The AMA History Project Presents:
Biography of KEITH SHAW

Born June 6, 1947 Modeler since the early 1950s
AMA #1946

Written & Submitted by KS (11/2002); Transcribed & Edited by SS (3/2003), Updated by JS (10/2008, 11/2016), Reformatted by JS (01/2010)

Career:

- 1950s-1960s: Designed and built his own, cutting-edge Radio Control equipment
- Since 1962: Has competed in Pylon, Pattern, and Scale
- Since early 1970s: As an AMA contest director, he has run 50 sanctioned events
- 1980: Got involved with competing and demonstrating electric Radio Control models and flight
- Member of the FAI Electric Team Selection Committee and the AMA Electric Contest Board since their inceptions
- Has served as club secretary, newsletter editor and president
- Has published eight detailed how-to articles in national magazine
- Columnist for Model Airplane News magazine (for a few years) and for E-Zone virtual electric magazine

Honors:

- 2002: Model Aviation Hall of Fame

Personal

- Born in 1947, grew up in Berea, a suburb of Cleveland, Ohio
- German ancestry, father (deceased) was a draftsman, mother was a salesclerk
- Undergraduate degree from Bowling Green State University in Ohio
- Graduate degrees, including doctorate, from the University of Michigan, Ann Arbor, Michigan
- Permanent resident of Ann Arbor, Michigan

Employment

- Work for the University of Michigan as a research physicist/engineer in the biophysics research division. Design and build advanced exotic instrumentation to study molecular structure and interactions.

Leadership

- Member of FAI Electric Team Selection Committee since its inception
- Member of AMA Electric Contest Board since its inception (District VII)
- AMA contest director; have run 50 sanctioned events since the early 1970s
- Club officer (three years secretary, one year newsletter editor, 16 years president)
- Run dozens of club fun fly events

Publications

- Eight detailed how-to articles in national magazines
- Columnist for Model Airplane News magazine for a few years
- Columnist for E-Zone virtual electric magazine
- Many articles in local and national newsletters

Modeling

- Started in Free Flight in the early 1950s, added Control Line in the mid-1950s
- Designed and built my own vacuum tube Radio Control equipment and had a few successful flights in the late 1950s. Worked on perfecting Radio Control systems, even made an early quasi-digital (similar to what we use today – 2002) in 1964 and a home-designed four-channel digital in 1967.
- Competition activity in pylon, pattern and scale from 1962 to the present (2002)
- Became interested in electric flight in 1975; tinkered with it as a curiosity until 1980 when I started to build serious competition and air show aircraft to demonstrate its potential
- Have flown an average of 30 air show days a year demonstrating electric flight – from 1984 to the present (2002). This is virtually every weekend day from early May to late September.

(signed) Keith Shaw
November 5, 2002

The following information, written by Stacey Shannon based on information submitted by Keith Shaw, was published in the February 2003 issue of Model Aviation magazine following Keith's induction into the Model Aviation Hall of Fame.

Keith Shaw, 55, starting flying Free Flight model airplanes in the early 1950s and added Control Line flying to his hobby in the mid-1950s. By the late 1950s, Keith had designed and built his own vacuum tube Radio Control system, which he continued to perfect into an early quasi-digital system in 1964 and a home-designed four channel digital in 1967.

Keith began competing in 1964 and has not stopped. In 1975, he became interested in electric flight and by 1980 started to build, seriously compete, and demonstrate its potential at air shows.

Keith has been a member of the FAI electric team selection committee since its inception and a member of the AMA electric contest board since it was formed. He is also an AMA contest director and club officer.

Keith has had eight how-to articles published in national magazines and was a columnist for Model Airplane News magazine for a few years. He is also a columnist for E-Zone, a virtual electric magazine. Keith's work has been published in local and national newsletters as well.

Keith, who received his undergraduate degree from Bowling Green State University and his graduate degrees from the University of Michigan, currently works for the University of Michigan as a research physicist/engineer in the biophysics research division.

Dave Grife submitted the following letter with the Hall of Fame application he submitted for Keith Shaw on March 25, 2002. Based upon this application, Keith was inducted into the 2002 Model Aviation Hall of Fame.

Dear [Model Aviation] Hall of Fame Selection Members:

Respectfully I ask you to name the most prominent electric Radio Control modeler that you know…Keith Shaw? However, I suggest to you that to summarize and categorize Keith's accomplishments in electric aeromodeling is somewhat a complex task. Most of Keith's accomplishments do not easily fit into the well thought-out [Model Aviation] Hall of Fame nomination form. I found myself leaving many areas on the nomination blank. I suspect the reason for this is that Keith Shaw is a true pioneer in model aviation. Keith has set the standard. He is a pioneer, an innovator, a trendsetter and a teacher. It is the purpose of this paper to attempt to bring recognition to the contribution that Keith Shaw has made to electric aeromodeling and model aviation in general.

Admittedly, electric aeromodeling may not be suited for everybody, but Keith's accomplishments are undeniable. His efforts have laid the foundation for the rapid growth in electric flying that we see today. In the past 25 years, he almost single-handedly changed the perception of electric flying models from feeble barely flying floaters to that of unlimited possibilities and potential. According to Astroflight founder and [Model Aviation] Hall of Fame member Bob Boucher, "Keith was the first modeler to have achieved noteworthy success with electric-powered models." Keith's scale and giant models, many featuring retractable landing gear and multi-engines, were decades ahead of their time. Keith is the most recognized and respected advocate of electric-powered Radio Control model aircraft in the United States and quite likely the world. Keith unselfishly promotes electric areomodeling and he has no hidden agenda or ulterior motive. He receives no financial or monetary gain for his efforts. Keith's income has nothing to do with model aviation. Keith is a University of Michigan professor. To quote Bob Aberle from Model Aviation magazine, April 2002, Keith has become the "most famous electric modeler in the world." Keith has achieved this because it is his passion; it is not his job.

Keith has promoted and taught electric flying to the world largely by leading by example. Over the past 25 years, Keith has performed at hundreds of the largest AMA-sanctioned aeromodeling events throughout the United States. Keith is often the “featured show” at fly-ins and a draw for such an event. Frequently these are not electric events but scale or giant scale contests where the organizers call on Keith to demonstrate what electrics can do. With his extensive and exquisitely built air force, Keith has performed with the skill, grace, and showmanship of a true air show pilot. Keith has always demonstrated with an emphasis on professionalism, respect, thoughtfulness, and high concern for safety. Keith Shaw is a true role model for all Radio Control flyers, electric-powered and otherwise. Typically, after his flying presentations, Keith is surrounded by enthusiastic crowds of spectators and modelers alike. Keith, without fail, will answer every last individual question and offer his advice until the questions end. Often, this involves some follow-up correspondence at a later date, but this does not inconvenience Keith Shaw.

Keith has not only demonstrated to and informed people about electric flight with his performances, but he has also educated tens of thousands of modelers through lectures and articles. He has given hundreds of lectures throughout North America. It is not uncommon for Keith’s lectures/presentations to be daylong events for AMA clubs and clubs in Canada. Keith enjoys the intellectual challenge of the hobby and is able to convey both his enthusiasm and the lessons learned from a half century of modeling to anyone who wants to learn. Perhaps most importantly, he has made spreading information about electric modeling an important component of his own enjoyment of the hobby. Keith draws on a vast base of experience that spans some 50 years. Keith was very involved with Free Flight in the 1950s. He successfully built his own Radio Control units in the early 1960s. He also gained extensive experience flying scale, pylon, and pattern in the 1970s. Clearly, when he teaches people about electric flight, Keith has an extremely broad base of experience to pass on as well.

Keith has also somewhat quietly written the most important landmark articles in Radio Control electric flight history. His July 1987 article entitled “Electric Sport Scale” in Model Builder magazine laid out the foundation that every electric-powered airplane today is designed from. Every single large manufacturer of Radio Control kits and every single modeler that designs, builds and flies an electric model airplanes uses concepts from Keith’s breakthrough and innovative article. Keith has also written the most significant articles on introductory electrics, multi-engine electrics, batteries, electric performance, and electric motors. Keith’s writings are the true substantial articles of electric-powered Radio Control aircraft.

Someday Keith Shaw will be inducted into the [Model Aviation] Hall of Fame. The AMA is fortunate to have such a member contributing to the growth of aeromodeling and the organization. His contributions to the world of aviation are yet to be fully realized, but they are undeniable. His overall contribution is complex, but it should also be considered complete. He really has been a modern-day pioneer for model aviation. Pioneers are very rare in these modern times. Worldwide, Keith Shaw has no equal in electric Radio Control modeling. Prominent modelers, with a historical perspective, like Bob Aberle, Bob Kopski, Bob Boucher, Joe Beshar, and Tom Hunt will most certainly agree.

Respectfully, I ask you to make Keith Shaw's day of inductance into the [Model Aviation] Hall of Fame today. He has earned the honorable distinction.

Sincerely submitted,
David Grife, AMA #3912

The following was published in the September 2015 issue of Model Aviation *magazine, in Jim T. Graham's Born to Fly column.*

Keith Shaw: The godfather of electric flight

I have known of Keith Shaw since I first got started in the hobby. It wasn't his long white beard that set him apart from the crowd – it was his airplanes! They were always different and always mind-blowing, but the defining difference back then was that they were electric powered!

In the early days, making an electric-powered airplane actually fly was a bit of a trick. Keith was a research physicist at the University of Michigan and was one of the people who took electric flight seriously. Much of what you and I fly today has everything to do with the work that Keith Shaw and a few others did in the 1970s.

Jim Graham*: Keith, I like to think of you as the man who invented electric flight.*

Keith Shaw: There were maybe a dozen of us who helped start all of this. Along with my work, there were Bob and Roland Boucher, Mitch Poling, Bob Kopski, Jim Zarembski, and a few others. We started working on electric flight in the early 1970s.

JG*: So in the 70s, everything was underpowered. You had brushed motors and not-so-great batteries.*

KS: Correct. Back then we rewound or even made our own motors.

JG*: Fast forward to today's electric power systems. Did you ever envision in the early days that electric flight would be what it is now?*

KS: I always thought electrics would be a good niche market. It was a great way to do multimotor planes, pushers, sailplanes and planes with large propellers and large cowls that didn't need huge amounts of horsepower.

I had never imagined it going as far as it has – that almost everything out there would be electric. I thought that maybe at any flying field, a third of the people might fly electrics.

The reality, of course, is these days it's pretty much all electric, some gas, and no glow. It's been years since I've seen more than one glow plane at any meet or flying field.

JG*: A lot of new pilots don't even have knowledge of how glow fuel-powered airplanes work.*

KS: It used to be that people felt glow power was easy and electric was hard. If you think of everything you have to do to get a glow plane flying, like getting your fuel tank set up properly, tuning your carburetor, how the weather affects your settings, finding the right glow plug, etc. – I always found glow to be vastly more challenging than setting up an electric power system.

In the early days, the hardest thing was to learn how to solder. Now everything is pretty straightforward and easy. And the weather doesn't affect your setup.

***JG**: Electric has a linear throttle and no power surges like we had on glow-powered aircraft.*

KS: Electric is clean and quiet, but my favorite part is the reliability and reproducibility. Every flight can be the same. If you do a 21-manuever sequence with electric, you know your motor won't quit in the middle of the outside loop or low inverted pass, whether it is the first flight or the 100th. It instills confidence in the pilot, and a hidden advantage is not trim change like there is due to fuel consumption with an engine.

***JG**: The whole RC industry has pretty much turned to electric flight.*

KS: It's strange if you think about it. There are a lot of airplanes I see at events that people have made electric and I think, "Why?" I see planes and think that I would have made that a gas-powered plane. Trying to electrify 50-plus-pound planes is interesting, but why?

We did some pretty extreme projects back in the day to prove a point. Back in the 1980s, I had ¼-scale racers that could do 120 mph on Ni-Cads and brushed motors. With many of the present-day extreme projects, it's just a matter of writing a big enough check for the power system and batteries. But I guess in the end, I'm happy that people have a wide range of power systems to use.

I use to fly 30 days of air shows each summer. The goal was to go to these air shows and show that electric flight was possible. I put in 15,000 miles a season. I don't have to do that anymore. Now I attend a few select shows that I want to go to.

Instead of always being a leading promoter of electric, I have been able to step back and become one of the pilots. I like going to a field and being just another pilot – knowing that I was one of a group of guys who pushed electric to the place it is today. It makes me feel great to see pilots out there enjoying RC with electric power systems that don't make them want to go home and kick [something]. I'm happy I got to be a part of that innovation.

***JG**: My first airplane had a Torpedo .40 on it. I remember flipping that propeller in 101degree weather, on an asphalt runway for an hour, and finally going home upset.*

KS: Exactly. Now, with electric power, you simply go fly and enjoy the hobby.

***JG**: You have built some amazing aircraft. Is there anything you are working on?*

KS: The airplane I just finished for the Toledo Show this year. Many years ago, I decided that the world has enough Mustangs and Cubs, so I look for obscure airplanes that no one has ever modeled.

I have built a 1950s British racer that is wood and fabric. It's a tail-dragger with wheel pants and spats. It's also a twin [engine] and a jet! Probably the only airplane like it in the world. It's called the [Miles] Sparrowjet.

The following was published in the September 2016 issue of Model Aviation *magazine, in the "I Am the AMA" column, written by Jay Smith.*

I Am the AMA

Keith Shaw, Retired research physicist and consultant
by Jay Smith

Jay Smith: *How did you get involved with model aviation?*

Keith Shaw: I grew up in the Cleveland area, which is steeped in aviation history. My first memories in life were at the 1949 National Air Races. My family was invited to watch the races from a friend's house in Berea, Ohio. I remember the awe and excitement of the big racers flying right over our heads and the sound of the magnificent engines.

Unfortunately, I also remember Bill Odom's highly modified Mustang crashing into a house only two blocks from where we were sitting. But soon afterward, I started to build rubber-powered models, beginning a lifelong fascination with flight.

JS*: How has model aviation impacted your life and/or career?*

KS: Model aviation made me what I am. I spent endless hours in the Cleveland Public Library, studying electronics (to design my own RC systems), mechanics (spar structures and stress distribution), aerodynamics (to design better airplanes), and engine/fuel chemistry (to get better performance). You get the idea. My desire to design, build, and fly airplanes guided me into a life of science, and ultimately to a career as a research physicist at the University of Michigan.

JS*: What disciplines of modeling do you currently participate in?*

KS: I fly in many air shows and occasionally participate in RC Scale, Pattern, or just sport flying. I have always encouraged designing and building one's own models, and I mentor many local modelers toward that goal.

JS*: What are your other hobbies?*

KS: I enjoy reading science/technology, science fiction, history and, of course, anything aviation related. Music also fills my life, fueled by a rock 'n' roll collection of 1,000 vinyl records and 800 CDs, along with regular visits to local, small-venue performances.

When I do go on vacations, they are always extensive hiking/sightseeing treks to our wonderful national parks.

***JS**: Who (or what) has influenced you most?*

KS: I was fortunate to know many model aviation greats in Cleveland, and I treasure all that I learned from them. Chet Lanzo, Ted Blase, AI Seidowski, George Landreth, and Warren Plohr were mentors and friends.

***JS**: Having been an advocate of electric-powered RC model aircraft for many years, what do you think the future holds for this technology?*

KS: At this point, electrics have won, providing a clean, quiet, and safe way to enjoy modeling, and help obtain and keep flying sites. It is rare to see even one glow model at the many dozens of club fields I visit.

There will be some small improvements in motor and controller technologies, better and safer cell technologies, and advances in stabilization systems. My only regret is that electric power played a major role in the popularization of ARFs and "checkbook modeling." I will continue to promote and support the hobby of model aviation.

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