A WIRELESS message from Sao Paulo on July 24 reported the death of M. Alberto Santos-Dumont, at the age of 59. Santos-Dumont, it need hardly be noted, was one of the first pioneers of both the lighter-than-air and the heavier-than-air types of aircraft. The son of a wealthy Brazilian coffee planter of Sao Paulo, he came to Paris in 1891 with the object of studying the problems of motor-car and aerial transport. His first activities in connection with the latter lay in the direction of following up the experiments of Henri Giffard with navigable balloons, and made his first free balloon ascent with Machuron in 1897.

Following this trip Santos-Dumont, in spite of much adverse criticism, set to work to put his theories into practice. He ordered from Lachambre and Machuron an envelope 82 ft. long by 11½ ft. diameter, to which he added a "car," suspended by a suspension system of his own design, carrying two motor-cycle engines driving a propeller. In this he made his first ascent from the Jardin d'Acclimatation on September 18, 1898, but in doing so fouled a tree and damaged the airship. Repairs having been effected, he made a second attempt a few days later, and this time succeeded in executing a series of manoeuvres by means of a vertical rudder and the usual ballast and guide rope as used in free balloons.

These first experiments brought out certain defects—the air pump used for maintaining rigidity of the envelope proving inadequate, resulting in somewhat hasty landings owing to the collapse of the envelope! However, lessons learnt were embodied in "Santos-Dumont" No. 2, which was otherwise much the same as No. 1. The first ascent with No. 2—on May 11, 1899—ended with the same fate that befell No. 1, so Santos-Dumont started work on No. 3, which was 66 ft. long and 25 ft. diameter (17,650 cu. ft.), with a sliding weight for vertical stability, and in November the same year a successful flight was accomplished.

Encouraged by his success, Santos-Dumont then established a works at St. Cloud, and there produced several airships in more or less rapid succession—each an improvement on the one before. In 1901 he made two nearly successful attempts, on No. 8, to win the Deutsch de la Meurthe prize for a flight round the Eiffel Tower, in the first failing to reach home within the specified 30 minutes, and in the second coming to grief on the roof of the Trocadéro.

With his next airship, No. 6, which was 103 ft. long and of 22,230 cu. ft. capacity, and had a motor of 12 h.p., Santos-Dumont succeeded in winning the prize on October 19, 1901. Following this, he built several more airships, on which he accomplished successful "cross-country" flights.

Santos-Dumont now turned his attention to heavier-than-air machines, and in 1905 produced his first aeroplane. No. 13 bis—a weird cellular contrivance, based on the theories of Hargrave. Although it succeeded in making a few short hops, this machine could hardly be recorded as satisfactory, but, nevertheless, Santos-Dumont now became a keen heavier-than-air advocate, and proceeded with his second machine, No. 14 bis, which we show in the accompanying illustration.

On this machine, which was fitted with a 50-h.p. Antoinette engine, Santos-Dumont succeeded in making several short flights in 1906—the first power-driven flights to be made in public in Europe—one at Bagatelle of 8 sec. duration on September 14, another for a distance of 160 ft. on October 23, and three more on November 12 of 200, 270 and 720 ft. By these flights Santos-Dumont won the Archdeacon Prize for the first person in Europe to fly 25 m., and the Aero Club of France Prize for the first flight of 100 m.

His second machine also flew, although not so successfully, but it was in 1906 that he produced his historic "Demoiselle," which was undoubtedly a distinct advance in aeroplane "design" of the period. This first "light plane," which we illustrate, was very lightly constructed, weighing but 260 lb. complete, and frequently "disintegrated" on landing, but, nevertheless, with its 30-h.p. Darracq engine it flew, on the whole, remarkably well—at times over 60 m.p.h.—and later several of these little machines took part in the various early meetings.