

The Philippine Air Force aerobatic team of six, named The Blue Diamonds, and led by Jose "Peppot" Gonzales, made their first public appearance last December. Their mounts are F-86Fs.



Two familiar shapes in unfamiliar guises—see “More Museum Pieces” below. (Upper) Retired from the Finnish Air Force and now at Utti air base, a late-production Messerschmitt Bf 109K (serial MT-507); and (lower) at the Air Force Museum, Wright-Patterson A.F.B., Dayton, Ohio, the \$100,000 ex-North Korean MiG-15 bis (serial 7616). Behind are visible a Boeing B-50D-100-Bo Superfortress and a North American B-45C-NA Tornado. (Photos: Mauno A. Salo, Calif., and Gene Sommerich, Ohio.)

SPOTTER'S NOTEBOOK

WE are, like the pilot who found himself in an impossible nightmare—of falling out of a storm-swept sky with all his controls solid and the ejector seat non-operational—only to wake up and find the hotel was ablaze; we are, gentle readers, pleasantly surprised.

The pundits who gloomily warned that we might expect some sharp brickbats (through our metaphorical shop window) from the reactionaries are now even gloomier—and have gone back to their other vice, that of making puns and trying to devise a successor to the Dirky Foy.

Have You Logged a Dirky Foy? If not, may we suggest that you read all about the amazing Dirky Foy Mk. I on page 106. On the way to Londonderry House in our 1929 o.h.v. sedan, called *Chitty Bang Bang XIII*, we stopped at the coffee stall outside Hyde Park and overheard two City swells: “Dirky Foy? Yes, old Stubbs had ‘em like some people have rabbits. . . Who, me? Well, I was approached by someone from the Albanian Legation. Made a profit, too!” We looked at each other in turn, paid for one coffee, and thoughtfully fanned the beverage with our straws.

Quite a Coup. On 12th January, Canadair Limited announced that its new R.C.A.F. transport, the CL-66*, is to be powered by two Napier Eland turboprops. Ten CL-66s form the initial contract against which D. Napier & Son, Ltd., will supply thirty Elands at a cost of £1½ million.

The importance of this second order for
* *Convair 440.*

The de Havilland Canada DHC-3 Otter is fast becoming one of the most ubiquitous and versatile of single-engined cargo planes in Canada. This Otter (left), photographed by J. F. McNulty, is used for aerial survey work, and has magnetometers on each wingtip. The other Otter (right) belongs to the U.S. Army and is based in Europe. Note the unusual number of dorsal radio aids.



Elands—the first was last year for conversion of a trio of REAL Aerovias (Brazil) Convair 340s—is the fact that Canadair has considerable U.S. associations. Recently Allison's flying test-bed, the Convair (240) Turbo-Liner, visited Canada. So did Napier's Eland-Convair 340 (G-ANVP, now N340EL) on its way to California to gain C.A.A. certification for the Eland 503.

War in the Air. For the past few weeks we have been reliving the aeronautical past every Saturday night from 23.15 to 23.45. Once again we are enjoying the B.B.C.'s television series outlining the story of air power, 1935-46. But oh! how much more exciting it would all appear on a full-size screen.

Which makes us ponder. We have all sorts, shapes and sizes of associations and societies for this and that in aviation, but no enterprising group exists to collect and make available the wealth of “living history” which lies in silent vaults and dusty office cupboards up and down the country. For example: every large aeronautical company has been using cone cameras for years.

With co-operation and patience the history of British aviation for the past forty years could be assembled from old newsreels, trade and amateur selections. Re-

member, Confucius said: “One picture is worth a thousand words”.

“Mixed-power” Britannias. The disappointing announcement on 30th January that no further development funds are to be allocated by the Ministry of Supply to the Bristol B.E.25 Orion turboprop—successor to the Proteus—means that the Orion will now be shelved indefinitely.

So it is unlikely that we shall ever see the interesting combination of Orion/Proteus “mixed-power” suggested for B.O.A.C.'s Britannia 102s in 1959-60. Orions might have replaced the inboard Proteus 705s.

Meanwhile, the prototype Britannia 101 (G-ALBO, c/n. 12873, ff. 16/8/52) is now flying again (ff. 15/11/57), but with four different turbojets: Proteus 705 and 755, Orion B.On.1, and the latest addition, a Proteus 765, which is a 755 with new intakes to combat icing difficulties.

More Museum Pieces. Our hawk-eyed friend, Major Gene Sommerich, U.S.A.F., adds a postscript to his list of Air Museum newcomers at Wright-Patterson A.F.B.: Bell X-5-BE (AF: 50-1838).

Boeing YB-52-BO Stratofortress (AF: 49-231A).

Douglas B-26C-45-DT Invader (AF: 44-35733N). The suffix “N” in the Air



Force serial number indicates transfer to the strength of the Air National Guard.

Commentary on "TC-616" (see photograph page 82), Major Sommerich reminds us that this is the MiG-15bis for which \$100,000 was paid to the defecting North Korean pilot. When it was flown into "K-14" the North Korean serial painted on the nose was 8170. Note the Wright-Patterson Air Development Centre shield and inscription amidsthips.

The Cargo Glider Eclipsed? In re-reading Ronald Seth's stirring history of the now disbanded Glider Pilot Regiment, we were struck by the fact that today the big glider—as a transport for cargo and passengers—no longer appears to attract enthusiasm. As recently as 1949 the 85-ft. span Yakovlev cargo-glider was seen in numbers at Moscow's Tushino air display, towed by I-yushin IL-12 two-motor transports.

Some time after World War II the U.S.S.R. was reported to be planning cargo-glider "trains" for civilian use in undeveloped areas. Helicopters and STOL "grasshoppers" appear to have killed this fascinating idea.

Department of This and That. The K.L.M. Flight Simulator for the Douglas DC-7C "Seven Seas" at Schiphol Airport is aptly named "Dry Sea". . . . Retired in the third week of December last—after seven years duty and 867 test-flights—was the yellow-and-black-banded, Autometrics-modified F-86A (AF: 49-1189). This special F-86A was used for testing electronic weapons direction systems.

Heinkel Wanted a Heinkel. Dr. Ernst Heinkel died at Stuttgart, W. Germany, on 30th January at the age of seventy. Only a few weeks previously he had been hoping to persuade the British authorities to let him have an example of the last wartime Heinkel—the He 162A "Volksjäger" (People's Fighter)—for presentation to the Munich air museum. Of course, there is the Air Historical Branch's He 162A (120227) at No. 49 M.U. Colerne, but we would not suggest that this Salamander should re-cross the English Channel. For a photograph of No. 49 M.U.'s Heinkel He 162A-2, see *Air Pictorial's* November 1956 "Photo-Review".

Build-it/Fly-it-yourself Jets. A Hollywood, California, second-hand aircraft dealer, Robert Kamensky, sets a pretty problem. Spread over eighteen months, Mr. Robert Kamensky has visited U.S.A.F. "graveyards" in North Africa, France, Alaska, Nevada and Texas. Collecting some 30,000 bits and pieces he has assembled at Phoenix, Arizona, one airworthy Lockheed T-33A Shooting Star advanced jet trainer. Being a "used plane" dealer we suspect Mr. Kamensky will make a profit. Latest news indicates that he has a buyer. Would it be too much to suggest that the customer could be the U.S.A.F.?

Maybe it's a bit of a let down after the T-33A saga, but Merle C. Zuehlke of Milwaukee has gone one (or rather twenty-six times) better. Mr. Zuehlke lays claim to be the first private owner of a jet fighter. He has just purchased twenty-six R.C.A.F.

surplus de Havilland Vampires for the "bargain" price of \$1 million. He hopes to sell twenty-five to hasty-minded business executives. If this scheme comes off there are going to be some wide-eyed air traffic controllers in the U.S., where a twin-boom jet fighter is as unique as you could wish.

In the Vernacular. Wartime air force slang dies hard. Contemporary authors still refer to "Wizard Prang!" pilots and "Good Show!" types. However, some fifteen-odd years have elapsed since these terms were in their prime, and many new devices and techniques have superseded the old. Not surprising then that the slang of today is in keeping with the (dare we say it?) Super-sonic Age.

For example, in the U.S.A.F. "My Show" has nothing to do with the English "Good Show!". It means that the fighter pilot is taking over the interception under visual contact conditions. The expression we applaud for graphic originality is "Hairy". For example, a pilot who finds himself between the "Pillows" at 20 and the "Mattress" down on the deck, might have to sweat out a "Hairy GCA". In the prosaic, this tells us that the pilot was between cloud tops at 20,000 ft. and cloud base at zero zero feet, and was contemplating a

nerve-wracking Ground Controlled Approach.

Other newcomers include:

"Oranges, both sweet and sour." Good and bad flight weather areas.

"Fix on the Pigeons." Head back to home base.

"Paint the Target on the Plate." To get a blip on the radar scope.

"To Judy a Stranger." To take over interception (after lock on with radar) of an unassigned target.

"Kill the Brain." Switch off the interceptor's automatic radar and weapon-control system.

Strangely enough, one British phrase has crossed the Atlantic: "No Joy", which means that the target assigned cannot be located. Another old one, this time from non-aviation parlance, is "Skip it", which now means "Do not attack" or "Cease interception".

In our quest for the new Elizabethan Age slang of the R.A.F. we seem to have met the wrong "types". What they suggested could not even be hinted at in our ultra-respectable column. Are we then to assume that R.A.F. slang has "gone for a Burton"?

"Aeroscribe", March 1958.

A bit of imagination and artistry can turn a casual eye into an appreciative stare. Two artists on opposite sides of the world have achieved this happy state. The R.A.F. at Khormaksar, Aden (whew! one can almost feel the heat), had the happy idea of giving one of their two chrome-yellow Bristol Sycamore HR. Mk. 14s (top) the Father Christmas treatment last Yuletide. Which is one sensible use for Service-issue whitewash. Note "Rescue" in Arabic. Over in Canada, someone has given the neo-heraldic "beastie" look to No. PP Squadron's North American B-25 Mitchell trainer (bottom). But what does Tiger Lily signify? (Photos: J. R. Wright, Cornwall, and George Fuller, Quebec.)



REGISTER REVIEW

ALTHOUGH few in number, the new British registrations reflect several unusual happenings. Britannia 305s G-ANCD to 'CH, released by B.O.A.C. for export to Northeast Airlines as N6595C to N6599C and built by Short and Harland Ltd., have had their original British marks reallocated pending the issue of their C.A.A. type certificate. G-ANCD flew in Northeast colours for the first time on 30th January and will be remembered as the aircraft delivered from Belfast to Filton as G-18-3 on its maiden flight on 1st June 1957.

At Southend, work has begun on the Prentices. Ten machines are at the moment under conversion but as a considerable time has elapsed since their original registration, those about to receive a C. of A. will be repeated in this column, the first two, G-AONS and 'PO appearing below. It seems probable that the Super Cub will be delivered direct to the West Indies to join in the crop spraying with its predecessor G-AOZT. In this country, the omission of type names from the newly registered Auster aircraft stems from an official decision, made recently, to identify the various models solely by number and it is hoped to describe the new J-1U variant on this page at an early date. Analysis of the constructor's number of the "new" Leopard Moth G-APKH reveals that it was built from spares by Personal Plane Services at White Waltham. Such an aircraft would have no previous identity and has been allotted a brand new D.H. serial number 7131, the last production Leopard Moth 7130, built in 1936, having been VT-AIL.

In the transport field, G-APKF is a replacement for the Viscount 806A G-AOYF which has now passed out of B.E.A.C. ownership following its crash landing at Johannesburg on 20th October 1957. At the other end of the scale, the first two Capital Airline machines have reverted to the manufacturers after three years in the U.S.A. but the exact purpose of this remains to be seen. G-APKO has been earmarked for a genuine pre-war DC-3, formerly in use by Western Airlines. It will be operated by Trans-Arabian Airlines under the nominal ownership of Sheikh Duais Salman Al Sabah. Its appearance in this country is doubtful, unlike the Valettas which are due at Biggin Hill for civil conversion by Air Couriers Ltd.

United Kingdom

G-ANCD-CH Britannia 305 (c/n. 12919-12924)—Bristol Aircraft Ltd.
G-AONS Percival P.40 Prentice 1 (ex-VS687)—Aviation Traders Ltd., Southend
G-AOPO Percival P.40 Prentice 1 (ex-VS687)—Aviation Traders Ltd., Southend
G-APJN Hitler 360 Series UH-128 (c/n. 686, ex-HB-XAH)—Fison-Airwork Ltd.
G-APJW D.H.89A Rapide (c/n. 6578, ex-X7437)—S. J. Stevens, Mrs. K. Stevens and H. J. Adams (Missionary Aviation Fellowship)
G-APKB Reserved for Piper PA-18A Super Cub
G-APKC Westland S-55 Series 1 (c/n. WA250)—Westland Aircraft Ltd.
G-APKD Auster J-IN (c/n. 3384)—Auster Aircraft Ltd., Rearsby
G-APKE D.H.82A Tiger Moth (ex-NL889)—N. L. Lamb
G-APKF Vickers Viscount 806 (c/n. 396)—British European Airways Corp'n
G-APKG Vickers Viscount 804 (c/n. 395)—Transair Ltd.
G-APKH D.H.85 Leopard Moth (c/n. PPS 85/17131) P. Franklin, W. Waltham
G-APKI Auster J-SP (c/n. 3274)—Dunlop Rubber Co. Ltd., Baginton
G-APKJ Vickers Viscount 744 (c/n. 88, ex-N7402)—Vickers-Armstrongs (Aircraft) Ltd.
G-APKK Vickers Viscount 744 (c/n. 89, ex-N7403)—Vickers-Armstrongs (Aircraft) Ltd.
G-APKL Auster J-IN (c/n. 3383)—Auster Aircraft Ltd., Rearsby
G-APKM Auster J-IN (c/n. 3385)—Auster Aircraft Ltd., Rearsby
G-APKN Auster J-IN (c/n. 3387)—Auster Aircraft Ltd., Rearsby
G-APKO Reserved for Douglas DC-3 (c/n. 4123, ex-N33644)
G-APKP Auster J-1U (c/n. 3497)—Crop Culture (Aerial) Ltd., Bembridge
G-APKR Vickers Valetta (ex-VW802)—Decca Navigator Co. Ltd.
G-APKS Vickers Valetta (c/n. 165, ex-VL263)—Decca Navigator Co. Ltd.

Kenya

VP-KOG Cessna 182 (c/n. 34694)—Campling Bros. & Vanderwal Ltd., Nairobi
VP-KOH Cessna 182 (c/n. not yet announced)—Campling Bros. & Vanderwal Ltd., Nairobi

Left: Bristol 171 Mk. 3, VR-TBS (c/n. 12892, ex-G-ALSX), has been flown to Mwadui in Freighter F-BFOU on delivery to Williamsons Diamonds Ltd. Williamsons have also acquired the former Aer Lingus Dakota 3, EI-AFB (right), now re-registered VR-TBT, marks originally earmarked for a Dornier Do 27B.



The Canadian Register has exhausted the CF-J series very quickly and has reached CF-KJN (see Kenya register on this page). Skimmer CF-KDQ and Navion CF-KEA are two other recent Canadians. (Photos: J. McNulty.)

VP-KOL Bell 47G2 (c/n. not yet announced, ex-CF-KJN)—Spartan Air Services (Eastern) Ltd., Nairobi
VP-KOM Piper Comanche (c/n. not yet announced)—Spartan Air Services (Eastern) Ltd.
VP-KON Cessna 182—Reservation for Campling Bros. & Vanderwal Ltd.
VP-KOO Piper Apache
VP-KOP Piper Apache
VP-KOR Cessna 180
VP-KOS Stearman
Sudan
ST-ABI Auster J-5G (c/n. 2986, ex-G-AM0Z)—registration not taken up; aircraft crashed 18/10/56 while still SN-ABI
ST-ABJ Max Holste Broussard (c/n. not yet announced)—Sayed Abdel Rahman El Mahdi
ST-ABK Auster J-1 (c/n. 2043, ex-VP-KIU, ex-VP-UAG)—Abul Ela Cotton Plantations
Australia
VH-BPU D.H.82A Tiger Moth (c/n. 85639, ex-DE709)—Aerial Agriculture Ltd.
VH-BPV D.H.82A Tiger Moth (c/n. 85475, ex-DE479)—Aerial Agriculture Ltd.
VH-BPW D.H.82A Tiger Moth (c/n. 3786, ex-N6456)—Aerial Agriculture Ltd.
VH-BPZ D.H.82A Tiger Moth (c/n. 10 (c/n. given as DHB/TS132)—Canberra Ae/CI
VH-BSH Percival Proctor 5 (c/n. Ae.96, ex-G-AIEN)—J. W. Bullen, Nhili, Victoria
VH-BSI Tiger Moth (ex-A17-730)—Latrobe Valley Aero Club, Victoria
VH-BSJ Chipmunk T.10 (c/n. DH/H/F105)—Tasmanian Aero Club, Launceston
VH-BSZ Auster J-5G (c/n. 3168)—P. A. Drew, Burra, South Australia

THE month's three restorations to the British register include two already forecast. These are the Arrow Active 2 G-ABVE now being overhauled by Rollason's for Mr. Norman Jones and the Avro 19 Series 2 G-ANWW belonging to the Fairey Aviation Co. Ltd. It has recently returned from survey work in Central Africa as VP-YOF. The third restoree is the Tiger Moth G-AOAE (c/n. 82015, ex-N6737) taken out of store for overhaul by D. E. Bianchi, at White Waltham.

Air Couriers (Transport) Ltd. have completed the overhaul of the Reid and Sigrist Desford G-AGOS (c/n. 3), which now has Gipsy Major 10 Mk. 2 engines, a brand new C. of A. and a new designation. It will be referred to in future as Desford Trainer as opposed to Desford 1. The latest J-IN conversion is the Luton Flying Club's G-AGXH and V. H. Bellamy's Rapide G-AHPU has been re-engined as a Mk. 4. The term Viscount 806-810 for the Dart 525 model has now been dropped in favour of Viscount 806A, now applicable to G-AOYF and 'YG. In the G-AP series the three changes of designation are Chipmunk G-APAB to Mk. 22A, Tiger Moth G-APAI to Jackaroo, and G-APAS from Comet IXB (Ghost 50 Mk. 4) to Comet 1A (Ghost 50 Mk. 1). This Comet now has a normal category C. of A. expiring on 9th January 1959.



REGISTRATIONS CANCELLED

G-AKEA Proctor 5 (c/n. Ae.127)—Broken up at Croydon, wings to G-AHWO
 G-AKFF Hermes 4A (c/n. HPB11)—Withdrawn from use at Calcutta following
 landing collision with Dakota VT-AUA 1/9/57
 G-AKYJ Proctor 4 (ex-RM186)—Sold abroad in West Germany
 G-ALZU Ambassador 2 (c/n. 5217)—Destroyed in take-off crash at Munich 6/2/58
 G-AMAE Ambassador 2 (c/n. 5227)—Sold to Butler Air Transport as VH-BUK
 G-AMMY Hiller 360 Series UH-12A (c/n. 148)—Destroyed in fatal crash at
 Grantchester, near Cambridge, 20/11/56
 G-ANIF Auster 5 (ex-TW460)—Sold abroad in Sweden as SE-CGO
 G-ANUV Lockheed 749A (c/n. 2551)—Sold abroad in the U.S.A. as N9830F. Left
 London Airport on delivery to Babb and Co., New York, 8/2/58
 G-ANYX Tiger Moth (ex-N6587)—Destroyed in accident at Thrupton 24/11/57
 G-AOJP Chipmunk 22 (c/n. C1/0199)—To Lufthansa for training as D-EFOL
 G-AOJR Chipmunk 22 (c/n. C1/0205)—To Lufthansa for training as D-EGIM
 G-AOZG Rapide 4 (ex-X7486)—To West African Airways Corp., Lagos, as
 VR-LAC
 G-APAB Chipmunk 22A (c/n. C1/0115)—Sold abroad in Malaya as VR-RCF, to
 London Docks from Croydon, crated.
 G-APBG Dove 5 (c/n. 04490)—Sold abroad to Japan Air Lines
 G-APBP Dakota 3 (c/n. 13173, ex-D-CABA)—Sold abroad to British West Indian
 Airways as VP-TBW, test-flown at Squires Gate 4/2/58
 VP-KNV S.C.A.N.30 (c/n. 19, ex-F-BGTD)—Returned to the U.K. and up for sale
 at Croydon
 PH-CEB Convaire 240 (c/n. 78)—Sold to Deutsche Flugdienst as D-BELU
 PH-CEC Convaire 240 (c/n. 79)—Sold to Deutsche Flugdienst as D-BEPE
 PH-CEP Convaire 240 (c/n. 112)—Sold to Deutsche Flugdienst as D-BATA
 PH-CEM Convaire 240 (c/n. 145)—Sold to Deutsche Flugdienst as D-BOBA

CHANGES OF OWNERSHIP

Rapide (c/n. 6254)—W. H. Wetton (600 Squadron Flying Group)
 Proctor 5 (c/n. Ae. 37)—W. Stevens, Gillingham, Dorset
 Proctor 1 (ex-P6062)—E. McAulley and partners (Fakenham Flying Group)
 Messenger 2A (c/n. 6341)—Freeman, Hardy and Willis Ltd., Leicester
 Hawk Trainer Mk. 3 (ex-LB160)—R. P. Mayes, Shoreham
 Auster 5 (ex-TW513)—J. D. H. Radford, Tollereton
 Tiger Moth (ex-T7191)—P. J. Grice and partner, Broughton
 Dove 2B (c/n. 04167)—Theydon and Tresanton Ltd., Stansted
 Auster 5D (ex-TJ672)—Airlines (Jersey) Ltd.
 Tiger Moth (ex-T6066)—Don Everall (Aviation) Ltd., Elmdon
 Proctor 4 (ex-RM190)—V. H. Bellamy, Eastleigh
 Viscount 736 (c/n. 77)—Airwork Ltd., Blackbushe
 Viscount 736 (c/n. 78)—Airwork Ltd., Blackbushe
 Tri-Pacer (c/n. 22-2098)—Waterhead-of-Dryfe Ltd., Kidlington
 Westland 5-55 (c/n. WA240)—Fison-Airwork Ltd.
 Auster 5 (c/n. 3404)—J. McLachlan, Turnhouse
 Cessna 182 (c/n. 34385)—Caspar Ltd., Nairobi
 A change of style has taken place in the title of Hunting-Clan Air Transport Ltd.,
 of Croydon Airport, Surrey. It is now Hunting-Clan Airservices Ltd., of 72 Wigmore
 Street, W.1 and the following aircraft therefore have nominal changes of ownership.

G-AGRP Viking 1	G-AHPK Viking 1	G-AMUS York C.I
G-AGRV Viking 1	G-AHPJ Viking 1	G-AMUU York C.I
G-AGRW Viking 1	G-AKBB Viking 1B	G-AMXM York C.I
G-AHOY Viking 1	G-AMHJ Dakota 4	G-ANGF York C.I
G-AHPB Viking 1	G-AMNK Viking 1B	G-ANRT Viscount 732



The bold licence number of the Teterborough, N.Y.-based, vintage Fleet 16B (N39605) is in sharp contrast with the modern microscopic markings carried by the newest Twin Pioneer G-AFIR. (Photos: C. N. Trask and D. Reid.)

GERMAN RE-REGISTRATIONS

The recent introduction of the new German "Klasse B" weight group has resulted in the re-registration of a large number of transport aircraft, most of which are Vikings.

Columbus Luftreederei (Alfons Amann)	
Viking IB c/n. 257 D-BLUP	Viking IB c/n. 257 D-BLYK (no change)
Trans-Avia Fluggesellschaft m.b.H.	
Viking IB c/n. 296 D-CEDA to D-BACU	Viking IB c/n. 249 D-AFIX to D-BABA
Viking IB c/n. 293 D-AEDO to D-BOBY	216 D-AGAD to D-BEPO
295 D-AHUF to D-BASE	
Deutsche Flugdienst G.m.b.H.	
Viking IB c/n. 167 D-ABOM to D-BORA	Viking IB c/n. 219 D-AGIL to D-BARI
250 D-AFUS to D-BELA	243 D-AHAF to D-BONE
Lufttransport Union G.m.b.H.	
Viking IB c/n. 150 D-AMOR to D-BONA	Viking IB c/n. 109 D-AIDA to D-BETA
222 D-ABEL to D-BALI	223 D-ABIR to D-BABY
Freighter 21 c/n. 12791 D-AHOI to D-BODO	

AIRPORT NEWS

THREE Lincoln Freighters are now ready for delivery from Tollereton to Paraguay. All have nose and tail fairings and the very large panniers and are ZP-CBG-96, ZP-CBR-97 and ZP-CBS-98, ex-RF417, RE376 and RF458 respectively. Another set of ex-British triplets, the blue and white Butler Ambassadors VH-BUI, 'UJ and 'UK are now in airline service and retain their original B.E.A.C. names. At home, a third threesome, the M.O.S. Britannia 252s (c/n. 13450-13452) now under construction, are expected to carry out trooping runs under civil marks and the major independents are tendering to operate them. Recent production of other transports is given below:

... Herons with c/n.s. 14129 and 14130 are being completed as C. Mk. 4s for the Queen's Flight and XM295 and XM296 may be allotted to these.
 ... Twin Pioneer G-APIR, c/n. 521, made its first flight on 24/11/58 and is due to leave Prestwick for Basra on charter to the Iraq Petroleum Transport Co. Ltd. The remaining four Twin Pioneers for Philippine Airlines will be PL-C-431 to 434 but c/n.s. have not yet been allocated.
 ... Viscount deliveries for the month were c/n. 237/VP-T8U from Hurn 11/1, 238/VP-TBX from Hurn 1/2, 245/OD-ACX from Hurn 5/1, 259/G-AOYJ to L.A.P. 8/2, 275/CF-THO via Prestwick 24/1, with 276/CF-THP 29/1 and 279/CF-THS 1/2.

Domestic news is that the B.E.A.C./Jersey Airlines fleet will transfer operations from Croydon to Gatwick on 9th June. We also learn from Capt. F. S. Lister, M.A. that application has been made to the A.T.A.C. to operate a scheduled service between Stansted, Stapleford and Southend with Auster 5 G-ANIK.

AFRICA is about to claim another Air Couriers Avro 19, now at Croydon as F-OBGO and the Pioneer G-AODZ left Prestwick on 30th January on three months charter to Film Aviation Services at Fort Archambault, also in French Equatorial Africa. Here it will transport the cast and equipment to and from jungle clearings during the filming of "Roots of Heaven".



V-18, the first Avia-built IL-14 for the Czechoslovak Air Force, making its first test flight at Prague recently.

London	
5/1 HZ-AAF	Skymaster—Saudi Arabian Airlines
8/1 26672	Republic F-84F Thunderstreak—coded F5672, forced landed
11/1 EP-ADE	York C.I (ex-MW295, ex-G-APCA, ex-OD-ACQ)—Persian Air Services
12/1 EI-AJJ	Viscount 808 (c/n. 290)—Aer Lingus "Columban"
12/1 I-LILI	Viscount 785 (c/n. 327)—Alitalia, I-LIFE (c/n. 325) on 19/2
16/1 G-AOXX	Skymaster (c/n. 42931)—Air Charter Ltd. "Golden Fleecce"
17/1 VH-EAO	Lockheed 1049G opening round-the-world service; VH-EAP arrived on the same day, travelling in the opposite direction
19/2 OK-DBW	Ilyushin Il-12—Czech Air Lines
20/1 CF-TEX	Lockheed 1049G—Trans Canada Air Lines, fleet no. 413
21/1 LN-ORB	Agusta Bell 47G—arrived in Hunting-Clan York freighter
27/1 PH-DSK	Douglas DC-7C (c/n. 45189)—K.L.M. "Zuider Zee"
28/1 G-AOIC	Douglas DC-7C (c/n. 45113)—H.M. Queen Elizabeth The Queen Mother on world tour
29/1 F-BGNN	Viscount 708 to makers for spar mod., with F-BGNS and 'NV
31/1 I-LOTT	Viscount 785 (c/n. 330)—Alitalia, I-LIFT (c/n. 326) on 5/2
5/2 CCCC-S441	Tupolev Tu-104—Aeroflot en route to Washington
6/2 N102R	Lockheed 1049H—Resort Airlines but in full T.W.A. colours

Prestwick	
7/1 WX543	Lockheed Neptune returning as 15956 under lend-lease
10/1 131404	Lockheed P2V5F Neptune—U.S. Navy coded VP7/LB-1
11/1 CF-IQM	Skymaster—Wheeler Airlines on charter flight
13/1 W8850	Shackleton M.R.1—No. 240 Squadron, R.A.F.
18/1 AB-770	Lockheed T-33—Luftwaffe
19/1 VP-YNB	Viscount 748 (c/n. 99)—Central African Airways, emigrants
60509	Lockheed C-130A Hercules—U.S.A.F. actually 56-509

(Continued overleaf)

Airport News (Continued)

20/1 60547 Lockheed C-130A Hercules—U.S.A.F. actually 56-547
28/1 50020 Lockheed C-130A Hercules—U.S.A.F. actually 55-020
G-109 Douglas C-47D (ex-44-78671)—Luftwaffe
WH841 Canberra T. Mk. 4—R.A.F. Training Command
31/1 00-SEF Cessna 310—S.A.B.E.N.A., delivery flight by Fleetways Inc.

Bahrain

7/1 I7511 Canadair C-54GM—R.C.A.F. flood relief flight to Ceylon
8/1 G-AGJA York C. Mk. 1 (ex-MW103)—Skyways Ltd. (first civil York)
G-AMNL Dakota 4 (c/n. 16644)—Iraq Petroleum Transport Co. Ltd.
9/1 BA-219 Hunter F. Mk. 56—Delivery to Indian Air Force with BA-232
10/1 N7111C Lockheed 1049G (c/n. 4592)—T.W.A. diversion for fuel
SE-CFB Commando—Transair-Sweden, evacuee flight from Diakarta
12/1 SA-R-2 Dakota—Sheikh Alkalifa from Riyadh, Saudi Royal Flight
14/1 50780 Douglas R4D-8—United States Navy
15/1 IF-914 Canberra B. Mk. 58—Delivery flight to Indian Air Force
16/1 G-ANGF York C.1 (ex-MW254)—Hunting-Clan Airservices Ltd., charter
G-ALDR Hermes 4 (c/n. HP.81/18)—Skyways Ltd., with blue fin
17/1 G-ALDS Hermes 4 (c/n. HP.81/19)—Skyways Ltd., with red fin
G-ANTK York C.1 (ex-MW232)—Dan-Air Services Ltd.
20/1 OD-ADE Viscount 754 (c/n. 244, ex-G-APCE)—M.E.A.L. first visit
21/1 IF-915 Canberra B. Mk. 58—Delivery flight to Indian Air Force
24/1 G-APIC Auster 5 (c/n. 1668)—Ferry flight to Singapore
26/1 N4839V Catalina 3—Private aircraft from Beirut to Karachi
28/1 G-APJS Heron 1 (c/n. 14001)—Delivery from New Zealand to Gulf Av.
29/1 IF-900 Canberra B. (I) Mk. 8—Indian Air Force to Warton for mods.
30/1 IF-906 Canberra B. Mk. 58—Delivery flight to Indian Air Force
OO-CBQ Skymaster (c/n. 43100)—Lebanese International Airways
31/1 CBK-59 Dakota—Turkish Air Force Chief of Staff to Karachi
2/2 G-ANHB Viscount 701 (c/n. 62)—First Cyprus A/W service by B.E.A.C.
VH-EAC Lockheed 1049G (c/n. 4606)—Last scheduled QANTAS service, now re-routed via Almaz, Cairo

Blackbushe

8/1 WFS13 Seahawk F. Mk. 1—R.N.A.S. Ford, coded FD
9/1 57-3084G Beech L-23D Twin Bonanza—United States Army, Stuttgart
10/1 EI-AFB Dakota 3 (c/n. 20453, ex-OY-DDO)—Aer Lingus to Eagle Aviation
11/1 51-059 SA-16B-GR Albatross—U.S.A.F. Rescue
13/1 G-AJFF Dove 1 (c/n. 04041)—Iraq Petroleum Transport Co. Ltd.
15/1 CA-011 Dakota 4 (c/n. 16605, ex-44-77221)—Luftwaffe
18/1 ST-AAK Dakota 4 (c/n. 16598, ex-KN652, ex-G-AMVB)—Sudan Airways
21/1 4X-FAK Dakota 3 (c/n. 14350, ex-43-48534)—To Nice en route Israel
ST-AAAG Dakota 4 (c/n. 26732, ex-KK149, ex-G-AMZX)—Sudan Airways
17/1 Clipper 31C Douglas DC-7C—Pan American Airways
22/1 OH-VKA Douglas C-53B (c/n. 4828, ex-OY-DCA, ex-OY-KLE)—Karhumaki A/W
23/1 131898 Grumman UF-1—U.S. Naval Attache in Greece
24/1 NL312 Anson C. Mk. 12—Royal Air Force College, Cranwell
25/1 VR-TBT Dakota 3 (ex-EI-AFB above)—To Nice en route to Mwadi, Tang.
27/1 HZ-ABA Convaire 240—Saudi Arabian Airlines, from C. of A. at Tollerton

Woolston

8/1 G-AHKV Rapide (c/n. 6792)—Automobile Association, from Fair Oaks
11/1 G-APAF Auster 5 (c/n. 3404)—Ranald Porteous, Sherburn to Turnhouse
13/1 AZ252 Marathon T. Mk. 11 (c/n. 104, ex-G-ALVY)—From and to Topcliffe
30/1 G-ANIH Auster 5 (ex-TW449)—United Steel Co. Ltd. from Workington

Elmdon

21/1 48052 Dakota 3 (c/n. 25313, ex-43-48052, ex-CF-TEG)—French Air Force
25/1 G-AOVG Britannia 312 (c/n. 13238)—B.O.A.C., I.L.S. approaches
28/1 03 Noratlas—French Air Force, call sign F-ZABT, to Blackbushe
1/2 G-AOSA Chipmunk 22 (c/n. C1/0285, ex-WD398)—From Speke

Hurn

13/1 TC-SEC Viscount 794 (c/n. 246)—Test flights
16/1 56538 Douglas R5D-2—United States Navy coded VR-24/JM
17/1 G-AOCY Auster J-SP (c/n. 3258)—Bristol Aero-Engines Ltd., Filton
20/1 G-AORK Chipmunk 22 (c/n. C1/0238)—Universal F/S "Klondike Kate"
VX506 Valetta C.Mk. 1—Far East Air Force, coded "O"
27/1 WF217 Seahawk F. Mk. 1—Black with white letters

Old and new four-engined transports in the news are the sixth Boeing 307B Stratoliner F-BHHR for Aigle Azur, Saigon, shown here at New York before delivery, and 60509, one of the several Hercules which have cleared inward to Burtonwood through Prestwick.



An effort to reconstruct the Avian IIIA, G-EBZM (c/n. R3/CN/160), which has been in store at Southport, is now being made in the Manchester area. An Ambassador in marks other than British is unique indeed; VH-BUI, seen here at Archerfield, Brisbane, is the former L.A.P. habitué, G-ALZX.

29/1 CF-THN Viscount 757 (c/n. 274)—Test flights, T.C.A. aircraft
CX-AQN Viscount 769 (c/n. 321)—Test flights, P.L.U.N.A. aircraft
30/1 Diversions from London Airport through fog:
Constellations: VT-DHL, "HN", VH-EAC, G-ANTG, G-ALAO;
Viscounts G-AODH, G-AOXU, "XV", G-AMOL; Douglas R5D-2
56540; DC-7C N739PA; Convaire 440 HB-IMR

Squires Gate

2/1 G-AMAU Hurricane 2C (ex-PZ865)—From Dunsfold, also on 8/1 and 11/1
7/1 G-APAZ Skymaster (c/n. 42921)—Starways Ltd., crew training, also 17/1
13/1 G-AHXK Avro 19 series 2 (c/n. 1333)—From Dunsfold, also 27/1, 5/2
3/2 G-AOXL Heron 1B (c/n. 14015)—Mortons with Lord Mayor of London
WB446 Anson 19—From Shawbury, first visit
UB-452 Sea Fury—Left for Rome en route to the Burmese Air Force with
UB-457, UB-458 and UB-459
7/2 G-ADNE Hornet Moth (c/n. 8089)—From Eastleigh
Sea Furies G-9-5, 7, 8, 9, 10 and 11 test flown during month

Southend

17/1 G-AGRP Viking 1 (c/n. 8)—Arrived on delivery to Airline Air Spares
CA-022 Pembroke C. Mk. 54—Delivery from Luton to Luftwaffe base, Wahn
21/1 LN-ORB Agusta Bell 47G-2—Left inside Commando SE-CFA on 22/1
27/1 G-ANWX Auster J-5L (c/n. 3131)—Skyways Ltd., night flying from Lympne
28/1 OO-ARM Proctor 5 (c/n. Ae.84, ex-G-AHZY)—From and to Ostend
30/1 Diversions from London Airport through fog:
Viscounts G-AMOB, "OHG", "HM", "HU", "HV", "JE", "EI-AJI"; Dakotas
G-AHCU, "JIA", "MNV"; Ambassador G-AMAA, "LZV"
Diversions from Croydon:
Dakotas G-AMRA, "ZD"; Heron 1B G-AOXL
With a few exceptions the same aircraft were diverted on each of the following two days
1/2 AS-560 Pembroke C. Mk. 54—Delivery from Luton to Luftwaffe base, Wahn
2/2 SE-BWE Douglas DC-3 (c/n. 1947, ex-SE-BAA)—Transair-Sweden
3/2 G-AJFS Viking 1B (c/n. 237)—Tradrall Ltd., ex-Airwork, Blackbushe
9/2 G-AHZW Consul (c/n. 3091)—Skyways Ltd.

Ringway

7/1 XG795 Gannet A.S. Mk. 4 (c/n. F9363)—Royal Australian Navy, f/f
9/1 N6016C Constellation—T.W.A. families flight
13/1 WB341 Firefly 9—Test flight
17/1 N7110C Super Constellation—T.W.A. families flight
VT340 Meteor F. Mk. 4—Fairley Aviation test flight
18/1 G-APEZ Skymaster (c/n. 42921)—Starways Ltd.
G792 Gannet A.S. Mk. 4 (c/n. F9360)—Delivery to Royal Australian Navy via White Waltham
N6007C Constellation—T.W.A. families flight
20/1 N30042 Skymaster (c/n. 18342)—Transocean charter to Lufthansa
24/1 VX429 Firefly 9 (c/n. F8455)—First test flight
25/1 PH-DAA Dakota—K.L.M. charter flight
27/1 VT497 Firefly 9 (c/n. F8381)—From Stretton
29/1 D-BLYK Viking 1B (c/n. 257)—Left for Hamburg, returned, left 30/1
30/1 SE-BDU Douglas DC-6B (c/n. 44168)—Diversion from London Airport with DC-6 LN-LMF (c/n. 43120, ex-SE-BDB)
3/2 G-APDW Viscount 805 (c/n. 258)—Eagle, first service to Hamburg
WM856 Firefly 8 (c/n. F8911)—From Llanbedr, returned with WM882 (c/n. F8937)

Nutts Corner

8/1 G-ALXH Anson 11 (ex-W1731)—B.K.S. Engineering Ltd. from Yeoman
9/1 G-ALMR Dove 1B (c/n. 04099)—English Electric, from Warton
10/1 VT-DHN Super Constellation—Air India "Rani of Chittoor"
12/1 I-DUVA Douglas DC-7C (c/n. 45228)—Alitalia football flight
15/1 N10427 Curtiss C-46—Seaboard and Western from Prestwick
20/1 131581 Douglas R6D—United States Navy from Stephenville to Frankfurt, left 21/1, diverted from Prestwick
28/1 LX-LAA Curtiss C-46 (c/n. 19722, ex-N78V, ex-N4675V)—From Shannon

Exeter

8/1 G-AOEX Jackaroo (ex-NM175)—From and to Thruxton
9/1 XK897 Sea Devon C. Mk. 20 (c/n. 04474)—Lee on Solent to Culdroe
14/1 XK895 Sea Devon C. Mk. 20 (c/n. 04472)—Lee on Solent to Speke



ELUSIVE BIRDS. Hitherto not illustrated in *Air Pictorial* are these Australian variants of familiar types—both constructed for the R.A.A.F. by the Government Factories at Melbourne, Victoria. Left: Photographed at Manila by Merle Olmsted, a late-production Canberra B. Mk. 20 (A84-235) powered by Australian-built Rolls-Royce RA.7 turbojets. The R.A.A.F. has one Wing of Canberra interdiction bombers. Right: Something new—a rocket-firing Lincoln! Note the four r.p. mountings under each wing. The R.A.A.F. has taken delivery of sixty-eight Lincolns built at Melbourne. Photographed at Darwin by J. R. Wright is this lengthened-nose variant of the Lincoln B. Mk. 30 (A73-66) used for maritime reconnaissance duties.



PHOTOS BY REQUEST



FILLING IN THE GAPS. Hank Volker, author of "The Irbitis Line" (*Air Pictorial*, August 1957), has located two original photographs of earlier designs by the former Latvian designer Karlis Irbitis. These may be compared with the pen-and-ink sketches which accompanied the article. Left: The 1926 vintage Irbitis I-2 Ikarus (Icarus) is shown here with a temporary fairing over the front cockpit. YL-AAA was rebuilt in 1930 and emerged as the I-5. The original 45-h.p. Anzani was replaced by a 77-h.p. Siemens Sh 5 radial. Right: The two-seat I-6 Gambija of 1932 had lines in advance for the period. Note the compound sweep-back on the parasol wing. Power was a 95-h.p. Blackburn Cirrus Mk. III inverted inline.



"HARRY TATE". One of the best-known "art. obs." and corps reconnaissance two-seaters of World War I was the Royal Aircraft Factory-designed R.E.8 (Reconnaissance Experimental Type Eight). Evolved in 1916 as the result of Western Front combat experience, the R.E.8 suffered considerable modification until it settled down to the external characteristics seen in E.24—one of three hundred built by Siddeley-Deasy. Power: 150-h.p. R.A.F.4a eight-cylinder Vee in-line.

COASTAL PATROL. A little-known R.N.A.S. coastal patrol two-seater of World War I was the White & Thompson No. 3 Flying-boat of 1915. Eight No. 3s were built, as well as the 1914 prototype which was to have been entered for the cancelled "Round Britain" contest organised by the *Daily Mail*. Powered by a 120-h.p. Beardmore pusher engine, the No. 3 had a maximum speed of 80-85 m.p.h. Note the observer's Lewis gun on the port beam.

1912 HYDROPLANE

In the historical survey of aircraft designed and built by the brothers Short (*Air Pictorial*, March-June 1957) the famous Short S.41 ("Hydroplane of the British Navy") was not illustrated. This view shows the prototype in the hands of that remarkable pilot, Lt. (later Commander) C. R. Samson, taking off prior to participating in the Review of the Grand Fleet off Weymouth, 8th May 1912. No record of numbers built appears to exist, but production S.41s were still engaged in North Sea anti-submarine patrols as late as mid-1915. Power: 100-h.p. Gnome rotary; maximum speed, a doubtful 60 m.p.h. Duration, approx. 5 hours. Built at Eastchurch, Isle of Sheppey.





Russia's New Generation

By William Green

DURING the next two years the air forces of the Soviet Union, the *Voennovo-zdushnie Sili*, will be immersed in a major re-equipment programme. The IA-PVO, the interceptor element of Russia's Air Defence Command, which, together with the anti-aircraft artillery and ground-to-air missiles defending the major Russian strategic centres and cities, is commanded by Marshal Biryusov, has already begun the re-equipment of its day interceptor forces with the Mach 1.5 MiG-21 *Faceplate*—illustrated in the February issue—and the Yak-25 *Flashlight* all-weather fighter is likely to be progressively replaced by Pavel Sukhoi's delta-winged Mach 2.0 *Fishpot*.

The interceptor-fighter squadrons have undoubtedly received re-equipment precedence over the attack-bomber elements of the VVS-SA but, after flying the Il-28 *Beagle* for some seven years, these are also in process of receiving more advanced aircraft. The *Beagle*'s successor, the *Blowlamp*, generally attributed to one of the numerous design bureaux headed by Alexander Yakovlev, and the subject of the artist's impression above, is now entering quantity service, while more advanced designs, such as the *Backfin*, have probably attained the pre-production stage.

The *Blowlamp*, which possesses a marked family resemblance to the *Flashlight*, is a transonic light attack bomber first revealed on 25th June 1956, when Western delegates to Russia's Aviation Day air display had a brief glimpse of this aircraft while visiting the Kubinka fighter station, some forty miles from Moscow. The *Blowlamp* is most closely comparable with France's SO-4050 *Vautour* in configuration although nearer in size and power to the Douglas Skywarrior. Its shoulder-mounted wings, which span approximately 57 feet, are swept

50 degrees at the leading edges and carry underslung, podded turbojets at roughly quarter-span. Projecting forward in much the same fashion as those of the Skywarrior, and each presumably offering some 10,000–12,000 lb. thrust, these turbojets have been mounted as low as permitted by ground-clearance requirements in order to simplify servicing, although such mountings obviously offer more drag than if the nacelles had been raised to coincide with the upper wing surfaces.

In common with the *Flashlight*, the *Blowlamp* has tandem-mounted main undercarriage members, the single forward member retracting into the nose, and the twin-wheel aft member retracting into a housing immediately aft of the fuselage bomb bay. Small outrigger wheels retract into wingtip housings.

The clean lines of the 70-ft. fuselage are marred by what appears to be a small radome, but the fuselage nose is extensively glazed, indicating primary reliance on visual bomb-aiming. The strakes under the rear fuselage may indicate some early directional instability at high speeds. Western observers at Kubinka noted ports in the fuselage nose for what appeared to be a battery of four cannon, presumably for ground strafing, and tail defence is provided by a remotely-controlled 20-mm. or 23-mm. cannon in the extreme rear fuselage.

The *Blowlamp* appears to carry a crew of three, and is likely to weigh some 50,000 lb. in normal loaded condition. Performance-wise, it is almost certainly capable of exceeding Mach unity in a dive, but maximum level speed is probably of the order of Mach 0.95 (690 m.p.h. at 10,000 ft., 620 m.p.h. at 36,000 ft.). Operational range is likely to be between 1,500 and 2,000 miles.

A more recent debutante is the *Backfin*, a provisional silhouette of which appears on page 89. Of unknown design origin, the *Backfin* was first reported last year, and is of appreciably more advanced conception than the *Blowlamp*. Although unlikely to attain service status for some time, the *Backfin* may well be the *Blowlamp*'s potential successor.

This new light bomber is unique among aircraft of its size in having its two turbojets totally enclosed in the fuselage, fed via shoulder-mounted intakes aft of the flight deck and exhausting side by side from the rear fuselage. Although the lengthy ducting necessitated by this type of power-plant installation must result in some thrust losses, it offers the advantages of a clean, uncluttered wing. Preliminary estimates of the performance of the *Backfin* have placed its maximum level speed in the Mach 1.5 (990 m.p.h. at 36,000 ft.) class, suggesting that the turbojets must possess afterburning thrusts of at least 20,000 lb. each.

The overall length of the fuselage appears to be approximately 85 ft., and the mid-mounted wing, which possesses two angles of leading-edge sweep, the outboard sections being swept approximately 55 degrees, has a span of some 52 ft. and is of exceptionally thin section. A slab-type tailplane is mounted low on the rear fuselage, and there appears to be a housing for a drogue chute at the base of the vertical surfaces. Like the *Blowlamp*, the fuselage nose is extensively glazed, and there is a bombing-radar bulge mounted well forward. The undercarriage appears to be of tandem type, but there is no evidence of the use of outrigger wheels.

Artist's impression by Gert W. Heumann. Silhouettes (next page) by Dennis I. Punnet.



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war in the air

They Fought for the Sky

by QUENTIN REYNOLDS

1914-18 was the age of the flying ace, fighting his war single-handed, the age of the new hero whose exploits made newspaper headlines above the grim lists of the slaughtered.

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CASELL

WHAT'S NEW?

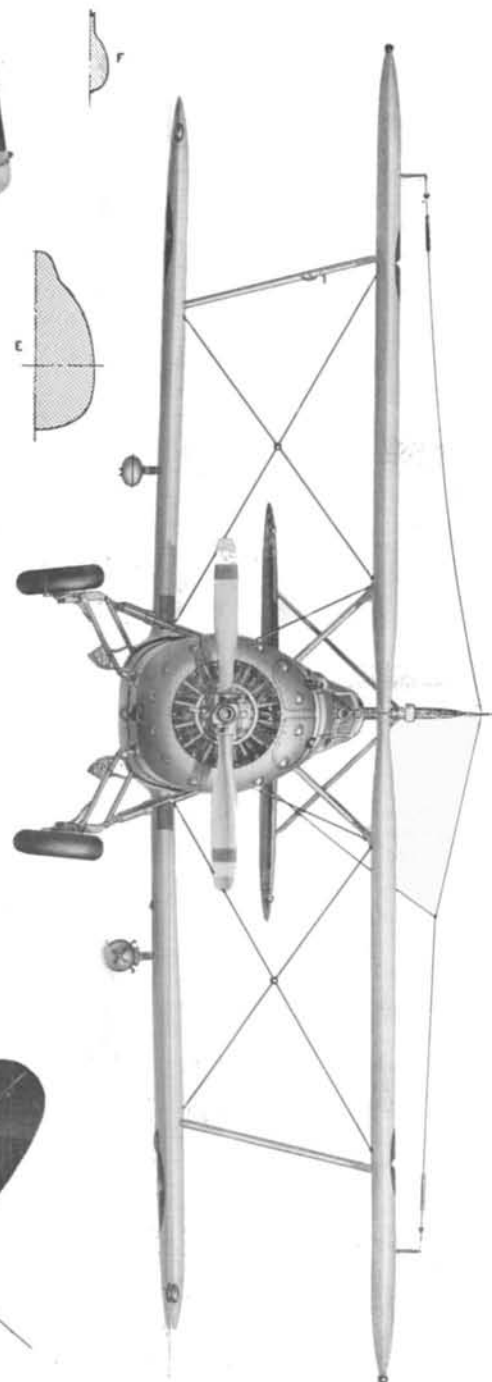
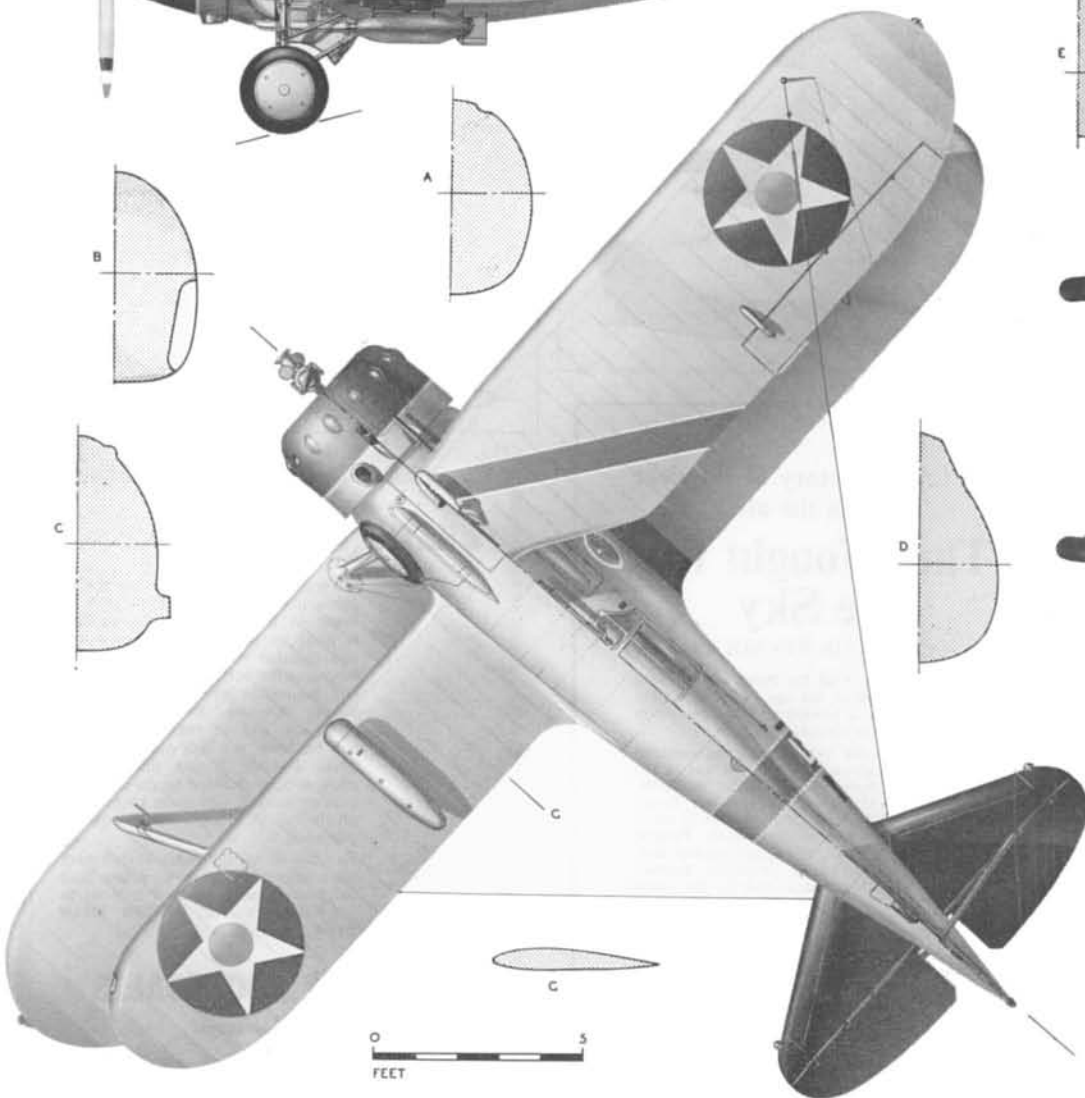
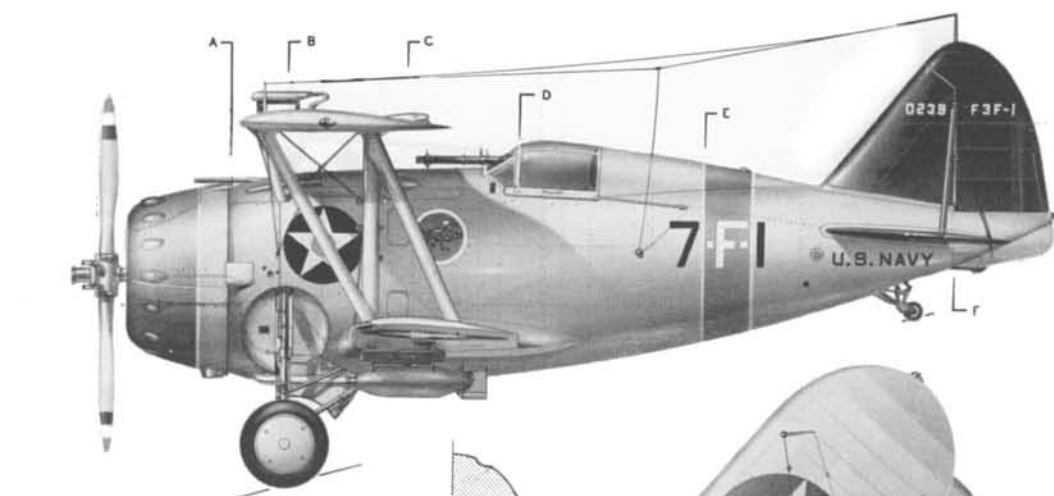
It's high time we had a change and to prove it we are changing the style of *YOUR Air Pictorial*. A change of face is what we need and the new cover and contents will we hope make this magazine the best on the market.

Old favourites will stay—World Air News, Register Review, Spotter's Notebook and all the rest but they will be presented in a new and more lively manner. Bigger photographs, more articles devoted to current production aircraft and more to the old-timers . . . in other words everything you want.

Needless to say the editorial staff want your comments—write us a few lines on your impressions and help us to make *Air Pictorial* **BETTER THAN EVER**

WATCH THE BOOKSTALLS

FOR NEXT MONTH'S *air pictorial*





Taken in 1940, this U.S. Navy photograph of an F3F-1 from the carrier *Wasp* shows the "neutrality star" which adorned many U.S. seagoing and patrol aircraft of the period.

GRUMMAN F3F-1

By Roy Cross

FORMED in 1929 to service, overhaul, and make sub-contract parts for Loening amphibians, Grumman Aircraft Engineering Corporation quickly graduated to work for the U.S. Navy, their first big order being for a float/landing-wheels unit designed to convert Navy seaplanes to amphibians. A single five-compartment, all-metal float was used, into the sides of which retracted the landing wheels, all mechanism being totally enclosed within the float.

When designing their first aeroplane, the XFF-1, Grumman used a similar mechanism to retract the main wheels into a deepened front fuselage belly. With its wheels thus tucked away out of the airstream, the XFF-1 two-seater fighter was fast for its day, top speed varying from 194½ to 201 m.p.h. during various prototype modifications, with various sub-types of the R-1820 Wright Cyclone.

Successfully developing the production FF-1/2s and SF-1 scout variants, and the JF-1 amphibian, Grumman next produced their first single-seater, the tubby XF2F-1 biplane fighter with the Pratt & Whitney Twin-Wasp Junior. In production form with the 650-h.p. R-1535-72, the F2F-1 did 233 m.p.h. at 7,500 ft.

A year later, in 1936, the slightly larger, aerodynamically modified F3F-1 joined the

Navy squadrons, followed in 1937 by the Wright Cyclone-powered F3F-2 and finally the F3F-3.

Illustrated here is an F3F-1 of Fighting Squadron 7, which unit was formed in 1939 and assigned to the carrier *Wasp* (CV-7). Fuselage and other metal surfaces were light grey anti-corrosion paint, the top wing upper surface was chrome yellow, and other fabric-covered surfaces, (wings, control surfaces) were doped silver. Upon this was superimposed the standard U.S. Navy identification colour scheme as follows. Vertical and horizontal tail surfaces were black (the *Wasp's* identification colour). The front part of the cowl, the section leader's fuselage band, and the top wing chevron were red (the first-section colour), in this case outlined with thin white lines. An unusual marking on this plane is the Neutrality Patrol Star on the fuselage sides near the nose, which was used for a brief period after "neutrality patrols" were introduced in 1940. Aft of this is the squadron badge, with a red ground and a white outlining ring. Unit markings on the fuselage sides were black, or white on the red band. The plane number "1" in black was also carried on the top wing centre-section behind the apex of the chevron. Designation and Bureau number were painted white on the black fin and rudder.

F3F-1 DATA

Dimensions, areas, etc.: Span 32 ft.; length 23 ft. 3½ in. overall; height, tail up, ground line to rudder tip, 10 ft. 6 in. approx.; tail down 8 ft. 11½ in. with propeller horizontal; track 6 ft. 0½ in. at static load; tailplane span 10 ft.; dihedral, top wing nil, lower wing 2 degrees; stagger 2 ft. 7½ in.; total wing area (including 18 sq. ft. of body) 260.6 sq. ft.; wing section, N.A.C.A. CYH; gap at centre section 61½ in.; mean gap 60.5 in.; incidence, both wings, nil; chord, upper wing 5 ft., lower wing 4 ft.; gross weight 4,116 lb.; wing loading 15.8 lb./sq. ft.; tailplane movement 0 to +5°, neutral +3½°.

Equipment and armament: Retractable landing light in port wing undersurface; camera gun Mk. VII on top centre section; Mk. XLI or Mk. XLIII bomb racks beneath wings; .50-cal. (starboard side) and .30 Browning machine guns.

Performance, etc.: Pratt & Whitney R-1535-84 Twin-Wasp Junior, 650-700 h.p. Maximum speed 231 m.p.h. at 7,500 ft.; minimum speed, power off, 65.5 m.p.h. at sea-level; maximum rate of climb at 7,500 ft. 1,900 ft. per min.; service ceiling 28,500 ft.; endurance at maximum speed 2.3 hours; range at maximum speed 530 miles; normal fuel load 110 U.S. gallons; power loading 4.8 lb./h.p.

(NOTE.—N.A.S.A. Flight Test Section Report 170 performance figures and certain marking details by courtesy of the A.A.H.S. Journal.)



An open letter

TO PARENTS OF AMBITIOUS YOUNG MEN

From: Air Marshal Sir John Whitley, K.B.E., C.B., D.S.O., A.F.C.



AIR MINISTRY (GR3),
ADASTRAL HOUSE,
THEOBALDS ROAD,
LONDON, W.C.1.

Dear Sir,

Suggesting a career is always a big responsibility—not least for parents with a son growing up. In the final analysis, the choice must lie with your son himself. But you can help him in his choice.

Here, therefore, are some facts about one career which is particularly attractive to an ambitious young man. I refer to a flying career in the Royal Air Force.

First, let me assure you that flying will continue in the Royal Air Force for as far as can be foreseen. The Royal Air Force has the prime responsibility for the air defence of this country. For young men therefore who are trained to tackle the problems of the air in the air, there will be more—not fewer—opportunities in the missile age. This is especially true of those who qualify now for a permanent or short service commission and come successfully through their Pilot's, Navigator's or Air Electronics Officer's training.

It is a well-paid job. In how many callings can a man of 25 earn £1,500 a year? It is a job of high responsibility. Quite apart from flying and its fascinating skills, there are the manifold duties of an officer; to men under him; in staff, liaison or training jobs; and, perhaps, in high command.

You know yourself if your son has the character, intelligence and fitness for this magnificent (but exacting) life. If he is over 17½ and has G.C.E. or equivalent to the required standard, you may be doing him a service if you write to the Air Ministry for fuller information.

Let me add that the country needs the right kind of young men for this vitally important job, and it needs them now.

Yours faithfully,

Air Member for Personnel.

TO ANY YOUNG MAN WHO WANTS TO FLY... In this letter, it is not possible to give full details about this worthwhile career. For further information write to: Air Ministry (GR3), Adastral House, Theobalds Road, London, W.C.1.

The Shape of the Future

THE shape of the next generation of British jet airliners has been decided by three of our largest aircraft companies, Vickers-Armstrong, Bristol Aircraft and de Havilland, and recently-revealed details of the aircraft show them to be generally similar externally.

The Vickers V.C.10, Bristol 200 and D.H.121 differ drastically from the accepted British method of burying the engines in the wings, and have mounted them—in pods—on the rear fuselage, in much the same manner as the engines of the Sud-Aviation S.E.210 Caravelle. This method is claimed to have several advantages, including a clean wing and minimum noise level in the passenger cabin.

No decision has yet been made about producing the Bristol 200, but a contract for thirty-five V.C.10s—excluding spares—worth £60 million, was signed between B.O.A.C. and Vickers on 14th January. The first V.C.10 is expected to fly in the late summer of 1961, and deliveries to B.O.A.C. will begin two years later and will be spread over 1964 and 1965.

The first news of B.O.A.C.'s intention to place an order for the V.C.10 was released in May last year, when the aircraft was stated to meet the Corporation's requirements for the African, Australian and Far-Eastern routes from the mid-1960s on. Since then developments in the design of the aircraft, and in the power from its four Rolls-Royce engines, have made the V.C.10 an airliner which B.O.A.C. will use on its North Atlantic as well as the Far-Eastern routes, without impairing its efficiency on the latter services. (The Boeing 707 has already been selected for the North Atlantic service in the early 1960s.)

The fuselage will be of the "double-bubble" type with a top passenger deck capable of carrying up to 152 people in extra high-density seating, up to 135 in standard high-density, or 108 in a first-class arrangement. Substantial underfloor freight capacity is provided. The aircraft is capable of operating from high-altitude airports in hot weather without suffering the limitations of payload associated with these conditions.

Available details of the V.C.10 are: Span 140 ft. 0 in., length 158 ft. 0 in., height 41 ft. 2 in. Maximum gross weight (long haul) 299,000 lb. Wing area 2,800 sq. ft. Fuselage width 12 ft. 4 in.

The Bristol 200 has been designed to meet B.E.A.'s requirements for a short-haul jet airliner and is in direct competition with the de Havilland D.H.121. It is planned that the 200 will be developed by the Hawker Aircraft and Bristol Aircraft companies in a partnership.

Two of the turbojet engines are in pods on the rear fuselage, with the third buried in the fuselage. Air intake for this engine is just forward of the fin.

Like the V.C.10, the Bristol 200 has a "double-bubble" fuselage with a maximum capacity for 100 passengers plus freight. No mention has been made of the engines, and it is to be assumed that the Olympus variant will be used.

Interest in the aircraft has been shown by overseas customers, and a Bristol sales and engineering team under the leadership of Dr. A. E. Russel, Bristol's chief engineer, is now in the United States to discuss the projected 200 with a major American airline. The following details of the aircraft have been released: Span 91 ft. 0 in., length 121 ft. 6 in. Maximum gross weight 120,000 lb. Maximum speed 600 m.p.h.

plus; range with capacity payload 1,700 miles.

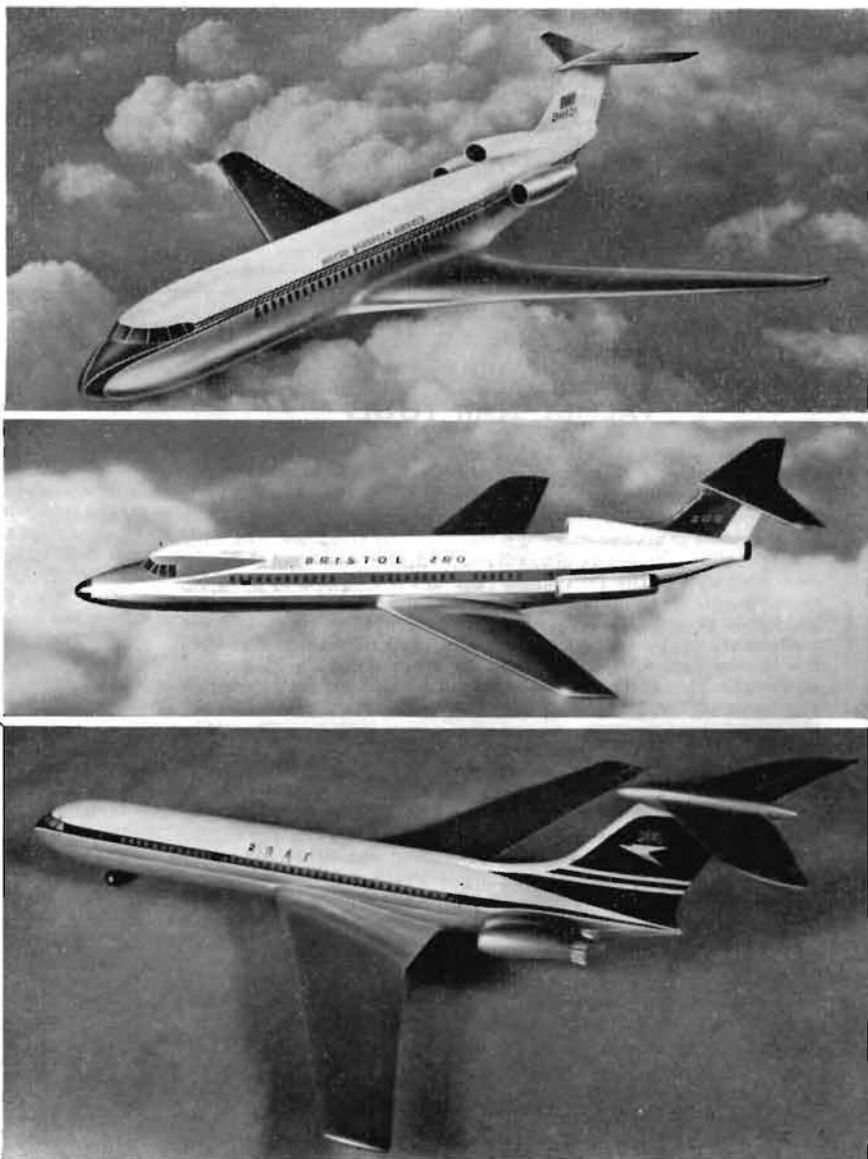
The D.H.121 bears a strong resemblance to the Bristol 200, and like the latter is powered by three turbojet engines. No details have been released, but it is thought that the 121 is as large as the Bristol 200.

Across the Atlantic the Boeing Airplane Company have released details of their Model 720, a new intermediate-range jet airliner, much in the same class as the two British transports. The new machine is the third of the 707 family and will be capable of carrying a gross payload of 33,000 lb., including up to 130 passengers.

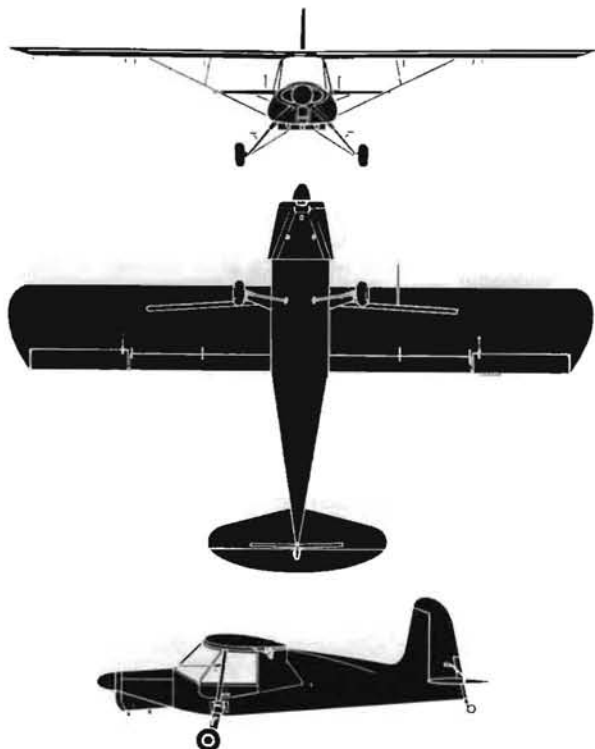
External dimensions of the 720 will be identical to those of the 707, and it will have a maximum speed in excess of 600 m.p.h., plus a maximum range of 2,600 miles.

Data: Span 130 ft. 10 in., length 134 ft. 6 in., height 38 ft. 7 in. Gross weight 203,000 lb.

(Top to bottom). Artist's impressions of the D.H.121; Bristol 200 and a model of the Vickers V.C.10



LEGRAND-SIMON LS-50



The LS-50 was designed to fill various roles and was intended to be suitable for private touring, for club or school training of pilots or for the towing of single-seater gliders, provided that the latter were fitted with wheels to facilitate take-off. The mixed wood and metal construction was dictated partly by the need to keep the overall weight as low as possible in order to have a reasonable range for touring purposes, and partly by the desire to have a design which could be easily produced in series. In order to achieve this last aim a degree of sub-contracting and prefabrication is possible, which is unusual in this type of aeroplane. On the prototype several components, such as cowling panels, wheel discs, spinner and door sills, have been made in fibre-glass, and for production models this number would be increased. The fuselage is a basically rectangular, rigid wooden box built up on four longerons. At the rear end is bedded a stout post which bears the mountings for the tailplane and from which the rudder is hung. At the forward end the fuselage is mated to a sturdy metal framework which unites the cabin and wing-supporting structure, the two side-by-side seats, the control column and its mechanism, and the undercarriage unit and shock absorbers. This welded steel structure supports the controls, flap mechanism, radio, doors and instrument panel. Full dual control is fitted as standard, and the various trim controls are placed on the centrally mounted flap lever in the cabin roof, accessible to both seats. The wing is built up on a single spar at 25 per cent chord, and forward of this spar is plywood covered, forming a torsion box which is extended diagonally to the rear at the roots. The ailerons are cable-operated, the flaps by torsion tube. Ribs are built up of wood and the whole wing, braced by a single strut each side, is fabric-covered. The tail unit is constructed of welded steel tube with a fabric cover.

Dimensions: Span 31 ft. 6 in., length 21 ft. 0 in., height 6 ft. 6 in. Weights: Loaded 1,527 lb., empty 979 lb.

Speed at 3,300 ft.: Maximum 118 m.p.h., cruising 106 m.p.h. Landing speed (30-degree flap) 41 m.p.h. Range 620 miles. Initial rate of climb 700 ft./min.

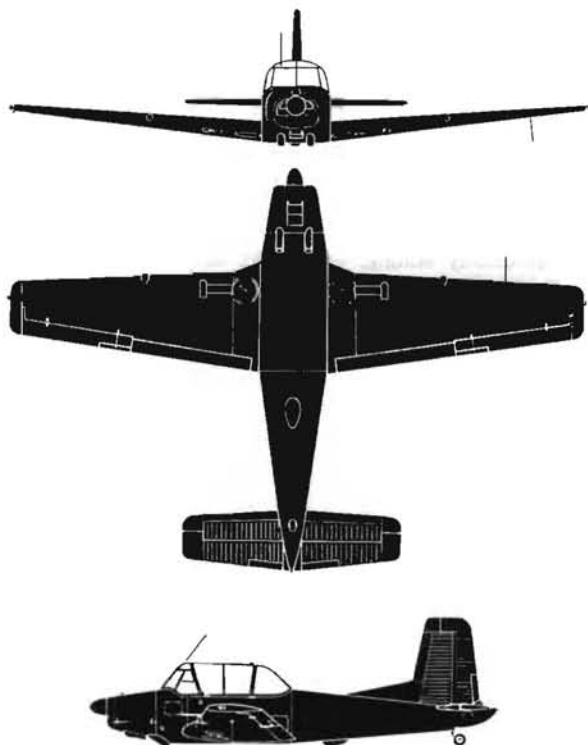
VALMET TL-III TUULI

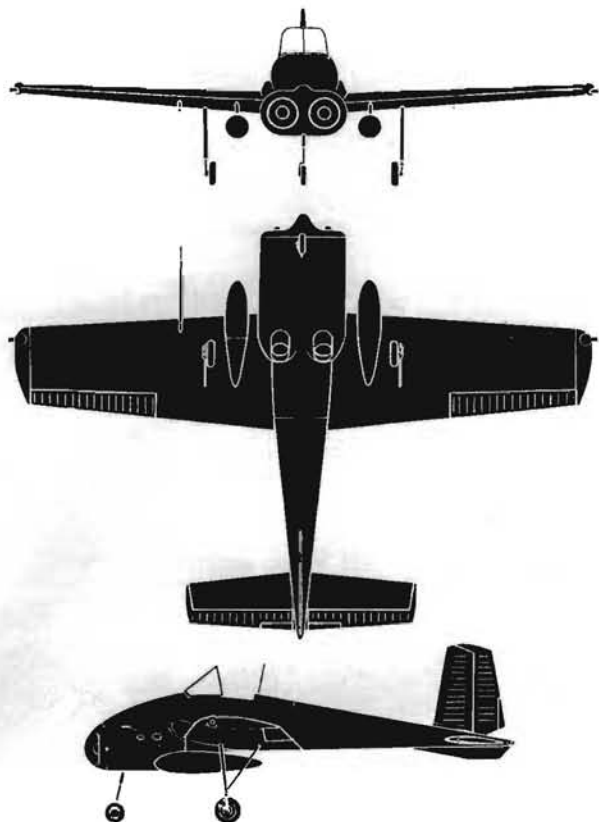
The Tuuli is the new primary trainer for the Finnish Air Force and will be available in three versions. As a two-seater with aerobatic qualities; a three-seater for utility purposes; and a four-seater for liaison duties. Besides training duties it can be used as an ambulance and is capable of accommodating a standard-size stretcher. The wing is a light-alloy stressed-skin structure, with the main spar at 25 per cent wing chord. The slotted-type ailerons are light-alloy covered, aerodynamically and mass-balanced, and fitted with balance tabs adjustable on ground. The landing-flaps open 40 degrees, and the ailerons are coupled to the landing-flaps in such a fashion that with the landing-flaps fully open the ailerons are deflected 15 degrees downwards from the basic plane. The fuselage is a light-metal stressed-skin construction. Two main frames, one at the instrument board and the other behind the cargo compartment, divide the fuselage into three separately manufactured parts, the front, middle and rear fuselage, which are riveted together. The extension of the main spar passes under the front seats in the fuselage, to which the fastening points of the main spar of the wings are attached. The fastening point of the auxiliary spar connects with a reinforced fuselage rib. The rudder and the elevators are stressed-skin structures with light-alloy covering. The fin and the stabiliser are firmly attached to the reinforced ribs on the rear fuselage. Landing gear is of the tailwheel type, mainwheels retractable. The front cockpit has two pilot seats arranged side by side and provided with complete dual controls. The main cockpit (pupil pilot) is on the port side.

Dimensions: Span 36 ft. 1 in., length 26 ft. 3 in., height 8 ft. 6 in. Weight empty 2,350 lb., loaded 3,166 lb.

Powerplant: One Continental O-470-A engine of 225 h.p.

Maximum speed at sea-level 136 m.p.h., cruising 112 m.p.h.





BELL X-14

VTOL aircraft come in all shapes and sizes, and one of the latest about which details have been released is the Bell X-14; outwardly a conventional aircraft much in the same class as the Short S.C.1. First hovering flight of the X-14 was made on 19th February 1957, and since that date it has undergone a rigorous test programme. Powered by two Armstrong Siddeley ASV.8 turbojet engines of 1,750-lb. thrust each, it is designed to take vertically by deflecting the thrust of the engines downwards by means of diverters or vanes which are located behind the engines. When a safe altitude is reached the vanes are slowly feathered, the engine thrust directed rearwards and the aircraft makes the transition from vertical to horizontal flight. During the vertical and transition flight periods, aircraft control is effected by three air jets, one at each wingtip and one at the extreme tail. Developed from the early Bell experimental VTOL, the new aircraft weighs nearly twice as much as the early machine, 3,500 lb. against 2,000 lb., and differs entirely in engine mounting and overall appearance. Fixed fuel tanks are slung under the wings for ease of maintenance.

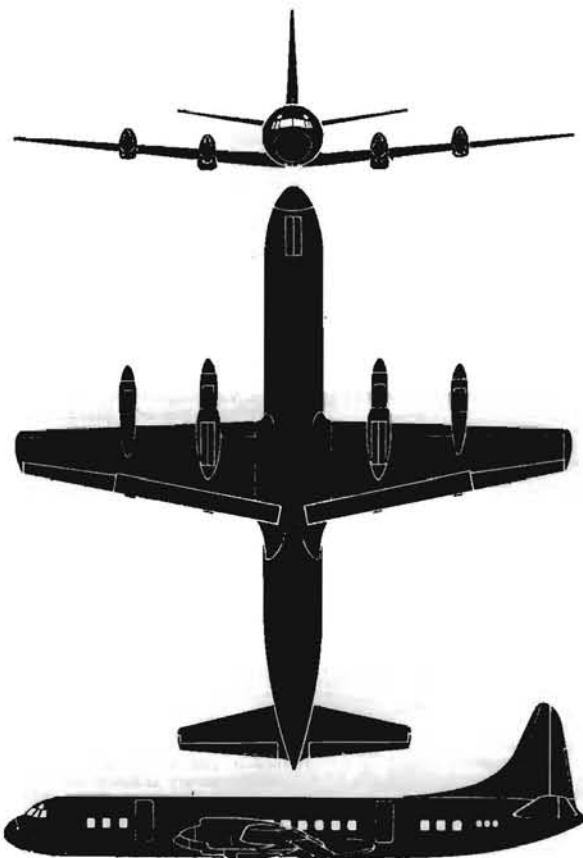
Dimensions: Span 34 ft. 0 in., length 25 ft. 0 in., height 8 ft. 0 in.

LOCKHEED 188A ELECTRA

The Electra is a medium-range passenger transport which made its first flight on 6th December 1957. The decision to produce the Electra was made after the Lockheed Company had made an extensive survey in 1952-53 of future aircraft requirements of the American airlines, and in the autumn of 1954 preliminary design was started. The first airline to order Electras was American Airlines for thirty-five aircraft, followed by Eastern Air Lines with an order for forty. Total number now on order is 147, and the first to enter airline service will go to Eastern Air Lines, who plan to use it from November this year. The fuselage is of circular cross-section over most of its length, and large rectangular windows will give passengers an excellent view. The wing is built around a box beam and has Fowler-type flaps and mass-balanced ailerons, each with one trim tab. Powerplant consists of four Allison 501-D13 turboprop engines, each developing 3,750 e.s.h.p. at take-off. Later models will be able to take engines developing up to 5,500 e.s.h.p. each. Propellers are either Aeroproducts or Hamilton Standard four-blade reversible pitch of 13 ft. 6 in. diameter. The pressurised fuselage will accommodate five crew members and eighty-one passengers, but a high-density version will seat eighty-five. Integral passenger stairs fold into the fuselage wall when not in use. Several versions of the Electra are planned, but all will carry up to 4,000 lb. of air freight and mail, in addition to the normal amount of passengers' baggage.

Dimensions: Span 99 ft. 0 in., length 104 ft. 6½ in., height 32 ft. 1 in. Weight empty 56,000 lb., loaded 113,000 lb.

Performance: Maximum speed (at 12,000 ft.) 448 m.p.h., cruising speed (at 22,000 ft.) 405 m.p.h. Service ceiling 27,000 ft.





UP-TO-THE-MINUTE MEN. Left: Loaned by the U.S.A.F. to the Allison Division of General Motors Corp., this Convair YC-131C (53-7886) made turboprop history on 23rd January. In 649 flights since 1st November 1957 the YC-131C logged the 1,000 hours flying time set as a 1st May 1958 target for "Operation Hourglass". Flying at a.u.w. of 48,000 lb. the Allison Model 501-D13-powered YC-131C averaged a cruise of 360-m.p.h. at 20,000 ft. Right: VMF-122 is the first U.S. Marine Corps fighter squadron to receive the 1,000-m.p.h. "plus" Chance Vought F8U-1 Crusader.



ON SHOW. On 13th January 1908 M. Henri Farman, the well-known pioneer road racer and aircraft designer, completed his first closed circuit of one mile at Issy-les-Moulineaux. Fifty years later this historic event was commemorated by French authorities, who put the original Farman pusher biplane on exhibition at l'Aérogare de Paris. M. Henri Farman attended the ceremony.



WHAT SHALL WE WEAR TODAY? The potential wardrobe of the French air force's first level-flight supersonic strike-fighter is well displayed in this recent photograph of No. "05", a pre-production Dassault Super Mystère B2. The apex shows the fuselage "box" of fifty-five 68-mm. SNEB Type 22 rocket projectiles, behind which are the two 30-mm. DEFA cannon. Each wing can support a variety of stores from the finned MATRA air-to-air missile, rocket pods and rocket carriers to napalm and H.E. bombs of up to 1,000 lb. per wing.

Air Pictorial's

MARCH

PHOTO-REVIEW



PINGER MOVEMENT. M. Henri Mignet's revolutionary (or retrogressive?) "Pou de Ciel" or "Flying Flea" ultralight of pre-war notoriety has weathered the post-war years and now comes full circle back to France. Flanking the venerable Caudron C.109 (F-PFLN) of 1928—rebuilt 1950—are two views of an enclosed cabin, single-seat Henri Mignet H.M.293 (F-PGYA), powered by a 30-h.p. Volkswagen flat-four, giving a cruise of 65 m.p.h. and stalling speed of 25 m.p.h. The Caudron C.109 is owned by the Aéro Club de Perreux et de la Banlieue. (Photos: J. Reynolds, via W. F. Wincott, Leamington Spa.)



U.S. SKYHOOKS

A new "flat-riser" is the de Lackner DH-5 Aerocycle (left) which has been developed for the U.S. Army from the 1955 DH-4 Heli-Veccor. The DH-5 is powered by a 44-h.p. Mercury Mk. 55, which drives co-axially two three-blade main rotors each of 15 ft. diameter. Range is 50 miles at 75 m.p.h. Right: U.S. Air Force bases are to be equipped with a specialised airborne crash tender, the Kaman H-43. Shown here is an "on loan" U.S. Navy HOK-1 (Bu Aer: 125530) bearing temporary U.S.A.F. markings. Note emergency form apparatus.





THE ICEMAN COMETH. Better known as the Eland-Varsity flying test-bed, the second prototype Vickers Varsity T. Mk. I (VX835) has been flying recently from Cranfield, Lincolnshire fitted with a 39-nozzle spray rig. Evolved by the Napier Flight Development Establishment, Luton, this spray rig is used to test the behaviour of the N.EI.6-standard Eland turboprop under all icing conditions.



FRESH-AIR FIENDS. To delight the eyes of an older generation (left) a circa 1929, Chicago-based, de Havilland D.H.60G Gipsy Moth (N939M), and (right) another immaculate tandem two-seater, a mid-1930s' vintage Focke-Wulf Fw 44J Steiglitz (D-EMIG). At least two other Gipsy Moths are registered in the U.S.A.—N1510V belonging to Paul Mantz and N916M (built at Stag Lane in 1929) owned by Hank Coffin. The latter "stars" in the recent air-racing film, "The Tarnished Angels". The Gipsy Moth is powered by a contemporary 98-h.p. D.H. Gipsy inverted in-line, while the Fw 44J Steiglitz is powered by a 150-h.p. Siemens Sh 14A radial.



TRIPLETS ITALIANO. Twenty-seven pre-production Fiat G.91 (6810-lb. st. Bristol Orpheus B.Or.12) lightweight strike-fighters have been ordered by N.A.T.O. This new photograph shows a line-up of all three prototypes—each equipped with four fuselage sited 0.50-in. Browning machine guns and underwing pylons for war stores or long-range tanks. The first prototype G.91 (4,520-lb. st. B.Or.2) of 1956, on the extreme right, retains the experimental nose probe.



SEARCH AND STRIKE. Three familiar shapes with "locating" as a common denominator. Left, upper: Hunting Aerosurveys' combined-geophysics Dakota 4 (G-AMYW; ex-44-76688) is now flying in further modified form. Compare with ground view in June 1956 "Photo Review": gone are the trio of dorsal "derricks", but additionally there is a ventral D/F loop housing. Right, upper: A distant cousin by marriage, Adastra Hunting Geophysics (Pty.) Ltd., of Australia, is currently operating a Consolidated PBV-3A Canso amphibian (VH-AGB) with all the aerial prospecting trimmings. Note unusual removal of wingtip floats. (Photo: P. Woolley, Hobart, Tasmania.) Left: No more Sunderland GR Mk. 55 for major overhaul are expected at Short Bros. & Harland, Belfast. The last one (RN284) of the French Navy's seventeen departed from Queen's Island in late December. The R.N.Z.A.F., also, has sixteen GR Mk. 55s.



Prototype of Macchi M.B.326 shows its clean lines.

The Macchi M.B.326 Trainer

THE Macchi company has been building aeroplanes since 1913, one year after it was founded in 1912, and between the wars it established a world-wide reputation as the designer and builder of a series of racing seaplanes. Two of these, the Macchi 7 flying-boat and the Macchi 29, won the 1921 and 1926 Schneider Trophy contests respectively.

Since the end of the last war the Macchi company has developed several aeroplanes including the M.B.308, a two-seat light monoplane, the M.B.320, a twin-engined, six-seat monoplane, and the M.B.323 trainer. Latest Macchi offering is the M.B.326 jet trainer, which recently made its first flight.

The 326 is a mid-wing, two-seat *ab initio* trainer with the seats in tandem under a one-piece, clear cockpit canopy. For familiarisation with the effects of compressibility, it has been designed for a limiting Mach number of 0.8. A dive-brake system can be operated at the maximum indicated airspeed and allows the air speed to be decreased under any condition of flight. Aerobatics are permissible, and the airframe has been designed to a strength factor of 12g. Martin Baker ejection seats are standard, the canopy being jettisoned by a separate control or in conjunction with the seats.

Two versions are planned, the trainer, pictured in the photograph and silhouette, and the M.B.326A, an armed version equipped with tip tanks, under-wing rocket projectiles, two machine guns mounted in the lower fuselage at the nose, and other military loads, as illustrated by the cutaway drawing.

Power unit is an Armstrong Siddeley Viper A.S.V.8 turbojet with a thrust of 1,750 lb., and later models of the 326 will have a Viper developing 2,200 lb.

Structure

The wing is trapezoidal in plan view, tapered in plan and thickness, and has a straight trailing edge with slight sweep on the leading edge. The aerofoil section is of NACA6 series laminar flow. Structure is divided into three main sections; a central piece built integrally with the fuselage and two outer panels. All sections are

built around a central spar with a torsional stress resistant skin. Ailerons are aerodynamically balanced and fitted with a trim-tab controlled by a switch mounted on the joystick.

The fuselage structure is of monocoque construction and consists substantially of sheet-formed bulkheads and four longerons. The cockpit area is sealed for pressurisation purposes. Access to the various fuselage installations is through doors on either side of the fuselage. Aft section of the fuselage is detachable to allow removal of the engine.

The canopy consists of a single plexiglas unit of semicircular cross section hinged on one side. It can be opened with a minimum of effort by means of a compensating spring device. It can be jettisoned under any emergency condition by a suitable device which is synchronised with the ejection of the seats. It can also be jettisoned separately.

The dive brake is fitted on the fuselage lower side.

The horizontal empennage is fitted to the upper side of the fuselage, and the stabiliser, as well as the elevator, consist of a single-spar structure. The elevator is dynamically balanced and is provided with a servo-tab and a trim tab.

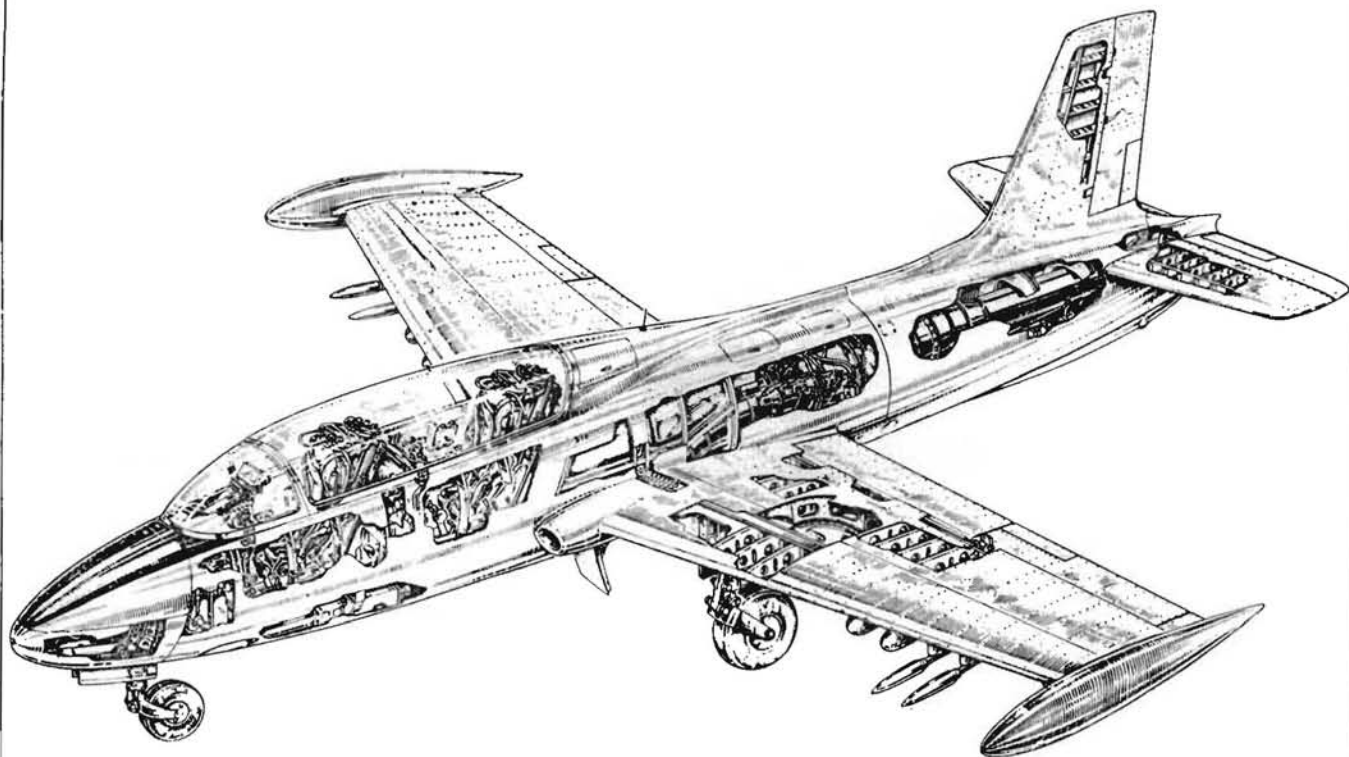
The vertical empennage consists of a single-spar fin structure and a similar rudder structure, which is dynamically balanced and is provided with a trim tab.

The undercarriage gear is of tricycle type, the nosewheel retracting forward in the fuselage nose section, while the main wheels are fitted with hydraulic brakes. The nose wheel is steerable and fitted with an anti-shimmy device.

Power Plant

The powerplant unit installed is a Viper A.S.V.8 jet engine built by Armstrong Siddeley. Its main characteristics are as follows: Seven-stage axial flow turbine; annular combustion chamber with centrifugal injection fuel supply.

Dimensions: Length 6 ft. 10½ in.; diameter 2 ft.; frontal area 261.6 sq. in.; engine net dry weight 515 lb.



Cutaway drawing of the M.B.326A armed version shows location of the underwing loads and machine guns. Wing fences are absent.

Armament (M.B.326A version only)

Two SAFAT .303-cal. machine guns with 200 rounds ammunition each.

Four 13.23-lb. rockets (for training purposes) *or*

Four 61.73-lb. rockets.

Four 33.07-lb. bombs (for training purposes) *or*

Four 100.15-lb. bombs.

The gun-camera, type G.45, is fitted in the fuselage nose.

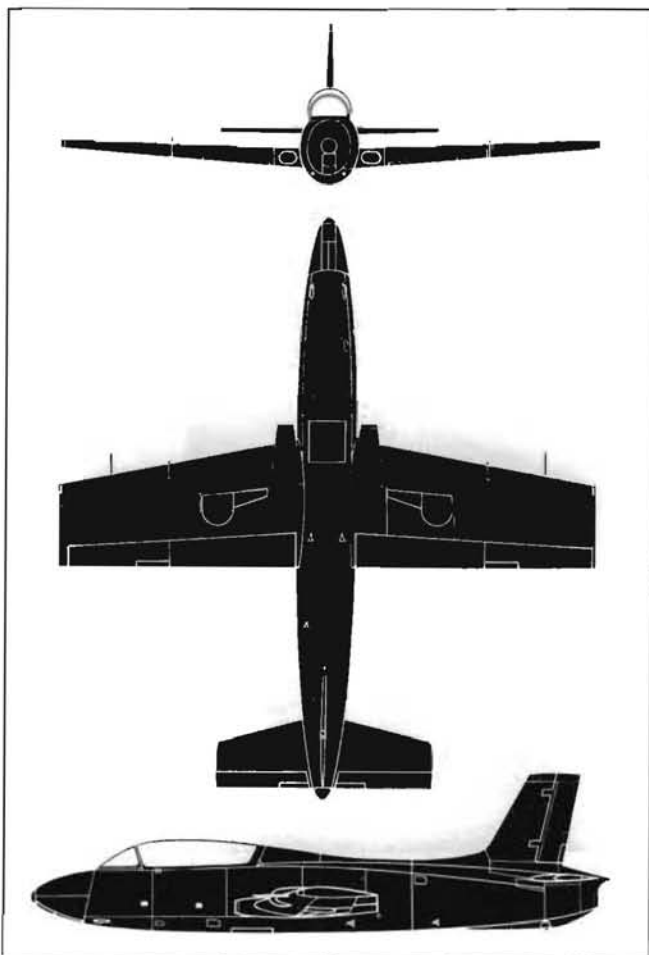
Flight Performances

The following flight performances concern the normal version (M.B.326) with a maximum weight of 6,283 lb. In the armed version (M.B.326A) the aircraft weight is 220 lb. more, and performance is slightly reduced.

Maximum speed at sea-level	410 m.p.h.
Maximum speed at an altitude of 9,800 ft.	425 m.p.h.
Maximum speed at an altitude of 19,700 ft.	441 m.p.h.
Maximum speed at an altitude of 29,500 ft.	450 m.p.h.
Minimum stalling speed, flaps up	90 m.p.h.
Minimum stalling speed, flaps down	80 m.p.h.
Climbing speed at sea-level	3,051 ft.p.m.
Climbing time to an altitude of 9,800 ft.	4 min.
Climbing time to an altitude of 19,700 ft.	9 min.
Climbing time to an altitude of 29,500 ft.	18 min.
Service ceiling	36,089 ft.
Minimum ground run before unstick	1,640 ft.
Ground run to clear 50-ft. screen	2,460 ft.
Minimum ground run after touching down	919 ft.
Ground run after having cleared 50-ft. screen	2,460 ft.

Dimensions

Span 32 ft. 11 in., length 34 ft. 5 in., height 11 ft. 4 in. Weight empty 4,299 lb., loaded 6,283 lb.





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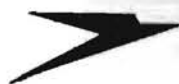
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B R I T I S H O V E R S E A S A I R W A Y S C O R P O R A T I O N

BOOK REVIEWS

By Gerald J. Pollinger

AIR PICTORIAL

Book of the Month

They Fought for the Sky, by *Quentin Reynolds* (Cassell, 21s.).

MAKE no mistake, this book is going to be one of the best-sellers of 1958. There are a number of reasons for this: in the first place the author is already a great favourite with the British public, not only because whilst a neutral observer in the first years of the recent conflict he stayed to brave the bombs to broadcast and write encouragement to those actively engaged in fighting for survival. Secondly Reynolds is an experienced story-teller with a fast-moving style which will not let a reader pause at the end of a chapter, but makes page-turning a necessity. And thirdly, the subject of his new opus is one which is currently "top of the hit parade"—the First World War.

More than being just a story of part of the 1914-18 struggle, *They Fought for the Sky* is the first history of the air war to be written for popular consumption and succeeds in painting the era of canvas and string, of chivalry and goggles, in an unforgettable way. Through the air combats are traced the whole pattern of warfare; at the beginning reconnaissance was the order of the day, with a little artillery-spotting or the occasional balloon-busting thrown in for good measure. But the rifle gave way to the synchronised machine-gun of Anthony Fokker, and the wave of the hand became the signal for bombs to fall earthward. Soon the struts of the flimsy aircraft became streaked with blood as well as oil, and "eat, drink and be merry for tomorrow we die" became the symbol of the day.

As the tumblers crashed into the fireplace, so the flying machines improved day by day. For the author has also told the stories of the aircraft which were matched one against the other; of the trim Nieuport and of the bird-like Schwalbe, of the Camel and the Gotha and Handley Page bombers. A chapter is devoted to the Zeppelins and their raids and the "giant-killers" who sent the dirigibles scorching to earth to the cheers of the populace below. Although Quentin Reynolds did not have the benefit of being able to consult the fabulous tome of Jack Bruce, he has certainly studied nearly every other book dealing with the aircraft of that time. He cheerfully admits this in his foreword, but unselfishly provides a glossary of these books which will be immediately appraised by aircraft historians and bibliophiles and will probably cause quite a rush to the specialist booksellers and advertisement columns.

The book, containing over fifty illustrations, was published a few days ago; by now many people will be reading it, and many more will be.

story of the American Punitive Expedition into Mexico of 1916 (the first time American aircraft were used on operations) to be called "They Came to Cordura", and that the equipment of the Lafayette Escadrille (or mock-ups thereof) will be seen in "Hell Bent for Glory" in the near future. Theodore Roosevelt "built" the U.S. Navy by means of films and photos; the film producers of today and the editors of illustrated books are performing a valuable service by seeing that the history of aeronautics is not lost to us.

Jet Planes Work Like This, by *John Taylor* (Phoenix House, 9s. 6d.)

SUB-TITLED "A Book for Young People", and illustrated by John Wood, who contributes sixty-three line drawings, this is a book in a useful series of titles. The main objection to it, and to the others of the line, is the published price; to ask the younger reader to find 9s. 6d. for a slim volume of sixty pages is something of a gamble in these days of rising prices. However as far as the text goes, bearing in mind the market for which it is aimed as the criterion of judgment, the book forms an adequate introduction to the subject, and the drawings help to guide the reader along the (jet-) stream. One omission that should be rectified in the next edition is the inclusion of a glossary of terms used, and of abbreviations that the reader will want to have on record, and perhaps a list of important dates of gas-turbine engine development, for this is more a book about motive power than of vehicles.

IN PAPER BACKS

A considerable number of aviation books are reprinted or published in paper covers. The following titles deserve the attention of *Air Pictorial* readers.

The First and the Last, by *Adolf Galland* (Corgi, 3s. 6d.) is the autobiography of the Luftwaffe fighter commander, and contains much important historical material.

I Burned My Fingers, by *William Simpson* (Pan, 2s. 6d.) is the story of the courage of a man who had no hands or face left after an air crash early in the war, but who became the Chief Information Officer of British European Airways.

Time Enough to Live, by *Dan Brennan* (Corgi, 2s. 6d.) is a novel about Mosquitoes, the author obviously having taken part in the raid on Amiens Prison.

The Dam Busters, by *Paul Brickhill* (Pan, 2s. 6d.) being the classic tale of the Lancasters of No. 617 Squadron and their exploits; also read **Enemy Coast Ahead** by Guy Gibson (Pan, 2s. 6d.) by the pilot who led the raid against the three dams.

Stuka Pilot, by *Hans Rudel* (Corgi, 3s. 6d.) is another autobiography, this time of a Junkers Ju 87 pilot who had astounding successes on the Russian front.

A History of the United States Air Force 1907-1957, edited by *Alfred Goldberg* (Van Nostrand, 36s.).

THIS authorised history is the first one-volume work to cover the first fifty years of what has become probably the most powerful air arm in the world. The multi-volume work about the Army Air Forces in the Second World War is not only an expensive history, but does cover only a few brief years of that service's development and operations. Only an outline of the 1941-45 period is contained in this new book, but fully two-thirds of the pages are occupied with the progress and role of the U.S.A.F. since 18th September 1947, the day the Air Force left behind the olive jackets and pink trousers of the Army and adopted their own blues. This major portion of the book is concerned with such new words and phrases as are now commonplace, such as "global air strategy" and "logistics". The book ends with an account of the Korean air war, with stress on interdiction. Having put the cart before the horse, let us now scan the first part of the book; here the illustrations are particularly interesting and valuable to the aviation historian. Like the photographs which intersperse almost every paragraph of the text, these are clear and defined, and show well the early aircraft and the men who flew them. The period from the time the Wright Brothers placed a modified version of their 1908 machine with the Signal Corps of the United States Army, through the first days of trial and tribulation, until the performance of the Air Service in the last seven months of 1918, is well sketched in.

Anyone interested in either the American Air Force, or in aviation history in general will find this a meritorious reference publication.

Air Force, A Pictorial History of American Airpower, by *Martin Caidin* (Rinehart, \$10.00).

ALTHOUGH this large, handsome volume is not likely to be published in Britain, copies of the American edition are on sale in bookshops at prices ranging up to six guineas, and the book deserves reviewing by virtue of its being a companion to the previously reviewed work. On its 230 pages are the best selection of air photographs to appear for many a long day, covering all phases of the first fifty years of the American air forces. There are some dramatic shots of aircraft flaming down over Germany during World War II (at times one feels that the compiler has an obsession for these tragedies) and the early historical pictures engross the reader. Looking through these "stills", one is reminded of the many motion pictures that have been made about the United States Air Forces, such as the stories of Billy Mitchell and the many war films of recent memory. It is gratifying to know that Curtiss JN-2 aircraft are in demand for the



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The Short 320

By J. M. Bruce

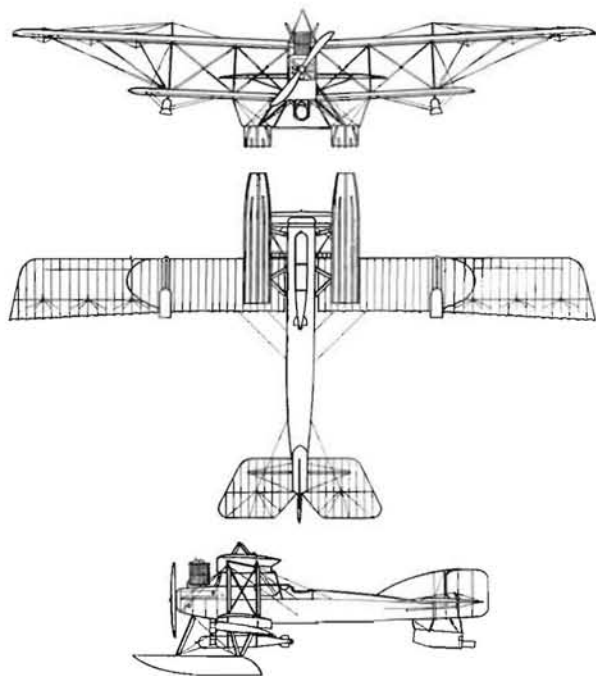
BY 1916 the firm of Short Brothers had produced a remarkable number of seaplane types. The best-known was the Short 184, which was not an unqualified operational success as a torpedo-carrier, but it pointed the way. Short Brothers were able to draw upon their earlier experience when they embarked upon the design of a seaplane capable of carrying the 18-in. Mk. IX torpedo.

The prototype of the new seaplane appeared in 1916. It was a large two-bay biplane with long extensions on the upper wings, and was powered by a 310-h.p. Sunbeam Cossack engine. General construction was conventional and typical of Short practice, and the two main floats were simple pontoon structures; a single tail float with water rudder was fitted, and there were stabilising floats under the lower wingtips. The torpedo was carried in special crutches under the fuselage, and the rear float cross-bar was removable to give the missile a clear drop. The pilot occupied the rear cockpit, presumably to obviate the need for ballast when the aircraft was flown one-up, as it usually had to be when a torpedo was carried. The mainplanes could be folded.

The new Short went into production on a relatively small scale, and production aircraft became available early in 1917. Most of them had the 320-h.p. Sunbeam Cossack, from which the seaplane derived its designation of Short 320; there were additional vee-struts between the floats and lower mainplanes on the production machines, and a mounting for the observer's gun was fitted at the level of the centre section. For reconnaissance duties, additional fuel and a bomb load could be carried.

The Short 320 was issued to R.N.A.S. seaplane stations in home waters and the Mediterranean; it was in the latter theatre of war that the type found its widest operational use. A batch of twenty-five were ordered in January 1917, specifically for use in the Mediterranean against the Austrian fleet; in February 1917 the establishment of Otranto seaplane base was increased to include twelve Short 320s, and the aircraft were delivered in the spring of that year. Two machines were also allocated to the torpedo seaplane school at Malta, and trial drops and training were carried out.

But the Short 320 never dropped a torpedo operationally. Five armed with torpedoes, together with a sixth bomb-laden machine, were placed on rafts and, on 2nd September 1917, were towed by motor launches due north from Otranto to a position fifty miles south of Traste Bay. Their objective was enemy submarines lying in



the Straits of Kumbor, but a wind of gale force and heavy seas frustrated the enterprise: the operation was abandoned after two of the big Shorts had attempted, unsuccessfully, to take off. Commodore (now Rear Admiral Sir) Murray Sueter, then commanding R.N.A.S. units in Italy, pressed for more vigorous offensive action against Austrian bases, and the Admiralty authorised increased establishments for Otranto and Taranto. No attempt to repeat the operation was ever made, however, and the remainder of the Short 320's service was given as a patrol seaplane.

On 8th February 1918, N.1491, a Short 320 from Calafra, dropped one 230-lb delayed-action bomb on a U-boat which was about to attack a French battleship. Bubbles, oil and wreckage came to the surface, but it is not known whether the U-boat was destroyed.

As in the Mediterranean, so in home waters the Short 320 ended its operational career as a patrol seaplane, but its unspectacular duties were apparently unrelieved by any remarkable actions. Four were used in torpedo experiments at Calshot in February 1918; and at least one, N.1485, was sent to Japan.

Manufacturers: Short Brothers, Rochester; The Sunbeam Motor Car Co., Ltd., Wolverhampton.

Power: 310-h.p. or 320-h.p. Sunbeam Cossack.

Crew: In reconnaissance form, two; as torpedo-dropper, one.

Dimensions: Span, upper 75 ft., lower 46 ft. 9½ in.; length 45 ft. 9 in.; height 17 ft. 6 in.; wing area 810 sq. ft.

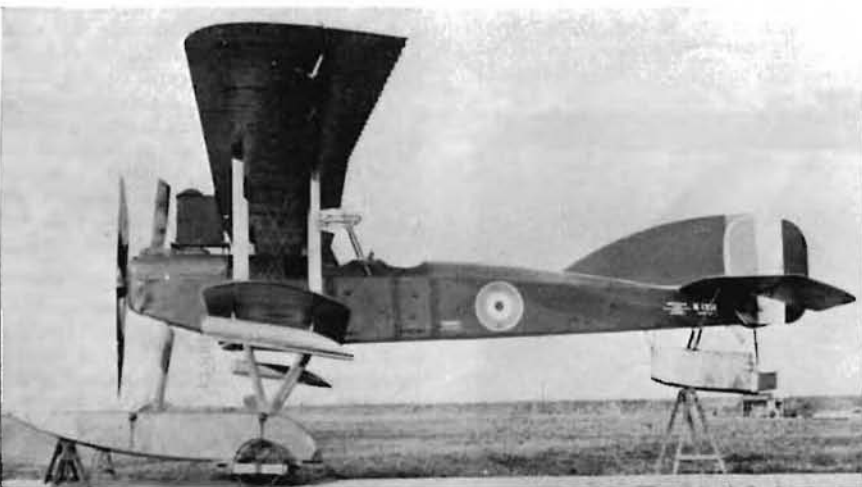
Weights (with two 230-lb. bombs): Empty 4,891 lb.; loaded 7,021 lb.

Performance (with two 230-lb. bombs): Maximum speed 79 m.p.h. at 2,000 ft.; climb to 2,000 ft. in 8 min. 35 sec., to 6,500 ft. in 45 min.

Number built: Two prototypes and 125 production aircraft were ordered. On 31st October 1918 the R.A.F. had fifty Short 320s on charge.

Service use: R.N.A.S. seaplane stations at Calshot, Felixstowe, Great Yarmouth, Kill- ingholme, Isle of Grain; *Mediterranean:* Otranto, Brindisi, Calafra (Malta).

(Photo: Imperial War Museum)



Letters to the Editor

"THE AIR WAR . . .

CAN any readers of *Air Pictorial* shed light on the circumstances under which the accompanying "Combat" photographs were taken? Both purport to show British and German aircraft in action in World War II, but there are features of each that lead me to believe that they were set up by the Germans, using captured British Spitfires, for propaganda purposes.

Other than the fact that both seem almost too good to be photographs actually taken in the heat of battle (the Spitfire-Dornier is the more logical of the two), I am highly suspicious of the Spitfire markings.

In both of the photographs, the British roundels appear in a location approximately midway between the fuselage and the wing. While I have seen hundreds of photographs of Spits and many of the machines themselves, I do not recall one that displayed markings this far inboard of the standard position. On the other hand, this location is about standard for German fighters of the period, which leads me to believe that the Spitfires used here had been captured and then tested by the Germans with standard Luftwaffe markings. When repainted with British markings for propaganda purposes, the roundels could have been applied right over the German crosses, with the result that they were in the "German" rather than the "British" position. My suspicion is further heightened by the existence of another photograph that almost duplicates the Spitfire-Dornier view, showing instead an uncamouflaged Mohawk and what appears to be the same Dornier, the Mohawk again carrying British roundels in the "German" position. Still another photograph shows a Spit in tight formation with an He 111, photographed from the cockpit of the He 111.

The use of a fin flash running the full height of the fin places the date of the photographs some time in the early part of 1940.



This photograph, together with that below, came from Peter M. Bowers, who, in his letter in the first column, wants to know how they were obtained.

The Spitfire-Dornier scene is from a wartime German News Service photograph, while the Spitfire-Me 109E scene is from a picture postcard sold in Germany during the war.

Incorrect restoration of original markings to captured aircraft was not limited to the Germans. Many German models flown in Allied markings after World War II by British and American forces were later repainted to look more "German" for display purposes with crosses that were inaccurate both in proportion and location. One Me 108 was even repainted with a form of the cross not used since mid-1918.—Peter M. Bowers, Seattle, U.S.A.

... THROUGH GERMAN EYES"

FROM my files I have dug out some air-sea action photographs taken by a German sailor in early 1940, and they show British twin-engined bombers attacking German shipping.

One photograph shows a Blenheim IV attacking one of a group of two patrol ships north-west of Heligoland. The bomb-aimer was well off the target and the salvo can be seen just entering the water. The second photograph shows the same aircraft banking sharply for the second attack, while in the third the Blenheim is flying directly overhead the second ship. According to the

sailor responsible for the pictures the Blenheim flew into the intensive flak put up by the ships and was destroyed.

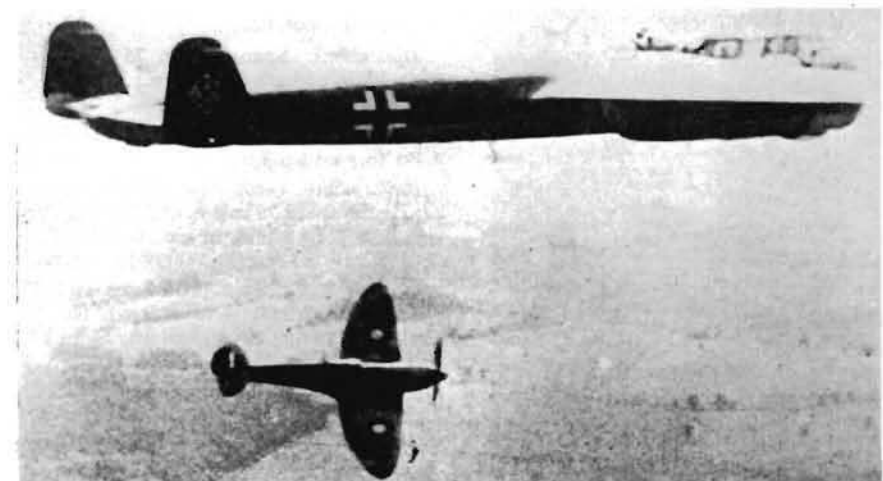
These old action shots are of great interest, and I for one would like to see more of them published in *Air Pictorial*.—H. J. Nowarra, Berlin, Germany.

(Mr. Nowarra's photographs, unfortunately unsuitable for reproduction, show a Blenheim bomber apparently attacking a ship. We endorse his plea for more of these action photographs, and would be glad to see any that readers might like to send along.—Ed.)

END OF A FAMOUS CONNIE

ON Wednesday, 10th July 1957, Ethiopian Airlines' 749 Constellation, ET-T-35, whilst on an Athens-Addis Ababa scheduled flight, made a forced landing in the desert near Khartoum; the aircraft was so badly damaged that it has been declared a complete "write-off". All twenty-six persons aboard survived, although a number suffered minor injuries because the Connie made a "belly-landing".

It seems that whilst flying at about 10,000 ft. about fifty miles north of Khartoum, fire broke out in the inner port engine. This immediately registered in the cockpit on the aircraft's fire-warning system, but so intense was the outbreak of fire that, within a matter of about two minutes the port wing was fiercely ablaze and the port outer engine was shortly afterwards conflagrated. The aircraft then went into a steep dive, and it was immediately decided to make a crash-landing in the desert about twenty-three miles from Khartoum Airport. A highly skilful "belly-landing" was executed by Capt. Salyers and his co-pilot, with the result that all twenty-six aboard (twenty



FOR SALE

Approximately 1,500 negatives of civil aircraft, showing registration letters. 1946 to 1950. £20.

JOHN WEBB

Firwood Cottage, Spaniards End, London, N.W.3



One of the last photographs taken of the Constellation once used by President Eisenhower. In his letter "End of a Famous Connie", Dennis Powell retells some of the highlights of its history. (Photo: via Dennis M. Powell, Kenya.)

passengers and six crew) managed to scramble to safety before the aircraft—by then burning fiercely—completely burned itself out with the exception of the tailplane structure.

This particular Connie was a former V.I.P. transport; she was President Eisenhower's "Columbine II", having been built and delivered to the U.S.A.F. in 1949 as a VC-121A, serial no. 48-8610, manufacturer's serial no. 2602.

The aeroplane was used by the President of the United States as his "Flying White House" from 1950 to 1954, when it was replaced by "Columbine III", a specially-modified L-1049E, having an a.u.w. of 133,000 lb. with luxurious cabin furnishings, etc. For a short time after his appointment as Supreme Commander N.A.T.O., "Columbine II" was used by General Grunther until it was replaced by another VC-121A, U.S.A.F. serial no. 48-614, which still serves as the personal transport of General Norstad who succeeded General Grunther.

From 1954 to April 1957 "Columbine II" continued to serve as a V.I.P. transport in the U.S.A.F., flying a number of American government officials, and statesmen of other countries, on official visits to the U.S.A., etc. The aeroplane was then declared surplus by the U.S.A.F. authorities in Washington, D.C., and was immediately acquired by T.W.A. on behalf of the Ethiopian Government.

The distinguished Connie then became ET-T-35 on the Ethiopian civil register; she was fitted with forty-eight seats for the purpose of operating Ethiopian Airlines twice-weekly schedules between Addis Ababa and Athens, via Cairo and Khartoum. These began on 10th June, the aircraft having been delivered to Ethiopia early in June. A special "luxury V.I.P. suite" was supplied with the aircraft as it was also intended to be used by H.I.M. Haile Selassie I, the Emperor of Ethiopia, as his (future) personal transport on State occasions.

ET-T-35 was ferried from New York to Addis Ababa via London, Rome and Athens on 2nd June 1957—following a period of crew-conversion in the U.S.A. at T.W.A.'s Kansas Main Base. Capt. W. G. "Swede" Golien (of T.W.A.) was in command on this flight. He was formerly E.A.L.'s General Manager—1946-54—returning to the U.S.A. in 1954 to rejoin

T.W.A. as a senior pilot, a position he had previously held in that airline.

At the time of the accident the aircraft was commanded by Capt. O. "Tex" Salyers, a senior T.W.A. pilot who is actually Ethiopian Airlines Senior Pilot. This is the first major accident suffered by Ethiopian Airlines since they began operations on 8th April 1946.—Dennis M. Powell, P.O. Box 2196, Nairobi, Kenya, East Africa.

WANTED—A STUKA

DOES any reader of *Air Pictorial* know of the whereabouts of a Junkers Ju 87 Stuka? If so, would he kindly contact me at the address below?

I require the aircraft for film purposes and am anxious to obtain one. I have at various times used all types of aircraft for film requirements, and as a point of interest have recently completed rebuilding the entire front crew section of a Lancaster bomber for studio use for the new Criterion film "V.I.".—J. Crewdson, Film Aviation Services Ltd., Stone Court, Smallfield Road, Horley, Surrey.

A RARE BLOCH

FROM time to time a search of one's files bring to light photographs of aeroplanes which for some reason were constructed, tested, and then forgotten, and in the interests of adding to aviation history I am forwarding a photograph of a rare machine, the Marcel Bloch 500 T3 (not to be confused with the Bloch 500, construction of which was begun during 1946).

As can be seen by my photograph, the 500 T3 was a twin-engine, twin-rudder, low-wing monoplane, which made its first flight on 31st August 1938 at Buc airfield, near

Paris. The pilot was Le Bail, now director of the Marcel Dassault factory at St. Cloud (Seine). It was designed by Roussel, ex-chief designer of SCAN.

Only the prototype was constructed, and fabrication was undertaken by the Bleriot Company at Suresnes (near Paris).

Details of the 500 T3 are as follows: A general-purpose training and navigational aircraft with accommodation for three. Span 51 ft. 4 in., length 37 ft. 10 in., height 12 ft. 0 in. Powerplant: Two Lorraine GNA "Algol" engines of 300 h.p. Propeller: Two Ratiers of fixed pitch. Colour scheme: Natural aluminium overall with French insignia. Construction was all-wood. Weight and performance is unknown.

It would be nice to know what became of this little-known type.—Jean Liron, Marseilles, France.

SHORT NOTES

MAY I, as one who spent some considerable time with the Empire flying-boats, add a few further points to the notes on these aircraft published in the June and November 1957 issues of *Air Pictorial*.

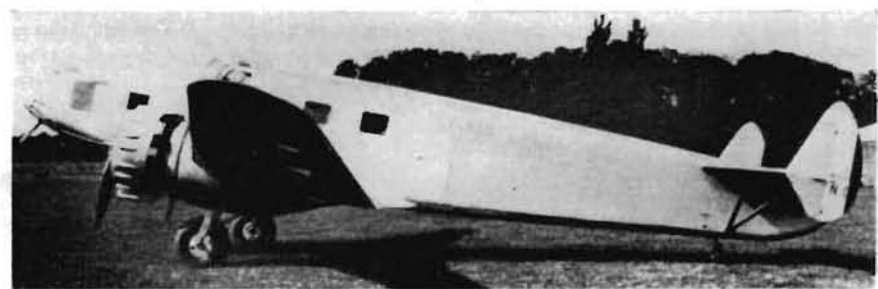
A certain amount of confusion seems to have arisen over the three S.30 boats ordered by Tasman Empire Airways. It must be pointed out first of all that G-AFCX ("Clyde") was always an Imperial Airways aircraft, and was wrecked early in the war during a gale at Lisbon. There are no records of it having been allotted a corresponding New Zealand registration.

The three T.E.A.L. aircraft were: G-AFCY ("Awarua"), registered in New Zealand as ZK-AMC.

G-AFCZ ("Australia"), registered in New Zealand as ZK-AMB. It was this aircraft which struck a sandbank in the Shatt-al-Arab at Basra in July 1939, while on its way to the Far East. The subject of one of the most interesting on-site repairs ever carried out, the complete nose, which had been smashed in some six feet or so, was rebuilt in jigs taken out to Basra by a Short Bros. working party. The aircraft was eventually flown back to the U.K., where, due to the outbreak of war, it was absorbed into the B.O.A.C. fleet, being given the "C" class name "Clare". She was eventually lost under tragic circumstances, as Mr. Leicester points out, off West Africa, while flying to Freetown in the summer of 1942.

(Continued overleaf)

■ Rare photograph of a rare machine—the Bloch 500 T3. Readers who can supply details of the eventual fate of it are invited to write to the Editor. (Photo: Jean Liron, Marseilles, France.)





Still alive and, if not kicking, still in one piece, is the Bristol 170 VR380, mentioned by "Aeroscribe" in his June Journal last year. (Photo: B. Robertson, Bevere, Worcs.)

Letters (Continued)

G-AFDA ("Aotearoa"), registered in New Zealand as ZK-AMA.

One aircraft whose fate I can account for was G-AETX ("Ceres"). She was destroyed by fire while undergoing maintenance at Congella, Durban, in the summer of 1942.

With reference to the QANTAS aircraft, I agree with Mr. Leicester that G-AEUH ("Corio") was registered in Australia as VH-ABD. For the record, the complete fleet originally was:

G-AEUG ("Coogee"), registered in Australia as VH-ABC.

G-AEUH ("Corio"), registered in Australia as VH-ABD.

G-AEUI ("Coorong"), registered in Australia as VH-ABE.

G-AFBJ ("Carpentaria"), registered in Australia as VH-ABA.

G-AFBK ("Coolangatta"), registered in Australia as VH-ABB.

G-AFBL ("Cooebe"), registered in Australia as VH-ABF.

—A. H. Shaw, Cranleigh, Surrey.

BUMPY LANDING

SHOULD any of your readers be compiling a list of Vickers Vikings, Varsitys and Valettas, I would like them to know that Valetta T.3 (WJ470) can be added to the "active life finished" list.

The aircraft was in service at R.A.F. Thorney Island, and, as my photograph shows, made a particularly bumpy landing last year, and as a result was a complete write-off. It is not being cannibalised and used for spares as local firemen have been busy hacking it to pieces with their axes.

I feel that one must admit that in the flying shot of the Valetta it has a rather smug look, whereas in the shot showing it wrecked the same machine has a rather "I-didn't-mean-to-do-it" expression.—R. C. Cleal, Guernsey, C.I.

These before and after photographs show the Valetta WJ470 in one piece, and what happens when the "perfect" landing doesn't go just according to plan. (Photos: R. C. Cleal, Guernsey, C.I.)



STILL WITH US

IN his journal for July 1957 (see August issue) "Aeroscribe" claimed that both the Bristol 170 (serials VR380, VR382), used at the R.R.E., Defford, as flying test-beds for the development of air interception radar, have been scrapped.

This is not quite true as I recently took a photograph of VR380 which is still in one piece except for the propellers, removed in March last year.

What will happen to it when R.R.E., Defford, is ploughed over remains to be seen.

The objects in the background of my photograph are the two fuselage sections of VR382.—B. Robertson, Bevere, Worcs.

CATASTROPHE CORNER

AS an old-time designer and present-day sweeper-up, I was delighted and interested to find an inquiry in the Wants, Disposals and Exchanges columns for one of our products. I am, of course, referring to the notice about DIRKY FOY* aircraft.

The person who wants to buy second-hand Dirky Foys makes a point of stressing that they must be obsolete. He is obviously a newcomer to the world of aviation as all Dirky Foys are guaranteed obsolete from the moment they leave the production line, and their condition is absolutely appalling.

As far as our records show there are no flying replicas of any of our designs, and I would like to point out that if a Dirky Foy was caught in the act of flying it was not a genuine article but a clever fake.

The design was exceedingly simple: motive power being supplied by a 1 Wot? radiation bulb driving a 1/4-in. B/F screw. The 2-in. by 2-in. Balsa tail boom was tied by Fred, who was included as a standard fitting as this was the only method by which the boom could safely be attached to the main fuselage.

The inclusion of an under-fin might seem unusual until the pilot's seat position—atop of the main wing—is brought to notice; this again might seem unusual until the main fuselage is brought to notice; which again might seem unusual, etc.†

We tried at one time to seat the pilot inside the radiation bulb, but found that he was slowly roasted and repositioned him.

WHAT'S IN THE ATTIC?

THE response to our appeal in the February *Air Pictorial* asking older readers to salvage ancient glass plate and other negatives, rather than dispose of them on the junk heap, has been very satisfactory.

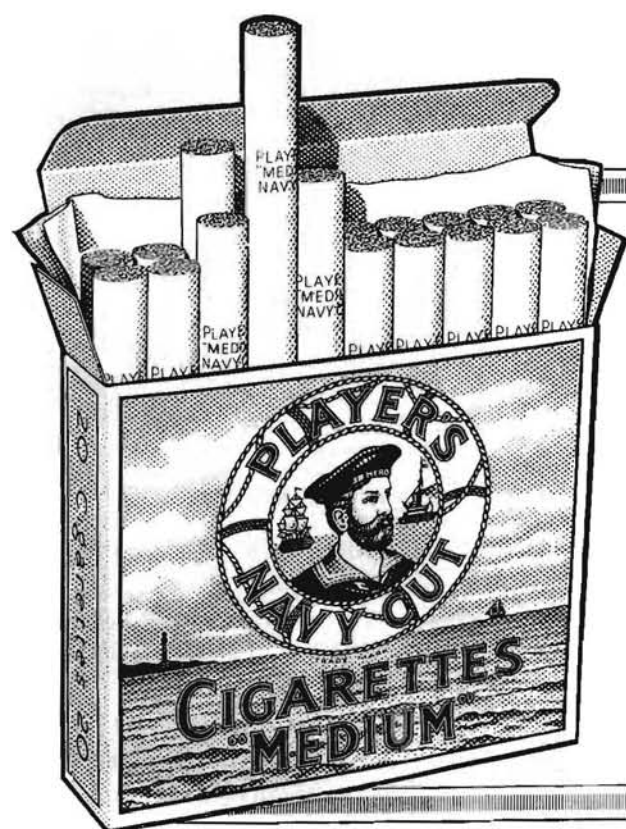
We would ask readers to bear with us in the matter of acknowledgments and detailed replies. This old material—dating back to the first World War—takes time to evaluate. To those who have not yet heard from us we promise not to delay longer than is necessary. In the not too distant future we hope to publish the first fruits of "Operation Attic". All contributions are welcome and should be sent to: "Attic Collections", *Air Pictorial*, 19 Park Lane, London, W.1.

This new position also proved a failure as the pilot caused so much turbulence that rudder flutter set in, whereupon Fred fell off complete with the rear end, having dire effects on the controllability and general airworthiness.

There might have been a market for these lovely little kites but for the war, and the invention of the horse as a means of transport. Hoping I have thrown a little light on the background of the Dirky Foys, I will leave readers with this thought. You too may strike a patch of bad luck and become the reluctant owner of a Dirky Foy.—Ogor B. Limey, Colney Hatch, England.

(* The editorial faces are red and we apologise to reader C. Lesson, of 159 Brocks Drive, North Cheam, Surrey, for making him the unwilling recipient of a deadly Dirky Foy. We should have called them DINKY TOYS and can only put our mistake down to Gremlins.

† For full details of the interesting Dirky Foy design—too complicated to print here in full—we suggest that you write to Fred, who, for all we know, may still be hanging on to the tail boom of the monster.—Ed.)



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[SCC 1971]

SIEMENS-SCHUCKERT (Continued)

fighter competitions, were in an excellent position to make recommendations and decisions regarding which aircraft should go into service, and in what quantity.

In the summer of 1918 S.S.W. received a contract to build three prototypes of a high-wing fighter, the S.S.W. DVI (Fig. 50), which was closely patterned after the previously mentioned parasol Dlc fighter with the exception that the wings were externally braced and the more powerful Sh 3 engine was fitted. It was planned to phase out the DIV and build the DVI on the same production line, but only two DVI fighters, the last to be built by S.S.W., were completed; they engaged in flight tests in February–May 1919, during which one machine was destroyed. The performance was promising: a top speed of 220 km. per hour and a climb of 6,000 metres in 16 minutes and 7,000 metres in 22 minutes was recorded.

Returning to the bomber activities of S.S.W., in 1917 the company built eighty Gotha GIV (S.S.W.) bombers under licence which by the end of the year were used primarily as trainers in view of their low performance. One interesting modification aimed at increasing performance was the S.S.W.-modified Gotha GIV (Fig. 51) with tractor instead of pusher engines; others featured increased span, Flettner rudders and turbo-compressors.

The S.S.W. GI and GII were bomber projects of 1917, which remained on the drawing-boards, planned as biplanes

powered by two 260-h.p. engines each. In early 1918 Idflieg commissioner S.S.W. to build three prototypes of a bomber based on the well-known and successful Caproni designs. These three-engined, twin-fuselage aircraft initially were designated S.S.W. GIII, which was changed to S.S.W. LI (Fig. 46) in April 1918 simultaneously with the placing of an order for three additional machines. This bomber was the only aircraft during the war to receive the L-class designation, being functionally classified as half-way between the G and R classes. Three machines were completed but did not see operational service.

By June 1917 the last of the giant RI to RVII series was delivered and it seemed likely that S.S.W. would have to disband its engineering team for other duties or military service. Rather than break up a successful combination, S.S.W. persuaded Idflieg to grant them a contract to build two more R-planes, a project that was to be one of the most ambitious undertaken by any nation during the war, for the machines were the largest in the world. Designated the S.S.W. RVIII (Fig. 47), these giants had a wingspan of 48 metres (about 3 feet longer than the Boeing B29) and were powered by six 300-h.p. Basse & Selve engines mounted within the fuselage. Design work proceeded vigorously, so that in February 1918 construction of the two giant bombers could begin. One machine was completed but destroyed in early 1919 when, during ground trials, a propeller shattered, severely damaging the airframe. The RVIII was

never rebuilt due to armistice limitations, and although it never flew, some details are noteworthy: with an all-up weight of 15,900 kg. the duration was 8 hours; useful load was 5,400 kg. and speed was 125 km. per hour. A crew of six to eight was provided with parachutes that were hung near the exits in case of emergency. An enclosed ladder between fuselage and top wing provided access to an observation/machine-gun post in the upper wing surface. A jettisonable bomb container or fuel tank was hung underneath the fuselage. All surfaces were balanced, particularly the upper ailerons, which were fitted with the newly devised Flettner trim tabs.

Three additional improved bombers designated S.S.W. RVIIIa were ordered in July 1918, but work on them ceased at the end of the war. The S.S.W. RIX, initially intended as a bomber, but later proposed as an eight-engined, centrally powered transport capable of transporting thirty-six passengers, remained a project.

The Nürnberg works received a contract in 1918 to produce fifty LVG BIII (S.S.W.) biplane trainers under licence, but the two aircraft in production were never completed. In February 1919 the construction of aeroplanes at Siemens-Schuckert ceased. Although some test programmes continued, Siemens-Schuckert never returned to building fighters or bombers, but remained active in the development and production of engines, instruments, electrical gear and systems for aircraft use, many of which were used in the battles of World War II.

BRITISH REGISTRATIONS IDENTIFIED

by F. A. Hudson,
British civil register specialist

G-EBRM Westland Widgeon 3 (c/n. WA1680); R. G. Cazalet; cancelled 2 12 31.
G-AAJK Clarke Cheetah (c.n. C.C. 1); F. O. J. Clarke; aircraft built up from a basic DH.53, later rebuilt as Luton Martin G-AEYY.
G-AAYW Avro Avian (c.n. 460); W. L. Handley, Birmingham; cancelled 23 2 46.
G-AAZF Comper Swift (c/n. S307); G. Fane, London, E.C.3; cancelled 12 37.
G-ABDL Puss Moth (c.n. 2106); Yorkshire Aviation Services Country Club Ltd.; cancelled 6/8/40.
G-ABLO Puss Moth (c.n. 2167); H. Sherek, London, W.C.2; sold as F-AMUY.
G-ABNC Puss Moth (c.n. 2170); Miss R. Frigout, London, S.E.3; sold as F-AQOR.
G-ACHU Monospar ST 4 (c.n. GAL/ST4/18); Murphy Bros.; cancelled 1/12 46.
G-ADOT DH.87B Hornet Moth (c.n. 8027); Herts & Essex Aero Club (1946) Ltd.; currently registered.
G-AESZ Chilton DW 1A (c/n. DW1/1); W. L. James, Hadleigh; crashed at Grange Farm, near Felixstowe, 24 5 53.
G-AFNI Moth Minor (c.n. 94035); impressed as X7972, restored; owned by C. H. Croxson & Partner; currently registered.
G-AHUV Tiger Moth (c.n. 3894, ex-N6593); Airwork Ltd.; currently registered.
G-AHZU Messenger 2A (c.n. 6337); Scottish Aero Club Ltd.; force-landed on mud flats, Firth of Tay, and written off 10 6 57.
G-AJDF Messenger 4A (ex-RH370); Scottish Aero Club Ltd.; currently registered.
G-AJDS Piper J3C 65 (c.n. 11658, ex-43-90263); J. O. Isaacs, Southampton; currently registered.
G-AJLF Auster 5 (ex-MT110); Lancashire Aircraft Corp.; broken up.
G-AKPG Hawk Trainer 3 (ex-L5925); Derby Aviation Ltd.; currently registered.
G-ALAA Tiger Moth (ex-NL825); sold abroad.
G-AIMZ Primary Eon 1 (c.n. P 008); K. H. Goodridge; registration cancelled.

FOREIGN REGISTRATIONS IDENTIFIED

by F. Lt. D. A. S. McKay, D.F.M.
overseas civil register specialist

D-ALUB Lockheed 1649A (c/n. 1034); Deutsche Lufthansa A.G.
D-ACEX Convair 440 (c.n. 460); Deutsche Lufthansa A.G.
D-BEPE Convair 240 (c/n. 79, ex-PH-CEC, PH-TEC); Deutsche Lufthansa A.G.
D-BODO Bristol Freighter 21 (c.n. 12791, ex-D-AHOI, VR-NAZ, G-AIMA); Lufttransport Union G.m.b.H.
D-CFSA Miles Marathon (c.n. 112, ex-VR-NAI, G-AMEO); Bundesanstalt für Flugsicherung.
D-GFTW Piper Apache (c/n. 23-911, ex-D-EFTW); Gruner & Sohn.
D-EDEG Fairchild Argus 2 (c.n. 871, ex-HB-EAF, HB634, 43-14907); Südflug.
D-EHES Piper Cub J.3C-50 (c.n. 2491, ex-OY-FAB); Westdeutscher Luftfoto.
D-EMUS Tiger Moth (c.n. 85138, ex-G-AOEF, T6909); Aircam.
F-APAB S.F.C.A. Taupin (c.n. 41); last known owner Aero-Club Magdunois.
F-BDVA S.I.P.A. S-90 (c.n. 01); last known owner Société Industrielle pour l'Aéronautique.
F-AQDS Zlin XII (c.n. 164); Aero-Club Arc-en-Ciel.
F-BCDD NC 840 Chardonneret (c.n. 01); J.-M. Canicas.
F-BHGX Leopoldoff L.55 (c.n. 5); S.F.A.S.A.
H-NACT Fokker F.VIIa; 1. (c.n. 4901); K.L.M.; reregistered PH-ACT and destroyed by bombing, Schiphol, May 1940.
2. (c.n. 5054); Netherlands National Aeronautical Museum (ex-OY-ASE, SE-ASE, OY-DED, CH-159).
LQ-XYF Sikorsky HO3S (c.n. unknown); Fuerza Aerea Argentina.
LV-XUM Piper Cub J.3C (c.n. unknown); Aero Club Formosa.
N-25X Beechcraft E.185 (c.n. BA247); Thor Power Tool Company.
PH-HEG Agusta-Bell 471 (c.n. 1004); Iraanse Aardolie Exploratie & Productie Maatschappij NV.
PH-HEK Agusta-Bell 471 (c.n. 1003); Iraanse Aardolie Exploratie & Productie Maatschappij NV.

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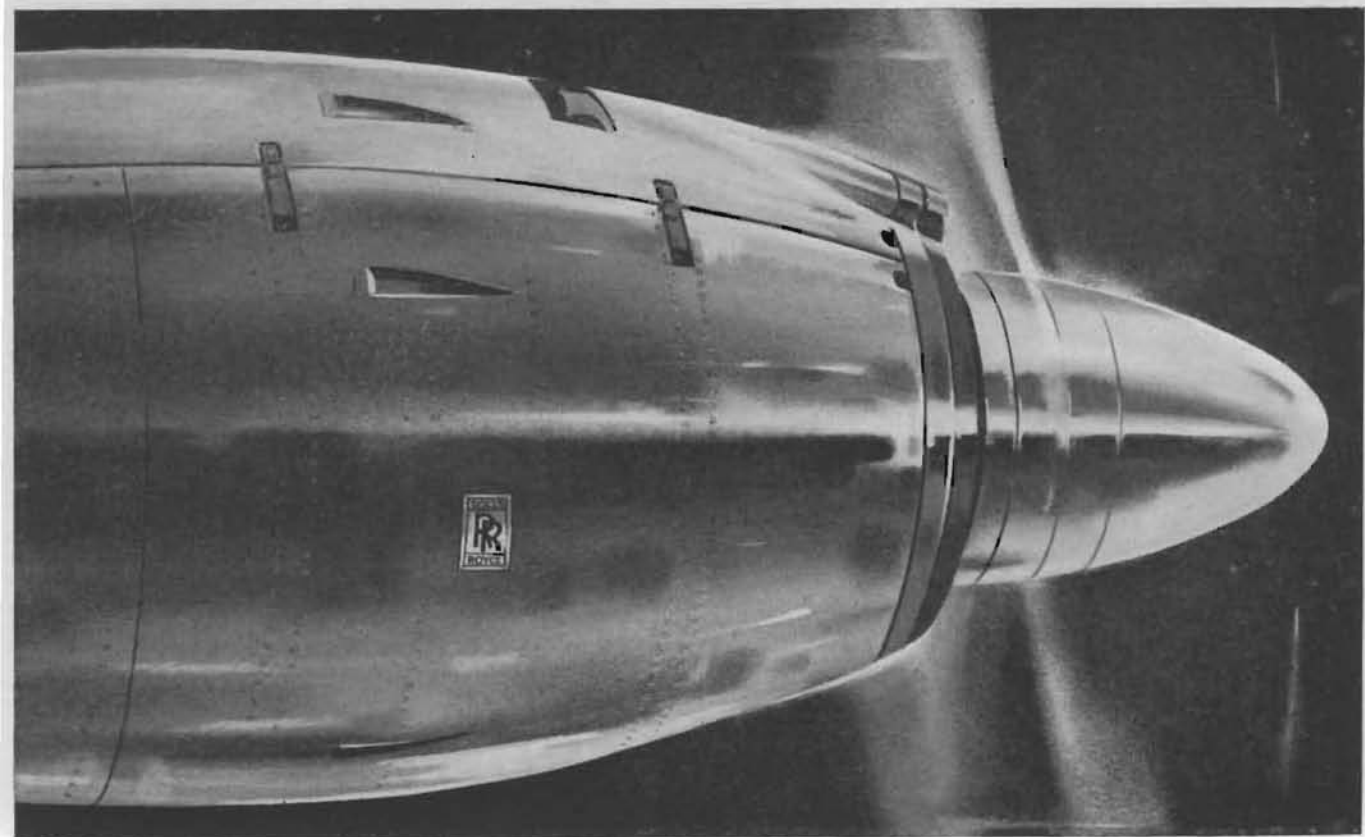
IMPORTANT NOTICE

It is regretted that owing to demands on space, and in view of the ever-increasing number of readers who wish to have announcements in the Wants and Disposals columns, this feature cannot be continued as a free service after this issue. As from the April issue there will be a small charge for these announcements at the rate of 2s. 6d. a line of approximately seven words. Minimum number of lines is three. Announcements, together with remittance, should be forwarded to the Advertisement Manager, 2 Breams Buildings, London, E.C.4, specifying the issue in which the announcement is to appear.

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