

Santos Dumont and the Dawn of Aviation

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Introduction

Many revealed a taste for tale ...

The flight revolution was largely a product of technology and not so much of science. Its practitioners followed the tradition of the craftsmen and technicians who, awaked by the experimental method of Sir Francis Bacon and others, were the proto-engineers of the great expansion of technology and engineering that happened from the time of the Industrial Revolution onwards. Its first great accomplishment was the re-invention of the balloon and lighter-than-air flight in 1783 after the Brazilian Jesuit Bartolomeu de Gusmão had rediscovered it in 1709. By the mid-1790's, the balloon had already been turned to practical benefit, as an observation system; it appeared as a scientific lifting platform shortly afterwards. The quest for steerable flight led to the creation of practical, small airships by the end of the 19th century, and the larger rigid airship appeared at the beginning of the 20th, almost simultaneously with the appearance of the airplane.

Ironically, before Santos Dumont flew at Le Bagatelle in 1906, few of the most knowledgeable individuals in the fields of science and technology recognized just how close humanity was to fulfilling the dream of constructing a "flying machine." In 1896, the great scientist Lord Kelvin scathingly rejected an offer of membership in the Aeronautical Society of Great Britain (now the Royal Aeronautical Society), writing "I have not the smallest molecule of faith in aerial navigation other than ballooning or of expectations of good results from any of the trials we hear of." At the time of Langley's first failure in 1903, the astronomer Simon Newcomb intoned "May not our mechanicals. . . be ultimately forced to admit that aerial flight is one of that great class of problems with which man can never cope?"¹⁰

Even advocates of flight were surprisingly cautious in their predictions. H. G. Wells, only slightly over a year before the Wright flights at Kitty Hawk, wrote "Few people know of the work of Langley, Lilienthal, Pilcher, Maxim, and Chanute and will be inclined to believe that long before the year 2000 and very probably before 1950, a successful airplane will have soared and come home safe and sound."¹¹ Surprisingly, the invention of the airplane hardly changed either the tones of skepticism or conservatism among "knowledgeable observers" essentially until to the outbreak of the First World War. Critics and adherents alike foresaw little commercial or military use for airplanes. The head of the U.S. Weather Service, Willis Moore, thought passenger travel would be so expensive as to be unprofitable. So did the head of 6th Britain's Balloon Factory (subsequently the Royal Aircraft Factory), the otherwise estimable Mervyn O'Gorman, who believed the airplane, would never successfully compete with the train "in price, convenience, safety, or speed."¹² Military officials likewise saw little potential in the airplane. In 1910, asked the potential value of aviation for the French Army, France's most distinguished soldier-scholar, General Ferdinand Foch, replied "*c'est zero.*" Three years later, his British counterpart, Sir John French, considered the notion that aviation would revolutionize warfare absurd."¹³ However, within a year, after Tannenberg and the Marne battle, he as well as the French clearly had changed their minds. John French, seemingly without any embarrassment, requested the expansion of the Royal Flying Corps because reconnaissance and artillery spotting demands "have materially increased . . . to an unforeseen degree." Likewise, in the middle of the war, a converted Foch would scribble on an operations order "Victory in the air is the prerequisite to victory on land".¹⁴ The pre-war American Secretary of the Navy, Victor