THE WORK OF THE WRIGHTS
Background to their Activities Described in a Lecture by Capt. J. L. Pritchard

The pioneering work of the Wright brothers was described by Captain J. L. Pritchard, C.B.E., Hon. F.R.Ae.S. (late secretary of the Royal Aeronautical Society), in a lecture which he delivered on Tuesday, December 16th. In his paper, The Work of the Wright Brothers for Aviation, he began by recalling that the first meeting of the Aeronautical Society had been held at the Great Hall of the Society of Arts in June, 1866.

Ever since that day, he continued, until 1935, when larger audiences were seen to be wind tunnels, he had been aware of the Society's activities and had even written to some members. In 1919, the Albert Medal of the Royal Aeronautical Society had been awarded to H. G. Liddell and A. D. Etheridge, from the life-saving station: W. C. Brinkley, from nearby Manteo, and the inevitable boy, Johnny Moore. With Wilbur at one tip to keep the machine on a level keel as it ran down the track, and Orville lying prone on the centre of the lower wing, to lessen the warping of the wing tips, provided all the necessary control that was needed in flight. The glider under full control. No glides had ever before been made in such winds, but had any previous experimenters been able to use a glider of such large surface.

The fixed rudders nearly led to a bad stalling disaster while Orville was gliding. Although he escaped injury, the machine was damaged and the vertical surfaces were replaced by a single rudder. The brothers could draw. There were tables of pressures on flat plates and on various kinds of curved wings in winds of various speeds, but none reliable. There had been some kite flying, and some gliding. Two of the most experienced and best known gliders, Lilienthal in Germany and Pilcher in England, had been killed a few years before, and many had suffered disaster.

Early Experiments

The two brothers soon became convinced that all previous experiments in aerodynamics and aeronautical design had been the problem of equilibrium," said Wilbur Wright, "had been the real stumbling-block in all serious attempts to solve the problem of human flight, and this problem of equilibrium in reality constituted flight itself.

Their first glider weighed 52 lb, and was a biplane with a total surface of 165 sq ft, with a span of some 18ft. The brothers chose to begin their great adventure on the sea coast at Kitty Hawk, North Carolina, on a lonely flat stretch of sands where they were not likely to be disturbed and where they could get the winds they wanted for experimenting. "In speculating on possible methods of constructing a flying machine to carry a man, we found it necessary to establish a structure consisting of superposed surfaces rigidly trussed along their front and rear margins," said Wilbur Wright, "but not trussed from front to rear.

This solution might seem now surprising, simple, but it was a fact that the Wrights had discovered that the control could warp each wing tip to give lateral control, as well as move the whole upper wing forward to give fore and aft control. This explained the Wrights' control could warp each wing tip to give lateral control, as well as move the whole upper wing forward to give fore and aft control. But this was the problem which leading scientists and engineers of the world had for centuries failed to do.

Aerodynamic calculations the brothers found that fore-and-aft control could be better obtained by using a small movable horizontal surface in front of the mainplanes. This, with the warping of the wing tips, provided all the necessary control that was needed in flight. The glider under full control. No glides had ever before been made in such winds, but had any previous experimenters been able to use a glider of such large surface.

Orville Wright in December 1903, the first attempt at a flight was made, with Wilbur as pilot. When the brothers ran for the start over the soft sand, he turned the nose up too sharply, lost speed and landed heavily, breaking some of the supports of the front elevator.

On December 17th, 1903, five people stood on the bleak sands to watch the beginning of a new era in history. They were J. T. Daniels, W. S. Dough, and A. D. Etheridge, from the life-saving station: W. C. Brinkley, from nearby Manteo, and the inevitable boy, Johnny Moore. With Wilbur at one tip to keep the machine on a level keel as it ran down the track, and Orville lying prone on the lower wing at the controls, the machine rose slowly, erratically, flew for twelve seconds and landed about 100ft from the end of the track. An hour later Wilbur made the second flight of eleven seconds and covered a distance of 175ft. The third flight by Orville covered practically the same distance in 15 seconds and at midday Wilbur made the fourth and final flight, which lasted 59 seconds and covered a measured distance of 852ft.

That afternoon Orville Wright telegraphed to his father in Dayton, "Success four flights Thursday morning all against wind and started four and a half minutes after first flight. Speed through the air 31 miles longest 59 seconds inform press home Christmas." The telegraph operator told a local news reporter who wrote a garbled and untrue account of what had happened. Only three printed papers printed anything the following morning, and the Dayton Journal refused to print anything on the score that any flight under a minute wasn't news! The greatest news in the world passed the world by.

More interest, indeed, was shown in Great Britain and France than in America. The Journal of the Royal Aeronautical Society had notified that the total time spent in free gliding that first year was only two minutes, all on the last day of the visit to Kitty Hawk.

In the case of most of the published data of Lilienthal and others were not correct, the published data of Lilienthal and others were not correct.