



condition. The regular Liberty starting system has been removed and an 8-volt ignition system installed to lighten the plane for these tests.

Since the Liberty engine, which delivers 400 h.p. at sea level, has an output of but 50 h.p. at 35,000 ft. unsupercharged, a supercharger is a prime requisite of altitude work. The General Electric Form F, 20,000-ft. side type supercharger used in previous tests, with certain modifications, has been installed. The supercharger is an air compressor which keeps the air pressure in the carburettor at sea level pressure at heights where, owing to the natural decrease in the air pressure, the horsepower gradually falls away to but a fraction of its original output. In former supercharger installations, much difficulty was experienced with pre-ignition of the engine. This often became so pronounced that the plane had to be brought to earth. It was suspected that a richer mixture with supercharger at altitude was necessary. This was found to be true but the principal difficulty was the overheating of the mixture due to the heat generated in the supercharger itself. Due to the increase of temperature created by the compression in the supercharger, it was necessary to interpose an intercooler between the supercharger outlet and the carburettor in order to obtain satisfactory engine performance. The intercooler, in the form of a honeycomb radiator, was placed on the side of the aeroplane. It was also found that, due to poor conductivity of the air at high altitudes, additional radiating surface for engine cooling was required. This, with the correction of mixture, put an end to pre-ignition.

Though much has been accomplished in the refinement of plane and engine for altitude purposes in the last several years aside from improvement of oxygen equipment, little has been done toward enabling man to increase his own ceiling or towards gaining normal efficiency for his body in the altitudes which he has already succeeded in reaching. A seemingly almost insurmountable difficulty lies in the task of making up to the human body for the decrease in air pressure and the limited amount of oxygen his lungs are capable of consuming at such heights. The cold, though a severe drain on the system with the best protection possible, is more easily met. To prepare for it, Lieutenant Macready wears over his uniform, a heavy suit of woollen underwear and over that a thick heavily padded, leather-covered suit of down and feathers.

Then, fur-lined gloves, fleece-lined mocassins, over the boots and a leather head mask lined with fur, which, with the oxygen mask, completely covers the face, completes the costume. The goggles are coated on the inside with anti-freezing gelatine supposed to function to 60 degrees below zero. Fahrenheit.

Of course, electrically-heated suits are not practical for such flights, for they mean but another system of wires and switches for the aviator to add to his already complicated list of mechanisms and controls and should anything go wrong with the wiring, the suffering from the cold would be too intense to permit of continuation of the experiment, even if it did not, in conjunction with the other adverse conditions, cause unconsciousness.



London Gazette, January 26, 1926

General Duties Branch

The following are granted permanent commns. as Flight-Lieutenants, Jan. 1:—B. C. H. Cross, D.F.C.; R. J. M. De St. Leger; F. H. E. Reeve. The following are granted short service commns. in the ranks stated, with effect from and with seniority of Jan. 16:—Flying Officer (for seven years on the Active List) R. E. H. Horn (Lieut., Indian Army, ret.); Pilot Officers on probation (for five years on the Active List)—C. P. Ashton-Jinks, W. L. Bateman, P. S. Cook, C. H. L. Evans, C. V. Godfrey, F. Gower-Jones, J. A. Grieves, V. G. A. Hatcher, W. A. Hills, V. W. Huggett, C. S. John, H. C. Johnson, C. G. Lucas, D. Mackenzie, A. F. Merritt, D. H. A. C. D. Patton-Bethune, W. M. Phillips, W. J. Pickard, E. G. Searson (Sec. Lieut., R.A., T.A.), L. S. S. Tunks, G. A. Underdown, H. J. Walker, W. F. Ward.

Lieut. A. R. Braybrooke, K.S.L.I., is granted a temp. commn. as a Flying Officer on seconding for four years' duty with R.A.F.; Jan. 16. Pilot Officer G. D. Green is promoted to rank of Flying Officer; Aug. 14, 1925. Pilot Officer on probation A. C. Watkins is confirmed in rank; Jan. 18. Flying Officer B. M. T. S. Leete is transferred to the Reserve, Class A; Jan. 28.

The following relinquish their short-service commns. on account of ill-health (Jan. 27):—Flying Officer (hon. Flight-Lieut.) C. W. Dann, M.C. (Capt., Ind. Army, ret.); Pilot Officer on probation C. Taite. The following relinquish their temp. commns. on return to Army duty:—Flying Officer A. W. Henderson (Lieut., R.A.); Jan. 16. Flying Officer T. W. Shortridge (Lieut. Green Howards); Jan. 19. C. F. L. Holford, Lieut., R.M., Flying Officer, R.A.F.) relinquishes his temp. commn. on return to the R.M.; Jan. 21, 1920.

AUXILIARY AIR FORCE

General Duties Branch

The following to be Squadron-Leader:—No. 602 (City of Glasgow) (Bombing) Squadron.—J. D. Latta, M.C., to command the Squadron; Feb. 1.

Medical Branch

The following to be Flight-Lieutenant:—No. 601 (County of London) (Bombing) Squadron.—J. D. Driberg, O.B.E., M.C., F.R.C.S.; Jan. 26.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Squadron-Leader W. W. Hart, M.B.E., to H.Q., Coastal Area; 28.1.26. *Flight-Lieutenants*: F. L. Ardley, to No. 24 Sqn., Kenley; 26.1.26. L. F. Pendred, D.F.C., to Central Flying Sch., Upavon; 22.1.26. L. Wanless-O'Gowan, to R.A.F. Depot; 4.2.26. A. M. Blake, A.F.C., to R.A.F. Depot, on transfer to Home Estab.; 15.1.26. A. R. M. Rickards, A.F.C., to R.A.F. Depot, on transfer to Home Estab.; 31.12.25. W. A. B. Savile, to Air Ministry; 4.2.26. A. R. M. Rickards, A.F.C., to R.A.F. Cadet Coll., Cranwell; 1.2.26. J. Bussey, to H.Q., Inland Area; 2.2.26. *Flying Officers*: M. E. B. P. Storrle, to No. 208 Sqn., Egypt; 15.1.26. R. E. H. Horn, to No. 2 Flying Training Sch., Digby, on appointment to a Short Service Commn.; 16.1.26. A. R. Braybrooke, to No. 2 Flying Training Sch., Digby, on appointment to a Temp. Commn. on being seconded from the Army; 16.1.26. J. Noonan, D.S.M., to R.A.F. Cadet Coll., Cranwell; 19.1.26. G. Combe, to No. 17 Sqn., Hawkinge; 3.2.26. E. H. Alliott, to Electrical and Wireless Sch., Flowerdown; 25.1.26. R. Beresford, to Elect. and Wireless Sch., Flowerdown; 25.1.26. E. C. Dearth, to R.A.F. Cadet Coll., Cranwell; 31.1.26. H. M. Groves, to No. 31 Sqn., India; 15.1.26. C. J. Sims, D.F.C., to Reception Depot, West Drayton; 1.2.26. R. Menzies, to No. 2 Sqn., Manston; 1.2.26. C. B. McIntyre, to No. 2 Flying Training Sch., Digby; 1.2.26. H. R. McL. Reid, D.F.C., to R.A.F. Cadet Coll.,

Cranwell; 1.2.26. W. C. P. Bullock, to H.M.S. *Eagle*; 20.1.26. J. F. Bythell, to Elect. and Wireless Sch., Flowerdown; 27.1.26. *Pilot Officers*: J. A. Tindall, to No. 2 Flying Training Sch., Digby, on appointment to a Permanent Commn.; 18.1.26. G. D. Middleton and A. G. Pickering, to No. 481 Flight, Malta; 14.1.26. A. T. S. Studdert, to No. 1 Sqn., Iraq; 15.1.26. C. P. Ashton-Jinks, W. L. Bateman, P. S. Cook, C. H. L. Evans, C. V. Godfrey, F. Gower-Jones, J. A. Grieves, V. G. A. Hatcher, W. A. Hills, V. W. Huggett, C. S. John, H. C. Johnson, C. G. Lucas, D. Mackenzie, A. F. Merritt, D. H. A. C. D. Patton-Bethune, W. M. Phillips, W. J. Pickard, E. G. Searson, L. S. S. Tunks, G. A. Underdown, H. J. Walker, and W. F. Ward, all posted to No. 2 Flying Training Sch., Digby, on appointment to Short Service Commns. (on probation); 16.1.26. G. E. G. Lywood, to No. 17 Sqn., Hawkinge; 28.1.26. S. H. C. Grey, to No. 2 Flying Training Sch., on appointment to Short Service Commn. (on probation); 23.1.26. R. H. Donkin, to No. 2 Flying Training Sch., Digby, on appointment to a Short Service Commn. (on probation); 22.1.26. E. D. MacL. Hopkins, to No. 2 Flying Training Sch., Digby, on appointment to a Permanent Commn.; 26.1.26. J. H. C. Purvis, to No. 25 Sqn., Hawkinge; 27.1.26.

NAVAL APPOINTMENTS

The following appointments have been made by the Admiralty:—*Lieutenants (Flying Officers, R.A.F.)*: A. A. Murray, to *Eagle* and for 422 Flight; 14.1.26. G. R. M. Robertson, to *Columbine* by R.A.F. Base, Leuchars; 26.1.26.

ROYAL AERONAUTICAL SOCIETY

(Official Notices)

Endowment Fund.—The recent appeal on behalf of an Endowment Fund by Sir Samuel Hoare and Air Vice-Marshal Sir Sefton Brancker has been generously responded to by Sir Charles Wakefield, who has contributed £250, and by "A Friend of Aviation," who has contributed £100. It is hoped that this magnificent start will be followed up quickly so that the Society can immediately put in hand the schemes

for the supplying of information to the new technical grade of Associate, and can also proceed with the very necessary propaganda work through the new branches which are being formed.

In connection with the Endowment Fund it will be remembered that Lord Cowdray has generously offered a sum of £50 a year for five years, if nine others will follow his example.

J. LAURENCE PRITCHARD,
Honorary Secretary

