Biography of LEROY M. COX

Circa 1906 to 1981

Written & Submitted by ETT (3/99) **Transcribed & Edited by SS (12/02)**

Career:

- Developed and successfully sold a wooden popgun starting in 1944, forming his business called Cox Manufacturing
- Started producing metal racecars in 1945
- Introduced the Cox Thimble Drome Champion racecar in 1947
- By February 1948 began producing engine-powered racecars
- Began selling Thimble Drome glow fuel in 1948
- Designed and made the manufacturing machines to produce model engines in his factory
- By the early 1950s, began to get more into model airplane engine production; introduced the Thimble Drome Space Bug in October 1950
- Designed model airplanes to go with his engines by 1953 starting with a U-Control model called the Thimble Drome TD-1
- By 1953 he was also selling the Thermal Hopper and Space Bug Junior engines
- In the mid-1950s he produced the Baby Bee engine; later made the engine half-sized and called it the Pee Wee
- By the early 1960s his company was producing seven different engines and seven airplanes
- His company took over the flying circle at Disneyland in 1957; taught many youngsters how to fly and gave numerous demonstrations
- Produced a training film called "Wally Wins His Wings"
- In 1952 his company became L.M. Cox Manufacturing Company, Inc.
- Pilot of full-sized aircraft
- Got into producing slot cars in the early 1960s; established Cox International in Hong Kong in 1962 to keep up with the slot car demand
- Left with a large inventory when the slot car craze ended abruptly in 1967
- In 1969, sold his company to Leisure Dynamics, Inc., who continued to produce Cox products
- Member of the Hobby Industry Association of America (HIAA)
- One of the first hobby manufacturers to exhibit at the Nurenberg Toy Fair
- The first in the industry to use highly sophisticated measuring equipment

Honors:

- 1981 – AMA Hall of Fame

The following biography was written and submitted by Evan T. Towne who has written numerous biographies for the AMA History Program.

Leroy M. Cox's father ran a bicycle shop in Placentia, California. As a young boy, Roy developed a keen interest in mechanical devices while spending many hours in this shop and eventually put it to good later for his life work. He had been an electrician for 20 years and had run his own electrical business during part of that time, but he didn't like that field of work. However, he found it hard to break away from it. Before World War II he started a small photo equipment business that failed as materials were put on allocation for the war effort.

In 1944 he noticed the poor grade of wooden toys and came up for a design for a wooden popgun of better quality than the toys of the period. With $2,200 he tooled up for fast production in his garage using neighborhood women for help. The popgun took off with a bang, and the business was established.

In 1945 metal became available for civilian use and wooden toys became obsolete overnight. The business had been moved to an old foundry building. Realizing that metal toys would be in great demand and figuring that a toy with wheels would be a good bet, he designed a small racecar.

In 1946 he and a friend, Mark Mier, tooled up the car and hired in a production crew, and orders flowed in the front door and the cars flowed out the back door. On August 6, with 20 people on the payroll, they were turning out 1,500 cars a day.

On August 7, 1946, after four months of production, some accidentally spilled paint thinner caught on fire and within 12 minutes the entire factory was reduced to a heap of ashes. Little was saved – but the precious orders! Without insurance, he did some fast talking and working. Leroy bought a small lot and within four days had a small Quonset-type building thrown up on it. By October 15, he was back in business and geared for double the capacity. He filled all of the orders for the Christmas trade!

In 1947 he introduced the Cox Thimble Drome Champion racecar. Other than a push toy, this beautifully painted 9-1/2-inch aluminum car with rubber tires was provided with a bridal and cord with a handle and could be swung in large circles at high speed. It was called tether racing and became a fad all over the country. He adopted the Thimble Drone name for all of his future products. The price of the tether car was $4.95. I sold a number of them while I ran the Towne Hobby Sop. I also gave one to my young nephew.

In addition to tether racing, Cox noticed that hobbyists were fascinated with the realism of this beautifully scaled racer and were installing miniature model airplane engines in them. Leroy went to Cameron Brothers engine company and had them build a .15-cubic-inch engine unit that he could mount directly on a geared rear end to install in the Champion. The cooling fins on the crankcase were made vertical rather than around, because it was fitted in a confined cockpit area so there would be better cooling. Eventually the same engine was reduced in displacement to .099 (called the Doodle-Bug) then also to a .19 size.

In February of 1948 the firm introduced the first engine-powered racecar ever to hit the market under $100. The retail price was $19.95. 1948 sales were well in excess of half a million dollars, selling cars both with and without gas engines. Of course, he was soon selling his own brand Thimble Drome glow fuel.

In 1949, Cox introduced a smaller car called the Special of .045 displacement. For this he bought piston, rod, cylinder and head from the Mel Anderson Company. Leroy was a perfectionist and a fanatic about quality control. Eventually the entire car – engine and all – was

made in the Cox plant. Many of the engine makers did not have sufficient manufacturing capacity to produce a whole engine, so they would sub-contract parts to others to supply what they were unable to. As a result they were basically "assemblers and fitters." Cox realized that in order to control the quality, he would have to do it himself; he even designed and made the manufacturing machines to do so. There were some parts made outside the factory, especially the plastic airplanes.

The car craze was over by now and sales dropped. Late in 1949 Roy realized that he had to go in a new direction as the cars were too expensive to manufacture in small quantities. He determined that if the dependability, quality and starting characteristics could be greatly improved of model engines, a mass market would be waiting for a complete line of engine-powered models, especially airplanes. Most of the year was devoted to experimenting, developing and design tools to create a new tiny glow plug engine of .049-cubic-inches displacement (called a half-A) with superior starting capability. His first engine hit the market about October 1950. It was called the Thimble Drome Space Bug.

Ads are not a very good way of determining when a certain product hit the market, but it is about all that I have to go by. As soon as the engine came out, the modelers learned of its good starting qualities and power. With engines selling well, he was in no hurry to buy ads in model magazines. Consequently, the first ad that I found in Model Airplane News magazine was the August 1952 issue on page three. There was a full-page ad with a black glow plug instead of a glow head. (This was the prototype engine and probably an artist-rendered plug.) Right away Roy started working on production machines to create models for the new engine.

The Space Bug engine was quite a remarkable advance in engine design. It had a compact cast aluminum crankcase fastened to a rather large cast aluminum gas tank. The tank held a reed-valve fuel induction system and was radial-mounted to the firewall by four screws. The piston-connecting rod was ball and socket rather than having a wrist pin. The most amazing feature was the steel cylinder-piston combo that was machined to fantastically close tolerances. Instead of a glow plug, it had an aluminum glow head with a built-in glow coil of his design.

By 1953 he was selling three different versions of the Thimble Drome engine. The Space Bug sold for $6.95. By demand the heavy tank was removed for the modelers and it was called the Thermal Hopper for $6.95. Then Space Bug Junior with a plastic tank for $3.95. The first engine review in Model Airplane News magazine was in May 1953 on page 29. This sparked a new wave of enthusiasts.

The first plane was advertised in the August 1953 issue of Model Airplane News magazine and called the Thimble Drome TD-1. It was a U-Control model that weighed 10 ounces, an aluminum wing of 24-1/2-inches and the body of high impact plastic was 18-inches long. It came completely assembled, ready to fly. For $19.95 it came with an accessory kit including Skylon control reel, battery wires, battery connecting clip, control lines, filler hose and finger guard in a three color box, plus complete instructions.

The engine was soon winning practically all the ½-A contests. Cox then moved the factory to Santa Anna, California, and into two Quonset huts and a two-story cement block building. By now he had 250 workers and had expanded the line of products. Leroy Cox was a very innovative person; as soon as one product was selling well he started working on a new line of models and accessories.

Later with throw-away tolerances of 20-millionths of an inch, obviously no one before had ever achieved such quality control, the Space Bug and following Cox engines soared to the top of the wanted list. Because of the cast crankcase and long nose, the crankcase was often broken in a bad extruded-machined crankcase. Not only was it much stronger, but also much cheaper to manufacture.

When Cox came out with his second generation of .049 engines he made one change to the cylinder design that made parts "not interchangeable" (which seemed to be one rule that he strictly adhered to). That was a larger thread to the glow head. From then on, for a while, he sold two sizes, the first size was marked Thimble Drome glow plug for all 1955 or earlier T.S. engines. That one and the new one both sold for 65-cents. (By the way, both cylinders still had the same crankcase thread, so it was not unusual to see the newer cylinder on some of the Space Bug engines.)

The new engine was called the Baby Bee. Even though it had a brand new extruded-machined crankcase, it was easy to tell that it was a Cox engine by the black cylinder glow head arrangement. This basic configuration was the standard for all time. The tank-mount went back to aluminum for strength, but spun – not cast and stamped Thimble Drome, Thimble Drome – encircling it. It sold for $3.98 by itself or you could buy it mounted in several different plastic U-Control planes, also designed and made by Cox. Most Cox engines had a spring starter that the novice could wind backwards when engaged on the propeller to give it the proper speed in the correct direction.

One of the advantages of being the boss is that you can do whatever you want. With the idea of making a half-size Baby Bee, Roy just chose to make it .020-cubic-inches in displacement. It was an exact replica, except for size, of the Baby Bee and was called the Pee Wee. It also sold for $3.98 and was sold as "the world's smallest model engine." The remarkable thing is that this small displacement engine had almost as much power as many of the competition .049 engines. Few other .049 engines could compete price-wise and several companies stopped ½-A production. Another remarkable thing is these two engines have been in continuous production now for almost 50 years (in 1999)! Of course, Roy brought out other sized engines and in the early 1960s the firm put out seven different engines with displacements from .020 to .15 with prices of $3.95 to $12.95. The line of powered models had grown to seven airplanes from $6.95 to $325.00 retail plus one car and one boat.

Roy pulled a real bananza of advertising for his company when he took over the flying circle in a caged-in arena at Disneyland in 1957. There several of his employees would perform hourly flying demonstrations, teaching young modelers how to fly Cox planes or watch Cox cars zoom around the track. Often his "pros" would fly two different planes at the same time in the small

space or ask one of the spectators to try flying one. Roy actually had a training film taken there that he named "Wally Wins His Wings." Later when I corresponded with him he gave me a copy of this film to show my students. In order to show the internal workings of the engines for the second time around, I would run it backwards and you would see the plane jump back together after a crash and fly backwards; they especially enjoyed the super smooth backward "landings."

I used the model airplane engine in my industrial arts classes to tell the story of the development of a modern American industry and also how and why the internal combustion engine runs. I needed cut-away engines and stories of industry, so I wrote to Leroy asking for his help. I received a letter dated October 16, 1961, stating: "We do not have any instructional materials for education purposes on our engines. We are, however sending you a half dozen engines or so of the various types that we make. I am very sorry that we cannot be of more help to you with teaching aids, but I did write up a short history of the firm, a copy of which is enclosed. Yours very truly, L.M. Cox Manufacturing Company, Inc. L.M. Cox President."

Over many years, I read parts of that Cox history to countless industrial arts classes. They seemed to find the development of an industry quite interesting – especially because it was about model airplanes and engines. Because I had this Cox paper I undertook the job of writing a biography of Leroy Cox after I was asked to submit one to the AMA's History Program.

At the end of his history he told about the name change in 1952 to L.M. Cox Manufacturing Company, Inc. Then he spoke of two things that would soon take place. A new factory and office facility of 80,000 square feet located on 10 acres near the Orange County Airport, and four more engines would be released to the trade in February 1961.

Up to this time all of Cox engines were reed-valve engines, which could be considered sport engines. He decided to expand into the contest or high performance engines. For this he brought in the well-known engine guru, Bill Atwood (the prolific 1930s, 1940s and 1950s engine designer). For speed Bill took the newest hot engine called the Space Hopper and converted it to the front-rotary-valve-induction system. This increased the rpm. So Roy used his new method for the four engines he spoke about for 1961 release: the Tee Dee .010, .020, .049 and .15.

These were fantastic engines, first for size – one half the size of the previous smallest (which was also made by Cox – the Cox Pee Wee). They were very compact, easily mounted with small crankcases. They had no fuel tanks, so a light thin-wall brass tank could be used. The .010 could be run at 30,000 rpm. All four of them used the tried and true extruded crankcase and the .010 and .020 stayed with the radial mounts. For good sealing properties, red plastic was fitted around the front rotary valve and held the venturi and needle valve. The .049 and .15 changed to beam mounts machined on the crankcase and black plastic to hold the venturi and needle valve.

The Tee Dee .010 sold for $7.98, the .020 for$6.98, the .049 for $7.98 and .15 for $12.98. These engines won many contests and Roy became quite wealthy. Roy also became a pilot as he flew the company 1950 Navion for West Coast business trips and his 1927 Fleet bi-plane for relaxation and fun. Soon after he was established in the Santa Anna factory, slot car racing

became a fad and slot cars were racing all over the country. Roy did a quick switch and jumped into the slot car business. Their product line included ready-to-run slot cars, controllers, motors and everything to build and run them. Demand was intense and difficult to supply the industry's needs. Cox International was established in 1962 in Hong Kong to supply these products.

As suddenly as the slot car craze began, it died in 1967. Several large distributors and many slot car establishments suddenly closed their doors. Cox had an immense inventory and he suddenly had no one to buy it. This left him with a real cash-flow problem. In this same period, Roy's beloved wife died. As Roy was beginning to have his own health problems, he decided to retire. In 1969 he sold out to a company called Leisure Dynamics, Inc., who carried on producing the Cox line of products.

In 1981, the year that Cox died, I remember reading somewhere that with Cox's phenomenal production (sometimes a million a year) that there were probably more Cox model engines than all other model engines in the whole world!

(signed) Evan T. Towne
March 1999

Material taken from:
Cox's letters and history
Dan Sitter, articles in ECJ #105 and #108, plus proofing this manuscript
Several issues of model magazines (stories and ads)

The following information on Leroy M. Cox was written after his death by William H. Selzer.

One of the pioneers of model aviation, Leroy (Roy) M. Cox, 75, passed away a few weeks ago [circa December 1981].

Roy Cox started Cox Manufacturing during the end of World War II. Roy, an inventive type of person, first began manufacturing wooden popguns because metal was not available for non-essential purposes during the war years. After the war, Roy tooled up a die-cast aluminum racecar about eight-inches long. Since there had been a scarcity of metal toys during the war years, Roy sold the cars as fast as he could make them! His second car was a model of the popular Offenhouser midget racer and was so authentically done that model racecar enthusiasts were soon fitting them with small engines. Roy quickly took up the challenge of making the car available complete with engine. At first he contracted the Cameron brothers to supply the engines, but later he tooled up his own engine and began producing Cox engines for cars.

In the early 1950s the interest in model racecars slackened and Roy decided to change the company's emphasis to model airplanes, and this is ultimately for which Cox became best known. Roy's original airplane engine was the Space Bug .049. In the years that followed, the line of model airplane engines was expanded to eventually number more than 50 different models. The .049 Baby Bee was probably the Cox engine best known to youngsters throughout the world. The Baby Bee engine is used today to power most of the Cox ready-to-fly and ready-

to-run products and has been in continuous production for over 27 years. Roy's line of competitive T.D. (for Thimble dome, a trade name Roy used for his early racecars) engines have been consistent contest winners for many years.

Roy was a well-known member of the Hobby Industry Association of America (HIAA) for many years. He first exhibited at the HIAA trade show in 1948 and the company has participated in every HIAA trade show since.

Roy was also one of the first hobby manufacturers to exhibit at the Nurenberg Toy Fair, and Cox was the first American company to have its own booth at Nurenberg. Because of this, Cox products became known the world over and the company today (1981) exports to nearly 50 different countries around the world.

In 1969 Roy sold his company to Leisure Dynamics and retired from active business. However, ever after retirement Roy continued his interest in the hobby industry and continued to attend the annual HIAA trade shows.

In his retirement years Roy and his wife, Marybelle, were able to devote more time to the work of their church, to which Roy made generous stewardship contributions.

Roy is survived in his immediate family by his wife, Marybelle, and grandson Jeff.

The following information was also written by William H. Selzer following the death of Leroy Cox in 1981.

With sadness we must announce the death of Leroy (Roy) Cox, 75, of Corona del Mar, California.

Roy was one of the true pioneers of model aviation. He was probably responsible for introducing the fun of engine-powered Control Line flying to more young modelers than anyone else in the industry.

Roy founded his company right after World War II. Starting out with wood popguns he switched to die cast model racecars when metal became available. The miniature racecars were so authentic modelers were soon fitting them with small model airplane engines for power. It did not take Roy long to tool up his own engine and put out the complete car – engine and all.

In 1952 the interest in model racecars slackened and Roy decided to diversify into the model airplane field. Having developed expertise in producing small car engines he naturally concentrated on ½-A sized airplane engines. The .049 Space Bug was the first of a long line of Cox model airplane engines, but the engine with which Roy brought model airplane flying to literally millions of youngsters was the .049 Baby Bee. This engine, which originally retailed for $3.95, has been in production continuously for 27 years with tens of millions being produced.

Cox competition engines have been consistent contest winners because of Roy's insistence on perfection in performance and quality. Roy was first in the industry to use highly sophisticated

measuring equipment, such as air gauges, to hold tolerances as close as 25-millionths of an inch in manufacturing pistons and cylinders.

Although not an active model flyer, Roy was an enthusiastic pilot of full-size aircraft. He was licensed to fly gliders, single and twin engine aircraft. Roy's red and white checkerboard TD-3 Navion was a familiar sight at airports where model contests were held during the 1950s and 1960s.

Having sold his company in 1969, Roy retired, but he retained a keen interest in model flying and in the hobby industry. He continued to attend the annual HIAA trade show until last year when health precluded his attendance.

Pioneers like Roy Cox are few and far between, and modelers the world over are fortunate to have had a quite, unassuming gentleman like Roy Cox dedicate his career to their hobby.

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