

CAN MEN MOUNT IN AIR.

How a German Professor Solves the Great Problem.

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Can a man fly? Learned professors of the science of aerodynamics agree that he cannot, and a formidable commission of experts appointed by the German government to investigate into the possibilities of aerial navigation have finally and decisively and officially said that it is impossible. Still, an ingenious and observant German of the name of Otto Lilienthal, after a long series of experiments and in face of the decisions of the eminent scientists, has succeeded in proving that a clever man can fly, and fly for considerable distances, too.

Professor Lilienthal, like most men who have solved difficult problems, has gone clear away from the principles to which other men have found limitations. When he decided to fly, in other words, he left the possibilities afforded by the balloon entirely out of his calculations. Balloons, said he, are crude affairs, dangerous, not to be depended upon, non-dirigible, and clumsy. There is nothing in nature built upon the principle of the balloon, yet there are things in nature which can fly, and fly much better than the best balloons. These things are birds. To the birds, then, I will go for the model of my flying machine. And to the birds he went.

From these same birds it was that Professor Lilienthal learned the true principles of aerial navigation, which principles he has succeeded to a degree in adapting to the uses of man. He first learned that it is the concave shape of a bird's wing that enables it to soar, rising or falling at will without muscular exertion in the teeth of a high wind. Then he learned that a bird's wing bones are constructed similarly to those in a man's arm. Knowing these things, he built his flying machine, or, to be more correct, his soaring machine. He made for himself of light but impervious cotton cloth and split willow wands two immense wings, twenty-three feet from tip to tip, and a primitive, if not highly-armed, rudder or tail. He preserved in their construction as nearly as possible the form of a bird's wings and tail, increasing the parabolic curve of the bird's wings to the exact proportionate degree for his larger ones. These wings and the tail, weighing in all only twenty-five pounds, are so constructed as to fold up, like the wings of a bat. Having considered them, the professor adjusted them to his arms, took a run along a hilltop, and calmly and confidently jumped over the side, spreading his wings as he did so. He soared some distance, and alighted in safety and comfort. He repeated his experiment many, many times, learning how to control his apparatus, how to change direction, how to rise or descend at will. He improved his wings and tail, and kept on practicing, until now he can soar for several hundred yards, rise

to a much greater height than he started from, and fulfil most of the functions of a big bird, save only that of propelling himself in still air and starting his flight from level ground.

These two things a man is not strong enough to do, the bird possessing much greater strength for its size and weight than the most muscular man. But what Professor Lilienthal lacks in strength he has made up in ingenuity, for he has now constructed a little motor, operated by carbolic acid gas, which, while it adds scarcely anything to the weight of his flying apparatus, is capable of developing continuously two horse power, or more than enough energy to work the wings. Indeed, in the first trial the little motor developed too much strength, and broke the wings, putting a stop to further experiments for the time.

If Professor Lilienthal succeeds in perfecting the great invention, the practicability of which he has already demonstrated, and in making aerial navigation, on the simple principle favored by the birds, safe for mankind, he will have achieved a notable triumph over the wonderful forces of nature, as well as the world's greatest scientists. And he seems very likely to succeed, unless he should grow careless in handling his experimental wings, and perchance fall victim to the awful fate which overtook the lamented and legendary Icarus, the first man who attempted to fly.