The Devil Is in the Details

Michael Maniatis' 1928 Gipsy Moth

BY BUDD DAVISSON

CHECK OUT THE DIGITAL EDITION of *Vintage* for a video Michael Maniatis' 1928 Gipsy Moth.

PHOTOGRAPHY BY **CONNOR MADISON**

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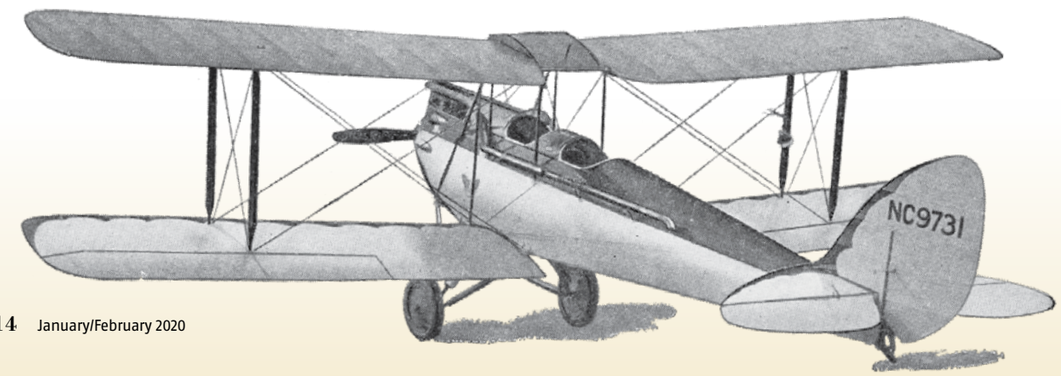
The de Havilland DH 60 series of Moths began with the Gipsy Moth but only a handful are flying today.

A time when giants walked the Earth: a cliché that definitely fits the first decade and a half of the last century. Henry Ford and his peer group revolutionized the ground-bound part of civilization while the likes of Curtiss, Blériot, Fokker, and so many other pioneers revolutionized the sky. In 1900, man had yet to leave the ground in a controlled fashion, but 15 years later, World War I pterodactyls sporting Vickers and Spandau machine guns were engaged in three-dimensional jousting that ushered in a violent new art form called aerial combat. The technical progress and the men who fostered it were amazing!

Within aviation, that was a time when young men were creating an entirely new, unexpected industry far outstripping their elders. Russian Igor Sikorsky was 24 when he first flew his Grand, a 91-foot-span, four-engine, seven-passenger monster that actually worked. Glenn Curtiss was 31 and already a motorcycle racing legend when he began producing his 1909 Pusher. Anthony Fokker's Eindecker created the lethal 1915 Fokker Scourge of WWI when he was 25. By the time Geoffrey de Havilland was 28, he had flown his first successful design and designed and built his first aero engine. This was in 1910, only seven years after the first flight — a time of young giants indeed.

Of those mentioned, although Sikorsky may be well known on this side of the pond because of his helicopters and amphibians, de Havilland is better represented at fly-ins thanks to his DH.60 designs, the Moth series. However, with the rare exception, the de Havilland kites seen puttering over the horizon are the DH.60T, redesignated the DH.82 Tiger Moth. It is the most common Moth because so many were built as trainers during World War II. The list of countries that *didn't* use DH.60s is far shorter than the list of those that did. Because the other members of the DH.60 family are so seldom seen, one of the highlights of EAA AirVenture Oshkosh 2019 was when Michael Maniatis, EAA 126494/VAA 21093, of Milton, New York, put his amazing DH.60G, a Gipsy Moth, in front of the VAA Red Barn.



Before we start extolling the virtues of his incredibly complex and detailed restoration, let's look at what airplanes populate his past, some of which are so rare most of us have never seen one.

"Although I was the son of a merchant seaman, I gravitated to airplanes, and the models I built were often done only from photos," Michael said. "At the time, the airplanes infused me with an appreciation for their art."

That appreciation led Michael to Pratt Institute in Brooklyn, New York, for a master's degree in fine art, majoring in new forms, which focused on nontraditional art.

"I always had a fierce interest in aviation and art, so I combined my interest in designing and building in producing a manpowered airplane," Michael said. He started the project in 1976 and finished in 1980, gaining the attention of a professor who hired him to make models and props for advertisements.

After earning his degree, Michael started Manhattan Model Makers in New York City's photo district. The business endured for 30 years. "We handmade anything an art director could dream up, from fake food for cereal box covers to animated robots for TV commercials," Michael said. "Occasionally I would do special props for *SNL* and film companies. I worked for every major advertising company on Madison Avenue and several feature films."

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— Michael Maniatis

In 2014, when computers had taken over much of Manhattan Model Makers' work, Michael closed the business and put his time into aircraft building and restoration, looking to his bucket list for inspiration.

"The DH.71 Racer, for instance, was built in my loft in NYC in between jobs," Michael said. "The Moth Major the same. I'd hoist the wings and fuselage up the front of the building right in front of people on the street and fish them in through windows."

The DH.71 was a very "de Havilland-ish" low-wing monoplane with a very "Moth-ish" fuselage and tail. The upright Cirrus, and then Gipsy, air-cooled, four-cylinder engines created a nose that could only be on a Moth.

So, how does a guy from New York City get so wound up in English airplanes, some of which are pretty exotic and hard to find? In 1987, Michael went in on a DHC-1 Chipmunk, but the partnership didn't last. In 1989, when he couldn't find another Chipmunk, he turned his attention to open-cockpit flying, purchasing a Tiger Moth, which he still owns. (He eventually found another Chipmunk, purchasing it in 1999; he still owns it today.)

Michael joined Tiger Moth clubs in the United States and England, taking trips to Woburn in Bedfordshire, England, for its annual Moth meet.

"I guess I got hooked," Michael said.

The majority of spectators at Oshkosh had never seen a Moth that wasn't a Tiger, and those who had didn't know the genealogy involved. Michael is an old hand at dealing with that problem.

De Havilland started the DH.60 family in the early 1920s, and in 1925, the aircraft first flew as the Cirrus Moth, named for its Cirrus engine. Though reliable in its time, over the years, supply was short since the engine was based on top-end parts from limited surplus French Renault engines.

"So, Geoffrey de Havilland, being an engine designer at heart, brought his people together, and they designed and put into production their own four-cylinder, air-cooled engine known as the Gipsy I," Michael said. "In so doing, they became one of the few aircraft manufacturers in history to build their own engines for their airplanes, Curtiss being another. That first airplane was designated DH.60G and named the Gipsy Moth."

In the early days of Moth production, a dizzying variety of models were produced, most nearly identical except for the firewall forward. The Gipsy engine, which had started at 90 hp, went up in steps to 100, 120, and finally 145 hp in the DH.60T, the Tiger Moth. However, so many changes were made as the airplane went into military service that it was redesignated DH.82 Tiger Moth.

PHOTOGRAPHY BY **CONNOR MADISON**, PHOTOGRAPHY COURTESY OF **EAA ARCHIVES**

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Michael has become something of a Moth maven in that he has owned and restored a 1943 Tiger Moth (twice — he's doing it again after an engine failure put him in the trees of Old Rhinebeck), a Gipsy II Moth, and a Moth Major. Somehow, a J-5 Cub sneaked into the lineup, and his Gipsy Moth rounds out the projects.

"This Gipsy Moth has a certain amount of history to it," he said. "It was originally bought by Garfield Wood of Garwood boating fame. A famous boat racer of the 1920s, he set any number of speed records, and today his 1930s runabouts are right up there with Chris-Craft in terms of being wooden boat classics." Garfield flew the Gipsy Moth for several years before selling it to William Steele in Canada to be used as a WWII trainer. While in the service, the airplane was totaled in a training accident and languished in a barn for decades until a collector bought it, planning on a restoration.

"Unfortunately, he passed on before finishing it," Michael said. "When I bought it, the fuselage, which is basically just a wooden box, had the fabric put on it. The wings had been mostly rebuilt but needed to be finished. The engine, however, was well-documented with good logs."

The project's Gipsy II engine was rare, having been produced for only two years. "The logbooks said it had 150 hours and was rebuilt by a well-known company," Michael said. "However, I needed to be sure, so I took the cylinders off the case so I could have a good look at everything. Fortunately, the engine was in quite good condition, and that was a huge relief because there are absolutely zero Gipsy II parts available.

"As the Gipsy engine evolved, the later models became the O-320 of Europe. Very reliable and well thought of."

The rest of the airframe didn't fare as well, some parts never restored and others needing to be redone. "It seemed as if 40 percent was done, but I still had 90 percent to go," Michael said. "To a certain extent, I'm my own worst enemy. Maybe because of my background in building models and art, I'm all about details, which in this case translates to being as original as possible."

No, the skidball is not upside down: it's a bubble level and, like everything else in the airplane, is original.

The baggage compartment reveals the totally wooden nature of the fuselage.

The Gipsy II engine in Michael's Moth is extremely rare, having been built for only two years.

PHOTOGRAPHY BY **ED HICKS**

The Gipsy Moth's lines are shared with the entire Moth series with the wing and tail shapes being DH signatures.

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The covering on the fuselage plywood was done well, but most of the countersunk brass screws holding the fuselage together showed as imperfections in the fabric.

"I couldn't move ahead knowing that imperfection was there," Michael said. "It would irritate me every time I looked at the airplane. So, I stripped it down and started over."

Old English airplanes pose their own problems.

"There are lots of relatively complex systems and details that you don't find that challenging in U.S. airplanes," Michael said. "The wiring, for instance, was not only archaic, but nothing was marked. The cowling, which is hand-formed out of aluminum and welded together in sections, took forever to get to fit right."

The large lower cowl and upper cowling parts were missing.

"Those I had to make from scratch," Michael said. "The tiny flying and landing wires are 1/4-inch and 3/16-inch and were all there, but I was missing one clevis. It had Wentworth threads, and I searched forever before finding one."

When it came to the prop, Michael got lucky.

"I was talking on the phone with it in my lap one day and idly started sanding the paint that was over the leading-edge sheathing," Michael said. "It came up as brass, so I later polished the brass and rubbed out the paint, and the prop was perfect! Not so the spinner."

He didn't have an original spinner, so he re-created one out of mahogany lumber he had left over from making some props. Using photos as a guide, it was laminated in four or five layers, and he had to turn it on a metal lathe as he didn't have a wood lathe. Then he used a hole saw to form the deep cavities for the bolts and indexed a sanding drum on a milling machine to finish them. It's a work of art!

"When it came to the final finish, Stuart McKay in England was a great help," he said, "I had part of the original cockpit decking that went between the two cockpits, so I had a good idea what the original finish was, but Stuart had all the answers."

During its display in front of the Red Barn at AirVenture Oshkosh 2019, Michael Maniatis demonstrated the folding wings.

PHOTOGRAPHY BY **CONNOR MADISON**

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Michael Maniatis (left) with Mike Fohne, who helped Michael restore the Gipsy Moth and helped with the drive from the East Coast to Oshkosh and back.

As it happens, Michael said there were a lot of changes in the cockpit area at the beginning. They were just gearing up production, and as airplanes rolled off the line and went into service, as is always the case, lots of things that needed changing surfaced that had to be incorporated into subsequent airplanes.

"Early Gipsy Moths didn't have doors for the rear cockpit, so getting in was difficult because of the small size of the cockpit opening," Michael said. "Later, doors were added on the right side only because of the long exhaust pipe on the left side. Later, when the Moth was reconfigured into the Tiger Moth, doors were provided on both sides. Because the engine was inverted, the exhaust changed to a short pipe running below the fuselage. In the Moth Major, the doors were larger and came up a little higher, protecting the pilots better."

The paint scheme for any civilian Moth project is foreordained by what the factory did: The wings were *always* silver because of weight considerations, but the fuselage could be any color the buyer wanted. Michael selected burgundy, although he couldn't verify that was what Gar Wood had on the airplane. Available photos are all black and white, so it's a guess. The cover is Ceconite with Randolph dope built up in 16 to 18 coats, with sanding between each coat. The metal is painted with Ranthane.

The cockpit is as original as possible, including the cute little brass mag switch mounted on the left, outside of the fuselage in front of the rear windscreen. That gives both pilots access to the mags without duplicate wiring and puts it within sight of the person doing the propping so he knows they are off.

Included in the original instrumentation is a rather unusual altimeter.

"The altimeter is marked in hectometers, which means each mark is 100 meters or about 300 feet," Michael said. "It's not a nonsensitive altimeter — it's an extremely nonsensitive altimeter, as if knowing your altitude within 300 feet was close enough."

Michael considered flying the Gipsy Moth to Oshkosh, "but that much distance at 75-80 mph behind a 91-year-old engine made trucking it look very attractive, especially since the wings fold, so putting it on a trailer would be easy," Michael said. "What I didn't properly anticipate was what would be very heavy rain across Pennsylvania, trucks everywhere battering our open trailer as they passed, and a huge traffic pileup on Route 80."

Even worse, Michael's four-cylinder Ford Ranger was having trouble with the load.

"In Indiana, where the roads were straight and level, I felt as if we were really screaming, because I got up to 55 mph sometimes," Michael said. "Then my GPS took us right through Chicago and things really slowed down."

Since his load was slightly over the maximum width allowed, Michael had to get wide load permits for each state he drove through.

"I couldn't get one for Ohio, so we decided to drive through without the permit, hoping that if we were stopped the trooper would have an appreciation for vintage aircraft," Michael said. "Besides, everyone knew we were on our way to Oshkosh!"

The Gipsy Moth's reception at AirVenture was gratifying for Michael.

"People were continually asking about this detail or that and were interested in what makes a Gipsy Moth different from a Tiger Moth," he said. "The time spent parked in front of the Red Barn was really fun and made all the hours in the workshop well worth the time."

The logical question to a man who obviously doesn't know how to go into projects half-cocked: What is your next project, Michael?

"My next project is a Comper Swift, which was started in 2010 but put on hold to finish the Gipsy Moth, and, of course, finishing the restoration/repair of the Tiger Moth is a priority," Michael said. He's grateful to friends and family who helped with the Gipsy Moth. His wife, Mary, helped with fabric work and built up his confidence throughout the project.

Michael also was fortunate to have the help of an aspiring flight instructor, Mike Traficanti.

"We spent many days and late afternoons during the winter months working on the wings in a small heated loft area above the hangar," Michael said. "Today, Mike is a first officer for the airlines."

From the beginning, Michael had help from good friend Michael Frohne, who flew with him to Toronto to pick up the Gipsy Moth. They drove 16 hours in a U-Haul truck to get the project home. "He was also instrumental in helping to finish the airplane and drive it to Oshkosh and back," Michael said.

"Another good friend, Rich Harris, spent days helping me get the Moth ready to show and encouraging me to take it to Oshkosh, while Chuck Britt was very generous with his time welding the complicated stainless-steel exhaust system," Michael said. "Thanks again to everyone who helped."

It would appear it takes a village to raise a Moth, and everyone at AirVenture 2019 benefited.

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