

LILIENTHAL

By Charles Heitman



OTTO LILIENTHAL

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In 1891 he constructed another machine, consisting of huge wings nearly 23 feet long, curved parabolically. The mountings were of bamboo covered with calico soaked with wax; this machine weighed altogether 18 kilograms. Launching himself from a height of 19 feet, he was able to fly at first for a distance of 16 feet in a strong wind, increasing this distance later to 114 feet, and he could also fly against the wind.

He then built a second, larger glider, on the model of the first, but with dimensions of 16 square meters and a weight of 24 kilograms. With this he was able to cover a distance of 262 feet, at a speed of nearly 23 feet per second.

He removed his machine to Rathenow in 1893, after modifying the wings so as to be able to fold them for transportation. His

OTTO LILIENTHAL, inventor, constructor and first pilot to successfully and scientifically glide a heavier-than-air apparatus through space, was born May 24, 1848, at Anklam, in the province of Pomerania, Germany. While still a mere lad he began to study the problem of flight, and at the early age of thirteen years, he constructed, with the help of his brother Gustave, his first gliding machine. He began experimenting at night in the moonlight by launching his machine from the top

of a hill and running downwards. At the age of twenty he constructed a machine with movable wings, which was capable of carrying a weight of forty kilograms. His observations in connection with these experiments led him to publish his book, "The Flight of Birds Considered as the Basis of Aviation," which was a remarkable work for that period, and which is of value even now.

Later on he constructed a machine, with beating wings, worked by means of two motors run by carbonic acid; but this apparatus proved worthless.

Lilienthal died a martyr to his inventor's enthusiasm. One day during a successful flight the machine suddenly rose to a height of 33 feet and then fell straight down to the ground and was shattered into fragments. Lilienthal's spine was broken, and he died twenty-four hours later, on August 10, 1896.

Some defect in the machine probably caused the disaster. Lilienthal's apparatus had no longitudinal stability because it consisted of but one carrying surface; the horizontal governing apparatus, moreover, was much too small and set too close to the surface of the bow to be really efficient.

The aviator was obliged to use his body as a means to establish the equilibrium, by moving back and forth, just as an acrobat keeps his equilibrium. But he could not remain stationary in the air; his apparatus was liable to rear instead of gliding, because of retrograde movement; and again, it was liable to descend straight down, striking the ground violently with its prow before the aviator had time to make it regain its normal position. As he plunged down in full flight, the machine was shattered and he was killed.

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interest, but also gave a new impulse and stimulus to the efforts of other aviators.

The experiments of the unfortunate German inventor were of incontestable value in demonstrating the efficiency of supporting surfaces and the possibility of realizing under the best conditions equilibrium during flight. Lilienthal had no imitators in Germany, but in 1896 Octave Chanute, a Frenchman living in America, began to experiment with man-carrying gliding-machines in which he reversed the method of Lilienthal to restore balance and caused the surfaces themselves to alter their position, so as to bring the center of pressure back vertically over the center of gravity.

Pilcher, an English engineer, who shared the fate of Lilienthal three



LILIENTHAL IN FLIGHT

years later, the late Captain Ferber and Voisin, both Frenchmen, who subsequently distinguished themselves with successful motor aeroplanes in France, also followed his methods, as well as other celebrated pioneers in the science of aviation.

Lilienthal's greatest title to glory is the fact that he was an initiator, and the forerunner of the Wright brothers, who adapted his ideas to their aeroplanes of 1902 and 1903, and to the construction of the mechanical aeroplane. However much his pupils may have gone ahead of their master now, the successful flights of the German engineer in his attempts to overcome the resistance of the air on curved surfaces put him in the foremost ranks of the world's greatest aviators and his name will live for many centuries.