

CHEMISTRY

Plastics in Defense

**Pilots and Gunners Look Out Windows of Synthetics;
Even Fuselage Uses Synthetic Resins; Industrial Uses**

By WATSON DAVIS

PLASTICS are helping to make America strong in the air.

Essential parts of our airplanes are being made of these newer synthetic materials—fuselages, gun-turrets, observation “blisters,” shatter-proof windows, radio masts, fluorescent plastic instrument boards to aid night flying.

The all-plastic airplane is not yet here as far as first-line fighting and bombing

planes are concerned—it may never be. But synthetic resins of various sorts are taking the place of scarce metals, releasing them for more essential defense tasks and incidentally, often doing a better job.

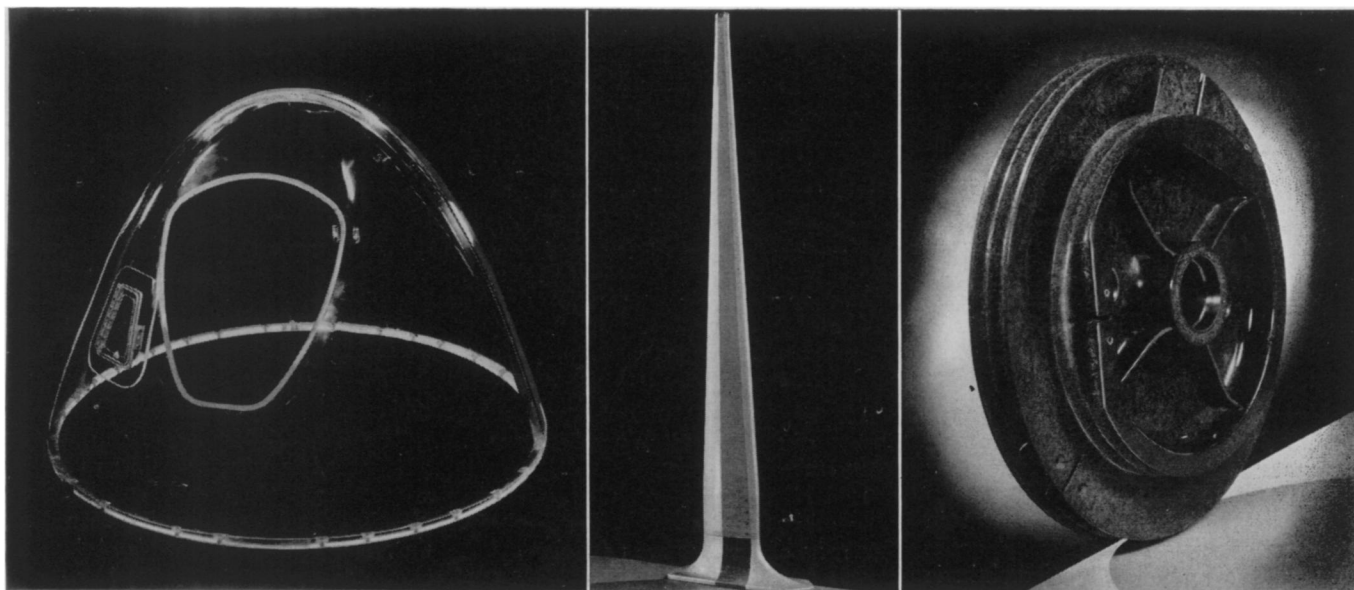
The rise of plastics to a major defense and industrial material is shown by the prize awards of the sixth annual modern plastics competition now being exhibited in the Department of Commerce building in Washington. Application of plas-

tics to military airplanes and to products of essential defense industries ran away with the show this year.

“The plastics industry is engaged in the gigantic task of closing the ranks

CLEAR VISION

At the top of the page is shown the Glenn L. Martin bomber. Its gun turret of transparent Plexiglass is shown here at the left. In the center is a radio mast tapering and streamlined. At the right is an aileron control pulley. On this wheel depends the safety of airplane and crew, for on it are wound the cables that control the handling of the plane.



of major material shortages in defense and major industrial civilian requirements," said Charles A. Breskin, publisher of *Modern Plastics*, in announcing the results of the competition. "Today plastic things have ceased to be mere novelties. They are doing an essential job in these critical days."

In two bombers in quantity production, pilots and gunners look out through large areas of transparent synthetic plastics, shaped to be a part of the airplane structure.

Plywood Studded by Windows

In another bomber the nose section of the fuselage is made not of the conventional aluminum but of plastic plywood, studded by transparent plastic windows. In addition to releasing aluminum, the laminated mahogany veneers bonded with plastic save 15 per cent. in weight with no sacrifice in strength and the rivetless surface through its smoothness results in increased speed. Mass production is speedier and cheaper.

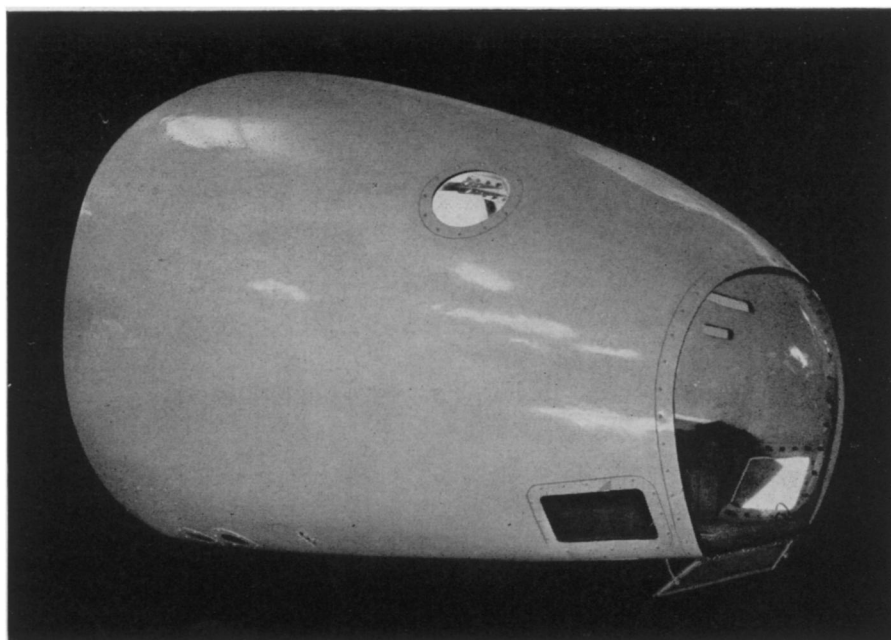
Many small but essential parts of airplanes, once made of metal, are now molded out of plastics. Radio masts, ventilators, and vital control aileron pulleys are some of these parts. In these there is not only a saving in weight and cost, but a gain in time of production because the plastic parts can be molded ready finished without any time-taking machine work.

Inside the plane, plastics provide the instrument panel, housings for the instruments and luminous dials for them and innumerable handles, knobs and switches. Panels that glow in ultraviolet or "black" light allow the pilot to see but are invisible to the enemy. Tanks made self-sealing by plastics hold the gasoline. Even the clothes, helmets and gloves of the aviators are composed in part of plastics and plastic textiles.

In Factory, Office, Home

In factories, offices, homes, and automobiles, plastics are replacing needed metals in furniture and equipment, telephones, cash registers, calculating and accounting machines, furniture, lighting fixtures, lamp shades and reflectors, radio and musical instruments, packaging, scientific instruments, games, toys, door-knobs, light switches and innumerable other small articles.

Plastics have come to the rescue of household apparatus the production of which has been imperiled by the metal shortage. Plastics are used for refrigerators, shower stalls, washing machines,



PLASTIC PLYWOOD

This nose section of a bomber is composed of a new material, plastic plywood.

fruit juicers, knives, vacuum cleaners, fabrics, window blinds, and textiles.

New upholstery fabrics made of plastics are soon to be used in subways, buses and theaters.

For black-outs, if they ever become necessary for America, plastics can provide soft, safe glowing light. Fluorescent materials placed in the transparent plastics will cause them to radiate mild light under the influence of invisible ultraviolet illumination.

The defense effort does not have as much of the plastics as it would like. There are few surpluses anywhere these

days because of the augmented defense production.

There are shortages of some of the plastics and some plants have difficulty in getting supplies for civilian use. Some of the chemicals used in plastic manufacture, such as formaldehyde, are short because they are made from chemicals that enter into munitions.

Plastics production is relatively not large. But the industry is growing fast and increasing military uses are paving the way toward widespread use of plastics when priorities are no longer needed.

Science News Letter, November 15, 1941

CHEMISTRY

New Process For Deodorizing Gasoline Lifts its Octane

Already in Commercial Stage, New Process Dissolves Mercaptans Instead of Merely "Sweetening" Them

A NEW method of purifying gasoline that not only removes its obnoxious odor but also lifts its octane number, thus requiring less tetraethyl lead for that purpose, was described by C. F. Mason, R. D. Bent and J. H. McCullough of The Atlantic Refining Co., Philadelphia, in a paper presented before the meeting of the American

Petroleum Institute in San Francisco.

The process is already in the commercial stage and several plants are preparing to use it.

The unpleasant odor of gasoline is due to certain sulfur compounds called mercaptans. They are the same that give to the skunk its unsociable aroma.

A process of "sweetening" gasoline