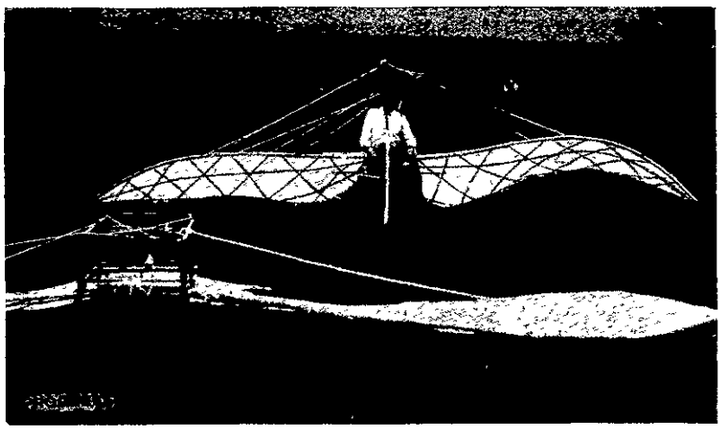


TWO PETTIGREW WINGS.

an aerial merry-go-round: which, though it introduces centrifugal force, permits the safe study of continued flight."

Our illustration, page 190, represents a construction devised by Captain Ferber of the French army, well known amongst advanced motorists, for the purpose of further experimenting with screw propellers and, if possible, beating the record of Mr. Archdeacon's machine. Anzani with that machine, carrying a 6-h.p. Buchet V twin cylinder engine, attained a speed of about 50 miles an hour. Captain Ferber's machine is to be fitted with an Antoinette engine of 24 h.p. It is a mere skeleton of tubing with four wheels which, according to the *Autocar*, has been made with the view of finding out the power of the engine required, the power developed by the propeller, and the number of revolutions it has to run per minute; and also to discover what are the advantages, if any, of this method of propulsion. Anzani's engine worked up to 1160 revolutions a minute, and Captain's Ferber is to attain to 2500. This spells a large future for the aviator.

Wilson and Pettigrew.

The Pettigrew wings, constructed in 1905 by Wilson after the theory of the celebrated Pettigrew, an acknowledged authority on aviation, were designed for both sustaining and propulsion. Their weight (including that of the aeronaut) was 250 lbs., they carried a motor of 6 h.p., the wings were 22 ft from tip to tip, and there was a tail of 5 by 3. At the trial the beating of the wings pitched the machine forwards and downwards, and the experiment was a failure.

The next experiment was more successful. The machine, launched from a tower, (Watkin Tower Wimble Park, England) in a wind of 40 miles an hour, kept its balance with no more fluctuation than a bird exhibits under similar circumstances, and reached the ground gently.

Subsequent experience has, says Mr. Wilson, justified the construction of two full-sized machines on the natural plan, one for individual flight (that of an individual man) the other on a larger scale. The former has a motor of 6 h.p. and a pair of wings 8 ft. by 6, each, deeply concave with semi-rigid anterior margins, and graduated posterior edges, with a fan-shaped tail. The other machine has four pairs of wings 18 ft. from tip to tip, flapping alternately to conserve the weight and power, and was to have been tested with a gasoline motor of 50 h.p.

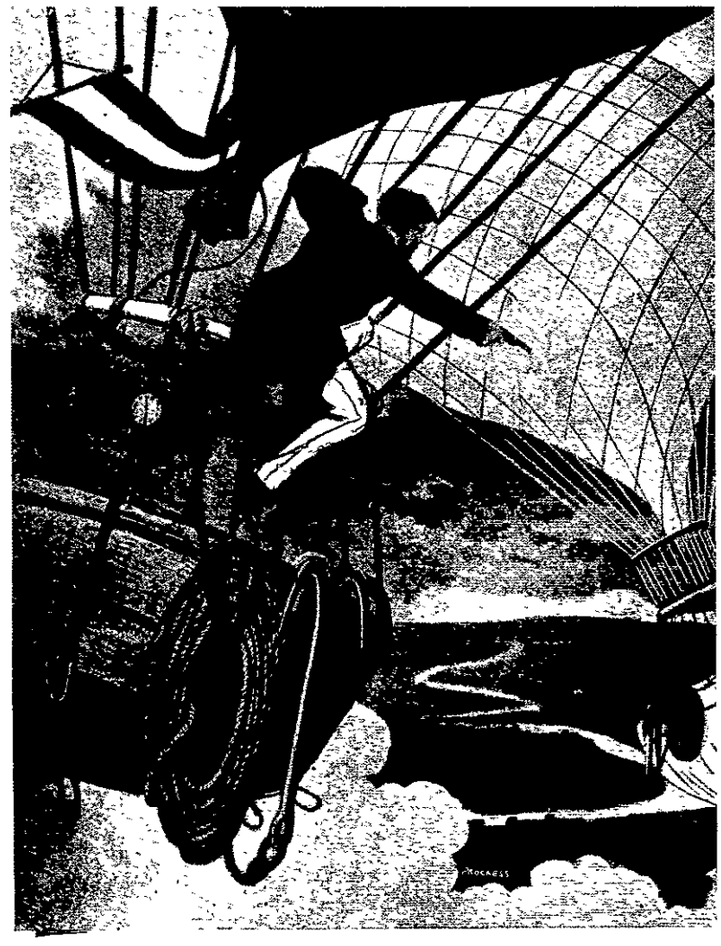
There was a third and much larger machine, which at the close of 1905 was ready for a trial in Wimbly Park (Watkin Tower). This was the inventor's favourite machine. The dimensions are 70 ft. by 10 at the centre; there are 36 ascensional screws, 5 ft. in diameter, with fine pitch; and four propelling screws, revolving different ways, of 7 ft. diameter, driven by a gasoline motor of 100 h.p. This is the nearest approach to the lines of Jules Verne's "Clipper of the Clouds." Not much has been since heard of these machines, which represent a separate and distinct school of aviation. It is reasonable, however, to suppose that on the day of the trial flight to Manchester they or one of them will put in an appearance.

Santos Dumont.

His air-ship, the famous "Bird of Prey," which flew two hundred and fifty yards at Bagatelle, in the Bois de Boulogne, the other day, is fitted with three rudders. Direction is given to the ship by means of a rudder in front, operated by a steering wheel. The aeronaut is a perfect adept with this apparatus, but the other two rudders, which are situated in the planes or wings, are less easy to master. These side-rudders are for correcting the line of flight in case of a puff of wind, or other cause of deviation from the straight course. They are worked by cords attached to iron hoops passed over the aeronaut's arms, and it is by swaying the body in either direction that the movements are produced. When the motor moves forward in the air the intrepid pilot inclines first one rudder and then the other. The wicker basket-car in which he stands is balanced on pivots, and takes any required angle.

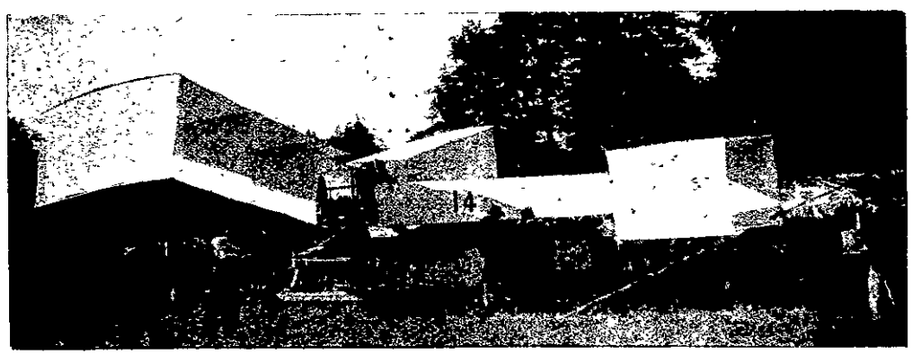
Retrospect.

We look back over the century of aerostation and mark the names and the vast numbers of inventors and their patents. We distinguish, besides the men whose histories we have told, the names of Green and Glaisher, of Nadar (Napoleon of balloonists), and Severo, the unfortunate compatriot of Santos Dumont, who perished on a certain spring



A DUEL IN THE AIR.

day in sight of a gay Parisian crowd; of Schwarz, whose balloon of aluminium was sent up after his death and failed to find equilibrium, and was dashed to pieces, though its aeronaut had a wonderful escape. We think silently of Wise, the great American balloonist, who was blown out into the Atlantic and never heard of more, of Powell, the intrepid member of the House of Commons, who was lost in precisely the same way, only from an English instead of an American coast; and of a hundred others who have fought and suffered and lost in the cause of ballooning. The last picture we permit ourselves to dwell upon is of that memorable duel in the air outside and above Paris during the famous siege in which the Frenchman's balloon was forced to the ground and was repaired immediately by the intrepid aeronaut who, mounting again, went straight at his Prussian opponent and drove him to earth with a hole in his balloon that not all the Uhlans in his master's army availed to mend. The cheer of the Parisian crowd is the last sound out of the past we will permit ourselves to enjoy.



SANTOS DUMONT'S 14 BIS BEFORE THE START.