



The AMA History Project Presents: Biography of ADAM J. STOLZENBERGER

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Madman with Models Wright Field's Adam Stolzenberger Is One Modeler Who Doesn't Mind You Laughing At His Freak Designs

Out at Wright Field where they test anything, a small group of engineers stood on the ground and watched the antics of a couple of planes in the sky. This was an important experiment. They were trying out a new towing technique with powered aircraft. It was an old glider idea with a new twist. Observers on the ground never took their eyes off the planes as they came roaring by overhead.

The planes were flying very close together. One was towing the other. The distance between the two ships shortened: a hundred yards, fifty yards, feet. Then it happened. One of the planes began to wobble. A second later it went out of control. A wing tip sliced off the rudder of the second plane. Both went into a spin. Down, down, twisting and turning. Then that sickening sound – whoom! Crash!

No fire sirens screamed. No ambulances rushed to the scene. There was no panic, little excitement. Yet there was the burning mass of two planes, twisted metal, the smell of gasoline, melting aluminum skin and frame. But these planes were models, detailed miniature copies of full-sized aircraft built to precision likeness in dynamic similarity, weight, and power. They were expendable. Engineers could find out how their new system worked without risking the lives of good men, without taking the chances with full-sized airplanes.

A young aeronautical engineer in a white shirt with his hands in his pockets, and ruffled hair, who was first on the scene of the crash, summed it up nicely. “Well, it could have been terrible if we’d tried it with the real thing,” he said.

The young man (well, he’s 34) had a right to say that. It was just the way he felt inside. And the idea of using detailed models instead of full-sized aircraft for dangerous tests was one he had been fighting forever since he came out to Wright Field six years ago as a test pilot engineer. He’s a civilian now. His name is Adam Stolzenberger. They call him the “Mad Modeler” in jest; but he’s built for himself a new kind of an organization which daily is growing in importance to the Air Force’s plan to master the skies and unscramble new secrets. It is saving lives and taxpayers’ money. Stolzenberger and the men who work with him – all model airplane designers, builders and technical experts – in the Dynamic Model Unit of the Aircraft Laboratory, Air Materiel Command at Wright Field, hope to make their work a vital cog in this great test center’s activities.

They have done remarkably well to date. From a single desk in a corner and an embryonic idea on paper, the Unit has grown into a virtual laboratory all its own. So far as is known, it is the largest and best equipped of its kind in the country today. Along the walls on one side of a big hangar-like building, there are several large drafting tables where the model engineers are busy drawing up plans for new designs which are scheduled for test sometime next year. On the opposite side of the room is a well-equipped machine shop, lathes, benches, planers, jig saws and a galaxy of intricate machines employing heretofore untried model fabrication techniques – which, when they can be talked about, will be a big boon to model builders everywhere. Furthermore, a couple of blocks away the Unit has its own model airport or testing field. It's a big circular clearing about a quarter of a mile in diameter equipped with a central pivot or control-line base tower for flying control-line models and a full-sized cockpit mock-up outside the circle where the "pilot" sits and manipulates regulation airplane controls. Too, before long, the activity is going to branch out with a free-flight experimental test base located somewhere in the desert where it can try out high-speed subsonic, transonic and supersonic models even now in the plans stage.

"The whole set-up is a model plane builder's idea of paradise," remarked one of the engineers. He was in coveralls working at one of the benches, putting a wing rib in place on a new large unconventional model design. "I'd rather be working here doing this type of thing," he added, "than do anything else anywhere."

Uncle Sam pays well for that kind of spirit. Civil Service hired, the workers in this model shop get between \$3,500 and \$4,200 a year to design, develop, build the precision models which are really not models in the common sense of the word but small-sized airplanes, some of which cost thousands of dollars. Like Stolzenberger, who is chief of the Unit, all the men who work in the lab are avid model enthusiasts who have demonstrated their capabilities in the field of model design and construction long before they qualified for the jobs here.

Right now they are turning out models which fall into two categories – radio-controlled, free-flight scale designs and control-line flyers like those familiar to the model enthusiast. The former are used to explore the attitudes of a new design, studying its aerodynamic characteristics about three axes. The latter can provide data pertaining to movements about a single axis. But the control-line models permit obtaining better rationalized, proportional control data more nearly simulating actual flight control problems than the radio-impulse activated jobs.

These models vary in size. They might be anywhere from a small four-foot wing spread such as that on a new high-speed job, up to the 20-foot wing spread on a big bomber that is now under construction. It takes about three months to build one of the models from plans to product. The cost runs between \$5,000 and \$20,000 depending upon size and details. Each includes an elaborate system of test recording devices, cameras and safety chute measures built right into the model's framework. In the future, though, they are going to put the whole Unit on a mass production basis turning out one master model, hand-made, and then make a model from it and knock off inexpensive plastic models with assembly line technique. The idea is to turn out the models as cheaply as possible so they can be classified as expendable items.

All of this started a long time ago in Glendale, Long Island, about as far east of Wright Field as you can be without getting your feet in the Atlantic. There, 12-year-old Adam Stolzenberger was very excited over a package his father handed him from under the Christmas tree. It was a model plane kit, one of those early basswood-aluminum-ambroid-tack-and-nail jobs put out by the old Ideal Model Airplane Supply Company. The design was an old Curtiss “Jenny” World War I vintage training plane, complete even to the wing-tip, reed-bent wing skids. It was powered by rubber bands. It took young Stolzenberger month to put it together, but he did it all by himself. He never could get it to fly more than a couple of feet off the ground, but that was enough to steam up his interest in model plane building, and he’s never stopped.

A couple of years later he was winning in virtually every model plane contest on the eastern seaboard and before he realized it the hobby was making him some “hay,” the green stuff with \$5 and \$10 figures on it. Large department stores around Manhattan, like Gimbel’s and a few others, and early model manufactures like U.S. Model Aircraft and Selleys, had him on their payrolls building display models. A student at Brooklyn Tech High, he was one of the few youngsters who found his fun at home a paying proposition.

Just playing around with models wasn’t enough. He wanted to fly. It was a burning desire, a challenge. He wasn’t making enough money to take flying lessons, so he took up the next best thing – gliding. He did it the hard way, designing and building his own glider in the backyard. Around Forest Park on the golf course he scared the devil out of everybody when he’d take the home-made glider up, then zoom down close to a foursome on the green, alight on his feet and run along the ground like a bird settling to earth. It was the same technique that Lillienthal and other early flight experimenters use when they jumped off cliffs trying out their gliding machines. It taught young Stolzenberger a lot about control and stability and its importance in aircraft design.

Later, this early background and a lot more knowledge of soaring which he picked up in bigger and better machines while riding the air currents over Long Island with other members of the Long Island Soaring Club which he helped organize, got him his assignment to Wright Field in the Glider Branch as a test pilot. This, in turn, gave him opportunity to put into practice his other “love” – model airplanes. But it took a lot of perseverance and there were plenty of disappointments before he could get the right people to listen.

In between, during the lean years from 1929 to 1935 he had a varied career but strangely enough it all pointed toward the present position and models. The money he made building the display models, for example, accumulated in the bank and he bought himself an old Waco 10 biplane in partnership with a pilot – Bob Foote – who taught him to fly powered airplanes. He still kept up with the models, however, and the business was so good that he set up his own model company, Skylark Model Aircraft in Queens, NY. It was a retail and wholesale business. He designed, built, tested, and sold his own kits.

This was about the time that plane designers were beginning to worry about a thing called streamlining. Airplanes got to the stage where they wore pants on their wheels. Adam was one of the first to put the idea on his models. It made him famous in the model world. He worked up an exclusive fabrication technique which turned out the wheel-pants for models, and he sold them to many model manufacturers all over the country. He also had a quick prop-making method and

model plane builders across the nation were using Stolzenberger propellers from kits made by a dozen or more different companies. Business boomed. Adam turned the profits into a couple of new cars and fourteen different motorcycles before he was 20!

He was thinking then about the possibility of small gasoline engines –the size of your fist, maybe – to power model planes. “If you could do that,” he reasoned, “then someday you could have a model plane that was just like a real plane and with such a model you could do a lot of things. It would be good for many kinds of tests.” He never got over that idea.

Somebody else thought of making the gasoline engines for model planes and they went ahead and did it. And now it’s a growing industry. But Stolzenberger is looking at it in his present position a little bit differently from anyone else. He’s buying the midget engines for the U.S. Government. That is to say, his Unit runs tests on various type motors which have been designed, developed, and built by commercial manufacturers in the field. Specifications and bids are drawn up by the Wright Field model technicians. The process is just the same as that applied to contracting for a full-sized airplane engine. They set the requirements, circulate the model engine industry. The lowest bidder and best product gets the contract. Sometimes the price runs into thousands of dollars.

The demand has set some new standards for model airplane engine requirements. For instance, one time they wanted engines to fit inside a bomber model’s nacelles. The requirements were pretty tough: a small gasoline engine that would produce 2.5 hp, 7000 rpm, and weight not more than 4 lbs; still it had to fit inside an eight-inch opening, tight and rigid and smooth. One company came up with just the right article. Before, they didn’t think it could be done. But now the “know-how” is there and it can be passed on to other modelers everywhere. It’s no secret.

Adam got out of the model airplane shop business sooner than he expected, however. “Stolz” went into a job with Dictograph Products Company where he picked up a lot of basic electronics – a handy bit of learnin’ to have under your skullcap if someday you wanted to put radio controls in a model so you could fly it like a real airplane. A similar stretch with Sperry Gyroscope Corporation in Brooklyn, working on automatic flight equipment didn’t hurt him any, either. Wartime gliders got automatic pilots and new blind flying devices because Stolzenberger applied his Sperry-acquired knowledge and put his idea-flooded brain to work on some of the problems. He was a model builder at heart; an engineer by profession. His contributions to the gliders left no arguing the fact.

It was small wonder that with such a background he got into the Air Corps in 1941, came out a full-fledged bomber pilot some months later – 12 days before Pearl Harbor. For a time he flew the Atlantic Patrol in lumbering old *B-18s*. He was a darned good pilot, too.

Came the Wright Field assignment in the spring of 1942 and work with gliders and models. The two seemed to stick to him like the glue with which he used to put together his models. They ran a strange parallel, somehow steering his life into the work he really wanted- an experimental model airplane laboratory.

It took a tragedy, one which hit him personally because it killed a very dear friend, before he got out of gliders and into the model business again. A test pilot friend climbed into a highly

unconventional glider design one day to try out its swept-forward wing feature. They towed the glider up to 20,000 feet and cut it loose. A wind tunnel model had been tested and tried for months to determine the new design's stability and performance characteristics. The results showed positive. It was a clean design. It would even come out of a spin according to all the calculations. Now the test was to prove the wind-tunnel figures with the real article.

Free of the tow- plane, the pilot shot the glider into a long swooping maneuver. Then he kicked it over on one wing into a spin. It never came out.

Stolzenberger was one of those who had seen the accident. His friend's death was a personal loss and an incalculable loss to the industry, not to mention a highly expensive aircraft. And there was a way, maybe, that could prevent such a thing from repeating itself. Why not make a free-flight model and remotely control it, get your data from that instead of in the wind tunnel where a model sits on a mount and doesn't set up the true aerodynamic movements of actual flight? Then, maybe the figures would be right next time. Stolzenberger had proposed such a test program before and it was turned down because nobody at that time could see the importance of models. It sounded too much like someone was trying to sell them a "toy."

After that incident he was ready to take the matter up with the higher commands. But they beat him to it. He was given a special project assignment to build a dynamic scale model for the crashed glider and see if he could find out how to bring it out of a spin. That was the beginning of a new field of test flying, using models instead of full-sized aircraft, free-flight models that would perform like the real McCoy.

A few months later a determined little group stood out on the line at Lakehurst, New Jersey, running an important test which might decide the acceptance or rejection of a new airplane design; and equally important, the future of Stolzenberger's proposed model organization. Adam just stood there with his fingers crossed on his one free hand. In the other he held a simple little control box and a fingertip stick control which sent radio impulses to a model of the *XFG-1*, the swept forward wing glider, which was at that moment up in the sky hanging from the belly of a Navy blimp. Swish – the little plane was cut loose. Click. The stick in Stolzenberger's hand "took over." He moved it back an inch or so. The glider soared upward. He pushed forward. It dived. He banked it, this way and that. He flew it level. Then he put it into a spin, the same kind of maneuver that his test pilot friend had tried.

The model started earthward. Down, down, in a long spiral, as if it were riding a cork-screw, it plummeted. Adam wiggled the stick in his hand frantically. Front, back, right, left. It wouldn't bring the model out. The glider was a tight spinner. It was going to plunge in. Stolzenberger pushed a little button on the magic control box. Poof! A slit in the side of the rudder of the model zipped open. Crack! A little anti spin chute blossomed open. The ship stopped spinning. Another trap door in the fuselage snapped up. A bigger chute opened and safely lowered the model to the ground, its camera still grinding and the other instruments intact. And then they were pretty sure what had happened to the full-size glider. The pilot had fought desperately to get the spin chute on the big plane to open. But it was in too tight a spin and he couldn't get to it. Here was the same thing happening to the model.

Beside Stolzenberger as he “piloted” the model in its test spin stood another test pilot, Alex Pavana, one of the next in the business. It was his job in a couple of weeks to try out another full-scale *XFG-1* in a real spin test. He watched every movement of a glider model in its antics and descent. It gave him some odds that the first pilot didn’t have. He knew what to expect when he got up there in the ship and threw it into the spin.

Later, Pavana took the glider up, put it into a spin, used the anti-spin chute at the critical moment, brought the plane out okay and came down to make a test pilot’s report. The X design was inherently a bad spinner. Something would have to be done. Else they had better forget it and cross it off the books. They did.

The payoff boosted the stock in model testing at Wright Field. That’s why today Stolzenberger and the model Unit are doing a thriving business. That’s why you see a model of a helicopter egg-beating around the skies. Or, it might be a couple of planes trying out a new tow method for heavy bombers. It might be a new high-speed design buzzing around the control-line pylon at speeds faster than any model ever has flown before! Or it could be a big bomber splashing into the waters of a nearby lake testing out a new ditching procedure. And it wouldn’t surprise anyone if some day they saw a successful ornithopter model flapping its wings in the sky and making like a bird.

The “Mad Modeler” is at it again. Stolzenberger isn’t satisfied with working all day at the business of model airplaning for the Government. He still builds models at home. He has a workshop in the basement of his home in Dayton, near the field. A steady line of youngsters from the neighborhood come almost every night and ask him model questions. The other night, for instance, he had a twelve-year-old who somehow reminded him of another youngster of the same age back in Long Island a couple of decades ago, come in with the sad word that he couldn’t get his model engine started. And Stolzenberger went over to the kid’s house and worked half the night getting the stubborn engine to work. “I have to do these things,” he says, “because in a few more years we may have to rely on these kids to help us set the pace in the changing battle of aircraft designs.”

Youngsters and oldsters alike are interested in some of his models. There are model planes all over the house. One is called the “Swoose,” a high-speed seaplane model with floats. But the models represent more than just hobby stuff; most of them are scale models – flyable, too – of new plane designs which he has dreamed up. There’s a single-place light plane, for instance. At one time he was going to offer this design to the private plane industry. He also has a super-duper amphibian design which won for him a third-place in an international private plane design competition a few years ago. It also got him bombarded with offers from friends and industrialists to start up an airplane factory and manufacture the new type boat plane. He turned it down, decided to stick to his model work at the field because he felt sincerely that was where he could do the most good.

Another of his designs is a combination car and airplane. It’s a very futuristic roadable aircraft, but it works.

Something more simple is a trick little novelty which he has sold to a big nationally known foods concern as a bonus prize. It’s a bird. Applying some laws of physics, he worked out a new theory

which puts the right vibrations into a paper-covered wire-frame bird and produced a flyable ornithopter. It's a gimmick with all kinds of prospects. But it's so practical in its design and principle that already a company wants to make a full-scale model of it.

That's why it wouldn't surprise anyone to see a man-made bird flapping its wings over Dayton some day. It will just be Adam Stolzenberger trying out one of his new-fangled ideas. The man has models in his mind and quick-drying glue in his veins. Nobody wants to unstick him. The model boys have proved to be very handy to have around.

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