

Building and Flying Model Airplanes

Making the Elevator and Assembling

This is the fourth of a series of articles by Paul Edward Garber, telling how to make model airplanes. Mr. Garber is in charge of Aeronautics at the Smithsonian Institution.

The construction of model airplane "S-S-1" is now complete except for the small wing or elevator. The elevator is made in the same manner as the wing which has previously been described.

The following material is necessary:

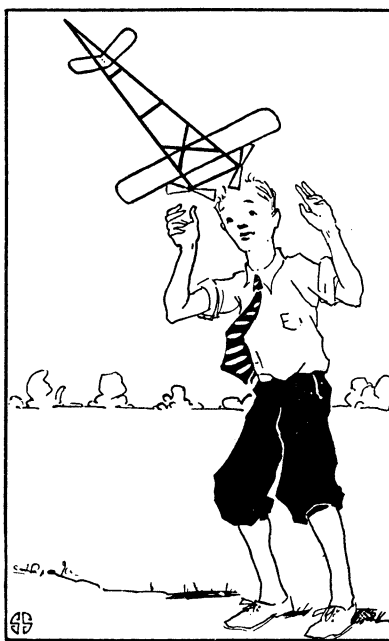
- 2 pine sticks, 8" x 1/8" x 1/16"
- 27 1/2" of No. 16 aluminum wire
- Remnant of silk or paper from yesterday
- Thread, needle and pins
- Glue and wing solution
- 3 rubber bands 3" long
- 1 block of pine wood 1 1/2" x 1/4" square

The same directions that were used for making the wing may be followed in making the elevator. But after the center of the sticks is found, bend each stick slightly upward. This bending is done by either heating the center above a candle flame and bending it as the wood fibres are felt to give, or by soaking these two sticks about half an hour in boiling water, after which they are placed in a form made by hammering nails into a piece of wood so as to make a "V" shaped fence against which the sticks are held by other nails. They should be left in this frame overnight to dry, after which they will permanently retain the angle.

The idea of having the elevator bent upward is to impart steadiness to the model's flight. This angle is known as "dihedral." The front view of the elevator shows the amount of dihedral necessary. It is such that the tips are one inch above level. The ribs are placed 1 3/4" apart. The methods of bracing and covering are the same as were used for the wing.

At the bottom of the drawing is shown a side view of the model when assembled. It will be observed that the wing is placed near the back, with the greatest curve of the wing toward the point of the model. The elevator is placed near the nose with the edge which is near the greatest curve resting on the small block of wood. The idea of this is to raise it to secure proper lift.

The wing and elevator are held in place with rubber bands. To use these for fastening the wing the rubber bands are placed under the



long sticks of the frame and the loops each side of the stick are held open above the stick while the wing is slipped underneath. It is carefully centered and lined up true. The elevator is fastened in a similar manner, but the rubber band is looped under the two sticks, as they are so close together near the point. The model is now ready to be flown.

Flying the Model

Model airplane "S-S-1" is now ready to fly.

If you have carried out carefully the directions given in the previous articles, you will find that the model is capable of flying at least 500 feet, probably more.

Select a large field for trying it out. The field should be free of trees or other obstructions, and should be level. Preferably the ground should be covered with long grass to cushion the landings. It is suggested that the wings be removed from the model while carrying it from your home to the field to prevent damage to it.

The winding of the model is somewhat of a long job, inasmuch as about 600 turns are to be stored in each set of rubbers, therefore if you have a geared hand drill make a hook with a straight shank, fit it in the drill chuck, and take this tool along with you to the field for winding. When you get to the field, get away from any bordering trees and prepare to fly the model with the

(Just turn the page)

Unique Mound Exhibit

A private museum of Indian remains in which the exhibits were arranged by the ancient mound builders themselves, is the unique possession of Don F. Dickson of Lewistown, Ill.

Some time ago Mr. Dickson began excavations on an Indian mound on his father's farm near here. He found a large number of skeletons, including several of infants, together with a great quantity of utensils, tools and weapons of stone, bone and pottery. Instead of removing his finds and placing them in glass cases, he left them exactly as they had been placed centuries ago by the Indians, removing the last traces of dirt with a teaspoon and a fine brush. He has erected a temporary shelter over his excavation, with a walk and a railing inside, so that visitors can inspect the evidences of an ancient American culture under conditions that are usually possible only to archaeologists.

One of the most tragically appealing burial groups consists of the skeletons of a man and a woman, lying very close together, with the bones of a baby between them. Around them are their implements and weapons, and the food-pots that contained provisions for the last long journey of the little family.

Prof. W. K. Moorehead of Phillips Academy, Andover, Mass., who has been conducting extensive mound explorations in southern Illinois, has inspected Mr. Dickson's work, and reports that he is much impressed with the discoveries. He is now endeavoring to raise funds for the investigation of similar mounds in the neighborhood, and possibly also to give the unique exhibit already prepared a permanent housing.

Prof. Moorehead states that the only thing of this kind elsewhere in the world is a housed-over excavation at Mentone, France, showing the culture of the Stone Age in Europe. Even this famous exhibit, however, does not match Mr. Dickson's in point of size, for it contains only eight burials, as against more than forty in the American mound.

Science News-Letter, August 27, 1927

The cardinal principle of science is that we know nothing until we can find it out. There is no authority that can give answers in advance to any question of fact.

—David Starr Jordan.

Science News-Letter, August 27, 1927