

# **THE WRIGHT BROTHERS**

FRED C. KELLY

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TO

The Brave Flyers of the United Nations  
Fighting All over the World for Humanity  
and Decency Against the Forces of Barbarism,

This Book Is Dedicated

## **AUTHOR'S PREFACE**

THE aim in this book has been to satisfy the curiosity of the average, non-technical reader regarding the work of the Wright Brothers, and to do so as simply as possible. No attempt has been made to go into minute technical details. Nor does the book cover the scientific researches and numerous inventions by Orville Wright since the death of his brother.

To give credit to everyone who has been gracious with help in the preparation of what I have written would require so long a list, with risk of names being unintentionally omitted, that I shall not attempt it.

But one name naturally and obviously comes first and foremost—that of Orville Wright himself. He has read my manuscript and given generously of his time in verifying the accuracy of various statements and in correcting inaccuracies which otherwise would have appeared.

Next in importance to that of Orville Wright has been the help received from his secretary, Miss Mabel Beck, whose memory and knowledge of Mr. Wright's voluminous files enabled her quickly to produce documentary evidence to make certain of accuracy.

FRED C. KELLY

Peninsula, Ohio

# **THE WRIGHT BROTHERS**

## PROLOGUE

IN a corner of the Pullman smoking compartment, by the window, the man who had been explaining the whole economic system mentioned inventors as an example of the fortunate relationship between desire for money and scientific progress.

“Take the Wright brothers,” he said. “Would they have worked all those years trying to fly just for their health?”

Another passenger ventured to ask: “Don’t people sometimes become curious about a problem and work to see what they can find out?”

The man by the window chuckled tolerantly as he replied: “Do you think those Wright brothers would have kept on pouring money into their experiments and risking their lives if they hadn’t hoped to get rich at it? No, sir! It was the chance to make a fortune that kept them going.” Most of the other passengers in the compartment nodded in agreement.

Not long afterward, one of those who had overheard that conversation was in Dayton, Ohio, and inquired of his friend Orville Wright: “Do you think the expectation of profit is the main incentive to inventors?”

Orville Wright didn’t think so. He doubted if Alexander Graham Bell expected to make much out of the telephone. And it seemed to him unlikely that Edison started out with the idea of making money. Certainly, he said, Steinmetz had little interest in financial reward. All Steinmetz asked of life was the

opportunity to spend as much time as possible in the laboratory working at problems that interested him.

“And the Wright brothers?”

If they had been interested in invention with the idea of making money, said Orville Wright, looking amused, they “most assuredly would have tried something in which the chances for success were brighter.”



# I

## BOYHOOD

FROM earliest years both Wilbur and Orville Wright were motivated by what Thorstein Veblen called the "instinct of workmanship." Their father, the Reverend Milton Wright, used to encourage them in this and never chided them for spending on their hobbies what little money they might have. But he did urge them to try to earn enough to meet the costs of whatever projects they were carrying on. "All the money anyone needs," he used to say, "is just enough to prevent one from being a burden on others."

Both brothers were fascinated by mechanics almost from the time they were conscious of interest in anything. The childhood events most vivid in the recollections of Orville Wright have had to do with mechanical devices of one kind or another. One of the high spots was the day he attained the age of five, because he received for a birthday gift a gyroscopic top that would maintain its balance and spin while resting on the edge of a knife-blade.

Shortly after that fifth birthday, and partly because of his inborn enthusiasm over mechanics, Orville began an association with another boy that had an important influence on his life. His mother started him to kindergarten. The school was within a short walking distance of the Wright home and Orville set out after breakfast each morning with just enough time to reach the classroom if he didn't loiter. His mother bade

him return home promptly after he was dismissed and he always arrived punctually at the time expected. When asked how he was getting along, he cheerfully said all was going well, but did not go into details. At the end of a month his mother went to visit the kindergarten to learn just how Orvie was doing.

“I hope the child has been behaving himself,” said the mother to the teacher.

The teacher stared at her in astonishment. “Why,” said she, “you know, since the first few days I haven’t *seen* him. I supposed you had decided to keep him at home.”

It turned out that Orville had almost immediately lost interest in kindergarten and instead had regularly gone to a house two doors from his own, on Hawthorne Street, to join a playmate, Edwin Henry Sines. With an eye on the clock to adjust himself to the kindergarten hours, he had stayed there and played with young Sines until about a minute before he was due at home.

Orville’s father and mother were not too severe when this little irregularity was discovered, because the boys had not been engaged in any mischief. On the contrary, their play had been of a sort that might properly be called “constructive.” The thing that had occupied them most was an old sewing-machine belonging to Sines’ mother. They “oiled” it by dropping water from a feather into the oil-holes!

Both Orville and Wilbur followed their father’s advice and earned whatever money they spent. One source of income was from wiping dishes in the evening, for which their mother paid

a flat rate of one cent. Sometimes she employed them to make minor household repairs. Orville seemed to find more outlets for money than did Wilbur, who was more saving, and from time to time he borrowed from Wilbur—but he kept his credit good by sticking to an arrangement they always made that the next money earned should be applied on the debt.

One of Orville's early money-making ventures was the collecting of old bones in near-by alleys, vacant lots, or neighbors' yards, and selling them to a fertilizer factory. He and another boy first did this as a means for raising funds with which to buy candy for use while fishing. They accumulated a weight of bones that it seemed to them must represent a small fortune—and were somewhat shocked when the buyer paid them only three cents.

At first, Orville's associates in his projects were boys of his own age rather than Wilbur, who was more than four years older and moved in a different group; but a day came when the brothers began to share curiosity over a mechanical phenomenon. In June, 1878, when Orville was seven years old and Wilbur eleven, the Wright family left Dayton, because the work of the father, who had been made a Bishop of the United Brethren church, was shifted to Cedar Rapids, Iowa. And it was in a house on Adams Street, in Cedar Rapids, not long after their arrival there, that an event occurred which was to have much influence on the lives of Wilbur and Orville—as well as to have its effect on the whole human race.

Bishop Wright had returned from a short trip on church business bringing with him a little present for his two younger sons.

“Look here, boys,” he said to Wilbur and Orville, holding out his hands with something hidden between them. Then he tossed the gift toward them. But instead of falling at once to the floor or into their hands, as they expected, it went to the ceiling where it fluttered briefly before it fell. It was a flying-machine, a helicopter, the invention of a Frenchman, Alphonse Pénaud. Made of cork, bamboo, and thin paper, the device weighed so little that twisted rubber bands provided all the power needed to send it aloft for a few seconds. As the brothers were to learn later, Pénaud, an invalid during most of his short life, had not only invented, as early as 1871, various kinds of toy flying-machines—both the helicopter type and others that flew horizontally—but was the originator of the use of rubber bands for motive power. Simple as was this helicopter—they called it the “bat”—Wilbur and Orville felt great admiration for its ingenuity. Though it soon went the way of all fragile toys, the impression it left on their minds never faded.

Not long afterward Wilbur tried to build an improvement on that toy helicopter. If so small a device could fly, why not make a bigger one that could fly longer and higher? Orville was still too young to contribute much to the actual building of larger models, but he was keenly interested as Wilbur made several, each larger than the one preceding. To the brothers’ astonishment, they discovered, that the bigger the machine, the less it would fly; and if it was much bigger than the original toy, it wouldn’t fly at all. They did not yet understand that a machine of only twice the linear dimensions of another would require eight times the power.

Orville, meanwhile, had distinguished himself in another way, by organizing an army. His grade at school was dismissed one Friday afternoon, though the rest of the school was in session, and it occurred to Orville that it might be amusing to march by, throw gravel on the windows, and taunt those who were still at their lessons. Supported by his friend, Bert Shaffer, he proposed to a dozen other boys in the class that they form themselves into an army, and act not as individuals but as an organization. For having thought of the idea, Orville, who had been doing some reading about Napoleon, would be the General, but there would be Colonels and Captains as well. In fact, they used up all the military titles they knew. Lacking guns, they would have to carry wooden clubs, and these they got by removing some loose pickets from the school fence. All went well until the school janitor began to chase them, evidently intending to capture them. One of the boys made him pause by throwing a rock in his direction as he was crawling through a hole in the fence. After escaping into a distant alley, all in the army assumed they would probably be in plenty of trouble when they returned to school Monday morning.

“We’ll be all right,” said Orville, feeling bound, as their commanding General, to try to uphold the army’s morale, “if we stick together. They can’t fire us all.”

He mounted a box lying in the alley and outlined what they should do. The teacher would doubtless single out only two or three of them that had been recognized by the janitor and ask them to stay after school. But if the teacher asked one of them to stand up, they must all stand up; or, if she asked one to stay

after school, all must stay, and show their solidarity. “All for one, and one for all,” he quoted.

When they were back in school at the next session, the teacher said nothing to indicate that retribution was in the making; but when the class was dismissed at the end of the afternoon, she asked Orville to “remain.” True to their pact, all the rest of the army stayed in their seats—or, rather, all except one undersized lad. A few minutes later, the teacher asked Orville to come to her desk. As he stepped forward, all the others started to do likewise. “The rest of you sit down,” commanded the teacher, and then added: “I don’t know why you’re here at all.” Her tone was such that all meekly sat down.

When Orville reached her desk, she said: “You were speaking of a song you could bring for the exercises next Friday”—and went on to talk, pleasantly enough, of Orville’s part in a forthcoming school entertainment.

She didn’t even seem to know about the daring behavior of the army in the school yard. Probably the janitor, embarrassed over his failure to capture the culprits, had not reported them.

While in Cedar Rapids, Orville showed enterprise in another direction. He had enough intellectual curiosity to study lessons that the teacher had not yet assigned. When a little more than eight years old he told his father that he was tired of the Second Reader they were still studying at school and wished he had a Third Reader.

One morning, not long after that, at the middle of the school year, the principal came to the room Orville was in and

announced that any pupils who showed enough proficiency in reading might be promoted at once, without waiting until the end of the year, and begin the Third Reader. The more promising members of the class, selected by the teacher, then stood toeing a chalk mark, up front, as was commonly done, and took turns at reading. In his alarm lest he might not do himself full justice, Orville, someone told him later, held his book upside down. That did not prevent him from reading accurately, as he knew the book by heart, and he was promoted.

"I'm now in the Third Reader class," he proudly announced when he reached home that noon.

"Well, that's a strange thing," said his father. "Just this morning I bought the Third Reader you asked for. But," he added, "you won't be able to use it today, because you're going to miss school this afternoon. I have arranged for you and Wilbur to go to the photographer's and have your pictures taken."

Orville's picture thus commemorated what had seemed to him an important event in his life.

After three years in Cedar Rapids, the Wright family, in June 1881, moved to Richmond, Indiana, partly that Mrs. Wright, who was not in robust health, might have the companionship of her sister who lived there. It was in Richmond that Orville took up the building and flying of kites. Though it interested him, Wilbur did not then take much part in this kite-flying sport, because he feared it might be considered too juvenile for a boy of his size. Orville came to be considered an expert at kite-making and sold kites to playmates as a convenient means of getting spending money. He made the framework of his kites

as thin as possible, to reduce weight. Indeed, they were so thin that they would often bend in the wind and the kite formed an arc. But it did not then occur to Orville that this curvature of the kite's surface had any relation to its good flying qualities.

Though he had turned his kite-making to profit, Orville's best source of revenue in Richmond was a job of folding papers, a church publication. For additional spending money he entered the junk business. He would go after school or on Saturdays to pick up scraps of metal thrown out by a chain factory, and hauled this in his "express" wagon to a junk dealer's yard.

One of his projects was the building of a small wooden lathe. It was too small to be quite satisfactory, and Wilbur offered to help him build a larger lathe, seven or eight feet long. This was the first "big" mechanical job he and Wilbur worked on together.

The lathe was considered a great success, especially by neighbor boys who thought it a privilege to work the foot-treadle that provided the motive power. But Wilbur felt that it should be improved. He had noticed that bicycles were being equipped with ball-bearings to give easy running quality and he said the lathe ought to have ball-bearings. He looked about the barn for material that could be adapted and took some metal rings from an old set of harness. When two of these were held tightly side by side they formed the outer track for the ball-bearings; but, instead of steel balls, marbles were used—the common kind, made of clay, that we used to call "commies." Within this circle of marble bearings would rest the shaft of the lathe. The idea seemed so sound that the brothers' friends were much impressed. Many were on hand in the upper floor



of the barn awaiting eagerly the final tinkering before the ball-bearing “patent” could be demonstrated. As soon as the lathe was put into operation, there was a terrible noise and then it seemed as if the barn itself was beginning to sway and shake. It was evident that the marbles in the bearing had not been strong enough to withstand the stress; but why should the barn become so agitated? Orville went downstairs to find out if there could be any other cause.

When he reached the outside he saw his sister Katharine held against the side of the house by an invisible force. A small cyclone was taking place! All the boys upstairs had been too absorbed to notice such minor phenomena as weather.

Some of the enterprises Orville got into at Richmond were not of a mechanical nature; and Wilbur, if sharing in them at all, appeared only in the background, or as a consultant, for he was at an age when a boy gave thought to his dignity. Orville had noticed that many boys chewed small hunks of tar. It seemed to him that if the tar could be flavored with sugar to make it more palatable, and small pieces were wrapped in tissue paper, a market for the product might be found. He and his friend, Harry Morrow, began a series of experiments in the Wright back yard, and they seemed well on their way to having a saleable article. But as they kept testing their samples, both became ill—some kind of stomach disorder, accompanied by nausea—and abandoned their plans. Wilbur, though not a partner in all this, was much interested and for years afterwards used to refer to “that chawin’ gum corporation.”

If Orville was “into” more different things at this time than his brother, it was mainly because Wilbur’s great passion was for

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