

EARLY WRIGHT BROTHERS FLIGHTS

(The following article is published for the considerable insight it provides into the era of the early flights in the United States by Orville and Wilbur Wright. It comes from "Gleanings in Bee Culture", published in Medina, Ohio in the early years of this century, and was written by A. I. Root.)

Dear Friends: I have a wonderful story to tell you. A story that in some respects outrivals the Arabian Nights fables. A story, too, with a moral that I think many of the younger ones need, and perhaps some of the older ones, too, if they will heed it. God in his great mercy has permitted me to be, at least somewhat, instrumental in ushering in and introducing to the great wide world an invention that may outrank the electric cars, the automobiles and all other methods of travel, and one which may fairly take a place beside the telephone and wireless telegraphy. Am I claiming a good deal? Well, I will tell my story, and you shall be the judge. In order to make the story a helpful one I may stop and turn aside a good many times to point a moral.

I am going to tell you something of two boys, a minister's boys, who love machinery and who are interested in the modern developments of science and art. Their names are Orville and Wilbur Wright, of Dayton, Ohio. These two, perhaps by accident or maybe as a matter of taste, began studying the flights of birds and insects. From this they turned their attention to what has been done in the way of enabling men to fly. They not only studied nature, but they procured the best books, and I think I may say all the papers, the world contains on this subject.

When I first became acquainted with them and expressed a wish to read up all there was on the subject they showed me a library that astonished me, and I soon found they were thoroughly versed not only in regard to our present knowledge but in everything that had been done in the past. These boys (they are men now), instead of spending their summer vacations with crowds, and with such crowds as are often questionable, as so many do, went away by themselves to a desert place by the seacoast. You and I have in many years past found enjoyment and health in sliding down hill on the snow, but these boys went off to that sandy waste on the Atlantic coast to slide down hill, too; but instead of sliding on snow and ice they slid on air. With a gliding machine made of sticks and cloth they learned to glide and soar from the top of a hill to the bottom, and by making not only hundreds but more than a thousand experiments they became so proficient in guiding these gliding machines that they could sail like a bird and control the movements up and down as well as sidewise.

Now this was not altogether for fun or boy's play. When I suggested that, even though sliding down hill on the air was very nice, it must have been quite a task to carry the machine back to the top of the hill every time, the reply was something like this: "Oh, no, Mr. Root; no task at all. Just remember that we always sail against the wind, and by a little shifting of the position the wind does the greater part of the work in carrying it back." It just blows it back, whenever the wind is strong enough, up hill to the starting point.

Well, these two men spent several summers in that wild place, secure from intrusion, with their gliding machine. When they became experts they brought in, as they had planned to do, a gasoline engine to furnish power, and made a little success with their apparatus be-

fore winter set. As soon as the weather would permit their experiments were resumed the last season. You may have seen something in regard to it in the papers, but as their purpose has been from the beginning to the end to avoid publicity the great outside world has had but very little opportunity of knowing what was going on. The conditions were so different after applying power that it seemed at first to a great extent as if they would have to learn the trade of guiding their little ship all over again. At first they went only a few hundred feet, and as the opportunity for practice in guiding and controlling it was only a few seconds at a time their progress was necessarily very slow.

These boys wanted privacy to try their flying machine, but, as it measures about 40 feet from the tip of one wing to the tip of the other, they needed a large level field in some out of the way place. I found them in a pasture lot of 87 acres, a little over half a mile long and nearly as broad. The few people who occasionally got a glimpse of the experiments evidently considered it only another Darius Green, but I recognized at once they were really scientific explorers who were serving the world in much the same way that Columbus did when he discovered America, and just the same way that Edison, Marconi and a host of others have done all along through the ages.

In running an automobile or a bicycle you have to manage the steering only to the right and left, but an airship has to be steered up and down also. When I first saw the apparatus it persisted in going up and down like the waves of the sea. Some times it would dig its nose in the dirt, almost, in spite of the engineer. After repeated experiments it was finally cured of its foolish tricks and was made to go like a steady old horse. This work, mind you, was all new. Nobody living could give them any advice. It was like exploring a new and unknown domain. Shall I tell you how they cured it of bobbing up and down? Simply by loading its nose or front steering apparatus with cast iron. In my ignorance I thought the engine was not large enough, but when 50 pounds of iron was fastened to its "nose," as I will persist in calling it, it came down to a tolerably straight line and carried the burden with ease. There was a reason for this that I cannot explain here. Other experiments had to be made in turning from right to left, and, to make the matter short, it was my privilege, on September 20, 1904, to see the first successful trip of an airship, without a balloon to sustain it, that the world has ever made--that is, to turn the corner and come straight back to the starting point.

During all of these experiments they have kept so near the soft, marshy ground that a fall would be no serious accident, either to the machine or its occupant. In fact, so carefully have they managed that during these years of experimenting nothing has happened to do any serious damage to the machine or to give the boys more than what might be called a severe scratch. I think great praise is due them along this very line. They have been prudent and cautious. I told you there was not another machine equal to such a task as I have mentioned on the face of the earth, and furthermore, just now as I dictate there is probably not another man besides these two who has learned the trick of controlling it.

In making this last trip of rounding the circle the machine was kept near the ground, except in making the turns. If you will watch a large bird when it swings around in a circle you will see its wings are tipped up

at an incline. This machine must follow the same rule, and to clear the tip of the inside wing it was found necessary to rise to a height of perhaps 20 or 25 feet. When the engine is shut off the apparatus glides to the ground very quietly, and alights on something much like a pair of light sled runners, sliding over the grassy surface perhaps a rod or more. Whenever it is necessary to slow up the speed before alighting you turn the nose up hill. It will then climb right up on the air until the momentum is exhausted, when, by skillful management, it can be dropped as lightly as a feather.

Since the above was written, they have twice succeeded in making four complete circles without alighting, each circle passing the starting point. These circles are nearly a mile in circumference each, and the last flight made, December 1, 1904, could have been prolonged indefinitely had it not been that the rudder was in such position that it cramped the hand of the operator, so he was obliged to alight. The longest flight took only five minutes and four seconds by the watch. Over 100 flights have been made during the last summer. Some of them reached perhaps 50 or 60 feet above ground. On both these long trips 70 pounds instead of 50 of cast iron was carried on the "nose".

Everybody is ready to say, "Well, what use is it? What good will it do?" These are questions no man can answer as yet. However, I will give you a suggestion or two. The man who made this last trip said there was no difficulty whatever in going above the trees or anywhere he chose, but perhaps wisdom would dictate he should have still more experience a little nearer the ground. The machine easily made 30 or 40 miles an hour, and this in going only a little more than half a mile straight ahead. No doubt it would get up a greater speed if allowed to do so--perhaps, with the wind, a mile a minute after the first mile. The manager could doubtless go outside of the field and bring it back safely, to be put in the little house where it is kept nights. But no matter how much time it takes, I am sure all the world will commend the policy so far pursued--go slowly and carefully and avoid any risk that might cause the loss of a human life. This great progressive world cannot afford to take the risk of losing the life of either of these two men. If these two men should be taken away by accident or otherwise there is probably no one living who could manage the machine. With these men to teach them "the trade," however, there are plenty who could doubtless learn it in a few weeks.

I have suggested before, friends, that the time may be near at hand when we shall not need to fuss with good roads or railway tracks, bridges, etc., at such enormous expense. With these machines we can bid adieu to all these things. God's free air, that extends all over the earth and perhaps miles above us, is our training field. Rubber tires and the price of rubber are no longer "in it." The thousand and one parts of the automobile that go to make its construction and to give it strength can all be dispensed with. You can set your basket of eggs almost anywhere on the upper or lower deck and they will not even rattle unless it be when they come to alight. There are hundreds of queer things coming to light in regard to this new method of travel, and I confess it is not clear to me even yet how that little aluminum engine, with four paddles, does the work. I asked the question, "Boys, would that engine and those two propellers raise the machine from the ground if placed horizontally above it?" "Certainly not, Mr. Root. They would not lift a quarter of its weight."

"Then how is it possible that it sustains it in the air as it is?"

The answer involves a strange point in the wonderful discovery of air navigation. When some large bird or butterfly is soaring with motionless wings a very little power from behind will keep it moving. Well, if this motion is kept up a very little incline of the wings will keep it from falling. A little more incline and

a little more push from behind and the bird or butterfly or the machine created by human hands will gradually rise in the air. I was surprised at the speed and I was astonished at the wonderful lifting power of this comparatively small apparatus. When I saw it pick up the 50 pounds of iron so readily I asked if I might ride in place of the iron. I received, by way of assurance, the answer that the machine would no doubt carry me easily. You see then I would have the "front seat", and even if it is customary, or used to be in olden times, to accord the front seat to the ladies, I think the greater part of them would say: "Oh, sit still, Mr. Root! Do not think of getting up to give us your seat."

At first there was considerable trouble about getting the machine up in the air and the engine well up to speed. They did this by running along a single rail track perhaps two hundred feet long. It was also, in the early experiments, found advisable to run against the wind, because they could then have a greater time to practice in the air and not get so far away from the building where it was stored. Since they can come around to the starting point, however, they can start with the wind even behind them, and with a strong wind behind it is an easy matter to make even more than a mile a minute. The operator takes his place lying flat on his face. This position offers less resistance to the wind, until ready to start by a sort of trap to be sprung when all is ready; then, with a tremendous flapping and snapping of the four cylinder engine, the huge machine springs aloft.

When it first turned that circle and came near the starting point I was right in front of it, and I said then, and I believe still, it was one of the grandest sights, if not the grandest sight, of my life. Imagine a locomotive that has left its track and is climbing up in the air right toward you--a locomotive without any wheels, we will say, but with white wings instead; we will further say a locomotive made of aluminum. Well, now imagine this white locomotive, with wings that spread 20 feet each way, coming right toward you with a tremendous flap of its propellers and you will have something like what I saw. The younger brother bade me move to one side for fear it might come down suddenly, but I tell you, friends, the sensation that one feels in such a crisis is something hard to describe. The attendant at one time, when the rope came off that started it said he was shaking from head to foot as if he had a fit of ague. His shaking was uncalled for, however, for the intrepid manager succeeded in righting up his craft and she made one of her very best flights.

JOURNAL ISSUES NEEDED

A long overdue effort on the part of the Society and its Directors has been initiated to gather together for the Society's office two complete sets of the JOURNAL. Amazingly, in the years past, the officers, as most Members, have compiled their own full sets of the JOURNAL, but no one had the foresight to put aside sets for the Society itself. The Secretary has now begun such an operation and five issues of the JOURNAL are needed to complete full sets. They are:

Vol 2, No 1	Spring 1957	one copy needed
Vol 3, No 4	Winter 1958	one copy needed
Vol 5, No 2	Summer 1960	two copies needed
Vol 5, No 3	Fall 1960	two copies needed
Vol 6, No 1	Spring 1961	one copies needed

If anyone can help, please get in touch with Mr. William A. Riley, Secretary, P.O. Box 45-435, Los Angeles, California 90045.