

at the rear spar, where the hinge is situated. The petrol tank is mounted in the top centre section, with a feed pipe running down from each side, along the centre-section struts.

THE GERMAN SECTION

REFERENCE has already been made to the good showing made by the German constructors, especially taking into consideration the handicaps imposed upon Germany, not only by the limitations on power, range, etc., but also by economic conditions. It is therefore all the more creditable that the German section at Gothenburg is, after the British, one of the most interesting. Space does not permit, this week, of dealing with more than one of the German firms, the Caspar Werke, but next week we hope to give a detailed reference to the other German machines exhibited.

The Caspar Machines

While the all-metal German school is represented by Dornier and Junkers, the all-wood school has found a worthy champion in the Caspar Werke of Travemünde, of which Generaldirektör Dr. Ing. N. C. Carl Caspar is the moving spirit. It should be stated that both the machines exhibited were designed by Ernst von Loessl, who is a relative (cousin) of the von Loessl who lost his life in a glider accident in the Rhön some years ago. Both machines are built almost entirely of wood, with, of course, the exception of a few fittings that must necessarily be made of steel.

The Caspar U.1 was described and illustrated in our issue of June 14, 1923. A few supplementary details, as revealed by a closer inspection at Gothenburg, may, however, be of interest. The Caspar U.1 was designed for use from a submarine, or from a ship of the mercantile marine wishing to have available a seaplane for carrying urgent messages to port when the ship is still some distance out to sea. The machine is a cantilever biplane of exceptionally clean lines, and has been especially designed for ease of erecting and dismantling, these operations being possible without the use of any tools with the exception of a spanner for turning the propeller boss nut through an angle of 90°. The U.1 is covered entirely with three-ply wood, and while this provides a very beautiful finish, it is scarcely the best material for use at sea. In fact, our experience in England has been that three-ply is not suitable for use on seaplanes. Trouble may therefore be experienced with the Caspar U.1 on this score, specially with the floats. Otherwise the design is very pleasing to the eye and well thought out.

One of our sets of sketches shows the details of the folding tail plane. A form of bayonet joint holds the tail in place, and when this is unlocked, by means of a lever, the tail can be swung up, as there is a universal joint in the elevator tube, and is locked in position by a flat curved strut having a notch engaging with a pin, and pressed into position by a spring so as to lock automatically as soon as the tail plane is in its vertical position.

A somewhat similar arrangement is used for securing the main planes to the fuselage. The movement of a single lever, placed under the forepart of the body, releases the catches, and both wings can be pulled off. In the case of the float attachments these also come adrift without using tools, a quick-release turnbuckle in one of the diagonal cables allowing the floats to be removed and the float struts folded. This is the subject of a sketch. After giving a nut on the propeller hub a 90° turn with a spanner, the propeller can be removed.

The engine, a five-cylinder Siemens radial of 60 h.p., is mounted on a swivelling mount, but two petrol joints have to be broken before the engine can be swung out. The machine, as already stated, is of exceptionally pleasing lines, and but for the doubt as to the suitability of the three-ply covering for a seaplane, the U.1 is a very fine little machine.

The second machine exhibited by the Caspar Werke is a commercial monoplane of small capacity, the cabin being arranged to carry but two people, seated *vis-à-vis* one another in a very narrow cabin. This machine is known as the type C.L.E. II, and is fitted with a Siemens radial seven-cylinder engine of 80 h.p. Thus the power expenditure per paying passenger is but 40 h.p., which should be a good commercial proposition. If the machine is piloted by its owner, and used for touring with a couple of friends, so that it becomes legitimate to count in the pilot in the useful load, the economy becomes even greater, *i.e.*, 26.7 h.p. per occupant. Thus, for use on feeder lines joining up with main air routes, on which there is insufficient traffic to make a larger machine pay, the Caspar C.L.E. II should be a very useful and economical little machine.

As cheapness of construction was one of the desiderata, and clean aerodynamic design another, Ingenieur von Loessl chose the cantilever monoplane type, but incorporated a fuselage composed entirely of straight lines and flat surfaces, which could be easily and cheaply covered with ply-wood panels. It is, of course, well known that these panels can be bent around a cylinder but not around a barrel, *i.e.*, not around a double curvature. Nevertheless, if the panels can be used without bending, their application to the internal framework becomes so much easier. In the C.L.E. II the fuselage is of rectangular section, with an inverted V roof and a V bottom in the forward part. Aft of the undercarriage the bottom is flat.

The undercarriage is of the form first made popular by Dornier, *i.e.*, the axle is enclosed in a casing of thick aerofoil section, and the rubber shock absorbers are attached to the ends of this, cantilever fashion, giving a wide wheel track.

The wing is in three sections, a large centre portion and two relatively small end pieces, attached to the main wing by special quick-release fittings. In the centre, above the "roof tree" of the fuselage, the wing is attached by simple hooks, and is braced farther out by struts sloping out at a fairly flat angle.

Behind the trailing edge of the wing is the pilot's cockpit, and immediately under the wing the tiny cabin with accommodation for two passengers. The space is rather cramped, especially as regards leg-room, and also to a certain extent as regards head-room. One passenger faces aft and the other forward, and the cabin is of only sufficient width to give elbow space, and not much of that if the passengers be Germans of average bulk. As in the case of the biplane, the monoplane is covered entirely with three-ply, and it was noticed that in the bottom of the fuselage there were no diagonal members to stiffen the ply, which was not more than 1 or 1½ mm. thick.

The main characteristics of the Caspar C.L.E. II are as follows: Weight, empty, 450 kg. (1,000 lbs.); useful load, 360 kg. (790 lbs.); total loaded weight, 810 kg. (1,790 lbs.). The maximum speed is 160 km. (100 m.p.h.), and the landing speed 80 km. (50 m.p.h.). The range is approximately 800 km. (500 miles).

(To be continued.)



Married

JOHN REGINALD CASSIDY, R.A.F., youngest son of Mrs. Cassidy, of Queensland, Australia, was married on July 19, at St. Joseph's Church, Redhill, to BARBARA MARGARET, elder daughter of HARVEY RICHARD and Mrs. DREW, of Margery Wood, Reigate.

Lieut.-Col. E. R. PEAL, C.B.E., D.S.C., late R.A.F., was married on July 30, at St. Paul's Church, Knightsbridge, to Miss KATHLEEN HELEN KIRWAN.

To be Married

The engagement is announced between PHILIP G. MARR, late Capt., R.A.F., younger son of the late Alexander Marr

and Mrs. L. E. Marr, of Englefield Green, Surrey, and ESTELLE AGNES, second daughter of the late Sir CHARLES CAYZER, Bt., and MABEL LADY CAYZER, of Woodbury, Farley Hill, Berks.

The marriage of Flight-Lieut. AUGUSTUS HENRY ORLEBAR, A.F.C., R.A.F., and Miss TATTIE COOPER will take place at St. Martin-in-the-Fields on August 22, at 2.30 p.m.

Item

Commander DON EDGARDO VON SCHROEDERS, Naval and Air Attaché to the Chilean Legation, has left London for Gothenburg to represent his Government at the International Air Exhibition.