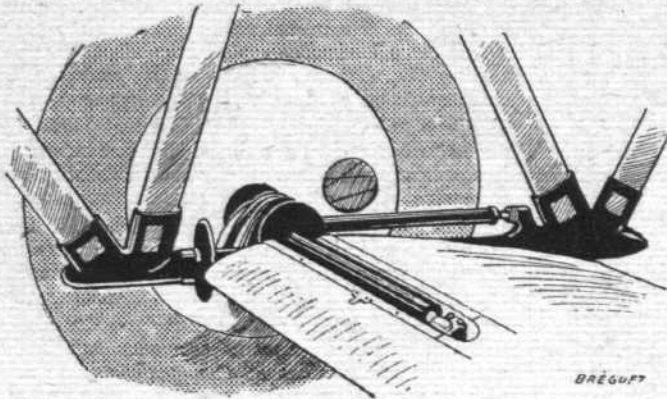


flanged to give greater stiffness. The two web plates are connected at intervals by horizontal lengths of tube, these tubes being flanged over both inside and outside the web plate so as to prevent it from bending laterally. The manner in which this is done is extremely neat, and must have required



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Detail of axle attachment on one of the Breguets

a number of experiments before a satisfactory way was discovered. Later, we understand, these tubes will be replaced by sheet steel rolled into a tubular shape.

The inter-plane struts, which in the show machine are of ordinary stream-line tube, but which will later be replaced by built-up sheet steel struts, are attached to the compression struts a short distance inside the spars, which makes a very neat and compact job of an otherwise somewhat awkward joint.

The undercarriage is at present of the usual Vee type with stream-line steel tube struts and rubber shock absorbers, but later an oleo undercarriage will be fitted. With this wholly inadequate reference we must leave the P. 10, hoping to return to it in more detail at a later date.

Louis Breguet

Three complete machines are shown by Breguet. Of these one is the ordinary Breguet Fighter which did such good work in the War strafing Huns. This machine, which carries a formidable armament consisting of no less than five machine guns, is not perhaps of such immediate interest now that the War is over, but it serves as a useful reminder of the time when, militarily, a nation's welfare depended on its aerial preparedness. The machine is already well known, and does not require much by way of a description here. Suffice it to say that the armament was arranged as follows: Two synchronised machine guns firing through the propeller, two mounted on a rotatable gun ring, and one placed so as to fire in a downward and rearward direction through an opening in the floor of the fuselage. The class number of the machine is 17c2. The lift bracing is unusual in that there are no lift wires in the inner bay, the landing wires of which run from the top of the fuselage.

The second machine shown on the Breguet stand is a seaplane of the cabin type. The central float is very wide and shallow, having a single step. The bottom aft of the step is flat, while the nose of the float has a Vee bottom which gradually flattens out towards the step. The float is so mounted that it can be removed and replaced by a wheel undercarriage. Wing tip floats are fitted. The seaplane, which is fitted with a 300 h.p. Renault engine, has a cabin accommodating three passengers, while the pilot sits in the open, behind and above the cabin. As in all Breguet machines the fuel tanks, which contain, in the case of this machine, sufficient for a six hours' flight, are mounted between the planes some distance out from the body. The manner of supporting them on the cross formed by the bracing cables is shown in one of our illustrations.

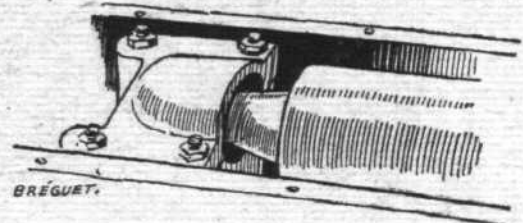
Finally, it might be added that the tail float, which is of the Vee bottom type, is mounted underneath the usual tail skid, the removal of the float being a matter of a very short time.

Perhaps the most interesting of the Breguet machines shown is the large passenger machine known as the Berline. The series number of this machine is XVIII T. In addition to six passengers accommodated inside a comfortable cabin, the machine carries a pilot and a wireless operator, a very powerful wireless set being carried. The 440 h.p. Renault engine is placed behind a nose radiator, and is covered in by an aluminium cowl provided with numerous louvres.

The undercarriage gives the impression of being extremely strong, and forms a letter W, as seen from the side, the lower points of the struts being joined by a longitudinal horizontal

member carrying the shock absorbers. The short divided axle has a form of ball and socket joint for its hinge, and the axles rest in grooves in the top of the fairing which covers the cross members of the undercarriage. The tail skid is of wood, terminating at the rear in a leaf spring. The rear two-thirds of the wooden skid is enclosed in a thick aluminium casing.

The biplane wings are connected by steel tube struts in aluminium stream-line casings. The lift tension members are stranded cables, while the anti-lift wires are solid piano wire. The wire strainers used are very similar to those which were fitted on the early Breguet biplanes many years before



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Chassis detail and shock-absorber on Breguet

the War. The ailerons are balanced in the usual way, but the method of operating them is unusual. The cranks are horizontal (or nearly so), and from them cables pass up inside the rear inter-plane strut fairing, as shown in one of the accompanying sketches. Altogether the Breguet Berline gives the impression of being a very workmanlike job, and as similar machines have done well on the Paris-London service, alternating with the Handley Pages, this impression may be trusted to be correct.

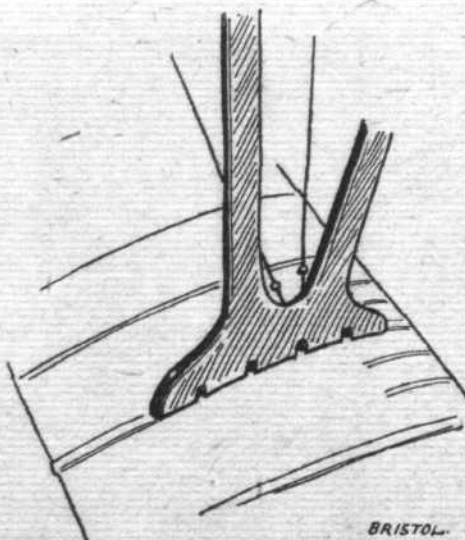
The Bristol Machines.

The British and Colonial Aeroplane Co., Ltd., make a very fine show with three complete machines and an excellent scale model of the Bristol Pullman triplane, which is far too large a machine to make it possible to exhibit it on the stand.

The front of the stand is occupied by the Bristol Tourer, a peace-time version of the famous Bristol Fighter. Fitted with a Siddeley Puma engine and a gravity tank in the centre section of the top plane, the machine looks slightly different from the F2B, but the family relationship is unmistakable. The aft cockpit, which was formerly occupied by the gunner, now accommodates an ordinary peaceful passenger, and the flat top of the aft deck is now covered over with a deck fairing, which adds considerably to the appearance of the machine. Capable of a speed of 120 m.p.h. and with a cruising speed of 85 to 90 m.p.h., this machine should make a strong appeal to the aerial tourist, especially as the price is extremely low, judged by present day standards, namely, £1,200.

The second machine shown is a racer, known as the Bristol Bullet. Although by no means a small machine the Bullet is very fast indeed, probably somewhere in the neighbourhood of 165 m.p.h. It is fitted with a Cosmos Jupiter engine of 450 h.p., neatly covered in except for the top of the cylinders. A very neat oil cooler is placed on the top of the fuselage,

where its fins, metal channel section strips placed back to back, are in contact with the oil container and also exposed to the air from the propeller. The outstanding feature of the Bullet is its great strength. As the machine is intended for "stunting" and racing the factor of safety has been kept extremely high. This has been accomplished, as regards the main planes and tail plane, by fitting double spars. The consequence is that the wings are of nearly double the strength of ordinary wings, while the double spar arrangement has the



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THE BRISTOL BABE: Attachment of lower plane to foot of Vee struts