

## CHAPTER ONE

Hammondsport, NY  
Castle Hill  
December, 1905

“You want to beat the Wright brothers at their own game?” Glenn Curtiss asked, his face a map of incredulity. Glenn, “G.H.” to his friends, could dream and scheme with the best of them; but he assumed that the Wright brothers would fight for primacy in aviation with the same ruthlessness that he would use to defend his own lead with motorcycles. Glenn suffered no fool politely. But he knew John Harrison was no fool. Nevertheless, there was something enigmatic about him. Almost as taciturn as Glenn himself, John had quietly designed superb internal combustion engines for Glenn without explaining why, four months earlier, he had decided to move his family from his huge ranch in Carmel, California, two thousand miles east to the tiny village of Hammondsport, population 1203 at last count, for a job he didn’t need. Although Glenn had urged him to come east for five years, he certainly didn’t need money or the fifty shares of preferred stock in Glenn’s new company. Was this Wright business his real purpose?

Glenn’s tone of voice should have warned John to proceed cautiously. But he disdained both the myth of Wright omniscience in aeronautics and Glenn’s unquestioning acceptance of that myth. Sitting at Lena Curtiss’ kitchen table and savoring the aroma of her freshly brewed coffee, John asked, “Why shouldn’t we compete, GH? Surely you don’t think their *Flyer* is the final word in aeroplane design?”

“No, not the final word.” With a napkin, Glenn wiped biscuit crumbs from his mustache. “But aren’t they a country-mile ahead of everyone else?”

“Not really; neither with airframe design nor with engines.” John stared at the fire, toyed with the coffee cup and let his mind wander across his seven-year quest for first flight. In the autumn of 1898, still frail from dysentery and Yellow Jack contracted with the Rough Riders in Cuba, he had thrilled to the prospect of glory for the first man to fly. Instead of going home to his wife and son in Carmel, California, from his hospital bed at Montauk Point, Long Island, he had taken a train to Washington, D.C. to seek employment with the foremost astrophysicist of the age: Dr. Samuel Langley. Impressed with John’s zeal and his engineering degree from Berkeley, Langley and

Charlie Manly had sponsored his collaboration with Stephen Balzer, the finest light engine designer of the era. “The Wright’s puny little motor weighed two hundred pounds and barely produced twelve horsepower; hardly comparable to the Manly-Balzer radial,” John continued.

Familiar with the story, Glenn’s expression softened with sympathy. By the summer of 1901, John had changed Balzer’s design from a five-cylinder rotary to a fixed radial that produced 20 hp. Guided by John’s ideas and mistakes, Charlie Manly had needed two more years to build a marvel of an engine that weighed 200 pounds and produced 54 horsepower. From that beginning, John’s reputation had attracted a host of aeroplane designers, all competing for a permanent place in the history books. “Of course, John. Your work with Balzer and Manly proved your mastery of small engines for motorcycles and aeroplanes. That’s why I still feel lucky to lure you here.”



View of Hammondsport from Curtiss Home, December, 1905

John’s expression was somber as he clasped his hands around the hot coffee cup and looked northeast across leafless trees and Pulteney Street to identify

the most prominent buildings of the town: Malloy's stone mill near left, the Presbyterian church and the opera house mid-distance, the Catholic church near right, the Episcopal church just beyond and Lake Keuka brooding over the whole. "If I'da known the Finger Lakes could get so brutally cold in late December, I don't think I'da come. But I'm here now. As far as airframes go, you should remember that I know ever'thin' Will Wright knows. On my own gliders in Carmel I tried all known airfoils and cambers and centers of pressure and ideas for pilot control. More to the point, I think we have a brighter future in aeroplanes than we do in motorcycles."

Glenn didn't attempt to mask his skepticism. He wiped a work-toughened hand across his mouth and rubbed the growing bald spot where his dark hair receded from his forehead. Sleeves rolled up, a dark tie loosely knotted under the soft collar of his clean white shirt, he looked like a manual laborer. "That may be; but I don't see how it pertains to us. I've won races in Syracuse and Garden City and Rochester. Two years ago on Decoration Day, I won two important races in New York City. Those victories helped me get well established in the light engine and motorcycle business. Our motorcycles have a fine reputation. That's why we're agents for the Orient Motor Buckboard here. That's why Stubbs wants us to sell the Thayer-Miller Touring Car."

"Don't you credit airship designers with a piece of our reputation?"

Glenn snickered. "Sure. But dirigibles are just a fad. I can't fill two hands with really impressive airship flights over the past two years. Let's see, that first engine you designed for me powered the first flight of Baldwin's dirigible, *California Arrow*, over San Francisco Bay in 'Ought-four."

John smiled at the memory, "You forget, G.H. I was there. I installed the engine and managed the ground crew."

Glenn ticked off other achievements with the fingers of his right hand. "A few months after that, our engine won first place for the *California Arrow* at the St. Louis Exposition. Then, early this year, that daredevil, Linc Beachey, all but made the *Arrow* turn somersaults at the Portland Exposition. That's when the judges gave our engine a gold medal. Last July, Leo Stevens used our engine on an *Arrow* at Brighton Beach on Long Island."

"What's your point, G.H.?"

Glenn grimaced. "My point is that we have a *backlog* of orders for engines for *motorcycles*, not for airships-- and certainly not for aeroplanes. With your engine and my motorcycle, I expect to win the big race at Rochester next summer. Then we'll outsell the heavy Indians and Harley-Davidsons. We have a thriving business; so why try to fix something that's working fine?"

"Aren't you still sellin' motors to Tom and Linc and Roy Knabenshue and other airship flyers?"

"I reckon; but you can't count on aviation cranks like Tom Baldwin."

"I hear some of those cranks are ready to throw a lot of money at the game."

"You're kidding! Not Tom or Linc or Roy; they're just after the fast buck."

"Maybe; but you may not have heard that some wealthy men organized the Aero Club of America just two months ago. Vanderbilt, Whitney, John Jacob Astor and their ilk seem to think there's a commercial future to aviation."

"Just a lot of talk. Toys for playboys!"

"Maybe. But next month, they plan to sponsor the first aero show in history with the annual automobile show in New York. Tom Baldwin will have his latest *California Arrow* there. He said Langley and the Wrights and Chanute will send something for display. At the least, we should display our motors."

"Maybe *that* would be a good idea," Glenn conceded. "But why should we compete with the Wrights on anything else?"

"You gotta change your mind about those fellas, G.H." John exclaimed with heat. He took a breath while the dancing flames in the fireplace awakened memories of his letters and discussions with Will and Orv Wright. He had never felt close to Orv, whom he considered a dandy and a bit of a dilettante. But Will he respected-- and even envied-- as a brilliant theorist and engineer. "You'll do better if you think of them as theoreticians. They...."

“Theoreticians?” Glenn interrupted with a scowl. “You don’t think their first flight at Kitty Hawk qualifies them as engineers?”

“In the first place, the Wrights don’t deserve credit for first flight. Twenty-eight months before their flight, Gus Whitehead used my engine to fly half a mile in a monoplane in August, ‘Ought-one. In Machine Twenty-one....”

“You have proof of that?” Glenn interrupted again.

“The Bridgeport *Sunday Herald* editor wrote a long piece about the flight. The Boston *Transcript* and the New York *Herald* also had articles. After that, his neighbors didn’t call Gus ‘Crazy Whitehead’ anymore. In January of ‘Ought-two, he flew seven miles. The man may not have Will Wright’s high school education; but he’s an engineerin’ genius.”

“I still don’t see why we should compete with the Wrights-- or Whitehead, for that matter.”

“Because the Wrights are typical scientists. They’re so deliberate they need a year to do a month’s work. They treat an aeroplane like it’s a laboratory. But they don’t know how to use their knowledge to make money. You and I are b’inessmen like Gus Whitehead. I say we can beat ‘em at the *b’iness* of aviation.” John tried to stay calm. Five years older than his employer, John had come to know Glenn well enough to realize that you couldn’t bull your way through him. He was open-minded; but he could withdraw into a defense of stubborn silence if you tried to outshout him. Although he could be a reckless madman on a motorcycle, he was still alive because he could calculate risk, especially in business. John needed that business shrewdness. “Since their flight two years ago, the Wrights haven’t put anythin’ new into their original *Flyer*. Seems like their inventive genius has run dry.”

Glenn registered surprise. “Why, I thought they built two new machines after their flight at Kitty Hawk. Aren’t the new machines any better?”

“Somewhat, I reckon.” John thanked Glenn’s wife, Lena, for a fresh pot of coffee and her friendly hand on his shoulder to assure him that she was glad to have him in her kitchen on a cold December morning. “But their problems aren’t somethin’ that a wind tunnel can correct.”

“You mean they’re practical, engineering problems?”

“That’s right. Their ‘Ought-three *Flyer* was afflicted with dangerous pitch instability. A mere touch on the elevator could send the machine into the sand.”

“How could engineering help that problem?”

“By shiftin’ the elevator further ahead of the wings and addin’ weight, Will was able to dampen the machine’s tendency to dart up and down. But it took ‘em ten months to tease less than a mile out of that ‘Ought-four machine.”

“I’m truly astonished, John. That doesn’t sound like a reliable commercial machine to me. Did they do any better this year?”

“Yeah, a little better but nothin’ world-shakin’. By trial and error, they built a third machine that finally flew twenty-four miles two months ago. But even that machine is dangerously unstable.”

“What are they doing these days?”

“Tryin’ to market that machine. The War Department flat turned ‘em down. Now they’re tryin’ to sell their *Flyer* to the French for two hundred thousand dollars. And they’re in bed with the same gang of financiers and thugs who tried to destroy my engine in Carmel.” John recalled vividly the night when he shot and killed Jerry Ashley, one of J.P. Morgan’s aides, when Jerry tried to destroy John’s new radial engine in Monterey. John still wondered if Morgan had ordered that destruction just to give the Wrights an advantage. “The Wrights are the new darlin’s of Wall Street; but you know that Wall Street wants to control everthin’ they touch.”

“That would make any competition with them even more of a challenge, John. Wright lawyers must already have a heavy book of patents.”

“Nossir. They’ve requested a patent only on their technique for correctin’ lateral instability: wing warpin’. It might be registered in another six months. But that doesn’t mean they own the future of the aeroplane.”

“What about their ideas about lift and control of the other axes of flight?”

“They can’t patent ideas. In fact, they still haven’t engineered full stability into their own prototype. Their latest *Flyer* is so whimsical that, if they don’t improve it, it’s gonna kill somebody one of these days.”

“So you’re saying they’ve only clarified control of roll?”

“That’s right; a *scientific* achievement we should never forget. But good engineers can make a much better aeroplane.”

“Without patent violation?” Glenn could feel a stirring in his stomach, an impulse that he associated with the smell of risk-- and financial opportunity.

John grinned as he recognized the expression of restrained excitement on Glenn’s face: brows raised in expectation; mouth open as if his overexcited brain needed more oxygen; eyes glinting shrewdly at the prospect of new idols to smash, records to break, destinies to fulfill. Here was the Glenn Curtiss John loved to be around.

“I wish Tom Baldwin was here,” Glenn said. “If he can build a dirigible, he should know some shortcuts for building an aeroplane.”

John almost protested. For fear of ridicule, he had never told Glenn how far his experiments with aircraft design had carried him by 1901. On the same day in August, he and Gus Whitehead, three thousand miles apart, had licked the Wright brothers. It no longer bothered him that the national media had ignored all three flights. Then his life had turned sour until the summer of 1905, when a great fire in his barn had burned all his models, his glider and his ambitions. It was a miracle that he had escaped with his life while saving his son. It was even more of a miracle that five months of camaraderie in Glenn’s Shop had rekindled John’s ambition. “Tom is too busy buildin’ *California Arrows* in San Francisco. Besides, he’s stakin’ his future on airships-- not aeroplanes. I’ve argued with him on their relative merits ‘til I’m blue in the face.”

“I’ll tell you what,” Glenn announced with outthrust chin. “Our little retail store does a brisk business in bicycles and motorcycles. But your engines are what makes ‘em so special. So I’ll agree to show our engines at the aero show in New York next month. Then, if you get either Tom or Gus to join us, I’ll give you a room in our shop to design gliders. In the meanwhile, you

have to focus your energy on *my* personal demon, speed. I want to win that race in Rochester.”

*Glenn Curtiss Bicycle Shop*