

1914 LATHROP TRACTOR

By GENERAL (2-Star) DAVE STOTT, F.A.C. . . . Bypassing the convenience of the modern hobby shop, our author relived the difficult experiences of obtaining modeling materials just as WW I was beginning.

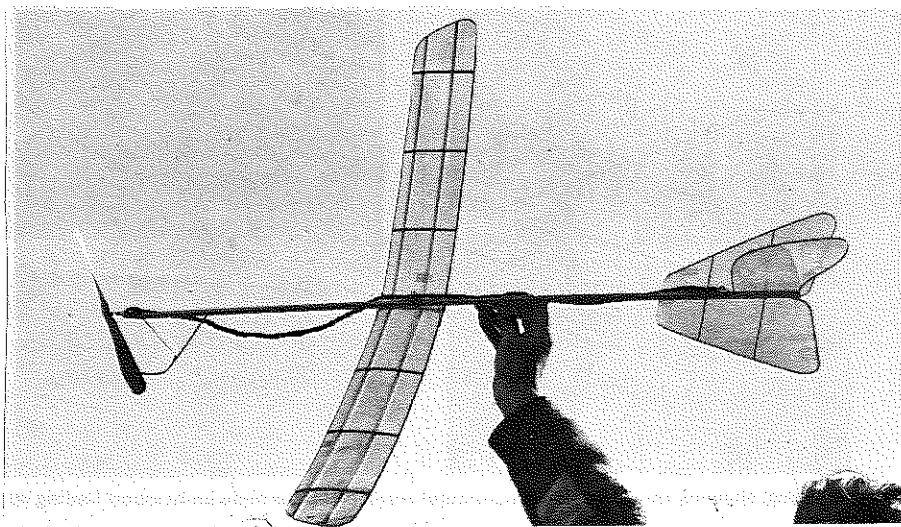
• While browsing in an antique shop, I came upon a book for boys entitled, "Flying High". It contained fiction stories on aviation, interspersed with plans to build some really old models. Of course, I bought the book. Sure, I read some of the stories. Naturally, I perused the plans. That is when I got to thinking. How was it to build a flying model back in those times, with no local hobby shop to run to for supplies and advice? When aviation itself was very young. How was it to be one of the lonely pioneers in aeromodeling? I thought I might recapture some of the trials and tribulations of that era by building a model from this book. By building it as closely as possible to the original, even though knowledge gained over the years would tend to lead me off the purist course.

Although there were no hobby shops back in 1914, there were mail order houses where supplies and even complete kits might be purchased, like the Ideal Aeroplane and Supply Company and the Wading River Manufacturing Company. But boy, the prices for complete kits! Not for the son of Mr. Average Man in the U.S.A. back then! But the cost of some covering material and rubber might well be had by a determined lad, in time.

The model builder of those times had less distractions to contend with. There was no television, radio, and in many cases, no family car. And, if he was indeed lucky, the library might have a copy of "The Boy's Book of Model Airplanes", by Francis A. Collins, to aid him in his task. This book gave valuable information on how to split bamboo, make a laminated propeller from cigar box wood, and much more.

If he lived in a large city, he might not even be a lone eagle, for model aero clubs were being formed. One such club was the Illinois Model Aero Club. It was to this club that Donovan Lathrop belonged when he designed the tractor monoplane described in Flying High. The straight forward design of this ship struck me, as did the fact that it was a tractor in an era of twin pushers. This was the model for me to try to build while heady with nostalgia.

Rounding up all the materials was the first task. Piano wire, thread, rubber, and balsa were no problem.



How they looked in 1914. Excessive dihedral is caused by contraction of translucent goldbeater's skin covering in winter temperature. Simple structure is evident.

The plan called for white pine for hardwood parts. As I had some basswood, I substituted this. Japanese tissue was called for as a covering material, but I thought I might go one better and use goldbeater's skin purchased from Old-Timer Models. For glue, Ambroid was used on the original. I decided to go a step farther and make my own by dissolving an old celluloid drafting angle in acetone. Bamboo in 12 inch lengths was found in gift shops under the guise of Fondu forks. The bamboo in longer lengths for wing and tail outlines harried me until I came upon an old bamboo porch blind. Not the best grade of bamboo, with plenty of bulging nodes, but I thought Donovan must surely have had as much trouble in his day.

The plan is self explanatory, but let's go over things a bit to be sure. The motor base, or stick, is cut to the dimensions shown. Small holes are drilled into the stick to receive the bamboo skid assembly. The can and rear hook are bent from .040 wire. The prop hangar can be made from a flattened nail, cotter pin, or strip of brass, if bashing a piece of .062 music wire sounds like blacksmith work rather than modeling. The end would have to be annealed before drilling, anyhow. Glue thoroughly all joints, and lash with thread. Give the completed stick two coats of lacquer.

The tail is built as indicated on the plan. Use a soldering iron as a heat source for bending bamboo. You

can lay the strip of bamboo directly on the iron, moving it steadily back and forth while applying bending pressure. As the iron gets hotter, move the bamboo farther up toward the handle. Once this area becomes too hot, simply unplug the iron and begin working your way down toward the point to do your bending. A little practice and a mile or so of bamboo is all that is needed to get the knack!! Don't feel bad. Donovan Lathrop probably scorched a mile or so of his bamboo over a candle, or gas lamp. Two small holes are drilled in the motor base to receive the rudder outline. The rudder is covered after gluing to the motor base. The stabilizer is covered first, then glued in place. Once again, lash all joints with thread, and coat with glue.

The main plane, or wing, is built as shown on the plan. The 1/16 round bamboo outline takes a bit of time to prepare. Once the bamboo is stripped to a 1/16 square size, it must be scraped or sanded to a round section. Scraping should be done with a knife or piece of glass. It is rather puzzling why Lathrop made his wing ribs so beefy, but for the sake of purity, I followed his specifications. Mark the spar locations on each rib, as the spars are added after the wing ribs are glued to the leading and trailing edges over the plan. Add dihedral, lash all joints, and smear with glue. Cover the wing. Bend the wing mounts to the shape shown on the plan. Be accurate in this, as it affects flight quality. Glue,

lash, and coat with more glue. Be sure you have located the wing mounts correctly by slipping a piece of balsa wood the same size as the motor base into them and eyeballing the whole rig.

Now, whether you have covered your wing with tissue, goldbeater's skin, or silk, DO NOT water shrink the covering. You will end up with pretzels!! Simply give the covering on both wing and tail a couple of coats of clear lacquer . . . Not dope, but lacquer . . . Lacquer does not shrink, therefore chances of warping are reduced considerably.

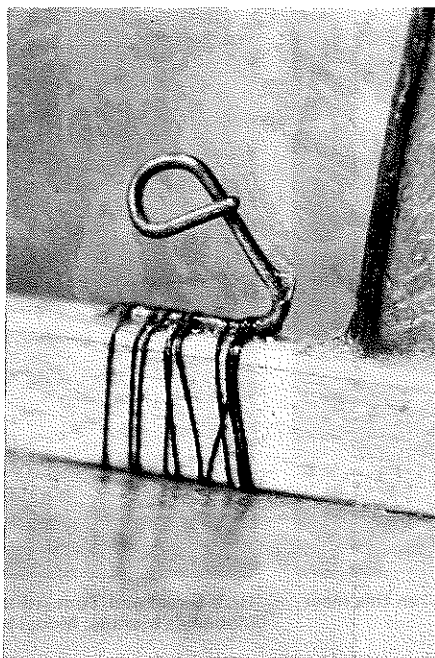
The only balsa wood called for on this model is the propeller. The prop is carved from a Langley-type blank cut from a block 1/2 x 1-3/16 x 10 inches. A Langley type blank is laid out by simply drawing two lines from corner to corner on the 1-3/16 face of the block, crossing them at the center. Drill the shaft hole at the center, and pencil in a pair of curved lines either side of it to outline a hub about 1/4 inch wide and 1 inch long. The block is now cut to this outline. Begin carving by doing the back of each blade. Next shape the outline of each blade similar to that shown on the front view of the plan. Now finish carving the blades to about 1/16 thickness. Balance and give the prop three coats of lacquer.

Form the prop shaft of .040 wire, insert it through the prop hangar, add a brass washer, glass bead, and another brass washer. Then push the prop on over the shaft, bend the shaft over 90 degrees about 1/4 inch from the end. Glue the shaft to the prop thoroughly. There was no free wheeling in use in those days, hence none on our model.

Time to engine up! Form an "S" hook of .040 wire. Slip a piece of plastic or rubber tubing over the end to receive the rubber, and the prop shaft hook as well. Make up a six-strand motor of 1/8 F.A.I. rubber thirty-three inches long. Lube it and string it in place. Old-timer, it is time to fly!

According to the book, "Flying High", the Lathrop weighed in at 1-1/8 ounces. I felt I had built mine pretty much in accord with the specs, yet it weighed 1-1/2 ounces. I guess modelers are like fishermen. The fisherman always makes his fish a little longer and heavier than it really is. The modeler tends to describe his model as lighter than the truth.

My model flies best with the wing positioned about 1/4 inch farther forward than the plans shows. It seems to be necessary to have the glide just a bit on the nose-heavy side to keep the bird from stalling

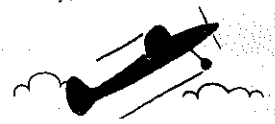


"S" hook will not walk or climb off this simple rear hook. Model is wound from the rear.

under power. Turn capacity is about 1,400, which is pretty good. I have not yet tried a longer motor, as the set-up described allows for a decent glide. A longer motor may bunch at the rear and destroy the glide.

Flight path is not consistent. She is a wanderer, but it seems not to affect duration. One bugaboo showed up in flight that you just have to live with. When the wind gets about 10 mph or better, the old bird develops wing flutter that takes her all the way down to terra firma! So, keep her in the hangar when it is kicking up outside.;

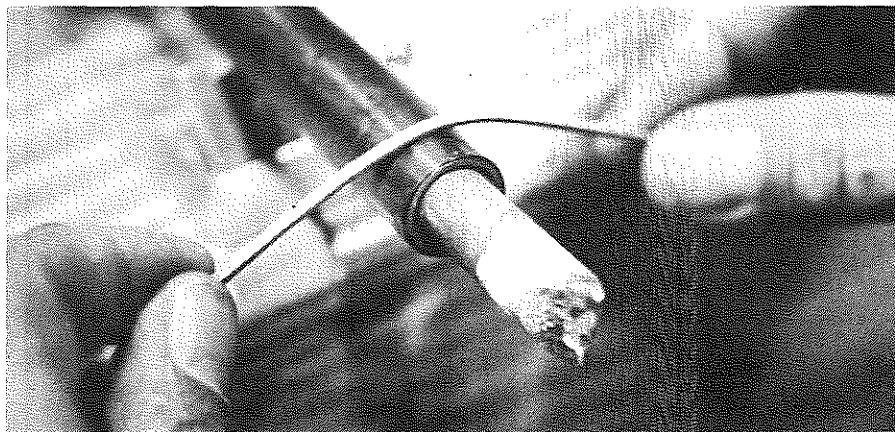
Does she perform? Well fellas, Donovan Lathrop set an official world's record for hand launched tractors in 1914 of 240 seconds, with this slender sky buggy, that stood for ten years! I haven't been as lucky with my replica, but she did win first place in rubber endurance in the 1977 SAM East Coast Champs. Maybe you ought to find out for yourself. The odors of hot bamboo and homemade glue are worth it in itself. Truly, the modeler's opium. ●



**MODEL
BUILDER**



The only balsa wood used in this ancient bird was for the prop.



Hot soldering iron is used to bend bamboo. Keep bamboo strip moving to prevent scorching. Proctor kits are about the only place you'll find bent bamboo in modern model construction.