

THE AVIA B.H. (EXP.) 35 H.P. MONOPLANE

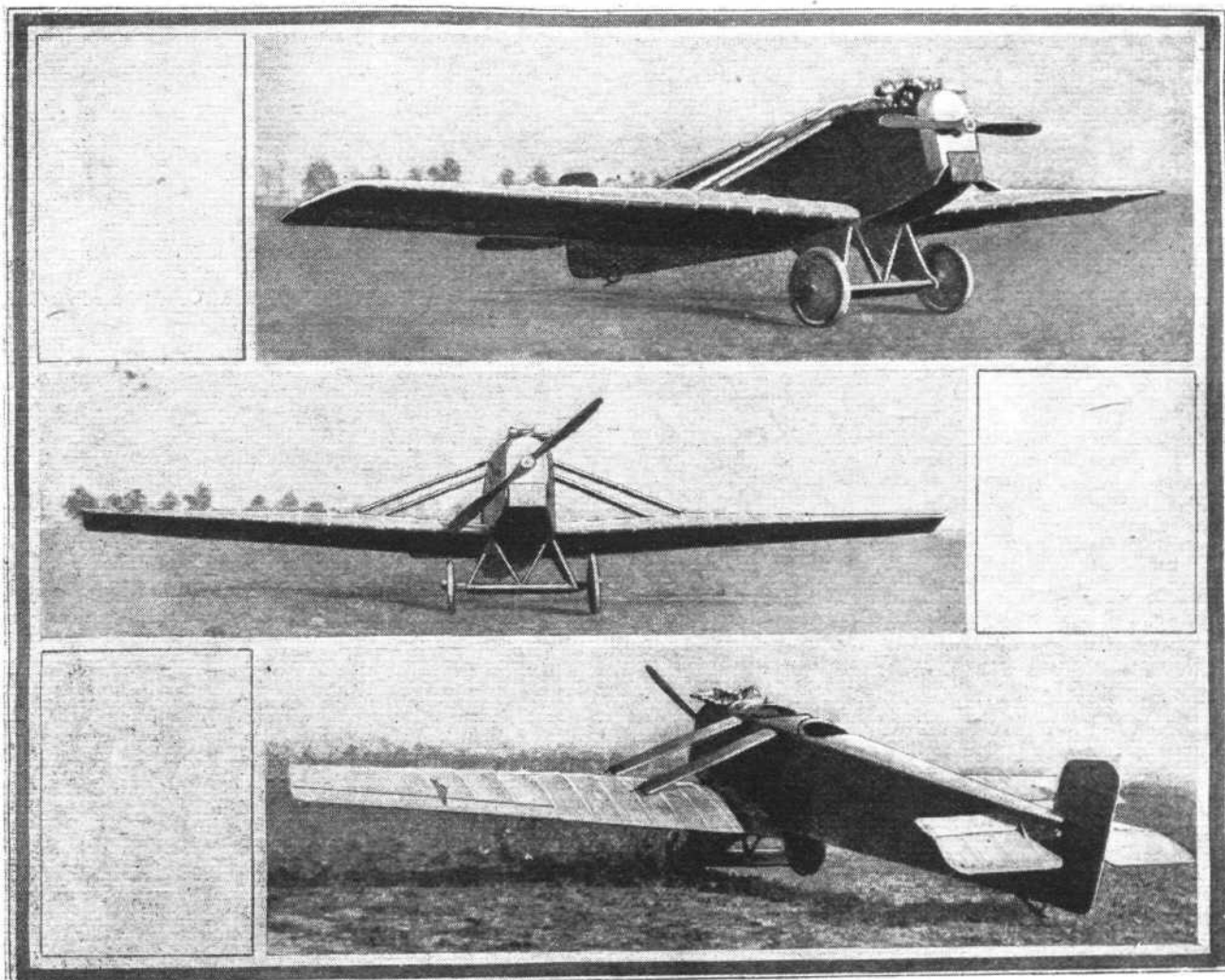
As we have previously remarked in *FLIGHT*, Czecho-Slovakia is determined not to lag behind other European Nations in aeronautical matters, and is already making rapid progress in the design and construction of new machines. Owing to their awkward political position during the War they had little opportunity of gaining actual experience in the design and construction of aircraft, as other nations did. Thus it is, that now they are starting to build up their own aircraft industry their knowledge of modern practice is somewhat limited, and they are faced with the necessity of having to worry out certain problems for themselves. In a way, we are inclined to think that this is a slight advantage, for, although the road may be uphill, are they not free from the temptation of blindly following the ruts of others?

At the Czecho-Slovak Aeronautical Exhibition held at Prague last year, a very interesting little machine was exhibited by the Avia Co., of Prague, which excited considerable attention in both home and foreign circles. We are indebted

It will be noticed that the *fuselage* is comparatively deep from nose to stern, tapering to a vertical knife-edge at the latter, and has a clean, streamline form.

Throughout the design the questions of simplicity and ease of construction have been a main consideration, with the result that the machine is built up of an exceptionally small number of component parts, and is easily assembled and dismantled. For the greater part of the construction of the Avia B.H. wood and three-ply is employed, the *fuselage* being entirely covered with the latter.

The long overhang of the wings demands rather thick spars, and these are of box construction, sufficiently strong to withstand any tendency on the part of the overhung portion of the wing to twist. Where the wings are attached to the *fuselage* the latter is provided with strong cross members. The wing attachment, and also the attachments of the bracing struts, are of the knuckle-joint type, whilst the control cable passing from the *fuselage* through the wings to the *ailerons*

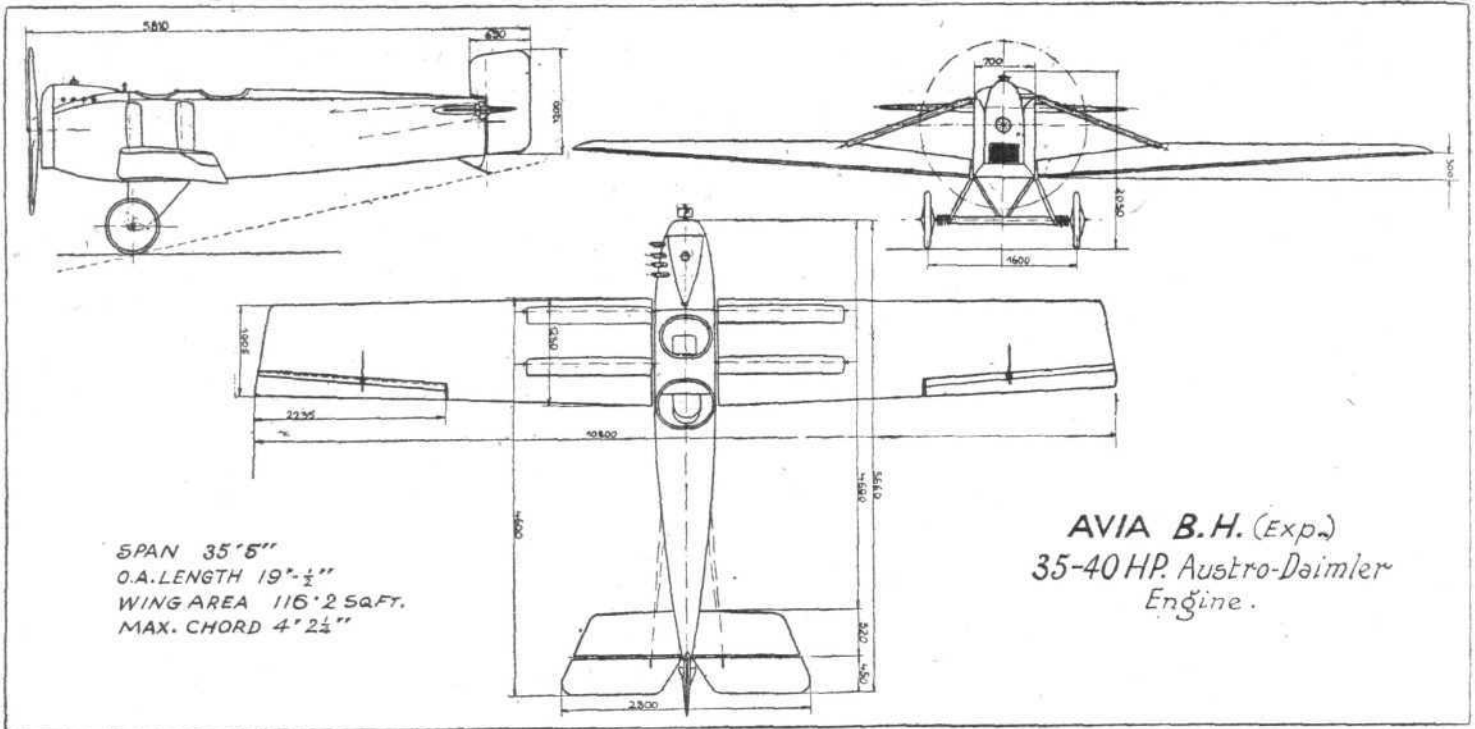


THE AVIA B.H. (EXP.) 35 H.P. MONOPLANE: Three-quarter front view, front view and three-quarter rear view.

to our Bohemian contemporary *Letectvi* for the accompanying particulars of this machine, which is known as the "Avia" B. H. Exp. It was built from the designs of Messrs. P. Benes and M. Hajn as an experiment, with the object of producing a low-powered machine for economic flying built on somewhat unusual lines. It is a two-seater monoplane having what at first glance appear to be cantilever wings, mounted on the bottom *longerons* of the *fuselage*; the wings, however, are not true cantilevers, but are braced by a pair of struts running from the main spars up to the top *longerons*, on each side of the *fuselage*. This position of the wings was chosen for the purpose of obtaining the greatest possible visibility.

The wings, which have a comparatively high aspect ratio, are of rather unusual form, for in addition to tapering from root to tip, their maximum thickness occurs at the point of attachment of the bracing struts, about one third of the span of the wing from the root. They are set at a slight dihedral angle.

has a coupling—accessible through a small window—near the wing root. There are only 14 nuts and bolts to be manipulated for dismantling or assembling. The bracing struts have adjustable ends, so that it is possible to alter the angle of the wings. With a wing loading (including weight of bracing struts) of 1.23 lbs./sq. ft., the factor of safety for the wings is 12. Previous to the first flight being made the wings were subjected to a test up to five times normal load without fracture. Tests were also made on the tail planes, which withstood successfully a load of 132 lbs. applied at each end. It should be mentioned here that the tail plane is of the cantilever type, with a non-lifting streamline section, and is divided into two units mounted near the top *longerons* of the *fuselage*, a little way above the line of thrust. The construction of the tail plane is similar to that of the wings; large divided elevators are fitted, and a balanced rudder is hinged to the stern post of the *fuselage*—no vertical fin is employed. The wings are covered with fabric, but the *ailerons*



THE AVIA B.H. (EXP.) 35 H.P. MONOPLANE: General arrangement drawings.

—which are comparatively narrow—are constructed of three-ply.

The engine is a 4-cylinder 35-40 h.p. Austro-Daimler, mounted in the nose of the fuselage, driving a 6 ft. 6 ins. walnut tractor air-screw. The radiator is mounted in the nose of the fuselage, below the engine, and is fitted with adjustable shutters. Behind the engine is a petrol tank of 13.2 gals. capacity; behind the tank is the passengers' cockpit, followed by the pilot's, in line with the trailing edge. The usual "joy-stick" control is fitted.

The landing chassis is of the Morane-Saulnier "M" type, with divided axle, the outer strut members—forming the usual V, viewed from the side—being completely covered in with three-ply. During flight the axle lies enclosed in a three-ply fairing, which really forms a small, narrow lifting plane. Provision is made for the free upward movement of the axle when landing. Rubber shock-absorbers are fitted.

During its first trials—carried out by Josef Novak—an engine of only 26 h.p. was fitted, and with the loadings at

31 lbs./h.p. and 7 lbs./sq. ft. a speed of 68 m.p.h. was obtained, and the climb was 3,300 ft. in 10 mins. Unfortunately, we have no other particulars of this machine's performance with full power. The stability is said to be remarkably good, in spite of high C.G., and it manoeuvres with great facility, and climbs quickly. The gliding angle is small, and the get-off and run along the ground on landing are short.

The following are the principal characteristics of the Avia B.H. :—

Span	35 ft. 5 ins.
Chord (max.)	4 ft. 2 1/4 ins.
Overall length	19 ft.
Overall height	6 ft. 8 ins.
Area of main planes	116.2 sq. ft.
Weight empty	582 lbs.
Weight full load (pilot and passenger)	1,012 lbs.
Weight full load (pilot only)	845 lbs.
Weight per h.p.	23.6-25.3 lbs.
Weight per sq. ft.	7.3-8.7 lbs.

R.A.F. and Belgian Decorations

THE King has given unrestricted permission for the wearing of the following decorations conferred by the King of the Belgians on officers of the Royal Air Force in recognition of valuable services rendered in connection with the War :—

Order of Leopold

Commander.—Air-Commodore Charles Laverock Lambe, C.B., C.M.G., D.S.O., R.A.F.

Officer.—Group Captain Cyril Louis Norton Newall, C.M.G., C.B.E., A.M., R.A.F.

Order of the Crown

Commander.—Air-Commodore Frederick Crosby Halahan, C.M.G., D.S.O., M.V.O., R.A.F.

Officer.—Wing-Commander Lewis Leisler Greig, M.V.O., M.B., R.A.F.

Croix de Guerre

Air-Commodore Frederick Crosby Halahan, C.M.G., D.S.O., M.V.O., R.A.F.; Group-Captain Cyril Louis Norton Newall, C.M.G., C.B.E., A.M., R.A.F.

The Gordon Bennett Balloon Race

SEVEN nations and sixteen competitors are at present in prospect to compete in this international spherical balloon event, to start this year, it is hoped on September 18, from the Brussels Exhibition grounds—that date giving a full moon. The trophy, of which Belgium is the present holder, is challenged by three competitors from each of the following members of the F.A.I.: Aero Club of France, A.C. of Great Britain, A.C. of Italy, and the A.C. of America; the A.C. of Spain and A.C. of Switzerland are represented by one nominee each. In addition there will be two entrants from Belgium, the holding club.

Another Avro Baby "Record"

JUST by way of showing that his flight from London to Turin non-stop on the Avro Baby was not merely a lucky flight made under favourable circumstances, Mr. Bert Hinkler made another wonderful flight in Australia on April 11, when he flew the same machine from Sydney to Bundaberg, his home town, in a non-stop flight. The distance is approximately 800 miles, and was covered in under nine hours. The fuel consumed on the flight was about 22 gals. of petrol, so that the machine averaged over 35 miles to the gal., which is distinctly good. The Avro Baby used was the same as that on which Hinkler flew from London to Turin, as was also the 35 h.p. Green engine. This engine, it may be recalled, is ten years old, having originally been fitted in an early Avro machine at Brooklands in 1911. The same machine and engine, piloted by Capt. Hamersley, won the sealed handicap of the Aerial Derby in 1919, and on it Hinkler secured second place in last year's Aerial Derby.

It would be difficult to imagine anything which would better demonstrate the capabilities of the Avro Baby-Green combination than this second wonderful flight of Hinkler's, and one hopes that he may long continue such demonstration flights in his native land, to the advancement of the industry and, incidentally and deservedly, to the good of the Houses of Avro and Green.

No. 2 Aircraft Depot Officers' Association

THE next dinner will be held on Thursday, May 5, at 6.30 p.m., at "The Cock Tavern," 22, Fleet Street, E.C., morning dress.

The Association is visiting the R.A.F. Depot at Milton, Stevenon, Berks, on Saturday, June 25. All applications to be sent to the Hon. Sec., J. D. Fairbairn, "Hillsboro," Cromwell Avenue, Bromley, Kent.