

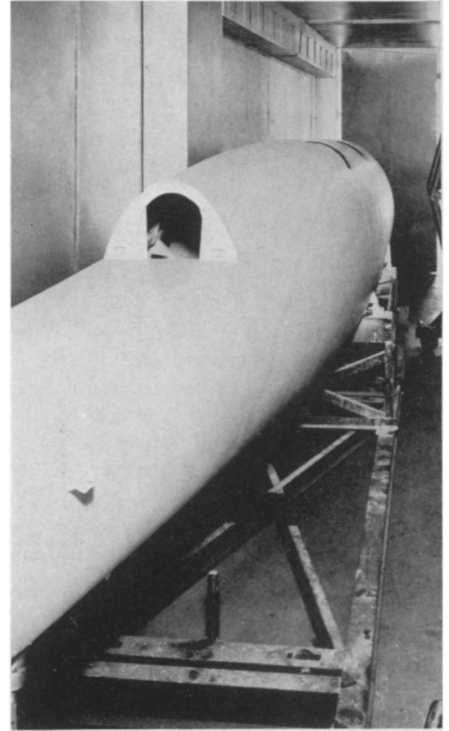
humidity, wind direction and velocity, rainfall and other meteorological factors.

A mechanical cousin to the high-flying radiosondes now extensively sent aloft by means of unmanned balloons for upper-air weather information, the new robot weather station is designed for stationary installations. It is actually simpler than the radiosonde type of weather observing machine.

By operating on a relatively low frequency, signals from the automatic

weather station can be received with any standard receiver. Even through severe static interference, it will only be necessary for the operator, with stopwatch, to listen in and count the number of signals received in a given time. These can be decoded into the values of the various weather factors automatically observed at the distant place. In some cases automatic recording receivers may be used.

Science News Letter, July 27, 1940



READY TO BAKE

A molded plastic airplane fuselage stands in a huge oven, ready to receive its treatment of strengthening heat.

AERONAUTICS

Model Plastic Airplanes Are Now Being Developed

Made of Plywood, Bonded With Synthetic Resin,
New Planes Are so Smooth That Speed Is Boosted

FOUR aircraft companies and two research laboratories are aggressively attacking the problem of molding airplanes out of plastics for American defense. (*Modern Plastics*, July)

Army, Navy and civil aviation authorities, and the airplane industry in general, are watching these experiments to determine the place of synthetic resins in the future of aircraft.

So far the use of resins has been limited to experimental models of training and light commercial planes, and the quantity production of minor airplane parts.

In airplane structures, such as wings and fuselage, the resins are used very much as glues were in the days of the first World War, with wood veneers used as the reinforcing agent. The molded airplanes are really of plywood resin-bonded construction. Unlike the early glued plywood airplanes, the resin-bonded modern craft are said to be stable and unwarped under all atmospheric conditions, free from internal strains and proof against molds, fungi, water, oil and gasoline.

A five-place Fairchild Model 46, with molded fuselage and wood wings with resin-bonded plywood covering, was first flown three years ago and is today in active service. The Fairchild-owned Dura-mold Aircraft Corporation has a new molding process that uses a rubber bag as one half of the form. The other non-flexible half is made of sheet steel, cast metal or wood. The advantage of this method is that the flexible die assures equal pressure over all surfaces whether curved or not, which is not possible with conventional hydraulic or mechanical

presses. Fairchild PT 19 training ships now in quantity production use plastic plywood spars which are said to be less costly and stronger than solid spruce.

The Summit plane, now undergoing government tests, was molded by Aircraft Research Corporation of Bendix, N. J., and is believed to be the first completely molded airplane body in the world. Wings, fuselage, tail assembly and controls were molded as complete structures. It is claimed that whereas a commercial plane with a 75 horsepower motor will cruise at 95 miles per hour, the Summit plane similarly powered will cruise at 125 miles per hour because all surfaces are smoother. The Vidal process used employs thermosetting and thermo-plastic types of resins for bonding plywood veneer. The same manufacturing methods are being used to make boats, skis, racquets, and automobile parts.

Its first plastic-plywood airplane, a primary trainer, was flown recently by the Timm Aircraft Co. of Van Nuys, Calif. In properly contoured forms, spruce veneers are superimposed one upon another, using a thermosetting phenolic resin applied on each layer during assembling.

A fellowship on plastic airplane construction has been established at the Mellon Institute, Pittsburgh, by the Glenn L. Martin Co., looking toward the mass production of airplanes from plastics instead of by the slower riveting and welding of metals.

In the plastics section of the National Bureau of Standards there is a research group working on a National Advisory

Committee for Aeronautics project to develop factual information on the physical properties of reinforced plastics. Eighteen synthetic resins for impregnating and bonding wood veneers have already been tested.

In dozens of minor ways plastics are entering into aircraft. Instruments have phenol-formaldehyde housing. Windows in transport and military planes are made of acrylic resin sheets. Propellers are made from wood laminated with plastic. Coatings are made of synthetic resins.

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The African sausage tree, planted for ornamental purposes in Florida and California, has long, sausage-like fruits weighing about 15 pounds.

● RADIO

Dr. Edward E. Wildman, consultant in charge of the tree ring study for amateurs being undertaken by the American Philosophical Society's Committee on Education and Participation in Science, in the Philadelphia area, will be guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, Aug. 1. 4:00 p.m., EDST, 3:00 EST, 2:00 CST, 1:00 MST, 12:00 PST.

Listen in on your local station. Listen in each Thursday.