

AUGUST 1936

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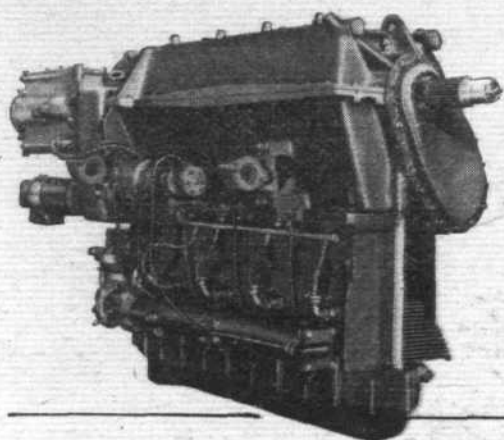
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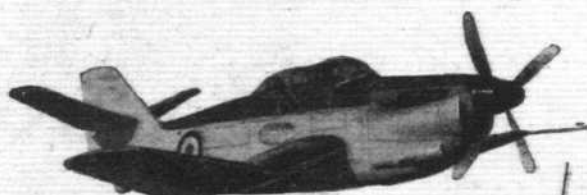
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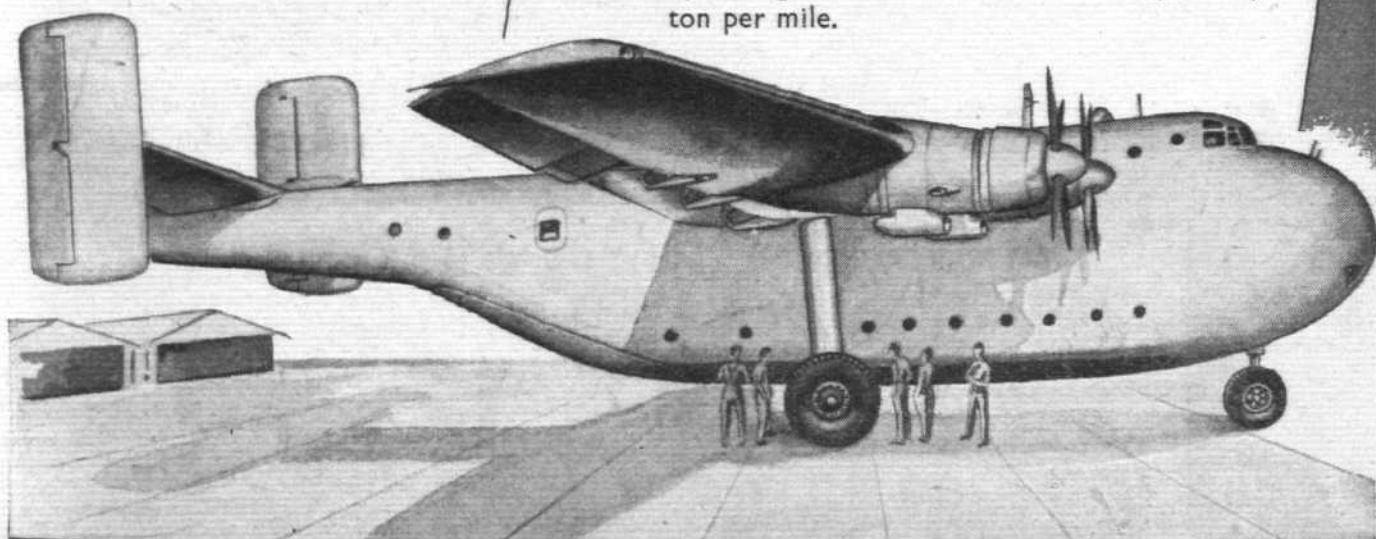


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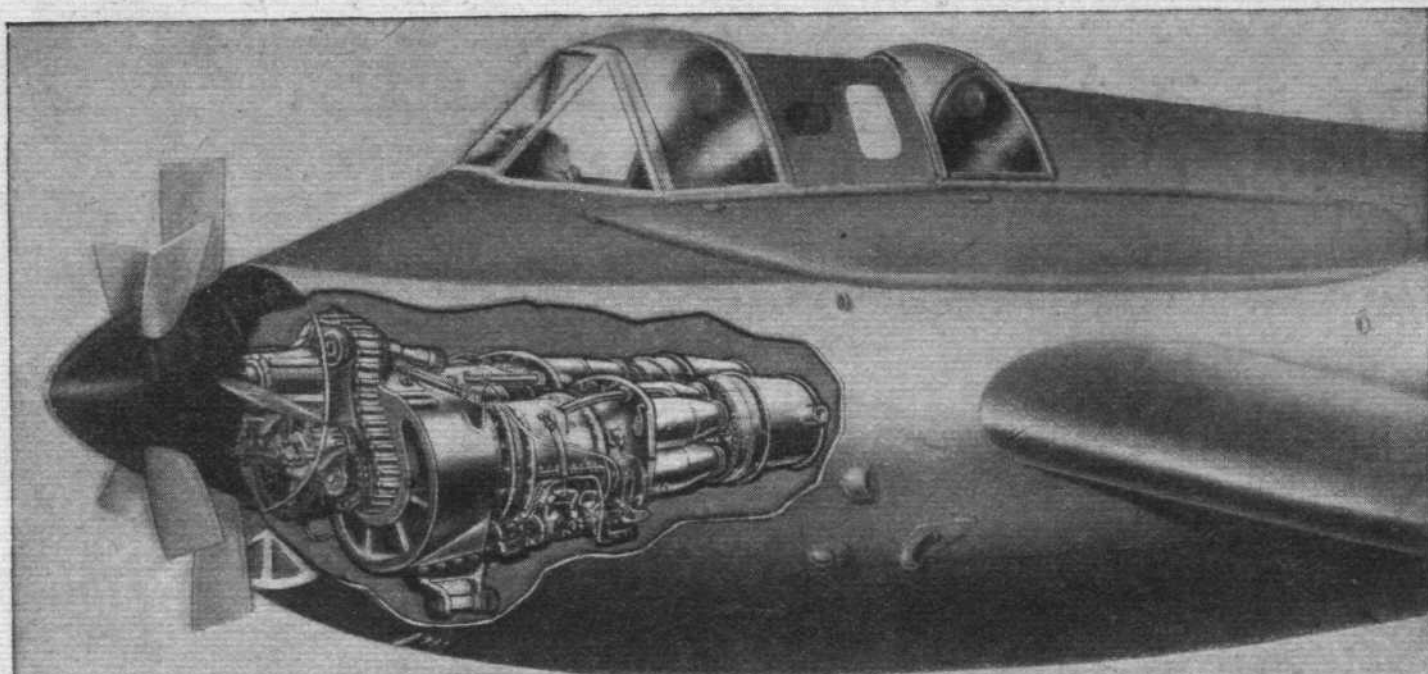


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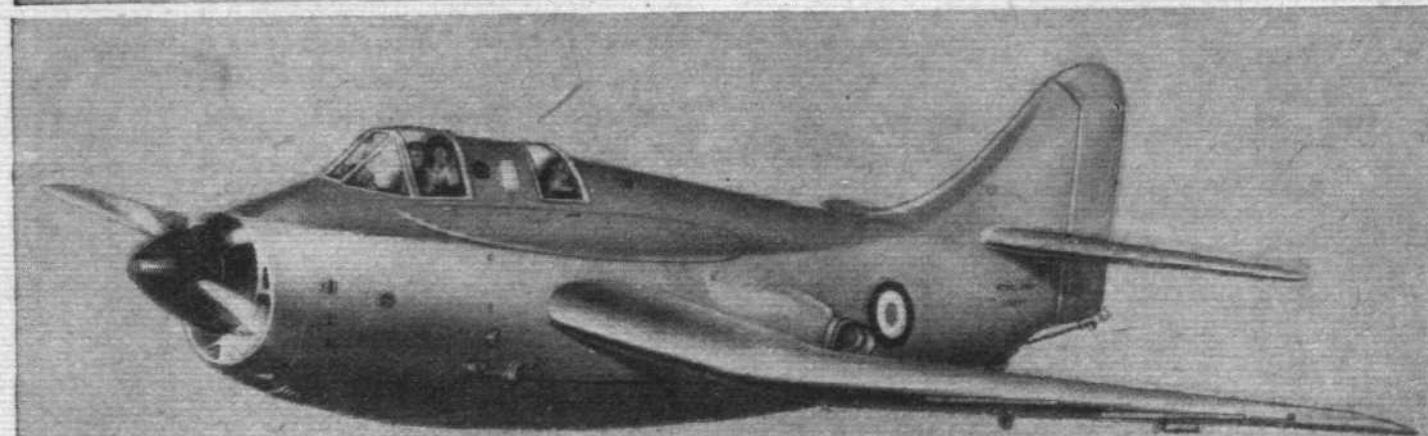
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AIRCRAFT ENGINEER

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The African Market

WITH the approach of the Farnborough Show our thoughts turn even more closely than usual to the markets for British aircraft throughout the world. and to the aircraft available to meet world requirements. Two charges have been levelled at the British aircraft industry : first, that it does not make a sufficiently detailed study of the requirements of the many overseas operators, and, secondly, that it lacks salesmen who will go out and, with every fact, talking-point and answer ready, sell our aircraft. We have to agree that there is some justification for the charges. Demonstration tours and cocktail parties serve as an introduction ; energetic salesmanship must follow.

Recently *Flight* was able to bring right up to date, by personal inspection, its knowledge of the rapidly expanding commercial operations in East Africa. One particular impression was formed, namely, that there seems to have been no appreciable improvement in land communications in the vast areas of Kenya, Uganda and the Rhodesias during the last few years ; nor have airfields, other than one or two of the main terminals, been improved. These facts have an important bearing upon air transportation. In the first place, the quite amazing expansion of air services which has taken place since 1946 can be expected to be maintained if for no other reason than that the alternatives—rail and road—remain inconvenient and uninviting. As an indication of this expansion, East African Airways Corporation in 1949 carried 63 per cent more passengers, 81 per cent more cargo, and 28 per cent more mail than in the previous year.

So far as airfields and terrain are concerned, while traffic may soon be offering which would justify the introduction of medium-sized and fairly large aircraft, there are not more than a handful of airfields from which they could operate. Thus, for several reasons, specialized aircraft are required which Britain is particularly well qualified to produce. On the various island and highland services operated in the home area, it is frequently necessary to use small, inferior airfields, and this kind of work has been handled admirably in the past by such aircraft as the Rapide. In spite of their wood-and-fabric construction, Rapides have also given sterling service in tropical countries, including Africa.

At home there is need for a Rapide replacement—simple, robust, economical, carrying a few more passengers, having a good single-engine (or three-engine) performance and capable of getting into and out of small fields. A very similar requirement exists in East Africa, and in many other parts of the world as well. The British industry should capture that overseas market and satisfy a home need at the same time. Progress with the D.H. Heron is already being followed closely.

We are, of course, aware that several designs have been prepared for a Rapide replacement. It is to be hoped that those responsible for them have made a careful study of the similar, though not identical, needs abroad, realizing, for example, that a one-engine-out ceiling of 10,000ft with near full load is necessary in many parts of Africa. A glance at the performance and economics of the old Lodestar, still among the most successful aircraft operating there, is revealing.

Opportunities in Africa are not by any means restricted to this one class. British aircraft which go a long way, though not the whole way, towards meeting other probable internal requirements during the next few years are the Bristol 170 Mk 31, the Marathon and the proposed Vickers V.C.3. Vikings are already giving good service on many routes, and are among the types which will soon need augmenting and eventually replacing. Most operators in Africa have only limited capital available, and have been in a sense spoiled since the war by being able to obtain good second-hand aircraft and spares at a very low price. This position cannot continue for long, nor can replacement of the current types—Rapides, Lodestars, Dakotas—be postponed for more than a year or two.

It is up to British manufacturers to ensure that they obtain the orders which very soon must be given, and the others which can be expected to follow.

In this issue:

Strength in Unity	234
Farnborough, 1909	239
Guide to S.B.A.C. Static Show	240
Livingstone's Opening Day	248
South Coast Air Race Entries	253

STRENGTH in UNITY

Aspects of Western Union Air Defence Exercise "Cupola"

IF the shades of the du Barry and Napoleon were not drowsing at Fontainebleau on the oppressive afternoon of August 21st, they would have been puzzled by the scene in an outbuilding of the great Palace. Journalists of many nations were assembled here to learn how the cities of France, Belgium and Holland were to be defended impartially by British, French, Dutch, Belgian and American fighter pilots. It is true that the warfare under discussion was purely hypothetical; but this fact detracted little from the realization that world history was shaping itself in that ancient place.

The occasion was a briefing conference convened by Air Chief Marshal Sir James Robb, K.B.E., C.B., D.S.O., D.F.C., A.F.C., Commander-in-Chief, Air Forces Western Europe, preparatory to Exercise *Cupola*. Sir James referred to a world situation which had grown "more and more serious," but declared that the danger hanging over us was now generally realized. The imminent exercise, he thought, would show that the Western Union Air Forces intended to cope with whatever attacking forces might be sent against them, and it should convey the message that every nation signatory to the Brussels Treaty has gained something by co-operating with others. We had ceased, he said, to fritter away our strength "in penny packets," and were creating an integrated Western Union Air Defence Force in which men, equipment and fuel were interchangeable.

Having himself for some years served as chief flying instructor at the Central Flying School of the R.A.F., the Air Chief Marshal obviously took pride in reminding his audience that the Western Union Examining Squadron, composed of experienced instructors from all the Western European countries, was active at "the oldest and most famous flying instructors' school in the world—the C.F.S."

Sir James Robb admitted that some differences still existed in the individual organization of units, but these in no way prevented the integration of units in the overall system of defence; in *Cupola*, for instance, American and British fighter squadrons were to operate under French, Belgian and Dutch control. He went on to emphasize that the air forces of the Western Union countries had actually combined during the last war. General Bailly, the Air Defence Commander (Designate) of Western Union, was on the rostrum with Sir James and having, in 1943, organized French bomber squadrons in the R.A.F., he was able to bear out the Air Chief Marshal's words.

Sir James recalled that exercises *Foil* and *Bulldog* were primarily R.A.F. undertakings, with Western Union participation; *Cupola*, however, was to be a true Western Union exercise, taking place over territory which would be defended in war. The rules governing the engagement, recognition and routing of aircraft; the control of A.A. units by A.A. operations rooms and sector operations centres; control of squadrons or sections of airborne fighters; and the passing of them on from one sector to another—all would be tried out.

As usual in this type of exercise, the forces were divided into Blue-land—aggressors—and White-land—defenders. White-land expected that the aggressors would launch intensive bombing attacks on the main Western European industrial and communications centres. The raiding aircraft would be supplied by the R.A.F. and the U.S.A.F. and would be under the control of their respective commanders-in-chief. Working with the national air force commanders, General Bailly would co-ordinate all defensive operations through the various national air-defence operations rooms, where the tactical control of fighters and A.A. guns would be undertaken by the appropriate air defence sector commander.

From discussions arising from Sir James's speech it emerged that about fifty squadrons would be involved in *Cupola*, and that attackers and defenders would—numerically—be nearly equal. Fighter Command's contribution to the



Air Chief Marshal Sir James Robb (left) with General Bailly.

exercise was a force of Meteors, Vampires and Mosquito night fighters. Mosquitoes from B.A.F.O. and Wellingtons and Mosquitoes of Flying Training Command would comprise the bulk of the attacking force. Few restrictions were imposed on the raiders, but it was stipulated that their approach must be from the east, between the Dutch coast and the Alps. Very rightly, the identity of participating squadrons and the strengths of units employed were subject to security restrictions, but it was made known that at Twente, in Holland, Fighter Command Meteors would be operating under the command of G/C. K. B. B. Cross, C.B.E., D.S.O., D.F.C. Vampires from the same Command would operate from Coulommiers, near Paris, under W/C. D. C. Stapleton, C.B.E., D.F.C., A.F.C. R.A.F. Mosquito night fighters would also be based at Coulommiers and defending Vampires from B.A.F.O. would be stationed in Holland. Ground staff were to be flown out by two Hastings, two Dakotas and a York.

Flight's observer, who flew to the Continent in a Dakota of No. 30 Squadron, Transport Command, describes the exercise in the following report.

"CUPOLA" DIARY

Friday, August 25th. At Melun/Villaroche, the communications airfield used by the Fontainebleau staff, we saw a Spitfire and Devon emblazoned with Sir James Robb's insignia. To Twente, in Holland, where Colonel J. L. Zegers, the base commander, and G/C. Cross made us welcome, was two hours' Dakota-flying. Twente is only 20 km from the German border, and houses a Dutch O.T.U. (Meteor 78) and a Dutch Meteor 4 squadron, with which an R.A.F. squadron, identically equipped, had joined forces for *Cupola*. Fairchild of the Twente Aero Club lent a pacific air, but all was at readiness for zero hour (1200). The defence forces in Holland, additional to the units of Twente, were, we learned, two Dutch Meteor 4 squadrons at Leeuwarden, a Dutch Spitfire 9 squadron at Valkenburg and a British Vampire 5 squadron at Gilze Rijen, in the south. Sector control was at The Hague. The Dutch *Luchtwachtdienst*, counterpart of the Royal Observer Corps, is only now forming, and was not operational for *Cupola*.

As we refreshed ourselves before battle commenced, Air Marshal Sir Basil Embry, who had arrived in his Devon with his S.A.S.O.—A.V.-M. D. F. W. Atcherley—entered the pleasant German-built mess. Immediately after lunch two sections of Dutch Meteors were scrambled and vectored northwards; another two pairs quickly followed and their get-away was timed, from "scramble" to "all airborne," at two minutes. We mere observers lay supine in the sun until Fireflies and Sea Furies came diving on the control tower from various points. "A little funny joke of the Netherlands Navy," our Dutch Air Force escort explained. While things were quiet Air Marshal Embry was seen to draw his S.A.S.O.'s attention to an imposing refueller, designed and developed, one gathered, by a Dutch concern, D.A.F. It has a Ford prime mover and delivers 500 gallons of kerosene in 2½ minutes.

A returned Meteor pilot told of an abortive sortie against

a probable Wellington NNE of the Frisian Islands; but others were luckier. Captain Twysel, for instance, told us how he led two Meteor sections against a pair of Boeing B-50s, with—he claimed—success. The gist of his debriefing was as follows: Locality of attack, near Hilversum; three-eighths cloud; e/a. flying at 22,000ft; sighted at 12 o'clock high from 15,000ft; Meteors' I.A.S. for attack 250-280; each section made two high-quarter attacks, opening fire at 600 yd and closing to 200 yd; duration of fire, 10ft ciné gun film (equivalent to two four-second bursts); e/a. took no evasive action; B-50s had orange tails.

Before emplaning for France we saw a lone "Wimpey" overhead pounced upon by a pair of Meteors. Multiple contrails pointed from the south-east and eight R.A.F. Meteors thundered away to engage. *Cupola* was getting under way.

This evening it was stated that a group of Wellingtons of Flying Training Command flew to the north-east boundary of the exercise area to begin their raids, while Superfortresses of the U.S.A.F. and B.A.F.O. Mosquitoes crossed the frontier from east and south. While some raiders concentrated on Paris, Brussels, Rotterdam and Amsterdam, others made secondary attacks on Liege, Rheims and Metz and other focal points on Whiteland's main lines of supply. Spitfires from B.A.F.O. followed up the bomber attack, simulating photographic reconnaissance to assess results. Weather favoured the defence.

Saturday, August 26th.—This morning we flew across to Coulommiers to call on the R.A.F. Vampire squadrons. Enemy incursions and the imminent arrival of the S. of S. notwithstanding, W/C. Stapleton found time to greet us. A.V.-M. George, the Air Attaché, was observing, in company with General Michel Bouvard, Commander of the Second Air Region (Paris area). French light ack-ack was emplaced round the airfield, the runways of which, alas, were suffering severely under the repeated blasts of Goblins. A little army of sweepers was at work clearing the stones.

In the Ops. Room, a near-replica of that at the home station of the "Vamps," we gathered that the French G.C.I. controllers—speaking English, of course,—were doing well and that, sortie by sortie, things continued to improve all round. We noted that there were two French Vampire squadrons at St. Dizier and two more at Villacoublay. A U.S.A.F. officer, attached to a Vampire squadron under the direct-exchange



Kapitein-Vlieger J. van Arkel, commanding a Meteor squadron at Twente (Holland), describes an interception for Air Marshal Sir Basil Embry, A.V.-M. Atcherley and Colonel Zegers. The second pilot in the group is Lt. Henk Rauwerdink.

scheme, sat alongside an R.A.F. flight lieutenant, conversing with a French officer. W/C. Stapleton explained that, at that moment, eight Vampires were on stand-by and another eight on 15 minutes' availability. Yesterday a Vampire section cut down a B-29 from 21,500ft in 15-20 minutes' elapsed time, and this morning a Wellington, at a mere 8,000ft, was duly slaughtered.

Leaving Ops. we were just in time to see a thin stream of "Wimpeys" being mauled by six French Vampires. Then there was some alarm as eight Mosquitoes materialized low down; but these proved to be friendly night fighters arriving from England. They made fast landings in a stiff cross-wind. Three more "Mossies" which flew over the airfield appeared to be B. Mk. 35s, probably marauding from B.A.F.O. The S. of S. was evidently impressed by the smartness of the Vampire scrambles. He had a word for everyone out at dispersal and seemed well pleased.

It was especially gratifying to learn to-night from A.V.-M. Brook, Sir James Robb's Chief of Staff, that the handing over of fighters from one National Sector to the next had involved no difficulties. Other good news was that although to-day's weather was worse from the defenders' point of view than the day before, the interception rate achieved was even better than that initially attained. This, said the Air Vice-Marshal, was a clear indication that the defence organization, as a whole, had settled down nicely and that even in so short a time all its various national components had been able to work in really effective co-operation.

Sunday, August 27th.—As our Dakota taxied in at Villacoublay this morning, four French Thunderbolts of a Reserve unit were leaving to fly out over Germany and return in the role of raiders. We found the French Vampire 5s looking very spruce, and—except for a single khaki example—difficult to distinguish from those of the R.A.F., though the tricolors, of course, are reversed. We were obliged to retreat sharply as the broadcast called for a three-section scramble to *vingt mille pieds* vertically above the airfield. Their quarry—a solitary reconnaissance Mosquito—hove into view at, perhaps, half the height prescribed and vanished above cloud. The Vampires were airborne from stand-by in double-quick time, and the whole operation, as we saw it, compared well with anything of its kind we have seen in the R.A.F. The Secretary of State for Air, who had now arrived, was, we believe, of a similar mind. He told us that late last night he visited the Paris Ops. Room with M. Moch, the French Defence Minister, and that he was satisfied that an effective and integrated radar system, covering all Western Union countries, was now established.

A French officer said that roughly 50 per cent of interceptions had been effected from scrambles by the three Vampire squadrons, operating against Wellingtons, B-29s and Mosquitoes. French fighter pilots seem as happy about the standardized British operational procedure as they are with their Vampires, which is saying a great deal. It is to be expected, however, that French jet fighter types will eventually supplement, or supplant, the British machines.

A communiqué states that Phase 3 of the exercise was



Armourers at work on a French Vampire 5 at Villacoublay. Some very smart work by French ground crew and pilots was noted, "scramble" times being especially short.

Keystone

STRENGTH IN UNITY . .

carried out according to programme from 2100hr yesterday till 0030hr to-day. The raiding of Whiteland's capitals was on a lighter scale than in the first two phases and the weather continued to favour the Defence. One group of raiders, aiming at Paris, was completely destroyed (good for the Mosquitoes!) and interception successes over Belgium and the Netherlands were reported from these Sectors.

Before returning to Northolt this evening Sir James Robb received us for a final talk. He said he had just returned from a visit to all Bases which had taken part in this exercise and would like to pay tribute to the spirit of enthusiasm and enterprise which he found on all sides. "In France itself," he went on, "great progress has been made in the ground organization and this has been reflected in the efficient handling of the French squadrons. In Belgium as well, similar progress is manifested, whilst in Holland a very effective organization has been well rewarded by the operational efficiency of the Dutch squadrons. All this progress can be

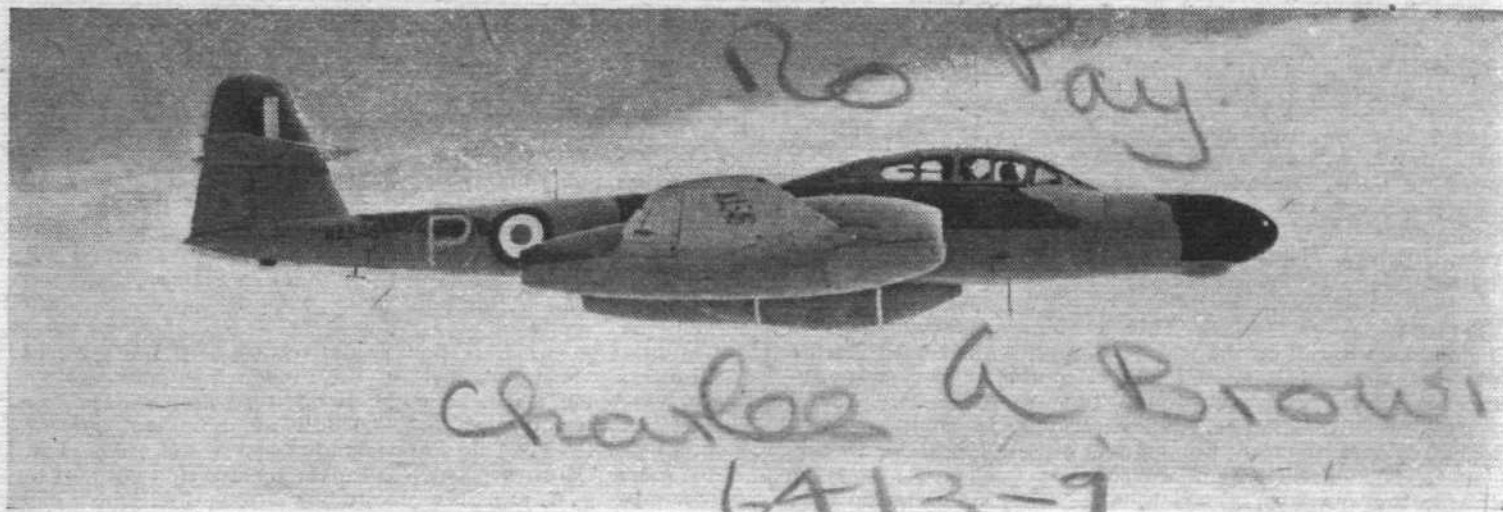
attributed to the inspiration and efforts of the local Air Commanders and the keen spirit of the forces under their command."

Sir James did not pretend that all had yet been done to complete the air-defence system—far from it, because a really effective system must achieve a very high standard not only as regards the training of personnel, but also in the ground organization, and this depended very largely on first-class communications. Much could be done by adaptation, but there were certain basic channels which must be provided specially for the purpose. This cost money, and money must be found very soon.

"We have quality," the C-in-C. concluded, "and what we need now is quantity, which can be built up without difficulty around this nucleus. The vital importance of a first-class air-defence system is clear to us all and the sooner we have it the better. Its early achievement is a matter for the countries concerned and their willingness to contribute in full measure to their mutual safety."

May his words be heeded.

IN PRODUCTION: THE METEOR N.F.11



Now in production at the Armstrong Whitworth Baginton factory, near Coventry, the Meteor N.F.11 is to become standard equipment in R.A.F. night-fighter units. A recent announcement, moreover, states that it is "destined to become the backbone of Western European night defences." It has a nose section of di-electric material, for the radar scanner; four electrically-fired 20-mm. Hispano guns in the wings; under-wing drop tanks in addition to the ventral fuselage tank; and large internal capacity. A short landing run is claimed. Data: span, 43ft; length, 48ft 6in; height (to top of fin), 13 ft 11in. This type will fly at the S.B.A.C. Display.

CHIEF EXECUTIVE GUIDED WEAPONS

PRACTICALLY all work concerned with guided weapons has been kept a close secret in this country, and fears have been expressed that it may have been a case of hiding how little was being done rather than of concealing any important developments. None too soon, therefore, comes the news that a capable and energetic man, Air Chief Marshal Sir W. Alec Coryton, has been appointed to the newly created Ministry of Supply post of Chief Executive, Guided Weapons. Sir Alec has been Controller of Supplies (Air) during a difficult though intensely interesting period, and under his guidance the British industry has gained its pre-eminent position in the development and production of gas turbines and the aircraft, military and civil, which they power. He takes over his new position on returning from leave on September 4th. He will have a new organization to build up around the present small Guided Weapons Directorate. Mr. G. W. H. Gardner is Director of Guided Weapons, Research and Development.

Sir Alec is now charged with "accelerating and co-ordinating all work on the research, development and production of guided weapons." His headquarters will remain at the Ministry of Supply, and his work for all three Services will take him to the Government research centres, especially Farnborough, and to several firms in the aircraft industry which he knows so well. He will relinquish his position on the Air Council on taking up his new appointment.

Replacing him as Controller of Supplies (Air) will be A.V.M. J. N. Boothman, C.B., D.F.C., A.F.C., who will be promoted to the acting rank of Air Marshal and will also become an additional member of the Air Council. Until recently Air Officer Commanding Air Headquarters, Iraq, he was formerly Assistant Chief of the Air Staff, Technical Requirements. In 1931, as a flight lieutenant, he won the Schneider Trophy outright for Great Britain.

AIRCRAFT AT THE S.B.A.C. DISPLAY

NOW that the list of aircraft to be demonstrated in the air or displayed on the ground at Farnborough next week has been compiled by the S.B.A.C., the truth of the prediction made in the leading article of *Flight* dated June 29th is strongly borne out. Some 38 machines are to be put through their paces, and at least 18 of them are new this year. Exceptional aircraft, handled by test pilots who rank among the world's best, promise a treat for all who gather to see the Display.

The list of aircraft, subject to alteration, but in their proposed order of presentation, is as follows: Vickers Tay-Viscount; Avro Shackleton; Proteus-Lincoln; Vickers Varsity; Short S.B.3; Airspeed Ambassador; Percival Survey Prince; Short Sealand; Flight Refuelling demonstration employing a Lincoln and Meteor; Avon-Meteor; Hawker Sea Hawk and P.1040; Westland Wyvern T.2; D.H. Venom new variant; Blackburn Y.A.5; Boulton Paul Balliol T.2; Avro Athena T.2; D.H. Heron; Blackburn and General Aircraft Universal Freighter and Y.B.1; A.W. Apollo; Vickers Viscount 700; Fairey 17; Handley Page Hermes V; Avro Ashton; English Electric Canberra B.2; D.H. Comet; Gloster Meteor N.F.11; D.H. Venom; Gloster Meteor F.8; Hawker P.1081; Supermarine Type 535; A.W. Sapphire-Meteor; Handley Page H.P.R.2; Auster Aiglet; Percival P.56; Prestwick Pioneer 2; D.H. Chipmunk; Bristol 171 Mk 3; Westland-Sikorsky S-51; Bristol Brabazon.

Aircraft in the static park will be: Auster Autocar and J.5, equipped for crop-spraying; Bristol Freighter 31, equipped for fertilizing; Freighter 31, fitted out as military transport; D.H. Dove; another Bristol 171 Mk 3; D.H. Vampire F.B.5; Fairey Firefly T.T. Mk 1 and Firefly 6; Gloster P.V. Meteor ground-attack aircraft; Hawker Sea Fury 11; another H.P.R.2; H.P. Marathon I; Percival Prince; Avro 707B; Vickers Valetta classroom; and Supermarine Seagull and Attacker.



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HERE and THERE

South African Appointment

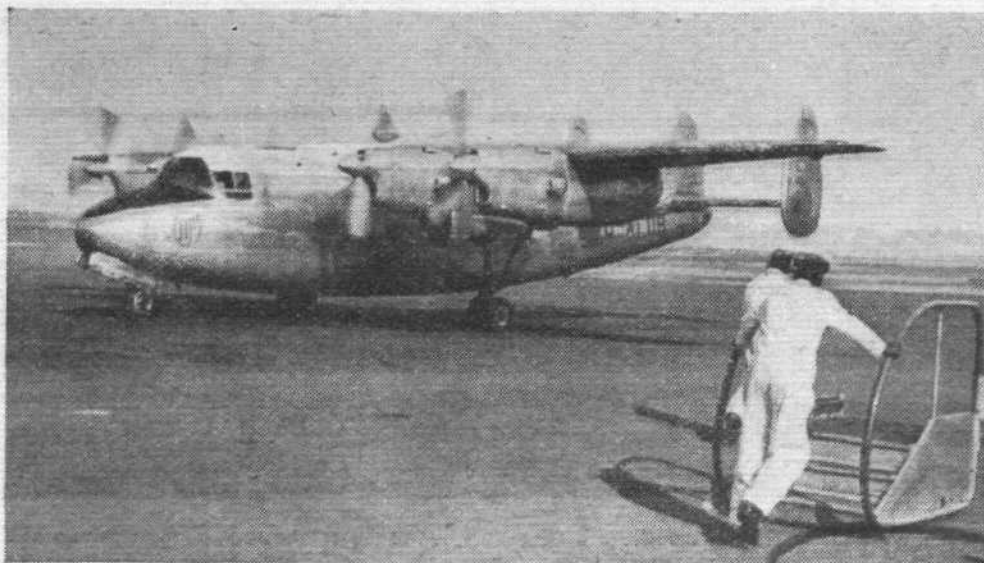
LT.-COL. S. VAN BREDA THERON, first S.A.A.F. pilot to win the D.F.C. during the recent war, has been appointed to command the "Springbok" squadron which has been raised to fly in Korea. Lt.-Col Theron commanded an R.A.F. squadron in Italy in the war and was also awarded the D.S.O.

Quick Canuck

TRAVELLING from Toronto to Montreal recently, the Avro Canada CF-100 Canuck made its fastest cross-country flight at 638 m.p.h. It was later flown, by S/L. Bill Waterton, from Toronto to Boston at 555 m.p.h., covering the 444-mile route in 48 minutes. The new Canadian all-weather fighter made the journey to Boston for its first public demonstration in the United States—at the U.S.A.F. Association's National Air Fair at Logan Airport.

British B-29 Pilot

THE force of 24 B-29 Superfortresses which raided Konan in North Korea last week was led by W/C. Alan Boxer, D.S.O., D.F.C., who is reported to be the only R.A.F. officer flying over Korea with the U.S.A.F. He joined the 92nd Bomb Group at Spokane, Washington, early last year under the Anglo-American exchange system. This Group visited Britain last summer and took an active part in Exercise Foil; it is not stated whether W/C. Boxer is now flying with the same unit. At least one Fighter Command Meteor squadron, incidentally, is commanded by an American pilot.



"Flight" photograph.

SUN-TOP: Following the fashion set by B.O.A.C.'s Argonauts and Hermes and the prototype Viscount and Comet the Handley Page Marathon I has a white-painted upper fuselage—for interior coolness and external smartness. It is pictured at Palmietfontein, Johannesburg, a calling-point on its present demonstration tour.

BRITAIN'S AIRCRAFT

NEXT week's [September 7th] issue of FLIGHT, the annual "Britain's Aircraft Industry" Number will constitute both a souvenir of an outstanding event—the S.B.A.C. Show—and a valuable work of reference for use in subsequent months. Detailed descriptions and illustrations [a number in colour] of current British aircraft will be included, with data tables, for civil and military types, and piston engines and gas turbines will be reviewed.

The following week's issue [September 14th] will contain a first-hand illustrated report of the Farnborough Flying Display.

The demand for these issues will, as usual, be heavy, and readers are advised to place orders with their newsagents in order to avoid disappointment.

Hermes Returns

THE flagship of B.O.A.C.'s Hermes fleet, *Hannibal*, arrived at London Airport last Friday to complete a 17,000-mile demonstration tour. *Hannibal*, a photograph of which appears on p. 248, was piloted by Captain John Veasey. Nairobi, Uganda, Livingstone, Johannesburg, Cairo and Rome were visited during the tour. The Editor of *Flight* accompanied the official party flown to South Africa by the Hermes.

New B-36 Delivered

CONSOLIDATED VULTEE AIRCRAFT has delivered to the U.S.A.F. the first B-36D bomber, which has four General Electric J-47 turbojets in addition to the six 3,500-h.p. Wasp Majors. The jets, each of 5,200 lb thrust, are paired in underwing pods outboard of the piston engines. This new version of America's Brabazon-size bomber is reported to have a maximum speed of 435 m.p.h.—probably at its service ceiling of about 45,000ft.

Last of the "Nationals"

TEN flying clubs are represented, by light aircraft ranging from Autocrats to a Gemini, in the entry list for the Siddeley Trophy Race, final event in the 1950 series of National Air Races, which is to be held at Baginton, Coventry, next Saturday (September 2nd). Mr. Peter Masefield will open the meeting, which includes a flying display, at 2.30 p.m., and the race (over four laps of a 20-mile quadrilateral course) begins at 3.15 p.m.

Fred Dunkerley, present holder of the Trophy and winner of the recent Kemsley race at Fairwood Common, is among the competitors. The Trophy, and prizes totalling £175, will be presented by Lord Kenilworth, its donor. Admission prices are: Adults, 2s; children, 1s; cars, 2s; motor cycles, 1s; and coaches, 10s.

Argonaut Weight-saving

ALL the Rolls-Royce Merlin 626 civil power-plants supplied to B.O.A.C. for the Argonaut-class Canadair Four airliners have been equipped, from the beginning, with brazed light-alloy inter-cooler radiators (developed by Marston Excelsior, Ltd.). The Corporation has



POSTED: Carrying 44 Sea Furies and Fireflies, the light fleet carrier *Theseus*, seen at the start of her voyage, sailed for Korea on August 18th. A sister ship, H.M.S. *Warrior*, left for Singapore a week later with Naval and Marine reinforcements.



"Flight" photograph.

THREE AS ONE: The Patrouille d'Etampes aerobatic team takes off during the recent Swansea meeting. Commandant Perrier set the pace in a similar Stampe trainer, and this trio repeated each of his manoeuvres (including bunts and stall turns) in formation.

HERE AND THERE . . .

now decided to adopt a main radiator constructed on the same principles. The new light-alloy units will offer a weight-saving of 432 lb per aircraft and reliability at least equal to the copper and brass radiators they replace.

Back in Uniform

A SENIOR pilot of Pan American World Airways who attained high rank in the war, Brig-Gen. Henry Kristofferson, has been recalled to military service by the United States Air Force. Recently, he has been flying Stratocruisers to the Far East under P.A.A.'s contract with the Military Air Transport Service. During the war he was in charge of the P.A.A. supply line to North Africa and later, serving in the U.S.A.A.F., assisted in organizing the famous "Hump" air lift from India to China across the Himalayas.

A slight reduction in the number of pages in "Flight," and some delay in reporting events, continue to be unavoidable as a result of the withdrawal of overtime working by a section of the printing industry.

Sperry Chairman Honoured

THE chairman and managing director of the Sperry Gyroscope Company, Mr. Arthur Hillier, O.B.E., was invested as a Knight Commander of the Order of Oranje Nassau on August 9th. The award, which recognizes long and extensive service rendered by Mr. Hillier's company to the Dutch Navy, Air Force and civil transport organizations, was made at the Dutch Embassy in London.

For Aeronautical Application

A NEW form of variable-speed gear was demonstrated at Londonderry House last week by its designer, Mr. J. J. Gerritsen, chief engineer of the Tiltman-Langley Laboratories, Redhill Aerodrome. Capable of drive ratios in the 1:1 to 2,000:1 reduction range, the gear consists essentially of steel balls running within coned surfaces, and is thus of the mechanical friction type.

NEWS IN BRIEF

NEW aircraft standards for power transformers (BSG 127:1950), metal rectifiers (BSG 126:1950) and B.A. washers (BSSP 22-27:1950) have been published by the British Standards Institution, 24-28, Victoria Street, London, S.W.1.

The Consolidated Pneumatic Tool Co., Ltd., announce the resignation of Mr. R. E. L. Izod, A.M.I.Mech.E., their British sales manager and a member of the board of directors.

Mr. Herman Pusin has been appointed chief of the structures department of the Glenn L. Martin Company. He joined the company in 1938 as a stress analyst and recently has been in charge of structural design of the PM5-1 Marlin naval flying-boat.

Flying enthusiasts who are also car owners may be interested to know that C. C. Wakefield and Co., Ltd., have

a stock of chassis-and-engine lubrication charts for some 900 different types of vehicle. Copies are obtainable free on application (mentioning make, model and year) to the Company's offices at 46, Grosvenor Street, London, W.1.

Intended as a primary guide and reference-book on the properties and working of aluminium and its alloys, a handbook entitled *Materials and Fabrication* has been published by T.I. Aluminium, Ltd., Redfern Road, Tyseley, Birmingham 11.

On August 15th Mr. R. B. Farmer left this country to take up an appointment with Allison Gray and Co., of 44, Martin Place, Sydney, who now represent the Graviner Mfg. Co., Ltd., in Australia. In 1939 Mr. Farmer joined the engine department, R.A.E., Farnborough, where he was engaged in full-scale fire-testing of piston engines. In 1946 he transferred to the mechanical engineering department, where, until recently, he devoted the whole of his time to the problems of flight and crash fires.



Mr. R. B. Farmer.

LATIN LIFT: Built for the Brazilian Air Ministry by the Galeao factory at Rio de Janeiro, and designed by Paul Baumgartl, the first South American helicopter (weighing only 680 lb) made its initial tethered flight earlier this month. The designer is at the controls.



WORLD'S FIRST—
and most powerful
TURBO-PROP
anti-submarine aircraft



*—and second [★]turbo-prop
aircraft to complete deck
landing trials successfully*

The WESTLAND WYVERN powered by an

ARMSTRONG SIDDELEY

PYTHON

TURBO-PROP

★

The first turbo-prop aircraft successfully to complete deck landing trials was the Fairey 17 anti-submarine aircraft, powered by an Armstrong Siddeley Double Mamba

ARMSTRONG SIDDELEY

Parkside, Coventry.

MOTORS LIMITED

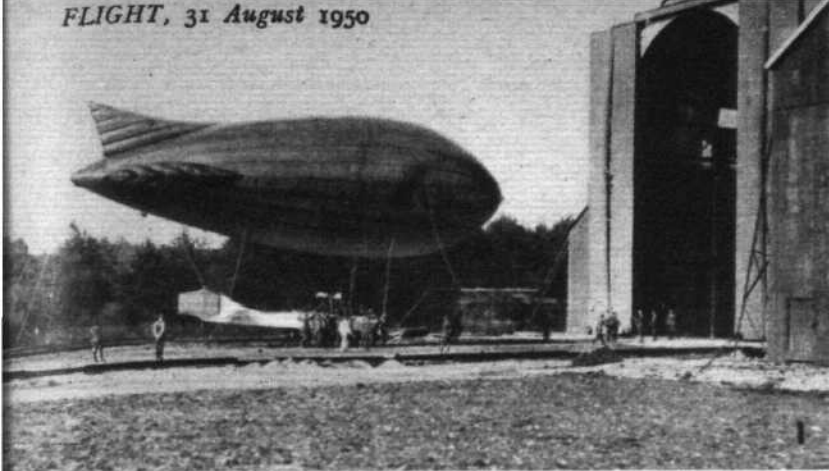
Member of the Hawker Siddeley Group

STRENGTHENING THE FRONTIERS OF FREEDOM



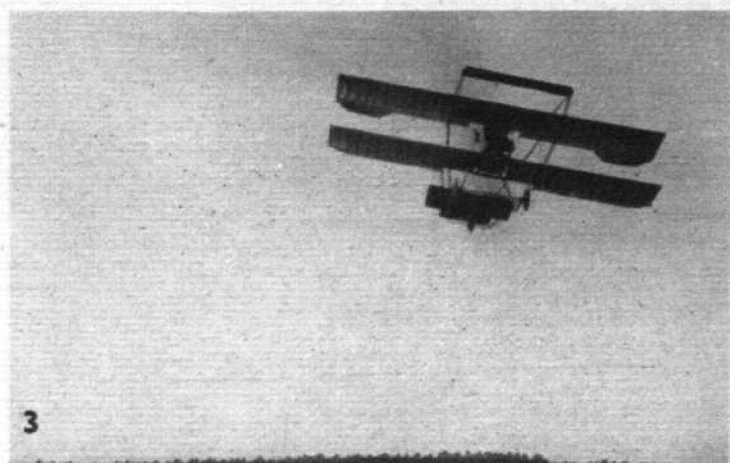
Yet another version of the versatile
GLOSTER METEOR
will be exhibited at the
S.B.A.C. Farnborough Show

GLOSTER AIRCRAFT CO. LTD. (MEMBER OF THE HAWKER SIDDELEY GROUP)



FARNBOROUGH, 1909

*What the Venue of Next Week's Show
Looked Like Forty-odd Years Ago*



FARNBOROUGH, inseparably linked with the pioneer flights of S. F. Cody, is truly the cradle of British military aviation, as Eastchurch was for naval flying and a good deal of private-venture aviation. Among next week's crowds there will be a few—a very few—people who remember the site as it was forty or more years ago. Mr. Geoffrey Dorman has unearthed these photographs, from picture postcards which, in 1909 and 1911, he sent home while attending an O.T.C. camp (picture No. 5, at foot of page). The camp was pitched on the site of the present main runway (the "balloon shed" visible in the distance still exists), and schoolboy Dorman wrote on one of his 1911 postcards: "We are in the thick of it, aeroplanes on all sides. When we arrived de Havilland was up until dark. Next morning we were awakened by the Army airship Gamma, and de Havilland again. This morning Ducrocq came over from Brooklands in a Nieuport and landed on the parade ground while we were having

prayers." The airship seen in illustration No. 1 is the *Beta*—then known as the *Baby*—in an early stage of development: it was one of the "British Army airships" series, which were named after the letters of the Greek alphabet.

Picture No. 2 is a general view of the buildings, with airship hangars predominating, and in No. 3 is seen the de Havilland Army biplane, in which Mr. (now Sir Geoffrey) de Havilland cruised with—for those days—unusual reliability at 40 m.p.h. and 10,000 ft on the power of a 45 h.p. engine of his own design.

No. 4 is a close-up view of the main buildings, even then suggestive of the severely utilitarian sheet-metal "architecture" typical of many of the Farnborough buildings to-day. The two men are walking across the site where the imposing control tower now stands. In 1911 the establishment was known as the Army Aircraft Factory and, later, as the Royal Aircraft Factory.





Guide to the S.B.A.C. STATIC SHOW

Technical Progress in a Wide Field, as Revealed by the Products of 160-odd Firms

IF less spectacular, the "static" section of the S.B.A.C. Show at Farnborough (September 5th-10th) promises to rival the flying display in technical interest. In the following pages the principal exhibits that will be found on the 160-odd stands of the Society's associate members (and on those of a few of the aircraft constructors who are also showing proprietary accessories) are briefly reviewed. Next week (September 7th), in our special

"Britain's Aircraft Industry" Number, we shall deal with the aircraft and engine products of the ordinary members, and space will also be devoted to a review of certain major aircraft components and services (undercarriages, airscrews, safety equipment, etc.). On pages 246-247, at the end of this guide, will be found a floor-plan of the static show, together with details of the admission arrangements on the "public" days.

ACCLES AND POLLOCK, LTD., Oldbury, Birmingham (Stand 100).

—Exhibits will include manipulated and machined aircraft tubes, welded undercarriage tubes and welded tubular structures, engine mountings, and tapered tubes; there will also be a range of stainless-steel tubes, tubes for fuel systems, polished-bore tubes, hydraulic tubes, various sizes of rifled tubes and the Apollo range of tubular box spanners.

ACTON BOLT, LTD., Chase Road, London, N.W.10 (Stand 63).—The exhibit will comprise two show-cases of typical bolts, nuts and screws and another showing methods of manufacture; in addition, the Acton thread-rolling attachment for use on automatic lathes will be exhibited.

AEROLEX, LTD., Bridge Road, Camberley, Surrey (Stand 163).—New aircrew-harness for 12g loads; quick-release lashing equipment, stretcher equipment, anchorage sockets, general components, assemblies and tools.

AIRCRAFT MATERIALS, LTD., Midland Road, London, N.W.1 (Stand 120).—A.G.S., B.S. and A.S. parts, including pipe couplings,

bolts, turnbuckles, electrical parts, ball joints, taper and split pins, etc. "Pop" rivets and riveting tools will be featured in manual, pneumatic, and hydraulic types, and visitors will be able to try the system. There will be rivets in Monel and aluminium alloy, and a range of tools for setting tubular, cup and solid rivets.

AIR TRAINERS, LTD., Cubitts Buildings, Bicester Road, Aylesbury (Stand 140).—The principal exhibit will consist of a single-axis (pitch) computer for incorporation in a visual landing trainer, demonstrating the practicability of this type of computer for flight simulation. The use of automatic I.L.S. and manual D.M.E. with the latest type of instrument trainer for commercial pilots will also be shown.

AMAL, LTD., Holford Works, Perry Barr, Birmingham, 20. (Stand 50).—Test-bed fuel flow-meters; jet-calibrating machine for checking flow through a jet to S.B.A.C. standards; carburettor intake flame-trap; fuel pumps, pressure-reducing valves, non-return valves, oil-thermometer pockets, fuel filters (including

water/methanol types); ball and roller joints, cowl fasteners.

ANGLO-AMERICAN OIL CO., LTD., Aviation Dept., Artillery House, London, S.W.1 (Stand 69).—The suppliers of Esso aviation fuels, lubricants and special products will illustrate present and future methods of aircraft refuelling at a major airport.

ATTEWELL AND SONS, LTD., B., Reflection Works, Southall, Middx. (Stand 41).—Shims and washers in laminated aluminium and brass; laminated aluminium sheets; press tools; Perspex windows and panels; and a full range of Perspex tableware for use in aircraft catering, the last-named item being an entirely new departure.

AUTOMOTIVE PRODUCTS CO., LTD., Leamington Spa (Stand 13).—Exhibits on this stand will be dealt with in a review of major components next week.

AVICA EQUIPMENT, LTD., 50, Pall Mall, London, S.W.1 (Stand 164).—The company's main display will feature flexible hose assemblies for most aircraft purposes, covering a temperature range of -40 deg C to 150 deg C; a development for assemblies operating beyond the

temperature range of synthetic rubbers will also be shown. An entirely new range of cushioned support-clamps for flexible pipe and cable runs will be shown, and a range of Pren aircraft cables will complete the exhibit.

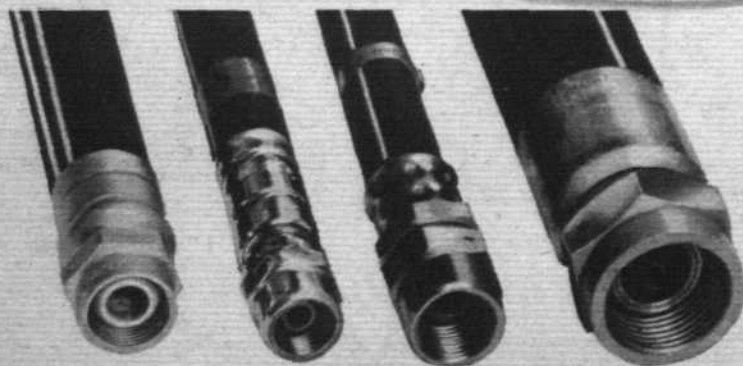
AVIATION DEVELOPMENTS, LTD., Kingsbourne House, 229-231, High Holborn, London, W.C.1 (Stand 155).—The principal feature on this stand will be the Avdel self-sealing blind rivet for use where perfect surface-finish is required. A full range of Chobert riveting equipment will also be shown, together with Pip locking pins, seat-fixing and freight-lashing pins, and sheet grippers.

BIRMETALS, LTD., Woodgate Works, Quinton, Birmingham, 32 (Stand 11).—The Birmabright range of aluminium-magnesium alloys in various forms will be featured, and magnesium-zirconium alloys developed for aircraft purposes will be shown in sheet, tube and extrusion form. Argon-arc-welded aluminium and magnesium alloys will also be exhibited.

BIRMINGHAM ALUMINIUM CASTING (1903) CO., LTD., Smethwick, Birmingham, 40

End-fittings for various types of braided hose (Avica Equipment, Ltd.)

Avdel riveter, rivets and mandrels (Aviation Developments, Ltd.)



(Stand 38).—A range of aluminium gravity-die, magnesium and aluminium sand and pressure die-castings for the aircraft industry; specially featured will be castings in the new magnesium-zirconium alloy Z52, while the centre-piece on the stand will be a winch-body casting in aluminium alloy D.T.D. 300.

BOLTON AND SONS, LTD., THOMAS, Mersey Copper Works, Widnes, Lancs. (Stand 22).—Machined forgings and components in copper-bearing alloys; bearings, housings, bushes, liners, sleeves, cylinder-head inserts and other engine and airframe details.

BOOTH AND CO., LTD., JAMES, Argyle Street Works, Nethells, Birmingham, 7 (Stand 66).—Again this year the stand will comprise a representative display of aluminium alloy extruded sections, tubes, rolled metals and forgings.

BRITISH ALUMINIUM CO., LTD., Salisbury House, London Wall, London, E.C.2 (Stand 20).—This exhibit will emphasize the company's policy of constantly improving the quality of its alloys, and of not only producing standard sections and sizes but of developing larger and more "difficult" work to meet special design requirements. Published data will be available tabulating the maximum size of aluminium alloy sheet and strip to D.T.D. specifications.

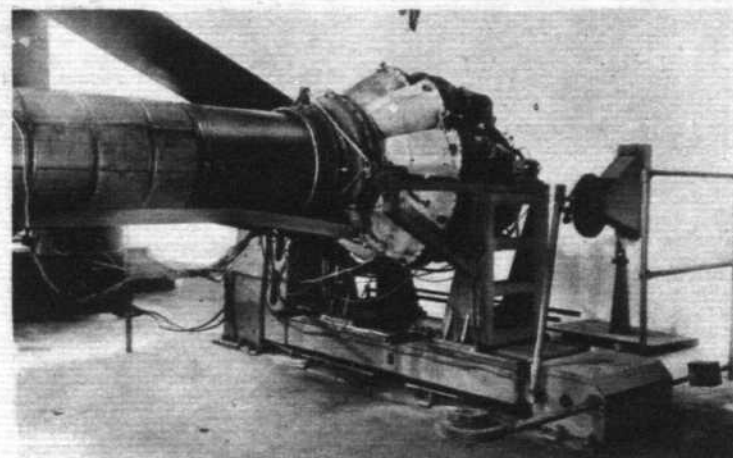
BRITISH INSULATED CABLES LTD., NORFOLK House, Norfolk Street, London, W.C.2 (Stand 114).—Pren aircraft wiring cables, and Prenal cables with aluminium conductors; Glasil cables for "hot-spot" installations, particularly in jet aircraft; P.T.F.E. cables and sleeving, offering low dielectric loss and great resistance to heat; Unipluglight-imp ignition cables for use in high-temperature situations; and miniature multi-way cables for accessory installation.

BRITISH MESSIER, LTD., Cheltenham Road, Glos. (Stand 72).—Exhibits on this stand will be dealt with in a review of major components and services next week.

BRITISH THOMSON - HOUSTON CO., LTD., Rugby (Stand 117).—Electrical equipment, including turbo-starters, magnetos, booster coils, motors and generators; actuators (to be dealt with in more detail next week), switches, circuit-

castings in steel; the display will include castings to specifications D.T.D. 666 and 705, investment castings, and heat-resisting and high-tensile castings; also on view will be bronze castings. The display will be completed by aircraft gears, Radicon worm reducers, Coventry geared motors and reamers of various types.

BROWN BROTHERS (AIRCRAFT), LTD., Great Eastern Street, London, E.C.2 (Stand 125).—A full range of B.S.S., A.G.S. and S.B.A.C. standard parts; Oddie nuts; components to constructors' own drawings; aircraft metals. Also featured will be the B.B.A.-Rothswan 15- and 25-ton pillar jacks. The last-named, hydraulically operated, are specially designed for aircraft work and have a low starting height and arrangements for positive locking.



Derwent 5 on prototype of a test-stand by John Curran, Ltd.

BRYANS AEROEQUIPMENT, LTD., Willow Lane, Mitcham, Surrey (Stand 6).—Instrument test equipment, consisting of the following items:—master stroboscopic desk; master air-speed indicator calibrator; portable low-pressure chamber; dead-weight tester; gyro-instrument test tables, for electrically or air-operated instruments; tester for resistance-type thermometers; leak tester; thermometer tester for jet pyrometers and indicators. The two last-named items are new developments.

GELLON, LTD., Kingston-on-Thames, Surrey (Stand 56).—A new product to be shown this year will be Cellon white top-decking protective for passenger aircraft roofs. Other items will include pre-treatment primer, high-speed and light-weight finishes for Service aircraft, scheme "Z" colour finishes for civil aircraft, and attractive treatments for interior decoration and protection of aircraft.

CHLORIDE BATTERIES, LTD., Exide Works, Clifton Junction, nr. Manchester (Stand 121).—The range of batteries shown will include the recently introduced 24v Exide battery with moulded polythene container, as used individually or for building-up into sets for aircraft employing high-voltage D.C. circuits. The batteries in the Hermes are of this type. Also on view will be two 12v type 6-FZZ23 units as fitted to the Viscount. A group of fully aerobatic batteries for military aircraft, and two ground-starter units will complete the exhibit.

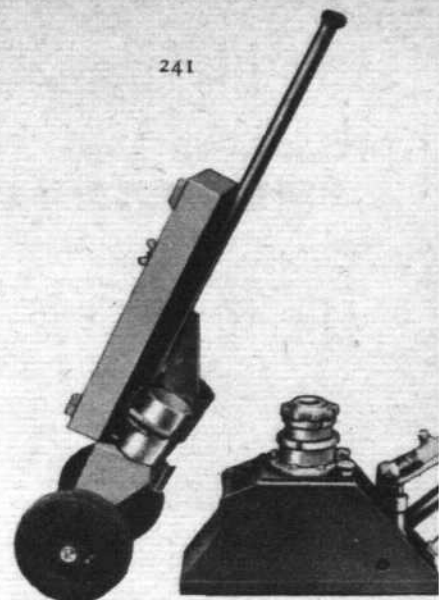
COLE, LTD., E. K., Southend-on-Sea, Essex (Stand 83).—Prominent among the company's radar, airborne and ground V.H.F. equipment will be the cloud and collision warning set which, as reported recently in *Flight*, has been ordered by B.O.A.C. Another exhibit will be the eleven-channel V.H.F. transmitter/receiver type CE40, suitable for installation in all types of aircraft; easy and speedy crystal-changing is a feature of this equipment.

CONNOLLY BROS. (CURRIERS), LTD., Chalton Street, Euston Road, London, N.W.1 (Stand 74).—The display on this stand will feature leather for seating, panelling and

general furnishing in aircraft, and will include the makers' Vaumol and Celstra brands of upholstery hides.

COOPERS MECHANICAL JOINTS, LTD., 14, Liverpool Road, Slough, Bucks (Stand 97).—This display will consist of gaskets, joints and washers; filters and strainers for all applications; laminated brass and brass and steel shims; cork sheet and strip to specification D.T.D. 219A; resin-bonded cork to D.T.D. 789; and other jointing materials.

COSSOR RADAR, LTD., COSSOR House, Highbury Grove, London, N.5 (Stand 21).—Radio equipment in this exhibit will consist of a 300-watt H.F. transmitter; aerial matching unit for use in conjunction with an H.F. transmitter; automatic gain-controlled amplifier; line frequency equalizer unit;



B.B.A.-Rothswan 15-ton pillar jack, with trolley—Brown Brothers (Aircraft), Ltd.

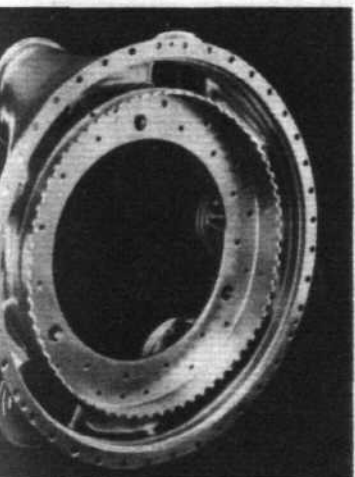
rivets of up to 5/16in diameter. Other Desoutter pneumatic tools shown will include screwdrivers, drills, shears, nibblers, tappers and grinders. In the electric section the company is introducing four new two-speed portable heavy-duty drills; the well established smaller drills, screw guns and nut-runners will be shown.

DOCKER BROTHERS, Rotton Park Street, Birmingham, 16 (Stand 112).—This display will be representative of the firm's current cellulose and synthetic materials to A.I.D. and A.R.B. requirements, including tautening and non-tautening dopes, light-weight lacquers, stoving enamels, acid-resisting finishes, non-inflammable lacquers, and adhesives. A new development since the last S.B.A.C. Show is a white-top scheme for airliner cat-in-roof finishing.

DOWTY EQUIPMENT, LTD. (Arie Court, Cheltenham, Glos.), **DOWTY EQUIPMENT OF CANADA, LTD.** and **DOWTY SEALS, LTD.** (Stands 144, 145 and 146).—The major products of these three associated companies will be dealt with in our "main components" section next week; here, mention may be made of the exhibits on the Dowty Seals stand, comprising various types of special seals for hydraulic use and fuel lines, as well as a selection of standard American and English sizes of "O" rings. Various sizes of Dowty bonded seals will also be shown.

DUNLOP RUBBER CO., LTD. (Aviation Division), Holbrook Lane, Foleshill, Coventry (Stand 91).—In addition to Dunlop under-carriage and pneumatic control equipment, which will be reviewed next week, the exhibit on this stand will include a control handle (specially designed for use in ejector-seat fighters) with controls for camera, bombs and guns, brakes, and dive-recovery flaps; a range of flexible

A new Desoutter portable tool—the Type M.56 rivet miller



Turbine feed manifold, centrifugally cast in heat-resisting steel by David Brown Foundries

breakers, electronic voltage regulators, an electronic tester for multi-cylinder engines; vapour-leak detector; Mazda lamps and lighting equipment. The electronic tester and the vapour-leak detector are new developments; the latter is for tracing leaks in pneumatic systems.

BRITISH WIRE PRODUCTS, LTD., Stourport-on-Severn, Worcs. (Stand 43).—This exhibit will feature the firm's Tru-lay and Tru-loc control cables and fittings, together with push-pull controls.

BROWN AND SONS (HUDDERSFIELD), LTD., DAVID, Park Gear Works, Huddersfield (Stand 133).—A wide range of intricate aircraft

and Gee track guide console. Industrial equipment will consist of two double-beam oscillographs, an oscillograph camera and a camera-drive attachment.

CURRAN, LTD., JOHN (and JOHN CURRAN ENGINEERING, LTD.), Curran Road, Cardiff (Stands 36 and 37).—These associated firms will display models of their fan-test stands for piston engines of up to 3,500 h.p., while their full-size exhibit will consist of a new universal gas-turbine stand, upon which a Derwent 8 will be shown prepared for test. This equipment, which includes an acoustically enclosed control desk, is suitable for any unit up to approximately 6ft in length and is rated to indicate thrust up to 10,000lb. It is also hoped to show, outside the exhibition hangar, the firm's 60-ton mobile crane.

DANIEL AND CO., LTD., D. A., Machynlleth, North Wales (Stand 131).—This company's cabin-atmosphere-conditioning and de-icing equipment will be dealt with in our review of special services next week.

DELANEY GALLAY, LTD., Vulcan Works, Edgware Road, London, N.W.2 (Stand 79).—New components on view here will include drum-type light alloy oil coolers in six different diameters, together with an oval aluminium oil cooler; also shown will be mixed matrix oil and water radiators, in which the cooling of the two liquids is combined in one unit. The firm's de-icing and cabin air-conditioning equipment, also to be shown, will be dealt with in our "major components and services" review next week.

DELCO-REMY-HYATT, 111, Grosvenor Road, London, S.W.1 (Stand 88).—This exhibit will comprise the following Delco components: electric motors for aircraft and ancillary applications; de-icer control equipment; and electric fans; Willis pressure-filled joint rings and valves are also to be shown.

DESOUTTER BROTHERS, LTD., The Hyde, Hendon, London, N.W.8 (Stand 113).—Prominent among this firm's range of pneumatic and electric portable tools will be the new type M.56 rivet miller which pneumatically operated, will flush-mill countersunk-head

Guide to the S.B.A.C. STATIC SHOW . . .

pipes and end fittings; and the Maxivue windscreen wiper.

DZUS FASTENER EUROPE, LTD., 164-168, Westminster Bridge Road, London, S.E.1 (Stand 68).—This firm will display their self-locking spiral cam fastener, including the latest self-ejecting, supersonic and panel-mounted types.

ELECTRO-HYDRAULICS, LTD., Liverpool Road, Warrington, Lancs. (Stand 106).—The examples of hydraulic equipment on this stand will be dealt with in our review of major components and services next week.

E.N.V. ENGINEERING CO., LTD., Hythe Road, Willesden, London, N.W.10 (Stand 99).—This firm of gear specialists will display straight-tooth and spiral-bevel gears, helical and straight-spur gears, Zerol-type bevel gears and ground-profile Zerol spiral-bevel and spur gears.

ENGLISH ELECTRIC CO., LTD., Queen's House, Kingsway, London, W.C.2 (Stand M and 85).—The makers of the Canberra are also responsible for a range of electrical actuation and other equipment, which will be referred to in our review next week.

ENGLISH STEEL CORPORATION, LTD., Vickers Works, Sheffield, 9 (Stand 54).—E.S.C. will be showing drop-forged gas-turbine discs, drop-forged finish-machined crankshafts and other aircraft components, together with a selection of engineers' small tools.

EXACTOR, LTD., 108, Park Street, London, W.1 (Stand 53).—This display will comprise Exactor self-sealing couplings, including a quick-action under-wing refuelling fitting as used for the Meteor ventral tank; oil-pressure pipe couplings as fitted on Service aircraft; Exactor fuel-flow test rig, as used in Brabazon and Saro Princess development testing; and the new Exactor-Trabon centralized lubrication system for most types of machinery. Exactor hydraulic controls will be referred to in our review of major components next week.

EXPORT PACKING SERVICE, LTD., Wellwinch Road, Sittingbourne, Kent (Stand 154).—A large scenic model will depict, by means of illuminated panels, the various steps in the packing and despatch of typical aircraft components. The company's organization for this work is self-contained, even to the inclusion of a carton-making plant, while subsidiary companies produce cushioning material and other requirements.

FAIREY AVIATION CO., LTD., Hayes, Middlesex (Stand 95).—Apart from the exhibits on their main stand (D), the Fairey Company will display, on Stand 95, actuating and undercarriage equipment (to be referred to next week) and photographs of their envelope jiggling system of construction and three-dimensional lofting machine.

Exactor fuel-flow test-rig on Brabazon development work

FERRANTI, LTD., Hollinwood, Lancashire (Stand 143).—The principal exhibit on this stand will be the Ferranti distance-measuring equipment designed to meet I.C.A.O. requirements for a radar aid giving accurate and continuous visual information on distance and homing to a selected beacon. The airborne equipment consists of four units designed to fit S.B.A.C. racking and housed in pressurized containers to ensure reliable operation up to 60,000ft. Other Ferranti equipment shown will be a gyro gunsight installation and a pilot's crossed-pointer indicator.

FIREPROOF TANKS, LTD., The Airport, Portsmouth, Hants (Stand 14).—The exhibits on this stand will be dealt with in our special review next week.

FIRESTONE TYRE AND RUBBER CO., LTD., Great West Road, Brentford, Middx. (Stand 110).—This exhibit will comprise pneumatic tyres and tubes for aircraft and airfield transport, together with a selection of bonded rubber-to-metal anti-vibration mountings.

FIRTH, LTD., T. F., Heckmondwike, Yorks (Stand 105).—Examples of aircraft upholstery materials.

FIRTH - VICKERS STAINLESS STEELS, LTD., Staybrite Works, Weedon Street, Sheffield, 9 (Stand 105).—Here will be exhibited Staybrite stainless and heat-resisting aircraft steels in sheet, bar, strip and forgings; and centrifugally cast, centri-die-cast and precision-cast turbine-components.

FLATHER, LTD., W. T., Standard Steel Works, Tinsley, Sheffield, 9 (Stand 75).—These steel specialists will show a selection of bright-finish bars to aircraft specifications and a number of components and A.G.S. parts machined by customers from bright bars of Flather manufacture.

"FLIGHT", "AIRCRAFT PRODUCTION" and Iliffe technical books, including *Gas Turbines and Jet Propulsion*, by G. Geoffrey Smith, will be available on Stand No. 51.

FLIGHT REFUELLING, LTD., Tarrant Rushton Aerodrome, Dorset (Stand 111).—The central feature of this stand will be a demonstration rig illustrating the operation of ground pressure-refuelling equipment, with cut-off valves, pipe connectors, pumps, float switches and a new type of hose coupling; operation of the filling valves will be visible through a Perspex window. Secondly, a sectional model of the "probe and drogue" mechanism developed by the company for flight refuelling will be shown in operation.

FOX AND CO., LTD., SAMUEL, Stocksbridge Works, nr. Sheffield (Stand 60).—On this stand will be given an indication of the variety of engine components fabricated from the wide range of Fox electrically melted alloy, stainless and heat-resisting steels. Members of the technical staff will be in attendance to discuss metallurgical problems with visitors.

FRANKENSTEIN AND SONS (MANCHESTER), LTD., P., Victoria Rubber Works, Newton Heath, Manchester, 10 (Stand 129).—This exhibit will consist of lightweight flying overalls, constant-wear immersion suits, inflatable exposure suits, life-jackets for Service personnel and airline passengers, and a prototype collapsible air-bed stretcher.

G.O. PARACHUTE CO., LTD., Stadium Works, Woking, Surrey (Stand 170). The products of this firm will be referred to in our review of special equipment to be published next week.

GENERAL ELECTRIC CO., LTD., Magnet House, Kingsway, London, W.C.2 (Stand 58).—This display

will be representative of G.E.C. electrical equipment, special emphasis being placed on airliner galley equipment; in this sphere, new items will include a 1pt rapid-heating cup, a new food- and plate-heater, and a coffee percolator. Cabin lighting equipment includes a new roof-mounted reading spot light and an improved seat-belt-warning system. Airport lighting equipment will be represented by an extensive range of items, and other G.E.C. specialties will include Heavy Alloy as used for aileron balances, and a display of Pirelli-General P.G.C.A. and Pirelli cables.

GILMAN (B.S.T.), LTD., F., 195, High Street, Smethwick, 41, Staffs (Stand 64).—Flexible-drive machines as used for rotary filing and milling polishing, grinding, wire-brushing, sanding, etc. Details of flexible drives as supplied for remote controls will also be available.

GIRLING, LTD., Kings Road, Tyseley, Birmingham (Stand 107).—The products of this firm will be referred to in our review of major components and services in next week's issue.

GODFREY AND PARTNERS, LTD., SIR GEORGE, Hampton Road, Hanworth, Middx. (Stand 16).—Reference to this company's cabin air-conditioning equipment will be made next week.

GOODYEAR TYRE AND RUBBER CO. (GREAT BRITAIN), LTD., Wolverhampton (Stand 23).—The wheel, brake and undercarriage products of this firm will be referred to in our next issue.

GRAVNER MANUFACTURING CO., LTD., Poyle Mill Works, Colbrook, Bucks (Stand 63).—The products of this firm will be referred to in our review of major components and services next week.



G.E.C. heated-food container

GUEST KEEN AND NETTLEFOLDS (MIDLANDS), LTD., Heath Street, Birmingham, 18 (Stand 159).—Wood screws in various metals; bolts and nuts, rivets, washers, wire nails, staples. Nettlefolds Parker Kalon hardened self-tapping screws, hammer-drive screws, screw-nails, Nettlefolds Phillips recessed-head screws.

HABERSON AND SONS, LTD., J. J., Holmes Mills, Rotherham (Stand 96).—A "banjo" spar for the Gloster Meteor, a flame-damping exhaust stub and other components will form examples of aircraft work in this firm's steel, which will also be shown in strip, sheet and section form; a model of the Theseus turbo-prop, in which these materials are used, will be on the stand.

HAIRLOK CO., LTD., Magna Works, Bedford (Stand 160).—Rubberized hair for seat padding; lightweight latex foam for cushions, etc.

HALL AND SONS (BRISTOL AND LONDON), LTD., JOHN, 4, Cadogan Road, Hengrove, Knowle, Bristol, 4 (Stand 44).—The display on this stand will be mainly photo-



A Frankenstein civil-type life jacket as supplied to B.O.A.C.

graphic, illustrating aircraft, components and ground equipment for which Hall's aircraft finishes have been supplied; also illustrated will be the customers' development centre at the company's Bristol works, now available for experimental processing and for training of users' personnel.

HALL AND HALL, LTD., Oldfield Works, Hampton, Middx. (Stand 40).—Here will be seen Hallprene high- and low-temperature natural and synthetic rubbers; Hallite special jointing for gas turbines; seals of all kinds for aircraft hydraulic systems; and extruded sealing sections for pressurized cabins.

HALL AND PICKLES, LTD., Port Street, Manchester, 1 (Stand 128).—Displays of Kanthal and nickel-chromium heat-resisting alloy wires and stainless-steel wires, together with an illuminated graph showing operational temperature ranges and other data; applications of stainless steels and hot and cold die steels will also be shown, together with a selection of Hydra and Hydralloy tools.

HARLEY AIRCRAFT LANDING LAMPS, Paxton Hill, St. Neots, Hunts (Stand 8).—Exhibits on this stand will consist of various types and sizes of aircraft landing lamps (as used by the R.A.F. and most of the leading civil operators), taxiing and manoeuvring lamps, and mobile flood-lighting equipment. The larger trailer-type portable flood-light equipment will be outside the exhibition hall.

HIGH DUTY ALLOYS, LTD., Slough, Bucks (Stand 115).—Examples of sand castings by this firm will include an Armstrong Siddeley Adder air-intake body in Magnesium 220; Python air-intake throat in Hyduminium R.R.50; Lockheed hinge-fitting in Magnesium 181; and Napier camshaft housing in Magnesium 220. There will also be a selection of small pressure die-castings, rotor and stator blades and extruded sections.

HIGH-PRESSURE COMPONENTS, LTD., 1a, Grosvenor Gardens, London, S.W.1 (Stand 130).—Exhibits by this firm will consist principally of high-pressure pipe couplings; hand-fitted hose-end connectors; hose-end adaptors for oxygen-charging units; and air-charging valves.

HOBSON, LTD., H. M., Hobson Works, Fordhouses, Wolverhampton (Stand 71).—A feature will be

Harley retractable landing-lamp





Router jigs, adjusting block and drill jig in Hydulignum, produced for the de Havilland Company by Hordern-Richmond, Ltd.

made of fuel-injection equipment which has not previously been shown. Examples will include the D.H.G.5 injection carburettor, combining fuel and boost controls and oil-heated throttle housing; a fuel pump designed for operation with this carburettor; a servo-operated master control for direct injection on Centaurus engines; and a nine-element injection pump for engines of this type. In addition to the standard float-type and bulk injection carburettors, hydraulic control equipment—to be dealt with next week—will be shown on this stand.

HORDERN - RICHMOND, LTD., Hydulignum Works, Haddenham, Bucks. (Stand 122).—In addition to airscrews and rotor blades, to be referred to next week, this firm will show Hydulignum laminated compressed wood as used for press tools, bending blocks, and other production forming-media. As well as supplying the material, the company fabricate tools to customers' designs. Hydulignum is also supplied in board form.

HUGHES AND CO., LTD., F. A., Bath House, 82, Piccadilly, London, W.1 (Stand 93).—A representative range of Elektron magnesium-zirconium alloy castings, forgings, sheet, and extrusions will be on view, together with welded and riveted specimens; chrome finishes will also be shown.

HUGHES - JOHNSON STAMPINGS, LTD., Langley Green, Birmingham (Stand 168).—This exhibit will comprise examples of the company's drop forgings for airframes and engines, in carbon and alloy steels, aluminium bronze and aluminium alloys.

HYMATIC ENGINEERING CO., LTD., Redditch, Worcs (Stand 132).—The products of this firm will be the subject of a reference in our review of aircraft special services next week.

IMPERIAL CHEMICAL INDUSTRIES, LTD. (PLASTICS DIVISION), Nobel House, 2, Buckingham Gate, London, S.W.1 (Stand 27).—This display will tell the story of the progress made in the development of Perspex for aircraft glazing and—a more recent development—for interior fittings and furnishings in commercial aircraft. Emphasis will be placed on the physical properties of Perspex of particular importance to the aero-

Pilot seat in aluminium alloy by Lancefield Coachworks, Ltd.

autical engineer. In Nuron laminates, examples will be shown of the use of the material in the manufacture of radomes.

IMPERIAL CHEMICAL INDUSTRIES, LTD. (PAINTS DIVISION), Nobel House, 2, Buckingham Gate, London, S.W.1 (Stand 28).—This division of the I.C.I. organization will show its full range of aircraft finishes, etch primer, Alucrom pre-treatment for aluminium surfaces, and interior and exterior decorative paints for airfield buildings and aircraft factories.

INTEGRAL, LTD., Cousins Street, Dudley Road, Wolverhampton (Stand 52).—In addition to the hydraulic equipment which will be exhibited (to be reviewed in these pages next week), Integral, Ltd., make hydraulic pumps and motors for refuellers, fork-lift trucks, etc.

IRVING AIR CHUTE OF GREAT BRITAIN, LTD., Letchworth, Herts (Stand 76).—The exhibit of this company will be dealt with next week in our review of special services.

JABLO PROPELLERS, LTD., Mill Lane, Waddon, Croydon, Surrey (Stand 138).—Apart from Jabloc airscrew blades, to be referred to in our review next week, the company will display examples of Jabroc densified wood, particularly in its applications as a tooling medium. Aero Jablex, low-density plastic material, will be shown in new grades which can be used, without exterior skins, for bulkheads, floors, etc. Lightweight air-transit containers in Jabroc and Jablex will also be shown.

JESSOP AND SONS, LTD., WILLIAM, Brightside Works, Sheffield (Stand 153).—Gas-turbine components will be a feature of this exhibit, particularly in the ferritic and austenitic steels designated Jessop H.46, G.18B and G.32. There will be finished turbine discs for most of the leading makes of unit, and both forged and precision-cast rotor and stator blades. A special attraction will be continuous presentation of a film strip showing production and quality control.

K.L.G. SPARKING PLUGS, LTD., Putney Vale, London, S.W.15 (Stand 4).—Representative types of K.L.G. plugs for a wide variety of piston engines will be shown, together with a number of igniter plugs—including the H.68 reheat igniter—developed for gas-turbine use. Elbows, extensions and other parts of ignition-harness equipment will be displayed, and the exhibit will be completed by a range of thermocouples, including a new rare-metal type for rapid response.

KELVIN AND HUGHES, LTD., and KELVIN AND HUGHES (AVIATION), LTD., New North Road, Barkingside, Essex (Stand 2 and 3).—Aircraft instruments and associated equipment to be shown by these firms will be reviewed in these pages next week.

KING AIRCRAFT CORPORATION, Fifth Street, Montrose Avenue, Hillington, Glasgow, S.W.2 (Stand 147).—Fully adjustable lightweight high-density aircraft seating; ultra-lightweight freighter seating; toggle-action cowling fastener; all-metal fireproof flexible couplings;

non-spill bottom-withdrawal oil filters; non-spill feed-line strainer; miniature sediment drain valves for oil, fuel and water; hydraulic inertia lock for pilot's harness; and a wide range of S.B.A.C. standard components.

LANCEFIELD COACHWORKS, Wrenfield Place, Herries Street, London, W.10 (Stand 134).—Here will be seen aircraft exhaust manifolds, including inner and outer shrouds; civil and military aircraft seats; pipework of various descriptions, including rigid rectangular wave-guides for radar equipment; and sheet-metal work.

LATEX UPHOLSTERY, LTD., 41, Lonsdale Road, London, W.11 (Stand 119).—Examples will be exhibited of new designs in passenger seating, including an adjustable fully reclining double "sleep-ette" chair as supplied to Australian National Airways. Examples of lightweight and latex foam rubber upholstery will also be shown.

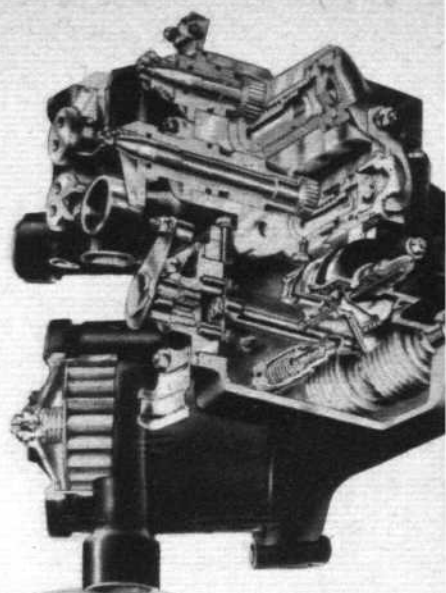
LEP TRANSPORT, LTD., Sunlight Wharf, Upper Thames Street, London, E.C.4 (Stand 142).—The exhibit will illustrate the many services performed by this world-wide transport organization and will emphasize the facilities available for packing aircraft and components. A specially designed packing case for radio equipment will be on view, together with examples of the packing of aircraft engines and tropicalization packing.

LODGE PLUGS, LTD., Rugby (Stand 127).—This exhibit will comprise a complete range of plugs for most makes and types of engines in current use and some of the recently developed jet igniter plugs will also be included in the display.

LUCAS (GAS TURBINE EQUIPMENT), LTD., JOSEPH, Birmingham, 28 (Stand 123).—This exhibit will be representative of the specialized gas-turbine equipment developed and produced by the firm. In addition to complete fuel systems and associated combustion and control equipment they make a number of precision sheet-metal components in high-grade steels for flame-tubes, combustion chambers, etc. Among typical components are a barometric pump-delivery control; a unit to simplify turbo-prop fuel systems by combining throttle valve, shut-off, altitude control and filter; a variable-stroke fuel pump; fuel accumulators; discharge-nozzle assemblies; bellows; and jet-pipe assemblies. Outside the gas-turbine field are kerosene and petrol combustion-heaters for de-icing purposes.

M.L. AVIATION CO., LTD., White Waltham Aerodrome, Maidenhead, Berks (Stand 152).—In addition to an ejector seat and other special equipment which will be dealt with in our review next week, this company will be showing a high-speed target-towing winch; windmill-operated, it is so designed that targets may be discarded or replaced in flight, or by remote control. Other exhibits will include electrically operated retractable-gun-sight mountings, glider-towing gear and a servo control unit developed for the R.A.E.

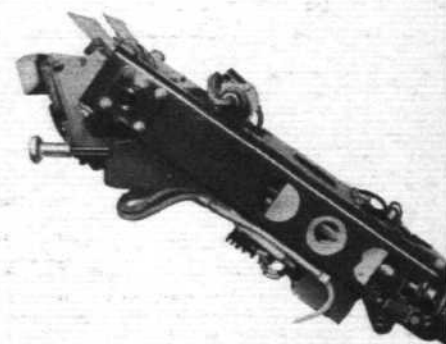
MAGNESIUM ELEKTRON, LTD., Abbey House, Baker Street, London, N.W.1 (Stand 94).—Associates of F. A. Hughes and Co., Ltd., this firm will display the Elektron magnesium-zirconium slab from which sheet is produced, together with billets as used for extruded products. Foundry ingots for aircraft castings will be displayed, together with test bars.



Joseph Lucas (Gas Turbine Equipment), Ltd., combined control unit for turboprop power units (shown in part section)

McMICHAEL RADIO, LTD., Slough, Bucks (Stand 161).—Principal items in the research equipment to be shown on this stand will consist of an airborne torque-meter intended primarily for use with aircraft engines in flight; an electronic meter for measuring the phase relationship between two sources of alternating voltage of the same frequency; and a six-channel carrier-type bridge amplifier for strain and acceleration analysis. Also on view will be aircraft radio-interference suppressors.

MARCONI'S WIRELESS TELEGRAPH CO., LTD., Marconi House, Chelmsford (Stand 149).—All the Marconi exhibits will consist of V.H.F. communications and navigation equipment. Outstanding among them will be a working installation of the type A.D.200 direction finder which, operating from a remote-control console on the stand, will give bearings of aircraft in the vicinity. Other



Retractable gun-sight mounting (in retracted position) to be shown by M. L. Aviation, Ltd.

exhibits will consist of a 50-watt transmitter, a receiver tester, an airborne transmitter/receiver offering 140 channels, and a multi-head receiver with motor-controlled switching to facilitate remote control.

MARSTON EXCELSIOR, LTD., Fordhouses, Wolverhampton (Stand 39).—The flexible tanks in which this firm specializes will be dealt with in our review of special equipment next week.

Desk-mounted repeater unit of Marconi V.H.F. D/F. Equipment



Guide to the S.B.A.C. STATIC SHOW . . .

METROPOLITAN PLYWOOD CO., LTD., 18-30, Leonard Street, London, E.C.2 (Stand 137).—Storage containers, aircraft flooring and sections, laminated composite panels, sheet-metal-based and flexible veneers.

MOLLART ENGINEERING CO., LTD., Kingston-by-pass, Surbiton, Surrey (Stand 167).—In addition to a complete range of Mollart patent universal joints and Hooke's-type joints, a typical application of such couplings in an Airspeed Ambassador control box will be displayed. Various precision components, such as wing-root fittings and helicopter parts, will be shown, while on the production-equipment side there will be gauges, tools, fixtures and, finally, the new Medigraph perspective drawing instrument.

MOND NICKEL CO., LTD., Sunderland House, Curzon Street, London, W.1 (Stand 78).—It is now possible to disclose the existence of Nimonic 90 alloy, already in extensive use; blades of this material, and perhaps a complete rotor, will be shown. It is claimed that at a temperature of 750 deg C its load-carrying capacity is 10 per cent higher than that of Nimonic 80A. For the rest, the exhibit will emphasize the results of intensive research in the Mond Nickel laboratories, combined with the experience of Henry Wiggin and Co., Ltd., in the production of nickel-chromium alloys.

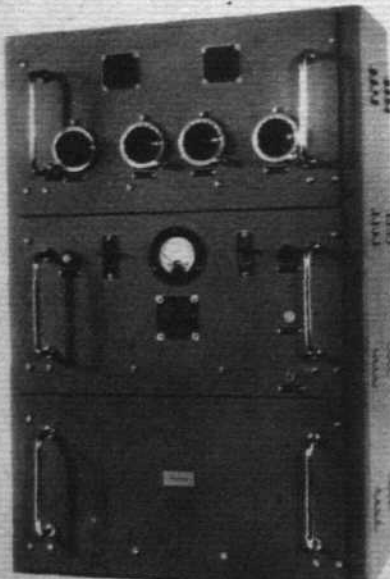
MUREX WELDING PROCESSES, LTD., Waltham Cross, Herts (Stand 109).—The central feature of this exhibit will be the Murex ground power unit for servicing and starting aircraft, including gas-turbine types. It has an engine-driven generator supplying a current of 600 amp continuously at 28v for servicing and pre-flight checks and a peak current of over 1,000 amp for engine starting. Models with other capacities are available.

MURPHY RADIO, LTD., Welwyn Garden City, Herts (Stand 103).—Eight items will be exhibited, as follows: three V.H.F. airborne transmitter/receivers, for 140, 23 and 5 channels respectively; miniaturized airborne radar equipment with B.A.B.S. facilities; voltage regulator; passenger-announcement equipment for aircraft; 50-watt V.H.F. transmitter for ground station use; and 500-watt radar beacon.

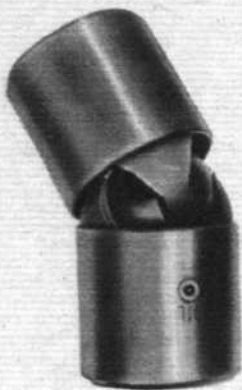
NEWTON BROTHERS (DERBY), LTD., Alfreton Road, Derby (Stand 49).—The products of this company will be referred to in our review of special services next week.

NORMALAIR, LTD., Yeovil (Stand 9).—The cabin air-conditioning equipment developed by this firm will be reviewed in our special services feature next week.

Plessey 50-watt fixed-station V.H.F. transmitter, type PT. 15



NORTHERN ALUMINIUM CO., LTD., Banbury, Oxfordshire (Stand 148).—As one of the principal suppliers of light alloys to the aircraft industry—their products including sheet, strip, extrusions, tubing, wire, forgings, castings and aluminium paste—the firm will display token exhibits associated with these specialities.



Mollart patent universal joint

OLDHAM AND SONS, LTD., Denton, Manchester (Stand 15).—A comprehensive range of aircraft batteries will be exhibited, including high capacity-to-weight ratio batteries for the lighting of different types of aircraft; ground starter batteries; and general-purpose accumulators for radio, operation and lamp and airfield lighting.

PALMER TYRE, LTD., THE, Penfold Street, Edgware Road, London, N.W.8 (Stand 65).—In addition to undercarriage equipment, to be dealt with in these pages next week, this company will display Silvoflex pipes for fuel, oil, hydraulic fluids and compressed air; a complete D.H. Goblin fuel system and a Rolls-Royce gas-turbine sub-assembly will be shown as examples.

PARK, LTD., R. AND J., Dominion Works, Thames Road, Chiswick, London, W.4 (Stand 77).—This firm will have a display emphasizing the services which they offer in aircraft packing, shipping and insurance, including A.I.D.-approved pre-preservation and tropicalization.

PETO AND RADFORD, 50, Grosvenor Gardens, London, S.W.1 (Stand 33).—The company recently supplied a 52½ lb battery which, installed on board, gave the Comet's four turbojets six successive starts at five-second intervals. Among the batteries shown at Farnborough will be a non-aerobatic unit with a weight:capacity ratio of 14½ oz./a.h.; fully aerobic types; and ground-starter units. All these batteries have the firm's patented Davis polystyrene vent plugs.

PLESSEY CO., LTD., and **PLESSEY INTERNATIONAL, LTD.**, Ilford, Essex (Stand 86 and 87).—In addition to the actuating equipment made by the first-named company (and to be referred to in these pages next week) a selection of Breeze wiring accessories will be shown. The associated company will display radio equipment, most of which has been newly developed since the last S.B.A.C. Show. Exhibits will include the PR.23 receiver and P.24 transmitter for unit installation in S.B.A.C. racking; the PT.10 transmitter and PR.71 receiver as a unit; the new PT.15 transmitter; the PV.14 aerial multicoupler wide-band amplifier for 2-20 Mc/s; and the P.T.R.61 transmitter/receiver for medium and light aircraft.

PRESSED STEEL CO., LTD., Cowley, Oxford (Stand 30).—This exhibit will consist of photographs showing the application of the company's presswork to aircraft production and of Prestcold refrigeration to the testing of instruments and special assemblies under low-temperature and low-pressure conditions.

PYRENE CO., LTD., 9, Grosvenor Gardens, London, S.W.1 (Stand 35).—In addition to aircraft fire-fighting equipment, to be dealt with in our special review next week, the Pyrene Co. will show examples of its range of extinguishers for use in buildings, including soda-acid and foam types. A Pyrene airfield crash tender will, as usual, be on duty during the flying display. In quite a different field the company produces a metal aircraft-wheel chock now used as standard equipment by the R.A.F.; pulling a chain collapses the chock and permits it to be drawn clear of the wheel.

R.F.D., CO., LTD., Catterall Lane, Godalming, Surrey (Stand 89).—The principal exhibits on this stand, coming within the sphere of safety equipment, will be dealt with in our review next week. Other activities of the company—to be illustrated on the stand by photographs—include the manufacture of towed targets, the Portobel gunnery trainer, paratroop balloons, weather covers, and fabric for a wide variety of purposes, including aircraft upholstery; examples of printed fabrics by the R.F.D. textile division will be on view.

REDIFON, LTD., Broomhill Road, Wandsworth, London, S.W.18 (Stand 82).—Equipment to be shown here will comprise a general-purpose 2-2.5kW medium-frequency transmitter covering 200-500 kc/s and normally operated as a medium-frequency radio beacon; a high-frequency general-purpose transmitter for ground-to-air and point-to-point communications; a transmitter/receiver with five crystal-controlled frequencies, offering extreme simplicity of operation; a V.H.F. approach control transmitter/receiver; and a specially high-grade general-purpose communications receiver. Also on view will be a model of the flight simulator for Strato-cruiser crew training, now in production.

RENFREW FOUNDRIES, LTD., Hillington, Glasgow, S.W.2 (Stand 48).—This firm, which is associated with Almin, Ltd., of Farnham Royal, will display typical sand- and die-castings for engines and airframes, in Alminal aluminium alloys. Information will be available on the subject of aluminium-alloy castings.

REYNOLDS TUBE CO., LTD., Hay Hall Works, Tyseley, Birmingham (Stand 90).—Steel-tube exhibits on this stand will consist of a Centaurus engine-mounting ring as used on the Ambassador; air-intake guards for use during ground running of jet aircraft; a specimen of tapered tubes as used in the Anson undercarriage; pilot-seat jack tubes; and a range of steel tubes from ¼ in to 3 in, together with some non-circular sections. In light alloy will be shown pressure vessels for various aircraft purposes, a control-column tube and cowling-rail segments.

ROMAC RADIO CORPORATION, LTD., The Hyde, London, N.W.9 (Stand 102).—The central feature of this exhibit will be the Model 160 aircraft equipment designed to meet M.C.A. requirements for operation in controlled zones; it incorporates a 12-channel crystal-controlled transmitter/receiver, M.F. D/F. receiver with left-right

indicator, centre-zero course meter, S.B.A. beacon and marker receivers, and intercommunication facilities. Also on view will be a fan marker receiver and V.H.F. R/T. equipment with mobile and fixed stations.

ROTAX, LTD., Willesden Junction, London, N.W.10 (Stand 124).—Among representative examples of the range of Rotax aircraft electrical equipment will be several new items. One is a high-energy ignition unit for gas turbines, which produces two simultaneous and independent sparks, nearly 120 times per minute, and a hundred times as powerful as the spark produced by booster-coil systems. A double-shot turbo-starter has an output speed in excess of 8,000 r.p.m. and develops 155 h.p. In the piston-engine field there is a 110-volt starter as used on several new large aircraft with rectified A.C. systems, and other new developments include a 100-amp circuit-breaker and a 3kW rotary transformer. Other exhibits will be representative of the firm's actuation, lighting, de-icing and other equipment.

ROTOL, LTD., Cheltenham Road, Glos (Stand 160).—In addition to airscrew exhibits, to be dealt with in these pages next week, Rotol, Ltd., will show examples of their accessory drive gear boxes, including the largest made to date—for the Hermes IV; four of these gear boxes drive, among other items, three Eclipse air pumps, two Marshall cabin blowers and two Rotax alternators. Another gear box will be the compact unit for the Darts in the Viscount, while a completely new development will be a twin-drive box for a jet aircraft under development. Another Rotol exhibit will consist of a strain-gauge set-up for the testing of airscrews.

RUBERY, OWEN AND CO., LTD., Darlaston, Staffs (Stand 24).—Aircraft general sundries, control gear, airscrew hub assemblies, etc. **RYLAND, LTD., LLEWELLYN**, Balsall Heath Works, Birmingham, 12 (Stand 81).—Here will be seen examples of aircraft protective and decorative finishes; cellulose dopes and lacquers; oil primers and synthetic finishes; seaplane varnishes; Duratrac jointing compound; stoving enamels; and paint removers.

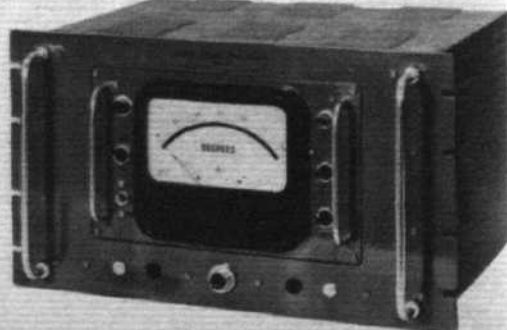
SALFORD ELECTRICAL INSTRUMENTS, LTD., Silk Street, Salford, Lancs (Stand 59).—The products of this company will be referred to in our review next week.

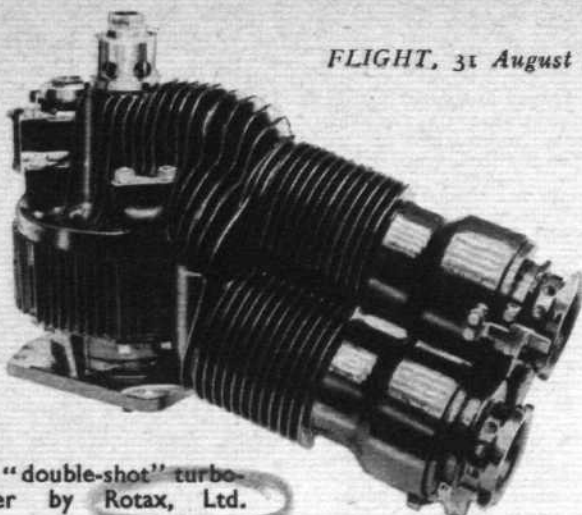
SANGAMO WESTON, LTD., Great Cambridge Road, Enfield, Middx. (Stand 19).—This company's electrical instruments will be referred to in our review of major components and services next week.

SANKEY AND SONS, LTD., JOSEPH, Albert Street, Bilston, Staffs (Stand 157).—Sheet-metal components and assemblies of pressed and fabricated construction for gas turbines; airscrew spinners.

SAUNDERS VALVE CO., LTD., Cwmbran, Newport, Mon (Stand 7).—The basic feature of this exhibit will consist of examples of the well-known Saunders S.P. (spherical plug) cocks, for hydraulic systems, water injection, etc., with an entirely new model designed to control air at temperatures of up to 350 deg C. As described in *Flight* of August 17th, a number of detailed improvements have been made, while a large-bore range (up to 4 in) is also available. Electrically actuated models will be demonstrated under power, and new multi-way types will be shown. Secondly, a feature will be made of the new

McMichael Type IT 1-3 phase meter (see paragraph on previous page)





New "double-shot" turbo-starter by Rotax, Ltd.

gate valves in sizes of from $\frac{1}{4}$ in to $\frac{1}{2}$ in, for manual and electrical operation. Allied equipment, including test-bed valve fittings, will be shown.

SAVAGE AND PARSONS, LTD., Otterspool Way, Watford, Herts (Stand 25).—This company will show a range of airborne and ground-recording equipment for static and dynamic stress analysis and other applications. New equipment, on exhibition for the first time, includes a general-purpose automatic plotting table, for concurrently and compactly plotting up to fifty graphs; and the latest model of the firm's 50-way static strain recorder.

SCHERMULY PISTOL ROCKET APPARATUS, LTD., Spru Works, Parkgate, Newdigate, Surrey (Stand 98).—The aeronautical pyrotechnic equipment made by these specialists will be dealt with in our special review next week.

SCOTTISH AVIATION CO., LTD., Prestwick, Ayrshire (Stand 126).—The makers of the Prestwick Pioneer will display, on their smaller stand, a number of the components which they market, including lightweight twin seats for aircraft cabins, hydraulic equipment (control valves, etc.) and fixtures and tools for the aircraft industry.

SELF-PRIMING PUMP CO., LTD., Edinburgh Avenue, Trading Estate Slough, Bucks (Stand 18).—On this stand will be exhibited electrically driven fuel booster pumps for A.C. and D.C. operation; inverted-flight negative-g valve, water/methanol and cabin-heater pumps; and special-purpose valves.

SIEBE, GORMAN AND CO., LTD., Neptune Works, Davis Road, Tolworth, Surbiton, Surrey (Stand 12).—In addition to safety equipment (to be dealt with in these pages next week) this company will display a selection of flying-helmets, oxygen masks and goggles, while for the industrial field there will be seen air compressors, test apparatus and instruments for special application.

SIMMONDS AEROCESSORIES, LTD., Treforest, Glamorgan (Stand 57).—A wide range of self-locking nuts will be shown, including the Nyloc nut, fully approved for aircraft use and now also available in cap form—the self-locking insert and cap are in an integral moulding which affords a leak-proof seal for use in fuel tanks, pressurized containers, etc. A selection of Spire Speed Nut applications will show the adaptability and weight-saving qualities of these nuts, fastenings and clips. The Pacitor electronic contents gauge will be referred to in our review next week.

SKYNI, LTD., Worton Road, Isleworth, Middlesex (Stand 5).—Aircraft servicing jacks, inhibitor spray guns, high-pressure flexible-hose units.

SMITHS AIRCRAFT INSTRUMENTS, LTD., Cricklewood, London, N.W.2 (Stand 1).—Exhibits on this stand will be dealt with in our review of special equipment and services next week.

SMITH'S STAMPING WORKS (COVENTRY), LTD., Ribble Road, Coventry (Stand 108).—The firm are suppliers of steel drop forgings to the aircraft industry and are specialists in forging stainless and

heat-resisting steels. Examples of their work will include forgings for piston engines, gas turbines and airscrews.

SOUTHERN FORGE, LTD., Langley, Bucks (Stand 47).—Like Renfrew Foundries, Ltd. (Stand 48), this company is an associate of Almin, Ltd., and it will display extruded sections and tubes, forgings and stampings in Alminium aluminium alloys. A special feature will be made of extra-thin extrusions.

SPERRY GYROSCOPE CO., LTD., Great West Road, Brentford, Middx. (Stand 153).—The exhibits of these instruments specialists will be dealt with in our review of special equipment next week.

STANDARD TELEPHONES AND CABLES, LTD., New Southgate, London, N.11 (Stand 116).—Two I.L.S. airborne receivers will be shown, one for marker beacon and localizer frequencies and the other for glide-path indication, the two units, plus a remote-control and meter indicator, supplying the pilot with complete approach and landing information—as will be shown by a demonstration model. In the V.H.F. field a feature will be made of the ten-channel equipment which replaces the obsolescent four-channel version, while the powerful new 140-channel equipment—down-graded if necessary to 70 channels—will also be shown. H.F. equipment will be represented by the ST.18 transmitter. A remote display console of P.A.R. (precision approach radar) will provide the first view of British-made precision G.C.A. talk-down equipment.

STERLING METALS, LTD., Coventry (Stand 32).—Here will be seen light-alloy castings in magnesium Elektron and aluminium—both as permanent-mould and sand castings—for radial and axial-flow gas turbines and for undercarriage components. A feature will be made of the applications of the zirconium-magnesium alloys designated ZRE.1 and Z52.

STONE AND CO., LTD., J., Oceanic House, 1a Cockspur Street, London, S.W.1. (Stand 45).—The exhibits on this stand will be representative of the company's work for the aircraft industry, including light-alloy and bronze castings and aluminium rivets.

T.I. ALUMINIUM, LTD., Redfern Road, Tyseley, Birmingham, 11 (Stand 101).—This exhibit will comprise a range of aluminium aircraft extruded sections and bar, together with tubing; there will also be a wide selection of sheet to D.T.D. and B.S. specifications, and displaying various surface-finishes.

T.K.S. (AIRCRAFT DE-ICING), LTD., Drayton House, Gordon Street, London, W.C.1 (Stand 29).—This company's de-icing equipment will be dealt with in our review of special services in next week's issue.

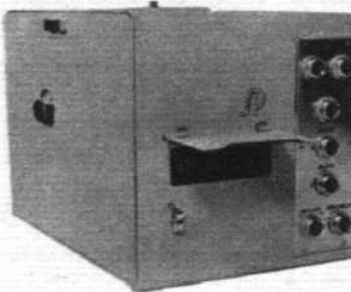
TECALEMIT, LTD., Great West Road, Brentford, Middx. (Stand 118).—The Tecalemit display will consist of a micro pump, which is a metering pump of great accuracy for the lubrication of gas turbine and supercharger main bearings, auxiliaries, etc.; an air-operated priming oil-delivery unit for filling engine oil galleries after overhaul; Tecalemits (including models with pre-set mechanism) for

measurement of liquids to 0.02 per cent accuracy; oil and fuel filters; and hand-lubricating guns and nipples.

TEDDINGTON CONTROLS, LTD., Cefn Coed, nr. Merthyr Tydfil, South Wales (Stand 84).—The products of this company, mainly in the field of hydraulics, pneumatics, and cabin-temperature control, will be referred to in our review of special equipment and services next week.

TELEFLEX PRODUCTS, LTD., Teleflex Works, Chadwell Heath, Essex (Stand 61).—The central feature of this stand will be examples of the Teleflex cockpit controls used in jet aircraft. In the Meteor there are no fewer than 71 items of the firm's manufacture, including controls for throttles, cockpit air-conditioning, canopy jettison, footstep release, drop tanks, fuel cocks and undercarriage and wing-flap selector valves.

THERMO-PLASTICS, LTD., Luton Road Works, Dunstable, Beds (Stand 136).—In addition to the company's usual range of aircraft components produced from Perspex, post-formed Bakelite, polystyrene, cellulose acetate, etc., examples will be shown of the latest developments in laminated Fibreglass, both of expanded rubber sandwich construction and honey-combe section.

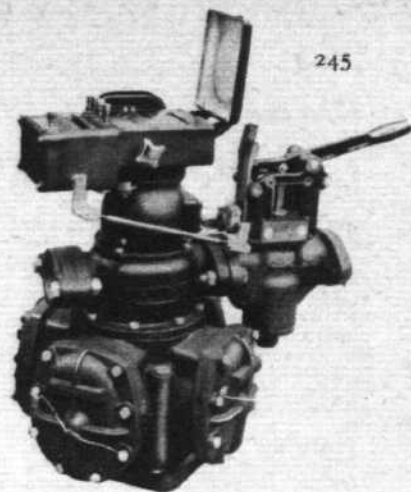


Six-channel galvanometer camera to be exhibited by Savage and Parsons, Ltd.

TILTMAN LANGLEY LABORATORIES, LTD., Redhill Aerodrome, Surrey (Stand 156).—Research, development and prototype aeronautical engineers, this firm is exhibiting at Farnborough for the first time. Central features of the display will be the Gerritsen self-governing variable-speed gear, which provides ratios of from 1:1 to 2,000:1, with an output speed controllable to within ± 1 per cent; and the Tiltman Langley flow valve, a compact glandless unit suitable for highly corrosive or combustible liquids or gases and controllable by electric, hydraulic or pneumatic means.

TINKERTEX, LTD., Holmfirth, nr. Huddersfield (Stand 139).—Upholstery cloth and curtaining materials for aircraft interiors will be shown, together with material for the tailoring of aircrew and other uniforms.

TITANINE, LTD., Colindale, London, N.W.9 (Stand 55).—Exhibits will consist of high-speed and lightweight finishes to specifications D.T.D. 772 and 776; Chrometch



Tecalemiter, with pre-setting device, for liquid metering (Tecalemit, Ltd.)

primer P.R.30, approved under specification D.T.D. 900 for all metals used in aircraft production; Tempolac temporary coating for the protection polished aluminium sheet during handling and storage; and approved finishes, with the necessary electrical properties, for radomes. A range of standard Titanine finishes will complete the exhibit, and the company's service van will be in attendance on the airfield.

TRIPLEX SAFETY GLASS CO., LTD., 1, Albemarle Street, London, W.1 (Stand 34).—The central feature of the Triplex exhibit this year will be examples of the new method of bonding Perspex to rubber which (as reported in *Flight* last week) has been applied after extensive testing, to the Hawker Sea Hawk. Among glass products, the company will show bullet- and bird-proof windscreens and windows for pressurized cabins; the effects of sustained pressures of between 15 and 50 lb/sq in will be the subject of a demonstration.

TUBES, LTD., Aston, Birmingham, 6 (Stand 31).—On this stand will be seen examples of tubular forgings for cylinder liners, gas-turbine rotor shafts, contra-rotating airscrew shafts, and other engine components.

TUNGUM SALES CO., LTD., Brandon House, Painswick Road, Cheltenham, Glos (Stand 92).—Here will be seen examples of Tungum alloy in a great many fabricated forms, even including wire gauze and wire rope; a representative range of aircraft parts in this material; a section devoted to Tungum tubing manipulations for fuel and oil pipes, hydraulics and cooling systems; a scale model of the Branda bending machine on which the majority of these pipes are worked; and the new Branda Beaver metal hacksaw, driven by a $\frac{1}{2}$ h.p. motor and claimed to be the handiest and lightest power-driven metal-sawing tool on the market.

ULTRA ELECTRIC, LTD., Western Avenue, Acton, London, W.3 (Stand 10).—In addition to this company's control and actuation equipment, to be referred to in our special review next week, a feature will be made of the communications control installations now in use in the majority of British airliners, including the Comet and the Ambassador. Requirements which have

Blind-approach aid: Standard Telephones I.L.S. receivers, with remote-control unit and indicator



Guide to the

S.B.A.C. STATIC SHOW . . .

been met include the selection and mixing of the separate receiver outputs at individual volume loads and, for certain crew stations, the ability to select any transmitter and work it either by key or telephony. Services selected by any one crew member cannot interfere with those selected by another, and the captain can over-ride all channels without actually cutting them off.

VENNER TIME SWITCHES, LTD., Kingston By-pass Road, New Malden, Surrey (Stand 166).—In addition to time-delay switches for use in aircraft fire-extinguisher systems (to be referred to in our review next week), this company will show a variety of time switches for various aeronautical applications. In the field of aircraft production, they will display a contour projector, comparator and dial gauges, and various timing devices. A new development which should attract attention is the Venner lightweight alkaline accumulator which, of half the size and one-third the weight of the lead-acid battery, is certain to have numerous aircraft applications.

VICKERS-ARMSTRONGS, LTD., Vickers House, Broadway, London, S.W.1 (Stand 1).—In addition to hydraulic equipment, to be dealt with in our review of special services next week, Vickers will be showing a representative range of

their aircraft accessories, including the Mk. 6 aircraft twin chair, with foot extension and "slip-cushion" head-rest; a selection of fuel cocks, including the new mechanically or electrically actuated Type R and the hand-operated and remote control P-type cocks; non-return valves; and an air-governing valve to control pressure-drop across the jets of various air-driven instruments used in pressurized aircraft. It is also possible that the new aircraft chemical closet—also designed for use in pressurized aircraft—will be shown.

VOKES, LTD., Henley Park, Guildford, Surrey (Stand 46).—In addition to components for cabin-atmosphere conditioning (to be referred to in our review of special services next week), this company will show their air-intake, oil and fuel filters, together with a cooling-air filter developed for the rear bearings of de Havilland turbojet power units.

WELLWORTHY PISTON RINGS, LTD., Lymington, Hants (Stand 17).—Pistons, rings, gudgeon pins, Al-fin aluminium-to-steel bonding process, "Wellseal" non-flaking jointing compound, aluminium die-castings.

WESTERN MANUFACTURING ESTATE, LTD., The Aerodrome, Reading (Stand 73).—In addition to showing a number of components (e.g., actuator-motors, fire-indicator switches, etc.) to be re-

ferred to in our review of special equipment next week, this company will provide information on its facilities for the design and fabrication of assembly fixtures, machine tools and components, and sheet-metal presswork.

WILLIAMSON MANUFACTURING CO., LTD., Litchfield Gardens, Willesden Green, London, N.W.10 (Stand 80).—Here will be shown the new Eagle IX Mk. II camera and Multiplex assembly, illustrating the latest advances in the design of air-survey cameras and mapping equipment. A G.45 cine-gun camera in sectioned form will be seen on the stand.

WINGHAM, BENNETT AND CO., LTD., West Molesey, Surrey (Stand 67).—Examples of aircraft passenger seating, in which this firm specializes, will occupy the stand. Two types of "long-range" single seat will be shown, one with adjustable arm-rests; a long-range twin adjustable seat is going into production and may possibly be shown; and, finally, there will be an example of the light fixed arm-rest seat for use in feederliners. Frames are made almost entirely in M.G.7 alloy, and interior fillings are either spring case/foam rubber or all foam rubber, with coverings in lightweight wool cloths or hide. Weights range from 19lb for the feederliner seat to 45lb for the long-range-type twin seats.

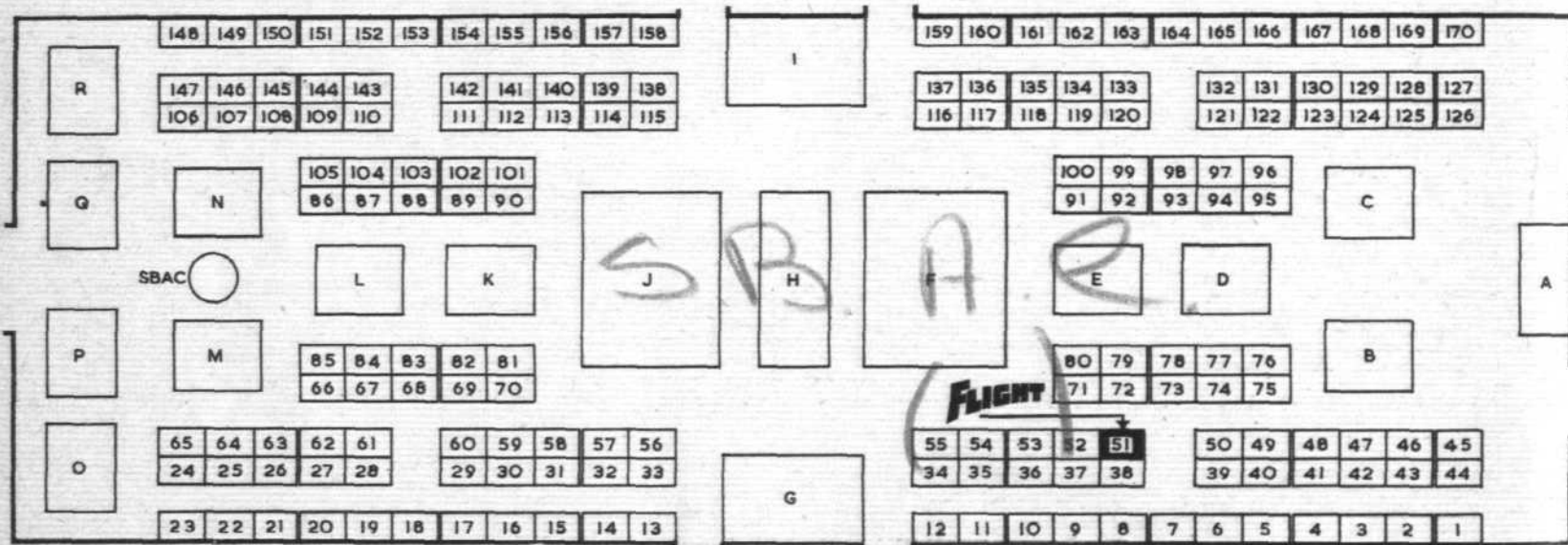
WRIGHT AND SONS (VENEERS), LTD., JOHN, Avon Wharf, Longfellow Road, London, E.3 (Stand 42).—Exhibiting at Farnborough for the first time, one of the oldest-established firms in the veneer industry will be showing examples of



Wingham, Bennett long-range de luxe single passenger seat.

handsomely grained wood, specially prepared—keeping in mind the requirements of light weight and rigidity—for aircraft interior paneling.

WESTINGHOUSE BRAKE AND SIGNAL CO., LTD., 82, York Way, King's Cross, London, N.1 (Stand 141).—In this exhibit will be shown special lightweight rectifiers for supplying D.C. power in aircraft; a transportable rectifier for engine starting, and to supply power for other services while aircraft are on the ground; and rectifier equipment for a variety of research and other industrial processes.



EXHIBITION-HALL FLOOR PLAN: The large stands, indicated by letters, will be occupied mainly by aircraft and engine constructors

THE MINISTRIES' EXHIBITS

THE exhibits staged by the two Ministries—Supply and Civil Aviation—always attract the crowds, both on private and public days. In the first place, they often provide the first public view of some technical development previously veiled in secrecy and, secondly, they can usually be relied upon to have "something working."

This year the **Ministry of Supply**, which usually offers a disclosure, is being understandably reticent; its only exhibit on Stand O in the secret-development category will be a Beta rocket motor, prototyped by the R.A.E. "to power an experimental aircraft." Other than that "a fuel" is burnt in hydrogen peroxide, and that production-design and manufacture are in the hands of the Fairey Company, no information will be given.

Other exhibits contributed by the R.A.E. to the M.O.S. stand will typify the range of the research establishment's activities. In aerodynamics, a super-sensitive wind-tunnel balance will show how the test-model is mounted on a floating table in a spherical seating, the sliding surfaces of which are lubricated by air; and, illustrating a solution to the problem of suppressing yaw in high-speed aircraft, the operation of an auto-stabilizer will be shown in conjunction with a model made to "snake" at a frequency of about 1 cyc/sec.

Structural testing will be illustrated by a 1:96 scale model of the "Hercules" test frame, which can apply loads of up to 800 tons

to aircraft of 150ft span by 75ft overall length—or 200ft x 100ft if wing-tips are ignored; and the "Atlas" test equipment, again as a 1:96 scale model, will show how, by the use of water as a pressure medium, the internal bursting loads on a full-scale pressurized cabin can be applied simultaneously with the main structural loads.

An electrical-relay system for automatically balancing the contents of port and starboard tanks—up to a total of 24 tanks in a single system—will be demonstrated, while a cheap, robust and accurate apparatus—the null-reading cistern manometer—for calibrating air-pressure-type aircraft instruments will be shown.

In "electronics," an M.F./H.F. automatic-and-manual emergency transmitter-receiver will be exhibited, for signalling forced landings or ditchings—it is the work of the Ferguson and Ferranti companies in conjunction with the R.A.E.—and there will also be a battery-driven radar homing beacon, by Ultra Electric, Ltd., for guiding air/sea rescue craft to a dinghy. An intercommunication amplifier system (developed by Airmec Laboratories, Ltd., to R.A.E. specification), as installed in a bomber, will be on view.

Radar equipment will also be contributed to the M.O.S. exhibit by the Telecommunications Research Establishment, who will show, by a working model, advantages and disadvantages of 11 different methods of construction of components, and who will demonstrate,

SOCIETY
OF
BRITISH
AIRCRAFT
CONSTRUCTORS
AERONAUTICAL
EXHIBITION

FARNBOROUGH

Stand 'C'

Sept. 6th – 10th

ROLLS-ROYCE

**PISTON AND
GAS TURBINE
AERO ENGINES**

FOR CIVIL AND MILITARY AIRCRAFT



ROLLS-ROYCE LTD • DERBY

LONDON OFFICE • CONDUIT STREET • W.1

Hydromatics

for all



CONSTELLATIONS

of American Flag Airlines

The Lockheed Constellations of Eastern Air Lines and American Overseas Airways have always been equipped with Hamilton Standard Hydromatics. Now Trans World Airline, Chicago and Southern Air Lines and Capital Airlines have chosen these famous propellers for their fleets of new Lockheed Constellations. In addition, TWA and Pan American World Airways System are converting all their existing Constellations to dependable Hydromatic* propellers.

These conversions and new installations now make Hamilton Standard propellers the unanimous choice of all American operators of the world-famous Constellations.

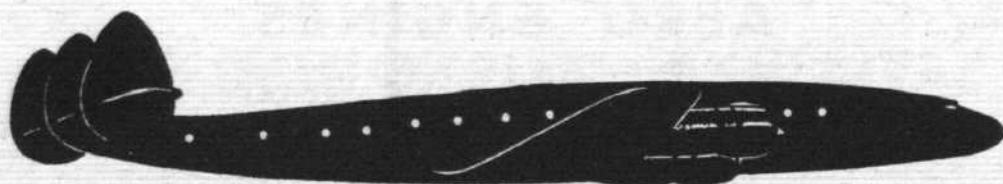
*Registered U.S. Patent Office



AOA



TWA



European Office:
4 rue Montagne du Parc,
Brussels, Belgium

UNITED AIRCRAFT

Export Corporation

EAST HARTFORD, CONNECTICUT, U. S. A.

PRATT & WHITNEY
ENGINES

HAMILTON STANDARD
PROPELLERS

CHANCE VOUGHT
AIRPLANES

SIKORSKY
HELICOPTERS

S.B.A.C. STATIC SHOW . . .

by diagrams and models, the operation of precision approach radar. It is not generally known that a great deal of valuable data in axial-flow turbine compressors has been obtained by the use of test rigs in which water is used as the fluid medium, and some of the apparatus and methods employed will be shown by exhibits contributed by the National Gas Turbine Establishment.

The Ministry of Civil Aviation stands (Nos. 150/151) will be devoted to the extended V.H.F. R/T flying-control system which is now coming into operation. A large animated map will depict, by means of light flashes, the communication scheme for four aircraft approaching London from Shannon, Prestwick, Amsterdam and Paris respectively. This will be shown by a series of flashing lights from the aircraft models to the radio towers at Davidstown

Moor, Birdlip, Butser, Hawkinge and Chedburgh. Landline communications between these towers and Uxbridge Control will also be demonstrated by coloured lights.

The final application of the scheme for northern England (with the control unit at Preston) and central Scotland (with control at Prestwick) will also be illustrated, as will the equipment used in the towers.

All R/T control conversations, including G.C.A. and London Radar, will shortly be recorded. Instruments are now being installed at all M.C.A. airports and control units and an important feature of the show exhibit will be an actual working sound-recording unit. This Simon Monitoring Recorder will be the standard installation throughout the telecommunications network of the British Isles. On the stand it will be in operation, recording conversations taking place over the airfield. For purposes of demonstration it will, additionally, play back other recordings made previously.

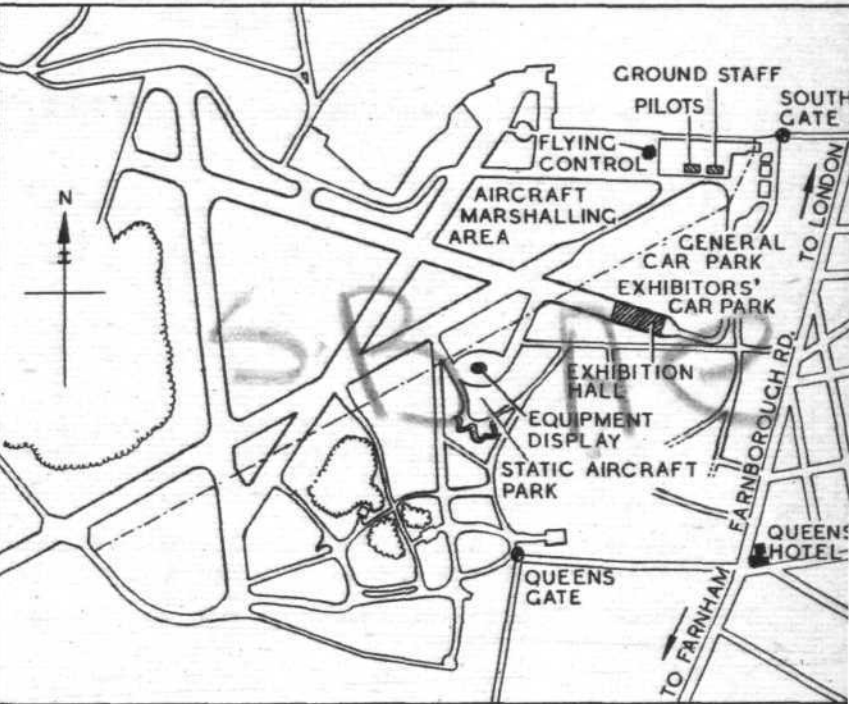
FARNBOROUGH ARRANGEMENTS

How to Reach the Show : Details of Admission and Parking

THE WEEK'S PROGRAMME	
TUESDAY :	Pre-view and day for technicians from the Industry and Government departments. Static Show open 10 a.m.-5 p.m. ; dress-rehearsal of flying display, 2.30 p.m.
WEDNESDAY :	Official opening. Static Show open 10 a.m.-5 p.m. Flying display, 2.30 p.m. No admittance for general public.
THURSDAY AND FRIDAY :	Static and flying displays as Wednesday. No public admittance.
SATURDAY :	First open day for public. Gates and Static Show open 10 a.m. Flying display 3 p.m.-approx. 5.30 p.m.
SUNDAY :	Second open day for public ; arrangements as Saturday.

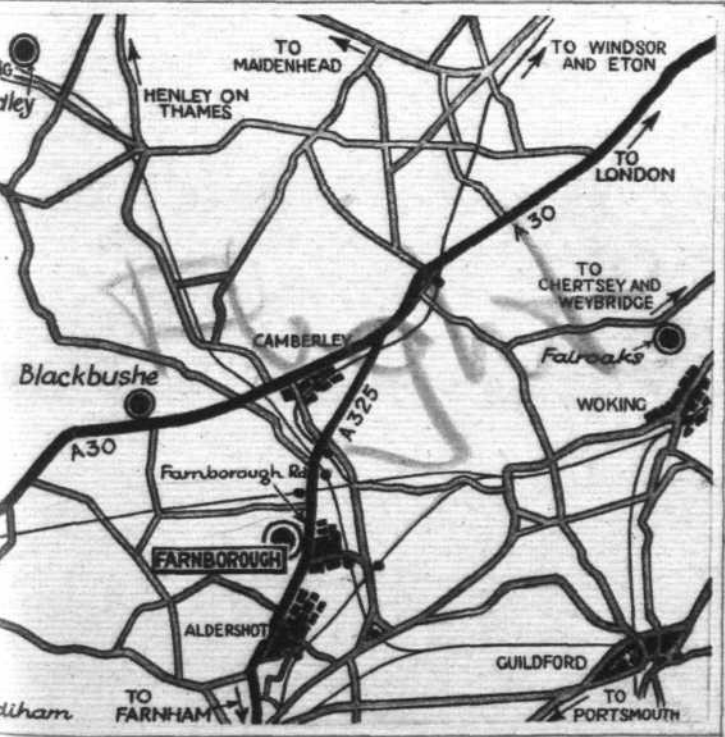
AGAIN this year the public will be admitted, on the final two days, to the S.B.A.C. Exhibition and Flying Display. As will be seen from the timetable in the panel above, the Show begins on Tuesday (September 5th), when, as usual, admission—on a special badge—will be confined to technicians from the industry and Government departments. The Wednesday, Thursday and Friday are the three "business days" of the Show, when guests of the S.B.A.C., from this country and abroad, will attend. On the Saturday and Sunday, September 9th and 10th, the general public will be admitted, gates opening at 10 a.m. on each day and flying beginning at 3 p.m.

Farnborough can be reached by road via the routes shown in the left-hand map above. On the two public days extra transport services are being laid on: there will be special trains from Waterloo to Aldershot, with normal services to Farnborough and North Camp stations, and buses will connect with them, while the Aldershot and District Traction Co. will



The situation of the airfield in relation to local roads and towns.

Plan of the airfield, showing new site of the exhibition hall.



operate a through coach service from Victoria Coach Station at 30-min intervals. Details of train times and of inclusive rail-and-bus fares are obtainable from railway enquiry offices.

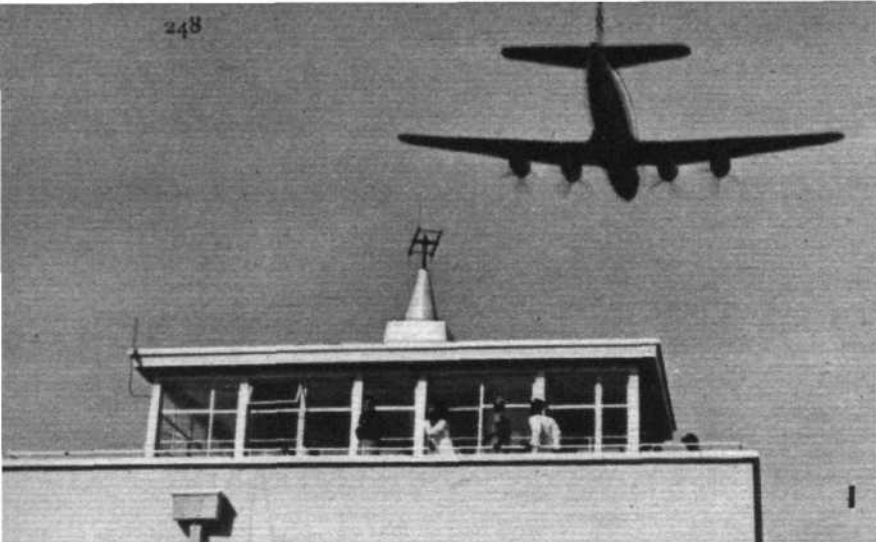
Admission and parking charges on the public days are as follows:—

Pedestrians	3s.
(children under 14, 2s.)		
Cars (inc. all occupants up to normal seating capacity)	£1
Coaches (inc. passengers occupying up to 40 seats)	£5
Double-decker buses as for two coaches.		
Motor cycles (solo, combination or three-wheeler, with all occupants)	5s.
Pedal cycles (with rider)	4s.

Parking and admission advance bookings at the above prices can be made with Auto-Parks, Ltd., 1/31, Maclise Road, Olympia, London, W.14 (Shepherd's Bush 5385), who will supply the necessary windscreen labels to facilitate routing.

Refreshment facilities will be available on the Exhibition ground, but the S.B.A.C. cannot guarantee that, if large crowds attend, food supplies will be unlimited.

Visitors arriving by air cannot be accommodated at Farnborough itself; the nearest convenient airfield is Blackbushe, near Camberley, and from here a shuttle-service of motor coaches will be operated on the trade days.



LIVINGSTONE'S OPENING DAY

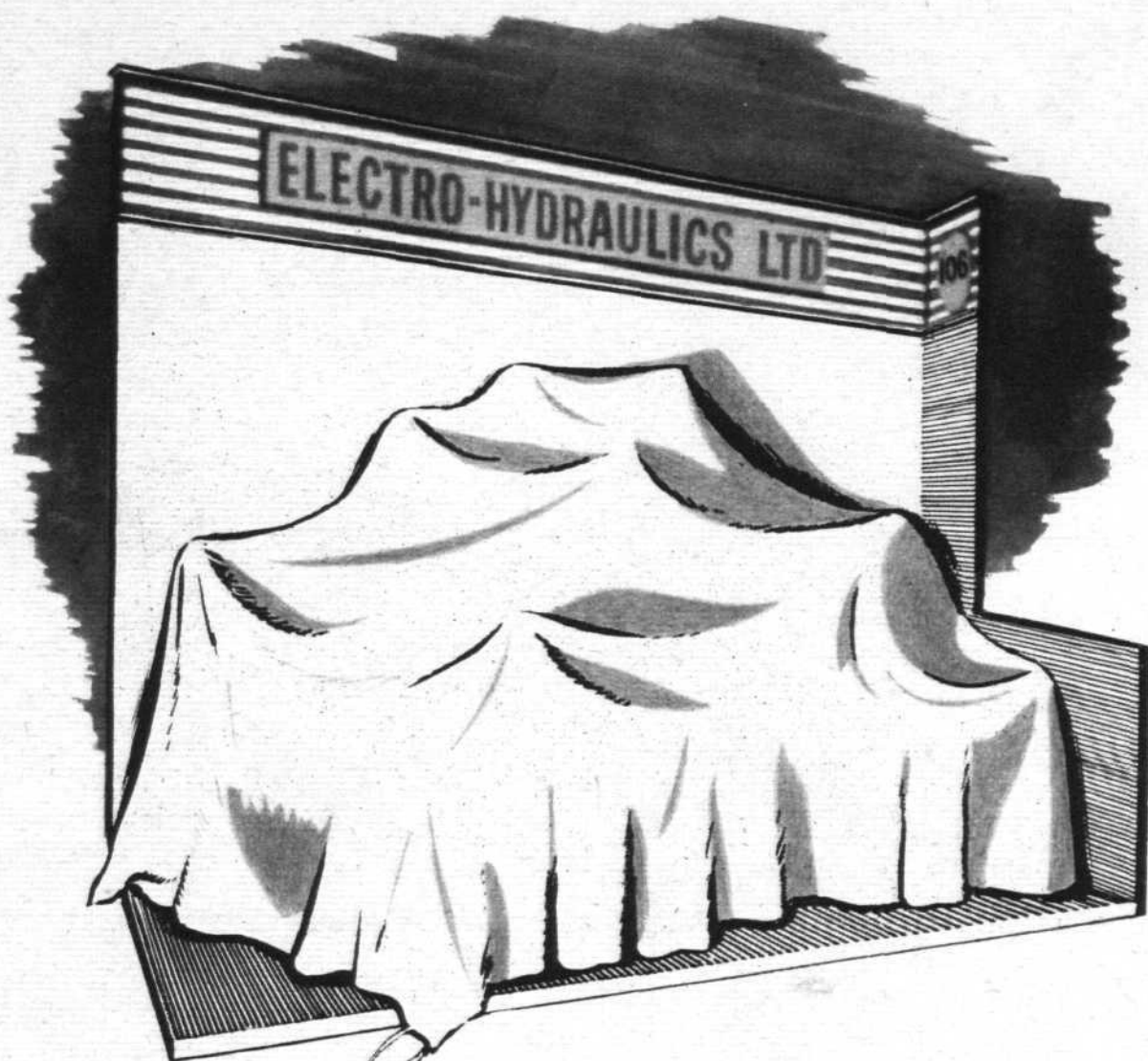
*Impressions at the Recent Inception
of Northern Rhodesia's New Airport*
(*"Flight" Photographs*)

- (1) A low fly-past by the Hermes flagship in the hands of B.O.A.C. captain John Veasey.
- (2) Livingstone's modern square-cut control tower and administrative building match the clean, attractive lines of the Hermes.
- (3) A group of participating aircraft, including Hermes, Viking, Marathon, Hastings, Dove and Harvard.
- (4) Seen in the area for the first time, South African Air Force Vampires made a profound impression during such manoeuvres as this high-speed, head-on fly-past.
- (5) To mark Lord Pakenham's official opening of the airport, following the speeches and the breaking of the civil ensign, the Director of Civil Aviation for Northern Rhodesia, Lt.-Col. M. J. Muspratt-Williams, takes off in his Gemini.
- (6) An African pipe band entertains as one of the new South African Airways Constellations is demonstrated.
- (7) Passenger reception buildings, apron and hangar, as seen from the control tower.



FARNBOROUGH

1950



As always we are looking forward, and in this instance to the pleasurable prospect of meeting old and new friends on Stand 106



AND HOW DOES THE FUEL GAUGE READ NOW?



VERY ACCURATELY thank you. Just as accurately as if the aircraft were flying on an even keel — or, for that matter, diving, climbing, rolling or looping the loop. The Pacitor Electronic Fuel Contents Gauge works with a complete disregard for attitude, altitude, speed or temperature. It will give totalised readings of all the tanks or independent readings for each tank on the one indicator. And there is only *one* moving part — the pointer on the dial. Yes, it's accurate — and safe. An optional addition to the Pacitor gauging system is the *Tank Balancer* which controls the flow of fuel from the aircraft fuel tanks and thus preserves the balance of the aircraft.

THE PACITOR ELECTRONIC FUEL CONTENTS GAUGE IS FITTED TO THESE AIRCRAFT: A.W.52 ATHENA · BALLIOL · BRABAZON I · SEA FURY · WYVERN · SWIFT 510 · VIKING · VALETTA SEAGULL · MARATHON II · TUDOR-NENE · VARSITY · VAMPIRE · VISCOUNT · APOLLO.

Enquiries to

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HEAD OFFICE & WORKS: TREFOREST, GLAMORGAN, ALSO BIRMINGHAM, STOCKHOLM, MELBOURNE.

Pacitor
REGD
**ELECTRONIC
FUEL
CONTENTS
GAUGE**



CIVIL AVIATION NEWS

PRACTICE RUN: An impression of majesty and power is conveyed by this view of the Brabazon making a practice landing at Farnborough, where it is due to appear in next week's S.B.A.C. Display.

THE VISCOUNT'S CONTRIBUTION

THE Vickers Viscount has now completed its initial spell of operational duty on B.E.A.'s London-Paris and London-Edinburgh routes. A statistical analysis of its contribution to the Corporation's scheduled traffic shows that it carried 1,838 passengers on a total of 44 round trips, involving 121 hr 48 min flying time. Thirty-six round trips were made to Paris and eight to Edinburgh.

The Viscount has now been returned to Vickers-Armstrongs, Ltd., for a detailed examination of its airframe, power units and ancillary equipment. The aircraft is a prototype of the larger 40-seat Viscount 700 series, for which B.E.A. has already signed an order for 28; they are due to begin regular service on the Corporation's longer Continental routes in the spring of 1953.

PACIFIC AIR LIFT

THE demand for aircraft to carry military supplies to Korea is beginning to affect American commercial airlines. Although further discussions are taking place to determine the number of types of aircraft needed, U.S. domestic and overseas operators have so far been called upon to make available only 45 four-engined aircraft. Most of these are DC-4s which had already been used in freight operations. Another 15 to 20 DC-4s will shortly be made available by charter companies.

It has been suggested that eventually as many as 35 per cent of the 490 four-engined commercial aircraft now in use in the United States may be required for the Korean air lift. A.O.A. has handed over one Stratocruiser, leaving a total of seven for its transatlantic flights. Several domestic companies are beginning to reduce frequencies as a result of this deployment of aircraft, but airline officials state that there is, as yet, no general shortage of seats. Later in the year, however, the situation is expected to become more difficult. It is thought that the first flights to be cut will be those to which special con-

cessions apply, such as the family-fare scheme and excursion rates.

Overseas operators are more likely to be affected than are domestic companies, since their aircraft are usually more suitable for trans-ocean flights. At present three companies—Pan American, United and Northwest Airlines—have a virtual monopoly of the air lift operations; the previous experience gained by Northwest on their normal Orient route, by way of Alaska and the Aleutians, is proving particularly valuable.

Although the diversion of civil aircraft may entail some reduction in schedules, the guaranteed revenue from government contracts and the fact that remaining aircraft will enjoy increased load-factors should result in larger airline profits.

One temporary government contract is said to bring the same amount of revenue as would result from the sale of four-fifths of available space on a normal scheduled service. This is well over the average annual load-factor and, as most companies have break-even factor of from 55 to 65 per cent, it can be seen that the air lift, unfortunate as the necessity may be, is likely to bring a considerable all-round improvement in American operating results.

THE CHARTER SITUATION

UNLIKE their American counterparts, mentioned elsewhere on this page, British charter companies, according to latest reports from the charter market, are facing a very bleak future—unless, of course, the promised R.A.F. troopings plans



TRULY CHRISTENED: A bottle containing water from springs in the Fountains Valley, near Pretoria, was used instead of the customary champagne when this S.A.A. Constellation was named *Pretoria* at Palmietfontein airport on August 22nd. The ceremony was performed by Mrs. Nicol, wife of the Administrator of the Transvaal.

"Flight" photograph.

CIVIL AVIATION NEWS . . .

(see *Flight*, August 17th) materialize on a substantial scale.

Although considerably more activity has been noticed on the Baltic exchange than in recent weeks, the attention of operators and brokers has been engaged more with enquiries than with definite fixtures. Cargo flights represent a larger percentage of the total business than has been the case for some time past. Nevertheless, there has apparently been such a slump in charter operations generally that at least twelve companies have been forced to close down in less than a year. Twenty-five firms now remain members of the British Air Charter Association, which is at present gravely concerned at the lack of orders.

So far, the Korean situation has had no noticeable effect on the European markets and, in spite of various rumours, no British aircraft have yet been contracted to fly Service supplies or personnel to this theatre.

A recent brokers' bulletin draws attention to the fact that in the United Kingdom to-day, with the exception of a few Yorks and one Tudor, there exist no large transport aircraft capable of world-wide operation. Apart from two Halifax freighters, fleets are composed largely of Dakotas, Vikings and smaller craft. When enquiries necessitate the use of larger aircraft, brokers are forced to investigate European or American markets for Skymasters and Constellations, or rely on the charter flights occasionally made by suitable aircraft of scheduled airlines.

This state of affairs is considered largely to be caused by the difficulty in obtaining foreign currency, particularly dollars, with which to purchase more suitable equipment. It is also due in some measure to the fact that the Civil Aviation Act now in force does not permit full and free operation of independently owned aircraft, so that operators are not encouraged to increase the size of their fleets.

WEST INDIAN AERADIO

AN addition to its long list of associated companies is announced by International Aeradio, Ltd. The new formation, to be known as International Aeradio (Caribbean), Ltd., will be based at Port of Spain, Trinidad, and will be responsible for the much-needed co-ordination of the widespread and scattered traffic-control facilities in this area.

The major shareholders are to be I.A.L., P.A.A. and B.W.I.A. Provision has also been made for the participation of airlines operating in the Caribbean area as member shareholders.

The company's initial commitments are in Jamaica, Barbados and British Guiana, but it is expected that the civil aviation authorities of the Leeward and Windward Islands will, in the near future, make use of the facilities offered.

FUTURE AFRICAN SERVICES

SOME interesting forecasts were given recently by Sir Miles Thomas on the subject of future services between London and South Africa. After stating that it was the intention to introduce a thrice-weekly Hermes service during the first week of November on the route London-Castel Benito-Kano-Leopoldville-Livingstone-Johannesburg, he went on to mention plans for the introduction of the Comet, and also the possibilities for the S.R.45 Princess.

The Comet, flying the route London-Cairo-Khartoum-Nairobi-Livingstone-Johannesburg (and on the return route, depending on seasonal winds, making an intermediate call at Rome between Cairo and London) was expected to complete the journey in 20 hours outward and 22 hours return, thus establishing a same-day service between London and the Cape. Livingstone Airport was an important link in the service, for Johannesburg to Nairobi would be a difficult stage for the Comet without it. Weight limitations and the three-engine case would make it necessary for the Comet to use the new Jan Smuts Airport at Johannesburg rather than Palmietfontein. Sir Miles thought the Comet would be ready for operation at much the same time as the airport was completed. However, in view of the slowing-down of work at Jan Smuts it is to be hoped that Comets will be ready before that time. They will first be introduced on the Karachi service.

Princess flying-boats might be used on a two-class two-stage service to South Africa in about eight years' time, and they should be capable of making the journey with a single stop at Lagos, or possibly it might be desirable to make a second one at Lisbon. First-class sleepers might be provided on one deck, and high-density seating elsewhere. Sir Miles thought that there would soon be scope for second-class travel with box meals and so on, on existing African routes, making use of amortized first-class aircraft.

BREVITIES

THE Canadian Air Line Pilots' Association is to form a Civil Air Transport command to release R.C.A.F. personnel from transport duties. Details are being discussed with the Canadian Defence Minister.

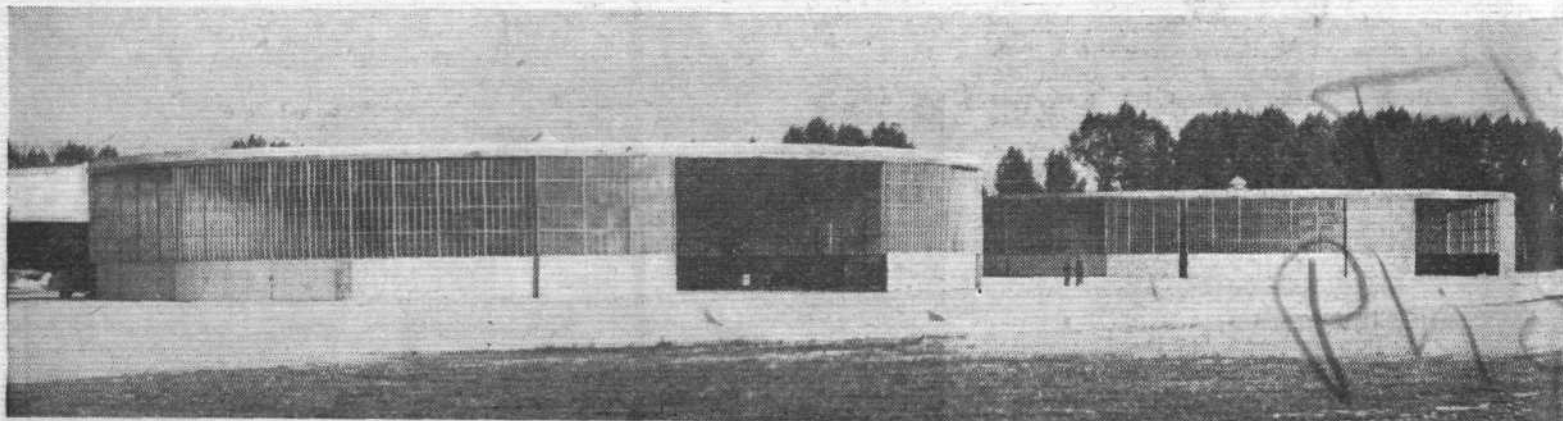
American Overseas Airlines will inaugurate the first direct service from New York to Düsseldorf and Cologne on September 2nd. Constellations will operate a return service on this route twice weekly. Return fare is quoted as being approximately £245.

Three bottles of cocktail and one of sherry were responsible for the safe landing of an Icelandic Airline's Skymaster at Prestwick on August 15th. By using the alcohol to replenish the hydraulic system, which had developed a leak, it was possible to obtain enough pressure to effect an emergency landing.

The Burmese government has decided to reconstruct Mingaladon Airport, near Rangoon. A runway conforming to I.C.A.O. class "A" requirements will be provided.

It is reported that sightseeing tours of Paris by night are being organized by a company known as Joos Transports. A Bristol freighter has been chosen for this purpose, mainly because of the excellent visibility from the passenger cabin. The Freighters flight will be followed by a cruise on the Seine and supper at a Parisian night club.

Passengers on Tasman Empire Airways' Solent services between Australia and New Zealand may now despatch telegrams while in flight at a cost of 6d per word above the normal charge for a telegram to an overseas destination. To provide this facility a special R/T system has been incorporated in the Solent flying boats.



TWIN RADIALS: The circular hangars at Grimbergen airfield, near Brussels, are not unknown to British pilots. These views convey a sense of their attractive and imaginative design and of their dimensions relative to the Auster in the close-range view (right).

In addition to its new four-day excursion fare for flights between London and Le Touquet, Air France announces a reduced return fare of £12 4s for the London-Paris route. A combined ticket provides for travel on the normal day services in one direction and for a return flight during the morning or evening "off-peak" periods. The normal fare is £14 8s.

The bilateral agreement between the United States and France has been amended to permit French aircraft to land at Miami and American machines to call at Nice. Miami will be added to Air France routes to Martinique, via Guadeloupe, Puerto Rico, the Dominican Republic and Haiti. P.A.A. will probably operate through Nice on the North Atlantic route to the Middle East, via Spain and Italy.

Large increases in air-freight traffic, both within New Zealand and from points overseas, are reported by the National Airways Corporation of that country. Approximately 160 different types of commodities—mainly samples sent to test the New Zealand market—were flown in during the first three weeks of July. Increasing use of internal services is also reported for the carriage of livestock, eggs and furniture.

Eagle Aviation, Ltd., a charter company operating three Yorks, a Halifax and a Dakota, has now completed its move from Aldermaston to Luton. The company specializes in the carriage of heavy freight loads, and recent cargoes have included a ship's propeller shaft, weighing nine tons, which was flown from Thornaby to Schiphol. The Dakota is at present engaged on a seven-month time charter to Air Malta, Ltd., flying a schedule service to Cairo, Catania and Rome.

From September 19th Silver City Airways are to reduce fares on their cross-Channel car ferry service. The rate for cars not exceeding 14ft in length will be cut from £27 to £19 and for larger vehicles from £32 to £25. Silver City Freighters have already carried over 2,000 cars between Lympne and Le Touquet this summer and are proving a serious competitor to the Southern Region of British Railways, which in the same period carried 1,500 cars between Dover and Boulogne and

Folkestone and Calais. The car ferry service was recently extended to include cycles and motor cycles. Fares are only slightly higher than the charge for surface transport from Dover to Calais.

The conclusion of an interline agreement between Swissair and S.A.S. has enabled considerable improvements to be made in the services between Zurich and Copenhagen. Previously there was no regular daily connection between these two points, while on some days duplicate services were flown in the same direction by both companies. From August 18th each company will, in turn, make daily flights between the two cities for predetermined periods. Swissair is also co-operating with K.L.M. in the same fashion on the Zurich-Amsterdam route.

United Airlines' total of 150,411,000 revenue passenger-miles flown in July represented an 8½ per cent increase over the figure for the corresponding month of last year. Air freight (2,568,000 ton-miles) in July showed a 51½ per cent improvement on last year's figure and 11½ per cent on that for June of this year, which was the busiest month in the company's 24-year history. These large gains are attributed to heavy holiday bookings and a widespread increase in industrial activity throughout the United States.

FROM THE CLUBS

THREE light aircraft designed for home construction are now undergoing C. of A. flight trials. The U.L.A.A. design sub-committee has always made intensive efforts to sponsor the development of designs suitable for this purpose, and when the Cs. of A. are awarded a "publicity drive" is to be made to popularize the idea of home-built ultra-lights. The three aircraft in question—all single-seaters powered by 36 h.p. Aeronca-

J.A.P. engines—are the Dart Kitten, Britten-Norman B.N.-1F, and the Slingsby Motor Tutor. It is hoped that hire-purchase arrangements may be made for the supply of construction kits.

Since 1945 members of the U.L.A.A. have been responsible for work on twenty-three light-aircraft projects; some were reconstructions of pre-war machines and the remainder were new aircraft built to pre-war designs. Eight have already flown and six more are expected to fly in the near future. The Association reports that in every case the standard of workmanship was of an extremely high order.

In response to enquiries from members the current issue of the Association's bulletin contains a list of all known ultra-light aircraft which are at present available for sale in this country.

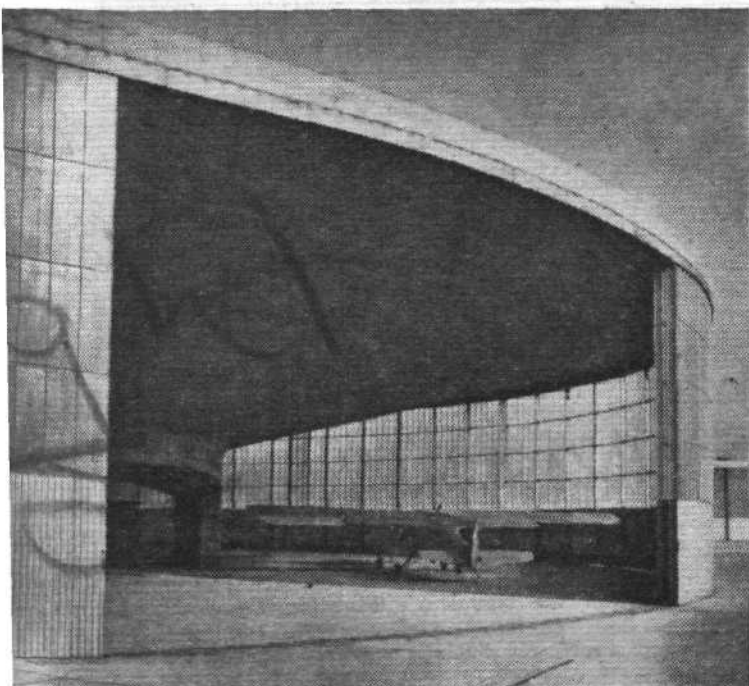
A new U.L.A.A. group is being formed at Coventry, to cater for enthusiasts residing in the Coventry, Birmingham and Leicester areas; details were given in a letter in our Correspondence columns last week.

THE SURREY FLYING CLUB, based at Gatwick Airport, completed a total of 65 hours' flying during July with a fleet which includes Piper Cubs, a Fairchild Argus, a Hornet Moth and a Magister. During the month three pilots made their first solos and two more completed the course for the Private Pilots' Licence. A "tea patrol" is being organized for Saturday, September 23rd, when the Club's pilots will defend an area up to three miles from the airfield boundary. Attacking pilots, flying at 1,000-2,000ft, should endeavour to reach the airfield between 3.15 and 3.45 p.m. The crews of unspotted aircraft will receive free teas.

The club-house at Gatwick, with its pleasant bar, billiards and television, provides unusually attractive facilities for visitors. Residential accommodation is also available. The annual subscription to the Surrey Flying Club is two guineas, and membership details are obtainable from the secretary, Mr. C. I. Holdup, at the Airport (telephone Horley 1510).



FRENCH EXPERIMENT: A recent photograph of the Rey 01 twin-engined light monoplane that reveals the extremely clean aerodynamic form of this French experimental aircraft. Two prototypes have been built, the first of which made its maiden flight on December 16th last.



RACE DAY AT THRUXTON

Ron Paine (Hawk Trainer) Wins Comfortably at 136 m.p.h.

THOUGH an unfortunate turn of weather did much to discourage the hoped-for crowds at the Wiltshire Club's meeting last Saturday, August 26th, demonstrating pilots and competitors in the annual race for the Thrupton Cup gave no hint of being the least weather conscious.

A sparkling display of aerobatics in an Autocrat flown by L. A. Leatham (an Auster test pilot) opened the show. The high wind in the early afternoon being unsuitable for a parachute jump, Major Terence Willans contrived to make amends with an exhibition of wing-walking on a Tiger Moth. F/L. W. L. Jennings' subsequent evolutions in an Olympia Eon sailplane were a sheer delight to watch, the effortlessness of his perfectly executed loops and stall-turns near the ground showing that the Olympia was in the hands of a master.

A convincing dog-fight between two Tiger Moths followed, and the time had then arrived for competing aircraft to line up for the start of the Thrupton Cup Race, which, as last year, was flown over a two-leg course from Thrupton to Totland Bay (Isle of Wight) and back—a distance of approximately 75 miles. The assorted field included many familiar faces and machines and the number of entries—fifteen—seemed just large enough to ensure keen competition for the first three places.

First away was Reiss's Tiger Moth, followed closely by Lt-Col. L. A. Strange, R.F.C. veteran, in a Taylorcraft. The Bellamy brothers, in an Autocrat and a Super Ace, together with S/L. Cliffe's Auster formed the next batch of close handicaps. The first of the Hawk IIIs, flown by Captain Spencer-Smith, then took off with Miss Curtis' trim little Foster-Wicko in hot pursuit. They were followed at almost regular minute-intervals by the remaining three Hawk Trainers and—after a somewhat longer wait—by the two Proctors nearly in formation; these latter machines were flown by D. C. Jemmett and A. S. K. Paine, both brothers of pilots already airborne. Somers' familiar Gipsy Major Gemini then streaked off towards the south, leaving Alington's rakish Sparrowhawk in his almost customary position of scratch man.

With no lapping or pylon-turning to add further interest it only remained to wait patiently for the first tiny speck to appear on the rather murky horizon to the south. When it did so, some twenty minutes later, several excited seconds passed before it was recognized as one of the Hawk IIIs. Then, as it dived towards the finishing line, the racing number

"95" identified it as that flown by Ron Paine of Wolverhampton—a winner by half a minute. As several other specks began to take shape it was obvious that there would be a closer fight for the next few places. Although Somers' Gemini appeared to be closing very fast it could not quite beat Reiss' Tiger Moth across the line; fourth and fifth were D. C. Jemmett and G. Bellamy in a Hawk III and the Super Ace respectively. Geoffrey Alington's Sparrowhawk slipped easily into sixth place and at the same time claimed the prize for the fastest aircraft in the race.

All competitors having landed, the maestro of Magister aerobatics, C. A. Nepean Bishop of Redhill, proceeded to give of his very best. As always, his display was exemplary, ending with the now famous Bishop landing off a very low stall turn. An Auster Autocrat duly "disinfected" the runways and parked aircraft with clouds of some highly coloured but strangely unobnoxious substance—no doubt to provide a clean arena for the Royal Air Force events which followed. In the comparatively bad visibility of a heavy shower a Harvard performed some neat assorted aerobatics, followed by several high-speed runs by a Meteor from Tangmere; the pilots were F/Ls B. Byrne and S. Clayton respectively.

As evening approached the wind abated somewhat and parachutist Willans, ever keen, decided to end the programme in his usual manner.

Pos.	Start Ord.	Competitor, aircraft and engine	Handicap m. s.	Speed m.p.h.
1	11	R. R. Paine (Hawk III)	9 12	136.0
2	1	P. Q. Reiss (Tiger Moth)	0 00	104.5
3	14	J. N. Somers (Gemini III)	16 16	169.0
4	9	D. C. Jemmett (Hawk III)	8 7	128.0
5	5	G. Bellamy (Super Ace)	3 54	114.0
6	15	C. G. Alington (Sparrowhawk)	17 19	171.5
7	8	H. T. Ryan (Hawk III)	6 52	120.5
8	13	D. J. Jemmett (Proctor)	13 17	145.5
9	12	A. S. K. Paine (Proctor)	13 12	145.0
10	2	Lt.-Col. L. A. Strange (Taylorcraft)	1 11	103.0
11	4	S/L. L. Cliffe (Auster)	3 33	105.5
12	7	Miss E. L. Curtis (Foster-Wicko)	5 57	111.0
13	6	Capt. Spencer-Smith (Hawk III)	5 22	109.0
14	3	J. Bellamy (Autocrat)	3 12	97.5
—	10	D. Ogilvy (Falcon)	8 37	—

LEE-ON-SOLENT DISPLAY

LLEVEL, well-kept lawns, enclosing a medium-sized airfield, clustered with the white-capped figures of Naval officers and ratings, with their guests; damaged hangars still recalling a 1940 dive-bombing raid; a fresh Channel breeze from the nearby shore. This was the background at Lee-on-Solent last Saturday, when H.M. Ships *Daedalus* and *Siskin* (R.N. Air Stations Lee-on-Solent and Gosport) were at home to friends and neighbours. Some 15,000-20,000 visitors saw the flying display and kindred activities.

"Lee" is the headquarters of Naval Aviation and, as a representative station of Home Air Command, trains and maintains carrier air groups, and instructs aircrews and maintenance ratings. The At Home—first to be held there since the war—was attended by the Flag Officer (Air) Home, Vice-Admiral Sir Reginald Portal. An overture to the afternoon's display, postponed slightly by bad weather, was an air parade of 70 Naval aircraft over South Coast towns.

Item No. 1 on a varied programme repeated one of the favourite events of the R.A.F. Display—request aerobatics, performed in this instance in a Harvard piloted by F/L. Olivier. Similar aircraft were employed for the perennial pupil and instructor act—the next event—given by Lts. Smith and Buchan-Sydesseff. After some skilled sailplane evolutions by two noted exponents of soaring flight (Lt. Cdrs. Sproule and Goodhart), Lt. Elliott "borrowed" a Sea Fury from the static part to give a lively aerobatic performance.

Two Sea Otters then landed—seemingly with peaceful intent—and suddenly disgorged an armed party, two strong and equipped with cutlasses. Before long the invaders had seized a conveniently parked Tiger Moth and a crazy-flying act was in full swing. For giving a new look to an old and favourite event, credit must be shared between one civilian and two Naval pilots—Mr. Chaplin and Lts. Wines and Threlfall.

A smart-looking Naval Dragonfly (otherwise Westland-Sikorsky S-51), flown by Lt. Mair, went through an instructive rescue routine at various points before the crowd, and the display then took on a more belligerent air with the stream

take-off by No. 1 Carrier Air Group (Lt. Cdr. Orr) and a V.R. formation. Four Firebrands, rocket-assisted, scrambled with a snap, crackle and a roar, to be followed by eight Sea Hornets, four more Firebrands, and 12 Seafires of No. 1832 R.N.V.R. Squadron—callers from Culham. After several noisy and impressive "beats-up" and "peels-off," the Group touched down as smartly as it had taken off, with the exception of an aerobatic flight of Sea Hornets next to perform.

Meanwhile, the 1832-Squadron Seafires, carrying under-fuselage fuel tanks, had been standing-off in the background. As the Sea Hornets taxied in, with wings folding tidily, the Seafires dived, in flights, to strafe a large and sinister-looking submarine "surfaced" on the airfield.

After a brief demonstration by a Sea Meteor 3, equipped with arrester hook for training and experimental purposes, Peter Lawrence, of Blackburn and General Aircraft, Ltd., flew over unexpectedly in the new YB-1 Double-Mamba-powered experimental anti-submarine aircraft. This was the YB-1's first public appearance and the Naval audience were obviously impressed by its smooth and lively performance. A full-speed run at low altitude showed a remarkable rate of knots, and the YB-1 then made two slower passes with each co-axial airscrew feathered in turn. The highlight of this most welcome guest's performance was a climbing roll with one of the two turboprops shut off.

After a brief pause, Lt. Reynolds suddenly materialized from Boscombe Down at low altitude in a prototype Sea Hawk—the latest fighter at present on order for Naval Aviation. The "whoosh" of his arrival sent a ripple of excited pleasure through the crowd; zoom climbs and rolls were deftly undertaken despite the patchy low cloud, and the Sea Hawk's performance in general showed "Lee" a very clean pair of heels. Another jet event was the team aerobatics show by three Vampires from the Naval Air Fighting Development Unit. The pilots were Lts. Dick, Petrie and Horn—an excellent team, specializing in closely spaced slow rolls. The finale was a mixed fly-past of representative Naval aircraft.



Britain's Newest Night Fighter

THE A.W. METEOR NF.11

AWA
PACEMAKERS OF PROGRESS

SIR W. G. ARMSTRONG WHITWORTH AIRCRAFT LTD., BAGINTON, Nr. COVENTRY. MEMBER OF THE HAWKER SIDDELEY GROUP

Cogen



MAKING FLYING SAFER

No. 3 of a series

Graviner Magnetic Fire Detector Switches

(Resetting Type) (PAT. APPD. FOR)

MAGNETIC Fire Detector Switches are the latest and most promising line of development to meet the need for an efficient and foolproof resetting fire detector for piston engine and gas turbine power units. They would seem also to have a wide application where drift free temperature control is required at temperatures of 250°C., or 350°C., or 450°C.

They depend for their operation on the property in magnetic materials known as the Curie point. The Curie point is that temperature at which a magnetic material becomes non-magnetic, and these materials regain their magnetic properties when cooled below the Curie point.

The Royal Aircraft Establishment first proposed the application of this property for use in fire detection switches: simplicity, robustness and light weight are the key notes in the resulting Graviner design, which has proved itself immune to high g and a wide range of vibration. Moreover, adoption of the Curie point phenomenon nullifies the generally arduous and often expensive methods of accurate adjustment essential in most fixed



temperature detectors. Choice of operating temperature now becomes simply a choice of alloy with known fixed Curie point.

★ Owing to the small mass (approx. 2½ ozs.) and low heat capacity of the temperature sensing element, detection time in the standard are of the order of 1 to 2 seconds and reset times only twice that time.

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SOUTH COAST RACE ENTRIES

Seventy-five Aircraft to Compete for £2,350 in Prize Money

AS was, perhaps, to be expected in view of the handsome prizes offered—the list amounts to £2,350—the *Daily Express* International Air Race along the South Coast on September 16th has attracted an excellent entry, no fewer than 75 owners having paid the £10 fee. The list is given in detail below; it has been arranged by the R.Ae.C. in approximate handicap order, but minor changes are likely when the handicaps are finally worked out. On the scratch mark, as at present shown, is a Halifax (four Hercules 100), which, if calculated to average 320 m.p.h., should be about 10 m.p.h. faster than the Hurricane IIc (Merlin 24); the Hurricane in turn, should be about 10 m.p.h. faster than the Balliol 2. A performance that will be watched with interest is that of a Marathon II (two Mamba I) to be flown by Mr. Hugh Kendall, the makers' chief test pilot.

Almost all of the light, private-owner type, the aircraft entered represent nearly every variety commonly seen in this country since, and shortly before, the war. Of true foreign entries there are only two—the B.H.T.1 Beauty from Norway, to be flown by Capt. J. H. Christie, and a French S.F.C.A. Lignel 46, to be piloted by its designer. The Aero Club of India is sending a Beech Bonanza, to be flown by F/L C. B. Contractor. An unusual foreign type entered by a Briton is a pre-war Austrian Hirtenberg H.S.9a. One notable new British type is the Miles Aries I (two Cirrus Major), the aircraft which Mr. F. G. Miles has been developing at Redhill from the Gemini; he will fly it himself if it is ready in time.

The race will start at 2 p.m. from Hurn Airport, near Bournemouth, and the course, of just over 200 miles, will follow the coastline eastward, with various pierheads at boundary-points, to the North Foreland, where a turn will be made along the North Thanet coast to the finishing-line at Herne Bay Pier. Competitors will then scatter and land at Southend, Rochester and Lympne (Manston is not available). At the time of going to press, no decision has been announced as to where the prize-giving will take place.

First prize is £1,000, second £500 and third £250, while other awards will include £50 prizes for the best speed in each of six F.A.I. weight categories.

Entrant	Pilot	Aircraft	Engine(s)	Reg.
T. H. Marshall	R. A. Mann	Moth	Gipsy I	G-AAWO
W. R. Suffern	B. Gait	Moth	Gipsy II	G-ABJJ
A. E. H. Colman	A. E. H. Colman	Tiger Moth	Gipsy Major I	G-ALTW
Newcastle A.C.	W. M. Evans	Tiger Moth	Gipsy Major I	G-AIVW
L. A. Strange	L. A. Strange	Taylorcraft Plus D	Cirrus Minor I	G-AHCR
T. W. Hayhow	T. W. Hayhow	Auster V	Lycoming 0-290-3	G-AJXX
D. McGaskill	D. McGaskill	Auster V	Lycoming 0-290-3	G-AIPO
Portsmouth A.C.	P. A. O'Sullivan	Auster V	Lycoming 0-290-3	G-AJJR
and Cowes A.C.				
D. G. S. Cotter	D. G. S. Cotter	Auster V	Lycoming 0-290-3	G-ALYD
J. H. Davis	D. R. Robertson	Hirtenberg H.S. 9a	Gipsy Major I	G-AGAK
H. W. J. Bethell	H. W. J. Bethell	Moth Minor	Gipsy Minor I	G-AFNI
P. Fillingham	P. Fillingham	Moth Minor Coupé	Gipsy Minor I	G-AFOJ
Miss L. Curtis	Miss L. Curtis	Wicko G.M.1	Gipsy Major I	G-AFJB
Auster Aircraft	R. L. Porteous	Autocar	Cirrus Major III	G-AJYS
Chrislea Aircraft	D. Lowry	Skyjeep	Cirrus Major III	G-AKVS
J. W. Beazley	J. W. Beazley	Hornet Moth	Gipsy Major I	G-AFLO
Hawker Aircraft	G. F. Bullen	Tomtit	Mongoose IIIc	G-AFTA
R. E. Clear	R. E. Clear	Comper Swift	Pobjoy R	G-ACTF
R. S. Richardson	A. L. Cole	Comper Swift	Pobjoy R	G-ABUS
Flightways	V. H. Bellamy	Puss Moth	Gipsy Major I	G-AAZP
G. Reid-Walker	G. Reid-Walker	Piper Super Cruiser	Lycoming 0-235-C1	G-AJGY
College of Aeronautics	G. C. E. L. Mole	Chilton D.W.1a	Train 4-T	G-AFSV
International Air Exports, Ltd.	A. T. Leaning	Starck A.S.71	Mikron	—
E. J. Morton	E. J. Morton	Messenger IVa	Gipsy Major Id	G-ALAF
T. W. Leadbetter	W. H. Leadbetter	Messenger IVa	Gipsy Major Id	G-ALAR
E. W. Westbrook	E. W. Westbrook	Messenger IVa	Gipsy Major Id	G-ALBE
Major the Hon. J. B. Fermor-Hesketh	W/C. K. T. Lofts	Messenger IIa	Cirrus Major III	G-AHXR
E. C. Cathels	E. C. Cathels	Aerovan IV	2 Cirrus Major III	G-AJOF
F. G. Miles, Ltd.	G. H. Miles	Aerovan VI	2 Lycoming 0-435-A	G-AKHF
K. M. Freeman	K. M. Freeman	Hawk Tr.	Gipsy Major I	G-AITO
H. T. Ryan	H. T. Ryan	Hawk Tr.	Gipsy Major I	G-AHNU
F/L P. Raymond	F/L P. Raymond	Hawk Tr.	Gipsy Major I	G-ALGK
Cowes A.C.	Capt. R. M. B. Ward	Hawk Tr.	Gipsy Major I	G-AKRM

Entrant	Pilot	Aircraft	Engine(s)	Reg.
R. H. Young	C. A. N. Bishop	Hawk Tr.	Gipsy Major I	G-AIUA
W. J. Twitchell	W. J. Twitchell	Hawk Tr.	Gipsy Major I	G-AIDF
E. Day	E. Day	Hawk Tr.	Gipsy Major I	G-AKRV
Miss M. Wigram	C. J. de Vere	Hawk Tr.	Gipsy Major I	G-AJDR
D. J. Jemmett	D. J. Jemmett	Hawk Tr.	Gipsy Major I	G-AHNV
and J. H. Ashton				
Miss A. Ogilvy	D. F. Ogilvy	Falcon	Gipsy Major Ic	G-ADFH
Lady Margaret Stewart	R. Rumbold	Miles Whitney Straight	Gipsy Major I	G-AEVL
C. P. L. Godsall	F. W. Griffith	Leopard Moth	Gipsy Major I	G-ACLL
West London Aero Club	Miss J. L. A. Hughes	Fairchild Argus I	Super Scarab 165	G-AJAT
A. J. Walter	H. T. Newton	Fairchild Argus I	Super Scarab 165	G-AKIZ
C. A. Pike	J. K. Brown	Chipmunk I	Gipsy Major 10c	GAKDN
W. S. Shackleton	Miss R. M. Sharpe	Rapide	2 Gipsy Queen III	G-AKVV
Hampshire A.C.	P. Hillwood	Gemini Ia	2 Cirrus Minor II	G-AJKR
F. Dunkerley	F. Dunkerley	Gemini Ia	2 Cirrus Minor II	G-AKKB
N. W. Charlton	N. W. Charlton	Proctor I	Gipsy Queen II	G-AHUZ
S. G. Nicholson	S. G. Nicholson	Proctor I	Gipsy Queen II	G-AHYA
G. M. Tonge	P. E. Meagher	Proctor I	Gipsy Queen II	G-AGWV
Viscount Kemsley	B. Collins	Proctor III	Gipsy Queen II	G-AGTH
D. E. Barton	D. E. Barton	Proctor III	Gipsy Queen II	G-AKZG
K. C. Millican	K. C. Millican	Proctor III	Gipsy Queen II	G-ALMS
J. P. Crowther	J. P. Crowther	Proctor III	Gipsy Queen II	G-AKWV
J. E. Rylands	S/L. W. I. Lashbrook	Proctor III	Gipsy Queen II	G-AIHD
V. van Damm	Mrs. Z. Irwin	Proctor V	Gipsy Queen II	G-AIET
D. J. Bennett	D. J. Bennett	Proctor V	Gipsy Queen II	G-AHGR
Capt. J. H. Christie	Capt. J. H. Christie	BHT-I	Mikron 4-II	LN-IHC
R. Crewdson	I. A. Forbes	Nighthawk	Gipsy Six II	G-AGWT
S/L J. Rush	S/L J. Rush	Falcon Six	Gipsy Six I	G-AECC
J. N. Somers	J. N. Somers	Gemini III	2 D.H. Gipsy Major Ic	G-AKDC
A. Cdre. J. Oliver	A. Cdre. J. Oliver	Miles M-29-6 S.F.C.A.	Cirrus Major III	G-AHAA
J. Lignel†	J. Lignel	Lignel 46	Mathis 8-G.20	F-BCFS
C. G. Alington	C. G. Alington	Percival Q-6	2 Gipsy Queen II	G-AEYE
A. Cdre. D. C. T. Bennett	A. Cdre. D. C. T. Bennett	Youngman-Baynes H.L.	Gipsy Queen 32	G-AMBI
§Aero Club of India	F/L C. B. Contractor	Beech 35 Bonanza	Continental E-185-1	VT-CSF
Airspeed, Ltd.	R.E.M.B. Milne	Consul Miles	2 Cheechah 10	G-AHEF
F. G. Miles, Ltd.	F. G. Miles	Aries I	2 Cirrus Major	—
R. R. Paine	R. R. Paine	Hawk Speed Six	Gipsy Six If H.C.	G-ADGP
J. J. Parkes	J. M. Williams	Consul	2 Leonides 14	VX587
Personal Plane Services, Ltd.	H. E. Scrope	Mew Gull II	Gipsy Six II	G-AEXF
Handley Page (Reading) Ltd.	H. Kendall	Marathon II	2 Mamba I	G-AHXU
Boulton Paul Aircraft, Ltd.	A. E. Gunn	Balliol 2	Merlin 35	VR 602
Hawker Aircraft Ltd.	F. Murphy	Hurricane IIc	Merlin 24	G-AMAU
J. E. Rylands	A. N. Marshall	Halifax C8	4 Hercules 100	G-AKEC

* Norway. † France. § India.

MR. EDEN VISITS "500"

WHEN, last Friday, he visited No. 500 (County of Kent) Squadron, of which he is Honorary Air Commodore, Mr. Anthony Eden flew in a Meteor 7 piloted by the C.O., S/L. H. C. Kennard. The squadron, which was at its annual camp at Thorney Island, receives regular visits from Mr. Eden, who had his first experience of jet flight twelve months ago. Normally based at West Malling, 500 Squadron was the first R.Aux.A.F. unit to receive jets.

SIR GEORGE GODFREY REORGANIZATION

IT is announced that Sir George Godfrey and Partners, Ltd., Hanworth, Middlesex, have been reorganized into three new companies, Sir George Godfrey and Partners (Holdings) Ltd., which is the financial controlling company, and two subsidiaries, Sir George Godfrey and Partners, Ltd., who will continue to specialize in cabin-atmosphere-conditioning equipment, and Sir George Godfrey and Partners (Industrial), Ltd., which has been formed to undertake the industrial interests.

Three new directors have joined the boards of the subsidiary companies: Mr. R. W. Everall is director and general manager of the aviation interests; Mr. Fisher, chief accountant and secretary since 1942, has joined the board of the industrial company; and Mr. N. Anderson, chief engineer, has been appointed to the board of the aviation company.

CORRESPONDENCE

The Editor of "Flight" does not hold himself responsible for the views expressed by correspondents in these columns. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters.

Veterans on Show

IN your issue of August 17th, I note that my old friend Harry Harper corrects the vintage of a Bleriot. This is good for historical records and I would like to add that, if the Blackburn "1912" is the one originally owned by Foggin and Glew (and I remember the late Mr. Shuttleworth once telling me it was), then the date is 1913—and I should know, since I helped to make it! R. W. KENWORTHY,
London, S.W.19. A.F.R.Ae.S.

I WAS very interested in the letter from Mr. Harry Harper on the subject of old Bleriot monoplanes in *Flight* of August 17th. He is quite correct regarding the monoplane in which Grahame-White won the Gordon-Bennett race of 1910. To take the history a stage further, this actual Bleriot was brought back by Grahame-White and, after replacement of the 100 h.p. Gnome engine by a 50 h.p. model this Bleriot, together with Farmans and Nieuport and other aircraft, formed part of the permanent fleet which was used for exhibition flying and racing at the regular Hendon week-end meetings. It was on this particular Bleriot monoplane that I did most of my own demonstration flying and racing at those meetings.

After I had a bad crash in this aircraft in March, 1913, it was hauled up into one of the Grahame-White sheds where I believe it remained until the outbreak of the 1914 war—when, I presume, it was destroyed. A. M. DESOUTTER.
Gatwick Airport.

The Oldest Club

ON page 114 of your issue of July 27th it is stated that the Yorkshire Club is the oldest in the country, but if memory serves me aright they were still in the throes of organization when the London and Newcastle Clubs were founded in 1925.

I remember, at the Inter-Club Conferences held in the Royal Aero Club in Clifford Street, Gilbert Dennison, of the Midland Club, claiming that his was the oldest club, having been founded in 1909. JOHN BELL.

London, S.W.11.

Expensive Hangarage

THE reduction in the landing fees is all very well as far as it goes, but it does not go far enough. I have had to sell my machine, a Cub, as a result of the hangarage charges, which are truly exorbitant, and am now grounded unless I wish to pay £3 per hour.

Practically all the airfields in this country were constructed for war purposes and it is most unfitting that private pilots should be expected to contribute anything beyond a nominal fee for hangarage, as money spent on war equipment is written off anyhow. Look at the free gifts that have been made of taxpayers' money to other countries in the shape of railways, rolling stock and airfields, e.g., Iraq and India.

Harlington, Middlesex.

E. BRETT.

R/T Versus W/T

A CORRESPONDENT recently referred to the discussions of the Communications Working Group at the I.A.T.A. Technical Conference at Asbury Park, N.J., last May regarding the safety and practicability of long-distance radio-telephone air/ground communication.

It is not intended here to discuss fully the relative merits and demerits of R/T. and W/T., or to deny that R/T. is making considerable progress. But it cannot be said that, in its present state, R/T. is a sufficient substitute for W/T. over long and ranging distances, and under changing climatic conditions. It is in the latter circumstances that the experience of the W/T. operator greatly increases the advantages of W/T. communication—something the R/T. operator can never acquire, due to the range of audio frequencies and tones involved, as against the W/T. monotone.

The fact that one transatlantic operating company depends solely on R/T. communication offers no basis to argue the entire safety and practicability of the system over long distances. In fact, instances have been noted recently where aircraft using R/T. only for oceanic communication have been involved in circumstances causing some concern, not only of their own safety, but that of other aircraft as well. These circumstances could easily have been more serious,

and would not have arisen had W/T. communication been in use. It would be too tedious to dwell on the instances where W/T. has made positive contributions to the safety of aircraft.

The speculation arises as to where the Communications Working Group derived its information and whether it was qualified to analyze such information and to furnish recommendations upon it. Or, indeed, whether the economics involved outweighed the technical considerations

Bristol, 5.

T. C. JONES.

Sky Signs

JUDGING by the disclaimer in the editorial introduction to Mr. Cooper's excellent article on "Aerial Advertising" (August 17th) it would seem that *Flight* has no particular enthusiasm for this method of publicity. Such is my own feeling, not so much on the score of noise, but because a blue sky and white clouds are more aesthetically pleasing than the words "Blogg's Soap."

Anything of this kind—e.g., ugly hoardings on picturesque old buildings—induces a sort of resistance which makes one determined not to patronize the product thus advertised.

Edinburgh.

SIMPLE SIMON.

I READ with interest Mr. Cooper's article "Aerial Advertising," in your issue dated August 17th. In your preface you mention sky-writing and I feel that it may interest readers to know that the S.E.5A now exhibited in the Science Museum in R.A.F. markings is in reality one of those used pre-war for sky-writing in Britain and Germany by Major J. C. Savage's old company. The three last letters of the civil registration G-EBIB are dimly to be seen under the camouflage.

The remarks about possible engine failure while the Avros were over London recalls that the Avro 504K G-EBYE engaged on film work in about 1930 did force-land in a back garden at Brixton.

London, W.14.

JOHN STROUD.

Cloud-boring

I READ with interest "Reservist's" letter, in your August 10th issue, on "Cloud-boring." I have noticed this phenomenon three or four times and have observed that it does not apply to jet aircraft only.

The first time I witnessed it the aircraft responsible was an Avro Shackleton flying at about 15,000ft and travelling at about 300 m.p.h. The cloud formation appeared to be cirrus or decaying cumulus, forming a thin sheet of cloud.

The last time I witnessed this phenomenon was at 1830 hrs on the evening of August 9th, when the aircraft was the D.H. Comet, travelling through cirrus clouds at about 20,000ft; but there were no vapour trails through the clouds.

At no time have I seen the "double tunnel" effect; it was as though the cloud was forced up on either side, leaving a single "tunnel."

In my opinion the heat of the engines is a secondary factor, the circular airflow from the airscrews or jets flings the cloud aside.

London, S.W.3.

T. PHARO.

FORTHCOMING EVENTS

- | | |
|-------------|---|
| Sept. 2. | International Contest for Free Balloons, Holland. |
| Sept. 2. | Coventry Aero Club: Siddeley Challenge Trophy Race Baginton, Coventry. |
| Sept. 5-10. | S.B.A.C. Flying Display and Exhibition. |
| Sept. 8-11. | Biarritz International Rally. |
| Sept. 10. | R.A.F.A.: Festival of Remembrance, Royal Albert Hall, London. |
| Sept. 15. | Battle of Britain Day. |
| Sept. 16. | R.A.F.: "At Home" Day. |
| Sept. 16. | Daily Express International Air Race, Hurn Airport, Bourne-mouth. |
| Sept. 17. | Air League (Portsmouth Branch): Air Display. |
| Sept. 19. | Aero Golfing Society: Autumn Meeting (Cellon Cup) Sudbrook Park. |
| Sept. 23. | Unveiling of Air Transport Auxiliary Plaque in St. Paul's Cathedral. |
| Sept. 23. | Bristol and Wessex Aero Club and Airways Flying Club: Garden Party, Whitchurch. |
| Sept. 24. | Association of British Aero Clubs and Centres: Summer Convention, White Waltham. |
| Dec. 16. | Institute of the Aeronautical Sciences: Fourteenth Wright Bros. Lecture, Washington, D.C. |



SERVICE AVIATION

FORTHCOMING ATTRACTION: Aerobatics by a Meteor 8 carrying, as seen in this take-off view, two 1,000-lb bombs will be a highlight of the S.B.A.C. Flying Display and Exhibition at Farnborough next week. Other recent versions of the Meteor will also be demonstrated.

For Fighter Command?

IN announcing (*Flight*, August 17th) that the new Hawker P.1081 swept-wing jet fighter was to be produced in Australia, we also quoted a Hawker announcement that this aircraft was to go into production in Britain. According to a new statement, the P.1081 "is being produced to strengthen the defences of Britain and the Commonwealth . . . many of its features have already been proved with the P.1052 research aircraft."

British production of this advanced fighter would, presumably, be for the R.A.F., and the P.1081 would thus become the first jet fighter with swept-back wing and tail surfaces to go into service in this country. With its present Nene turbojet (and proposed conversion for afterburning), the P.1081 offers a performance considerably in advance of present interceptors.

When the Hawker Company, incidentally, chooses a name for its latest

Royal Air Force and Naval Aviation News and Announcements

fighter, it would seem apt to recall a former success (as in the case of the *Fury*) by reviving the honoured title of Hurricane.

Tactical Canberra

IN last week's issue were published the first pictures of the latest "tactical" version of the Canberra—the B. Mk. 2. Like the Mk. 1 prototype, it is powered by two Rolls-Royce Avon axial-flow turbojets of unspecified thrust. Externally, the Mk. 2 differs only in having a transparent nose fairing with bomb aimer's sighting panel and a navigator's window on the port side of the fuselage.

In the text accompanying the new *Flight* pictures of the aircraft, the incorrect designation of Canberra B.1 was originally given, and a few copies were printed before the error could be amended.

Sunderlands in Action

AN Admiralty communiqué from the Far East gives news of the Sunderland squadron, commanded by S/L. Michael Helme, A.F.C., and formerly based at Hong Kong, which is now operating against the North Koreans. Now attached to the U.S. Navy, the squadron has been flying long night patrols along the west coast to forestall Communist attempts to run supplies to the south by close-shore water routes.

Reservists at Sea

CARRYING Seafires of three R.N.V.R. air squadrons, H.M.S. *Illustrious* was due to begin a two-week programme of training at sea on Tuesday last. Twenty-six aircraft were to have been embarked, over half of them from No. 1831 Squadron, which is commanded by Lt.-Cdr. R. I. Gilchrist and is normally based at Stretton, near Warrington. This squadron is represented in the *Illustrious* by 10 pilots and 115 ground-crew, of whom 60 are R.N.V.R. personnel.

No. 1833 Squadron, commanded by Lt.-Cdr. R. F. Hallam and based at Bramcote, has supplied most of the remaining aircraft, pilots and servicing personnel, although there is limited representation for No. 1832 Squadron from Culham, most of whose members embarked earlier in the year for two weeks' training in H.M.S. *Theseus* (which

CADETS' CAMP: About 300 A.T.C. cadets attended the recent four-day camp at White Waltham, which concluded with a demonstration of training activity. Among those present at the display were Mr. Crawley, Under-Secretary of State for Air, and Air Marshal Sir Robert Foster (right), A.O.C.-in-C., Home Command. The glider is an Eon Primary.



Sport + General
Photo

SERVICE AVIATION...

has since sailed for Korean waters). One of the 1833-Squadron ratings, incidentally, makes the six-hour journey from his home at Bath to Bramcote each month in order to spend a weekend training with the Squadron—an example of keenness remarkable even for this particularly enthusiastic branch of the reserve forces.

New C.O. for 615 Squadron

SQUADRON-LEADER C. S. BAMBERGER, D.F.C., has been appointed to command No. 610 (County of Chester) Squadron, R.Aux.A.F., which is based at Hooton Park. He first joined the pre-war Auxiliary Air Force as an aircraftman in 1936, but transferred to the R.A.F.V.R. for pilot training in 1939.

Commissioned in 1942, S/L. Bamberger served, in turn, at the Central Gunnery School and with Nos. 64, 93 and 243 Squadrons. He flew with the N.W. African Air Forces and the Mediterranean Allied Air Force, and was awarded the D.F.C. in October, 1943, and a Bar to the D.F.C. a year later. After serving as an instructor for the last months of the war he was released in December, 1945, rejoining later for Auxiliary service with No. 610 Squadron.

Battle of Britain Anniversary

EXTENSIVE plans are now under way to make the 1950 R.A.F. "At Home" day—Saturday, September 16th—even more successful and popular than in previous post-war years. Seventy-one stations will be open to the public, and it is hoped that last year's attendance of 791,000 will be exceeded.

The occasion will be the highlight of a week's commemoration and celebration, in the now customary manner, to mark the tenth anniversary of the Battle of Britain. Admission will be free and the proceeds of car park charges and programme sales will be shared by the R.A.F. Benevolent Fund and the R.A.F. Association. Last year these organizations received a total of £13,882. At almost every station there will be flying displays—with jets in larger numbers than ever before—supplemented by static exhibitions.

In the adjacent columns is a list of stations open to the public on September 16th.



FIRST FLIGHT of the first Canadian-built F-86 Sabre was attended by (left to right) Air Marshal W. A. Curtis, R.C.A.F. Chief of Air Staff, Mr. J. G. Notman, executive vice-president of Canadair, Ltd., and the Canadian Defence Minister, Mr. Brooke Claxton. The flight was made by "Al" Lilley, Canadair's chief test pilot, whose headgear evidently intrigued the Minister. The R.C.A.F. has ordered 100 Sabres.

County	R.A.F. Station	County	R.A.F. Station
Aberdeenshire ...	Dyce	Northumberland ...	Acklington, Ouston
Anglesey ...	Valley	Nottinghamshire ...	Newton
Bedfordshire ...	Cardington, Henlow	Oxfordshire ...	Benson
Berkshire ...	Abingdon	Pembrokeshire ...	Pembroke Dock
Buckinghamshire ...	Halton	Perthshire ...	Perth
Cambridgeshire ...	Oakington	Rutland ...	Cottesmore, North Luffenham
Cheshire ...	Sealand, Hooton Park	Shropshire ...	Ternhill, Shawbury, Bridgnorth
Cornwall ...	St. Eval	Staffordshire ...	Cosford
Devonshire ...	Mount Batten, Chivenor	Suffolk ...	Felixstowe
Essex ...	Debden, Hornchurch, N. Weald	Warwickshire ...	Castle Bromwich, Wellesbourne Mountford
Fifeshire ...	Leuchars	Wiltshire ...	West Freugh
Glamorganshire ...	St. Athan	Wiltshire ...	Melksham, Hullavington
Gloucestershire ...	Filton, Little Rissington, Aston Down, South Cerney	Yorkshire ...	Church Fenton, Punningley, Yeadon, Driffield, Catterick, Leconfield, Topcliffe, Thornaby
Hampshire ...	Odiham, Thorney Island, Andover	Isle of Man ...	Jurby
Huntingdonshire ...	Upwood		
Kent ...	West Malling, Biggin Hill, Hawkinge (W.R.A.F. Depot)		
Lancashire ...	Woodvale, Kirkham, Wootton		
Lincolnshire ...	Cranwell (R.A.F. College), Manby (R.A.F. Flying College), Binbrook, Hemswell, Waddington		
Middlesex ...	Hendon		
Midlothian ...	Turnhouse		
Morayshire ...	Kinloss		
Norfolk ...	Horsham St. Faith, Feltwell, Swanton Morley, Watton		

"Coastal's" Wartime Record

THE war-time activities of R.A.F. Coastal Command have been recorded for posterity on some ninety vellum leaves of a bound and illuminated manuscript for which past and present members of the Command subscribed approximately £1,600.

Known as the Coastal Command War Record Book, it contains a list of over 80 units—R.A.F., Dominion and Allied—which served in or under the operational control of the Command, with a section devoted to Headquarters and the nine Groups. Each squadron is allotted a two-page opening, the text summarizing its main activities, followed by a list of its bases during the period, the names of commanding officers and a summary of awards gained. Citations for the V.C.s gained in the Command are given in full. Squadron badges are emblazoned in burnished gold and colour. The book has now been placed in a bronze-framed show case in the officers' mess at Coastal Command H.Q., and at regular intervals the pages are turned.

As many of those who served in "Coastal" may wish to have copies of the pages of the book devoted to the unit with which they served, arrangements have been made whereby black-and-white photographic reproductions of the pages may be bought—by application to Headquarters, Coastal Command, R.A.F., Eastbury Park, Northwood, Middlesex.



MAPLE-LEAVED: The first Canadair Sabre, in R.C.A.F. colours, is seen just before its first flight at Dorval Airport, Montreal, on August 9th.



Production Pattern
by DOWTY

Sea Fury and Meteor Undercarriages



Top-Dressing Marginal and Hill Land by "Bristol" Freighter . . .



*At a time when
international affairs
emphasise Britain's need
to aim at independence
and self-sufficiency in food pro-
duction, The Bristol Aeroplane
Company is, this week, conducting
an experiment of national importance.
On Thursday 31st August and Friday
1st September, a "Bristol" Freighter will—
weather permitting—demonstrate aerial dis-
tribution of lime and phosphate over hill and
marginal land at Plynlimon, Cardiganshire.
Equipped with a 6-ton hopper, the Freighter will
make four sorties each day, distributing a total of 48
tons of material. Phosphate will be dropped at varying
densities, in swathes of 2 cwt. and 4 cwt. per acre, thus
showing that normally inaccessible and hitherto neglected
areas can be enriched to provide a vast additional acreage
of pasture and arable land. Experiments already carried
out show that the Freighter's exclusive design features
make it a particularly suitable aircraft for this kind of work.*

