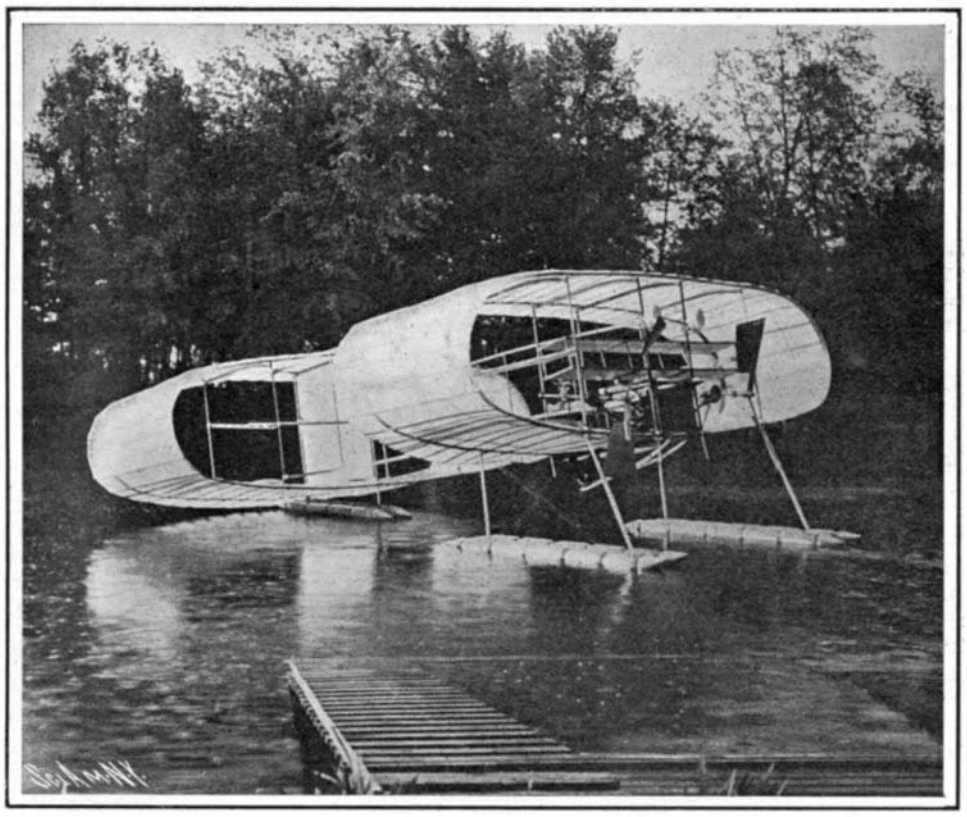
RECENT AEROPLANES AND AIRSHIPS IN FRANCE.

BY THE PARIS CORRESPONDENT OF THE SCIENTIFIC AMERICAN.

In France, and especially in the vicinity of Paris, there is great activity at present in the matter of airships and aeroplanes, and many are the new apparatus which are under construction at different places. It is mostly in the suburbs of the city that the new airships are being built and put through their experimental flights. Some of these have been only begun, or are at least in the first stages, while others are quite finished and have now made the first trials. The movement in favor of aeroplane apparatus is more strongly marked this year. Heretofore but few such flying machines have been produced, as most of the aeronauts directed their attention preferably to airships. It is no doubt due to the success which the Wright and other aeroplanes have had in America that the aeronauts in France are now taking up the subject, and some interesting developments are to be expected in this line.

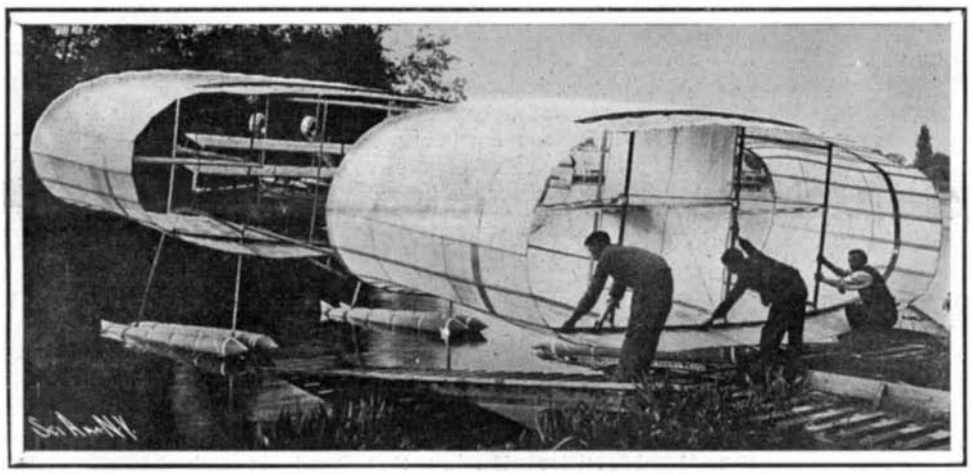
Perhaps this year we may see some successful flights with aeroplanes in France, seeing that aeronauts such as Tatin, Capt. Ferber, Archdeacon, and, more recently, Bleriot and Voisin, Florencie, and others at Paris, as well as Barlatier and Blanc at Marseilles, are now at work bringing out their machines, while the Prince of Monaco is furthering the enterprises of M. Léger. What has greatly stimulated the aeroplane work has been the founding of the Grand Prize of Aviation by the Aero Club of France. For this purpose the sum of $10,000 has been very generously subscribed by Senator Henri Deutsch and M. Ernest Archdeacon. M. Deutsch, it will be remembered, already founded the prize for airships which was won by Santos-Dumont in his memorable flight around the Eiffel Tower. Following the announcement of the prize we find a number of entries from the leading aeronauts, commencing with Santos Dumont, who enters his new helicopter, and followed by M. Florencié, with an *orthoptere* or flapping-wing apparatus resembling a bird in flight. Then we have M. Bellamy, with a new aeroplane, and Messrs. Bleriot and Voisin with the apparatus which we illustrate here. M. Léger's aeroplane, which is being built with great secrecy, will no doubt also be entered for the prize.

As regards the new aeroplane which Messrs. Bleriot and Voisin are constructing at their establishment in the suburbs of Paris, we present here a view of the aeroplane which was taken during the first experimental flight upon the Lake of Enghien. But a short flight was made, however, as it was found that some alterations were needed in the apparatus. The Bleriot aeroplane is formed of two elliptical parts which are built of canvas stretched upon a frame of light wood. A supporting surface of 60 or 70 square yards is given by the two frames. The surfaces are formed of varnished French silk. In front of the foremost elliptical frame are placed two 6-foot propellers, which are driven at a speed of 600 revolutions per minute when in flight by means of an exceptionally light gasoline motor known as the "Antoinette." This motor, which, as used in a high-speed motor boat, was illustrated in our last Motor Boat and Sportsman's number, has 8 cylinders fitted in V-shape upon a long aluminium crank case. It will give 24 horse-power, and, as it is one of the lightest gasoline motors which has thus far been constructed, it marks in itself a great advance in the question of aviation. The propellers produce a tractive effort of 170 pounds. Each has a separate flexible shaft running from the motor and driven through gearing, while clutches allow of disconnecting either propeller at will.



The Bleriot Aeroplane Ready for a Flight Over Water.

The operator is seated back of the forward ellipse with his feet upon bars that control the double horizontal rudder in front. The two propellers are driven by an 8-cylinder gasoline motor of 24 horse-power through bevel gears and flexible shafting. The apparatus resembles somewhat Ludlow's aeroplane.

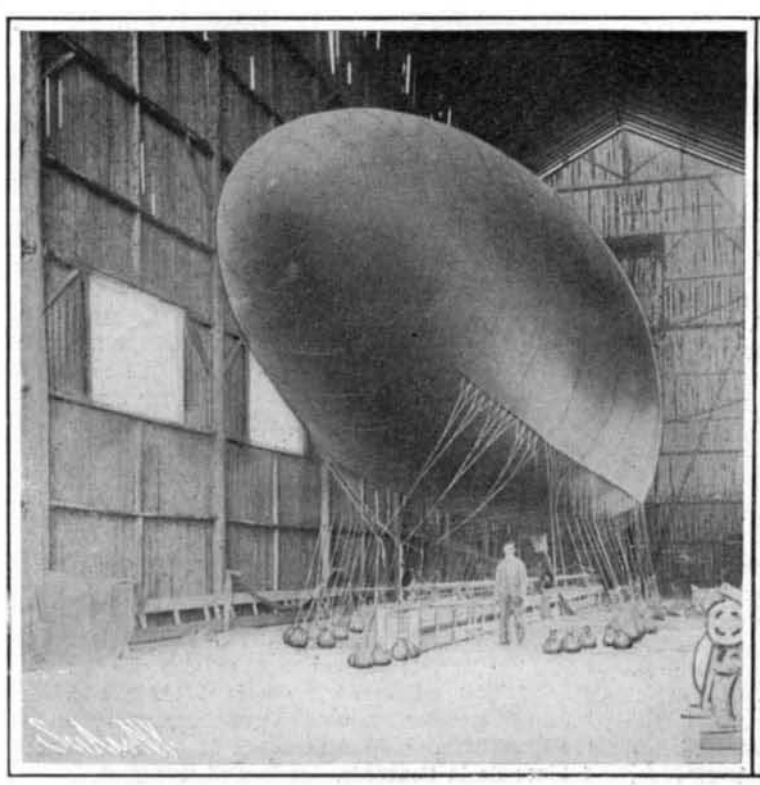


Launching the Bleriot Aeroplane.

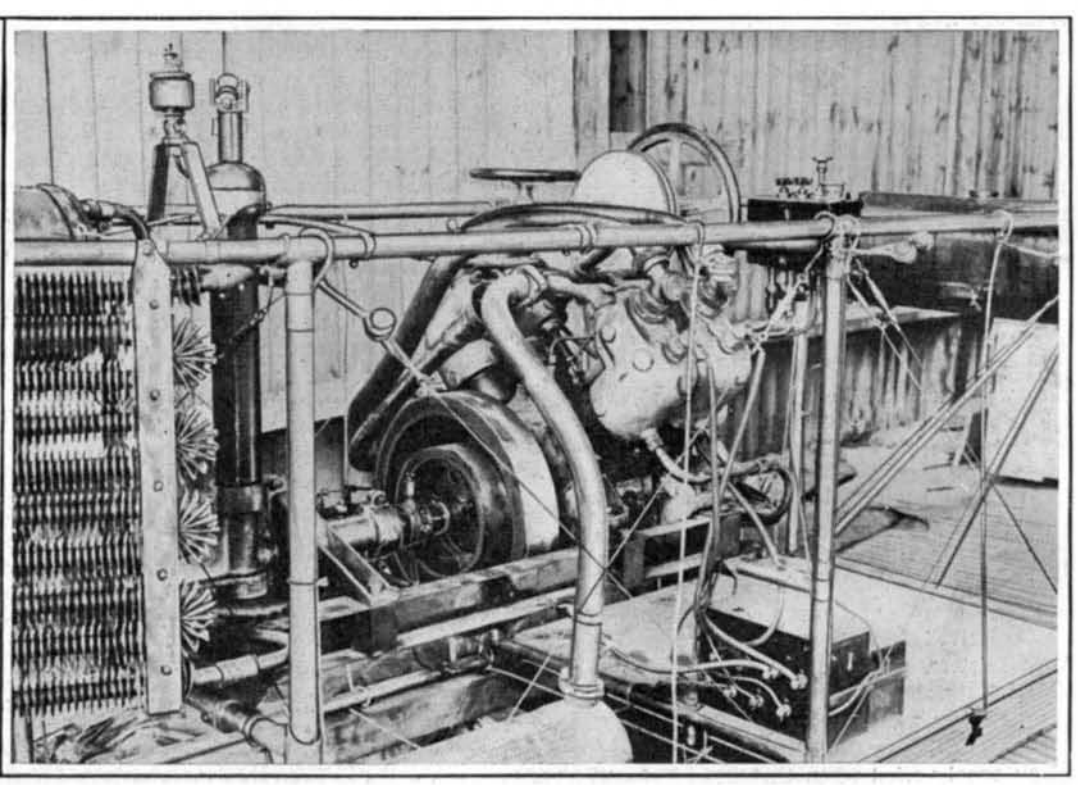
The aeroplane is supported upon floats consisting of cylinders of rubber-covered canvas inflated with air.

The aeroplane is mounted upon detachable floats of rubber-covered canvas filled with air. The Bleriot apparatus has been built with the idea in mind of competing for the Grand Prix, and it is proposed to put it through a series of successive experiments. It has seats for one or two persons. Horizontal and vertical rudders make it quite steady in either direction. One of our illustrations shows the operator with his feet upon the curved bars that control the setting of the double horizontal rudder in front. In a series of trials conducted not long ago in the grounds of the Aeronautic Club near Paris, the aeroplane made a number of flights and seemed to perform very well.

We may mention briefly some of the other aeroplanes which are now in construction, reserving for a future article a more complete and illustrated description. M. Florencie, a member of the Aero Club, is bringing out an aeroplane which is quite different from the above, and consists of two canvas-covered frames resembling wings, attached to either side of a central frame. The wings are made to flap up and down to imitate a bird's flight. One part of the wing is entirely covered with canvas so as to beat the air, while another part is made so as to imitate the action of a bird's feathers, and is formed of a series of longitudinal flaps, fixed at the edges to a wire gauze network, so that the flap is made to close when the wing is brought down, but keeps open when the wing is raised. The middle part of the aeroplane is adapted to be fitted upon the aeronaut's body, and he works the wings by means of stirrups attached to his feet and connected to the wings by cords. Stretching out the legs causes



Count de la Vaulx's Airship is 114.8 Feet Long and 25 Feet in Diameter. It Contains a Compensating Ballonette of 140 Cubic Yards Capacity.



The Airship is Driven by a 4-Cylinder Gasoline Motor of 16 Horse-Power Having Its Cylinders Arranged in Pairs at an Angle of 90 Degrees.

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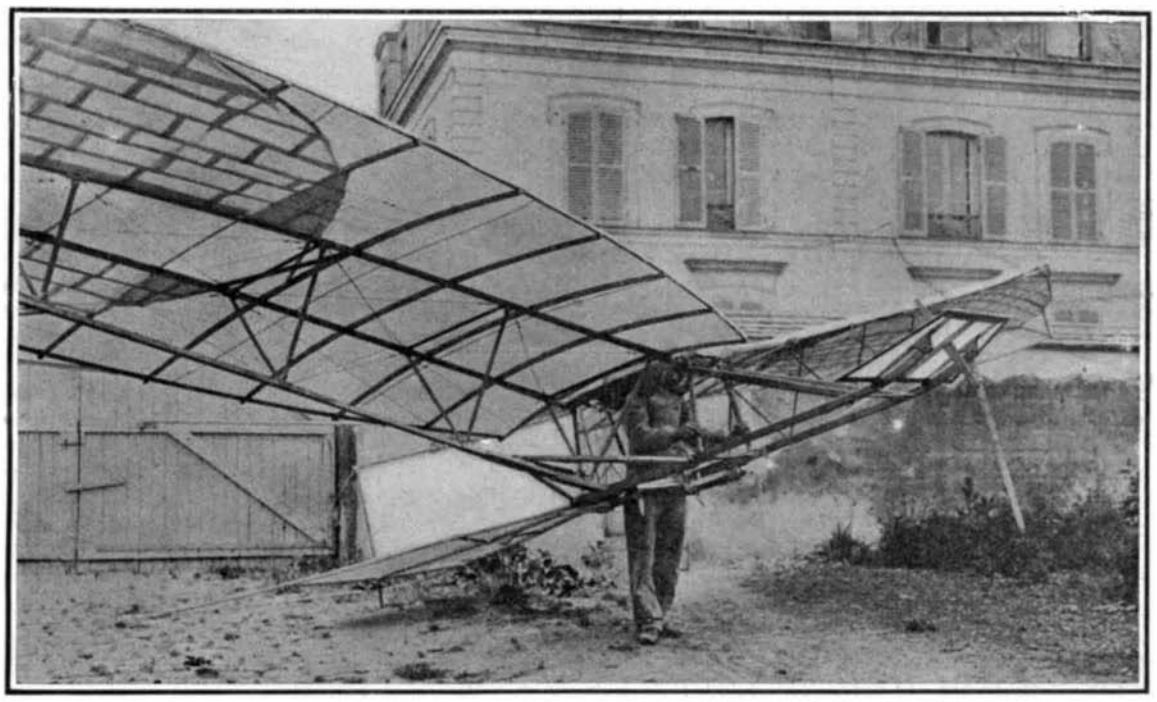
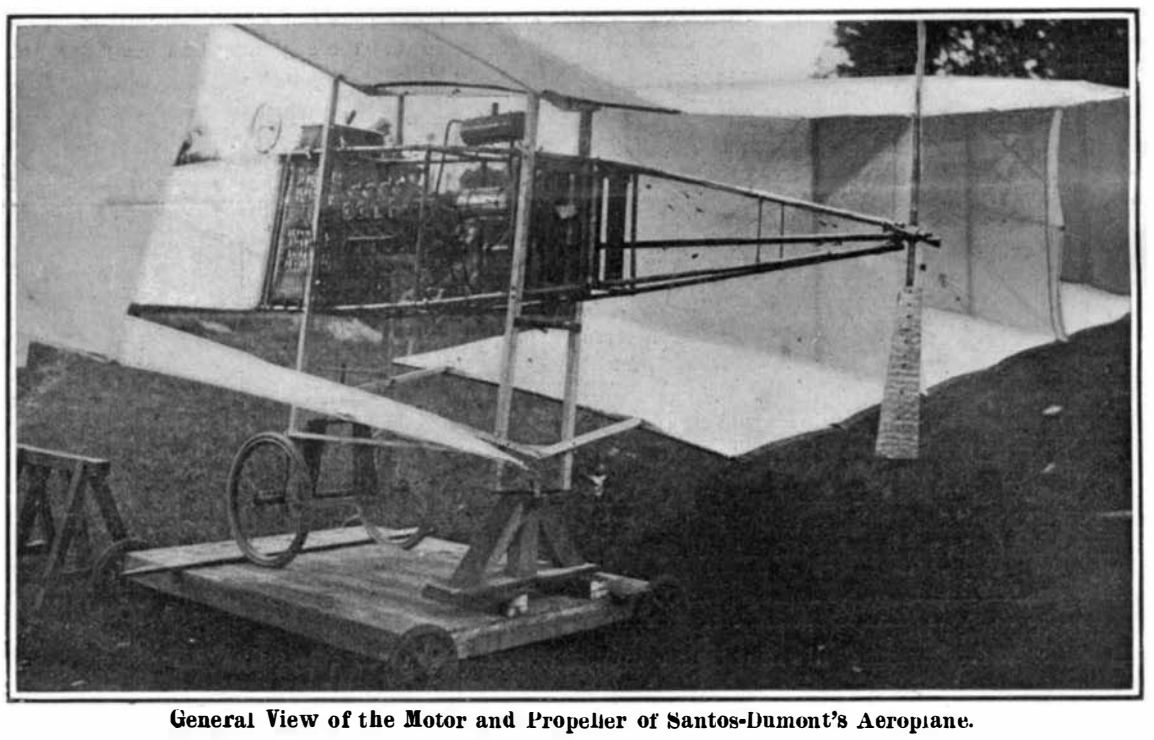
a lowering of the wings, and they are raised by a spring which is fixed to the frame. In front is placed a balancing weight, while in the rear is a rudder forming the tail. The apparatus is 45 feet wide over the wings and the surface is 30 square yards, with a weight of 30 pounds.

Work upon the new aeroplane which M. Léger is constructing for the Prince of Monaco has been carried on for some time past. M. Léger brought out a machine last year which had some success, and this year he is following up his results and making some changes. The first machine was a helicopter, and consisted of two horizontal propellers (one above the other) revolved in opposite directions by a 12-horse-power gasoline motor. On one trial it lifted over 200 pounds net weight. The new machine will no doubt be considerably modified. It is to be tried in France at the Chateau of Marchais, belonging to the Prince of Monaco, and the results of the trials are to be kept secret for the present. At Marseilles, the new Barlatier and Blanc aeroplane is making its trials. An inclined plane which can be turned at an angle is mounted in front, and in the rear are two smaller planes, one on each side, forming the tail. The central framework contains two propellers driven on horizontal shafts by a Buchet gasoline motor. It is expected to carry one person, and at present the machine is being enlarged.

Perhaps the most important of all recent French aeronautic craft is Santos-Dumont's aeroplane. The machine has been christened "14bis," and has been constructed primarily with a view to competing for the $10,000 Deutsch-Archdeacon aeroplane prize, as well as for the Archdeacon cup of $600 which goes to the first man who sails through the air a distance of 25 meters (82 feet) with a maximum angle of drop of 25 per cent, and the prize of $300 for the first aeroplane to go 100 meters (328 feet) with a maximum variation in level of 10 per cent. The "14bis" is built on the lines of a giant bird of prey with the exception that in this case the tail or rudder end constitutes the front of the machine, which consists of a long central body carrying the box rudder and two lateral planes forming a dihedral angle. The aeroplane measures 12 meters (39.37 feet) in width and 10 meters (32.8 feet) in length. It has 861 square feet of sustaining surface. Its weight is 352¾ pounds. This, with Santos-Dumont's weight (110¼) makes a total of 463 pounds. The frame, although smaller than the frames of the Santos-Dumont dirigible airships, is nevertheless designed on substantially the same lines. It supports a two-bladed propeller of aluminium directly driven by the motor at an average speed of 1,100 revolutions per minute. Behind the motor is a radiator of Santos-Dumont's own design. The motor, built by Lavavasseur, is of 24 horse-power, and weighs only 2.64 pounds per horse-power. It is an 8-cylinder V motor of 80 millimeters (3.149 inches) bore and stroke, and 79.36 pounds total weight. Its length over all is 24½ inches, and its width and height 19½. It has automatic inlet valves, jump spark ignition, and develops its rated horse-power at 1,800 revolutions per minute.



The Florencie Orthopter, or Flapping-Wing Machine.

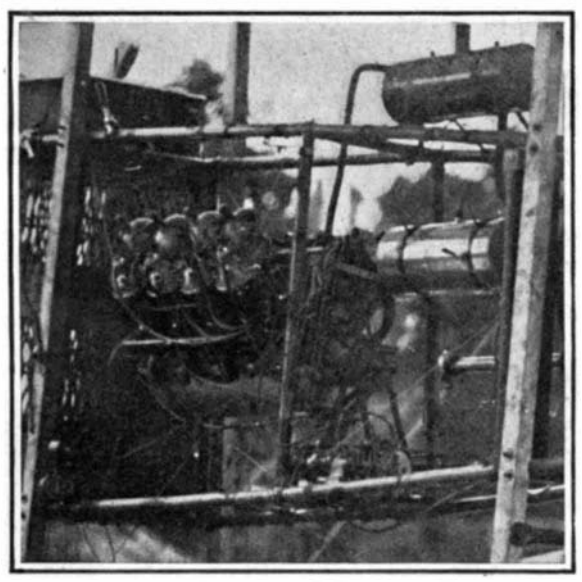


General View of the Motor and Propeller of Santos-Dumont's Aeroplane.

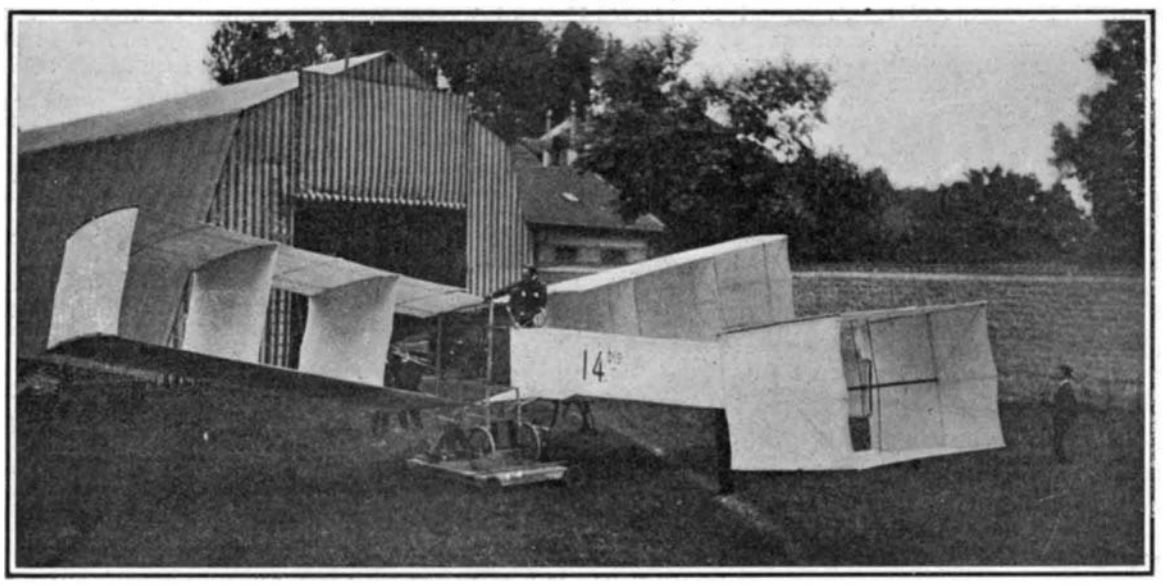
The basket is of the form which Santos-Dumont has always employed in his dirigible airships. This basket is 3 feet high and not much more than 1 foot square. Only a man of Santos-Dumont's slight figure could find it roomy enough. Within easy reach of the aeronaut are the various levers which control the engine, the fuel supply, and the rudder. The latter, which is about 25 feet forward of the motor on the end of a long horizontally-projecting vertical plane, is similar to a huge box kite cell and can be moved in any direction. A small wheel at the aeronaut's right controls the vertical movement, while a lever at his left controls the horizontal. The rudder, as well as the machine itself, is built up of a stiff framework of bamboo and rattan covered with canvas.

The frame of the aeroplane is suitably braced, and is carried on pneumatic-tired bicycle wheels, upon which the entire flying machine is driven at a constantly accelerating speed until it rises spontaneously from the ground. In a recent test, Santos-Dumont used a small dirigible, the aeroplane supplanting the usual car or nacelle. This was fairly successful; but no free flight has as yet been attempted.

The question of airships proper has by no means been dropped. Among others we may mention the new military airship which is to be used by the French government, and which has been ordered by the Minister of War from Messrs. Lebaudy. It will be a modification of the well-known Lebaudy airship, which is one of the most successful so far. The mechanical part is under construction at Paris, while the balloon and the rigging are set up at the Lebaudy balloon shed at Moissan. It will no doubt be used by the War Department at the town of Toul, while the first Lebaudy airship has been allotted to Verdun, both places lying near the German frontier. In the neighborhood of Paris, the new airship built by Count De la Vaulx has received its preliminary trials, during the second of which the Count maneuvered the airship for eight consecutive hours, putting it through all kinds of evolutions with complete success. On the first flight the airship started out well, but it was obliged to alight owing to an accident to the friction clutch of the motor. The photo we reproduce shows a view of it taken at the Aero Club. The cigar-shaped balloon measures 114.8 feet long and 23 feet in diameter. Inside is an air bag, or ballonette, of 140 cubic yards capacity. Below it is suspended a short body the framework of which is constructed of steel tubing. Each end of the body tapers to a point, and in front is mounted the radiator. In the middle is the 16-horse-power, 4-cylinder, water-cooled gasoline motor, which will work the propeller at the end of a long shaft. Back of the motor is a cylindrical gasoline tank.



The Motor of Santos-Dumont's Aeroplane.



Santos-Dumont's Aeroplane. The Inventor is Seated on Top of the Basket, Just Ahead of the Motor.

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