

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

has been used for many years. It is effective but expensive. It converts the mercaptans to odorless sulfur compounds which, however, remain in the gasoline and act as "poisons" that reduce the effectiveness of tetraethyl lead in raising its octane rating.

The new process removes the mercaptans from the gasoline—takes them away entirely—by dissolving them out. The gasoline thus has already higher anti-

knock qualities than untreated or "sweetened" gasoline and requires less ethyl to raise it to the desired standard.

The solvent contains caustic soda, commonly used to clean drain pipes, and methanol, an alcohol much used as an anti-freeze in automobile radiators. After use, the solvent is itself purified and can be used over and over again.

Science News Letter, November 15, 1941

need to, and many people still suffer attacks of pneumonia which might be prevented.

"Further reduction in pneumonia mortality is attainable and worth fighting for," the statisticians conclude from their studies.

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recent series is under 5%, less than half that of the earlier series.

The great danger in appendicitis when the appendix ruptures is that of peritonitis from germs which escape from the appendix. Sulfathiazole helps the body to fight this germ attack as it helps fight such germ attacks as pneumonia.

Science News Letter, November 15, 1941

MEDICINE

Vitamin K May Help Control Hemorrhage in Tuberculosis

Vitamin Relieves Prothrombin Deficiency, Found in About a Half of Patients Proportional to Sickness

THE anti-bleeding vitamin K may help to check hemorrhage in patients with tuberculosis of the lungs, Dr. R. F. Sheely, of the White Haven, Pa., Sanatorium, reports (*Journal, American Medical Association*, Nov. 8).

In four patients given doses of this vitamin after they had had hemorrhage, the bleeding was checked fairly quickly, judging by the fact that within a day or two after the vitamin treatment the sputum was no longer streaked with blood.

Vitamin K acts to check bleeding by stimulating production of prothrombin, a substance necessary for the normal

clotting of blood that is shed. A significant deficiency of prothrombin was found in 51 of 106 patients with active and chronic pulmonary tuberculosis, Dr. Sheely reports. The sicker the patient, the greater was the prothrombin deficiency. Dr. Sheely believes that the prothrombin deficiency in tuberculous patients can be relieved by injections of vitamin K. This would also increase the tendency to clotting of the blood, which would help to control spontaneous hemorrhage and would also help to prevent hemorrhage if surgical operations needed to be performed on the patients.

Science News Letter, November 15, 1941

Iodine Without Thyroid

UPSETTING previous ideas of how the body uses iodine, a chemical known to be essential to health, Dr. Asher S. Chapman, of the Mayo Clinic, has discovered that the body can use this element even when the thyroid gland has been removed.

Thyroxine, the powerful hormone produced by the thyroid gland, contains iodine and it has generally been thought that the effects of iodine on the body and the body's need for it were determined by this gland.

Animals whose thyroid glands had been removed, Dr. Chapman found, lost more weight, utilized their food more poorly, drank more water and had a significantly lower basal metabolic rate when kept on diets very low in iodine than when given adequate iodine.

The body, it appears, from these studies, not only can use iodine when there is no thyroid gland to turn it into thyroxine for stimulating various body processes but may even make a compound like thyroxine in tissues other than the thyroid gland.

Science News Letter, November 15, 1941

PUBLIC HEALTH

Pneumonia Mortality Declined During Influenza Epidemic

A DECLINE in pneumonia deaths during an influenza epidemic occurred, for the first time on record, during the winter of 1940-1941, statisticians of the Metropolitan Life Insurance Company announce.

A minimum figure for pneumonia deaths below which further sizable reduction is unlikely is being approached, their studies indicate.

Fatal pneumonia cases are now concentrated in young children and comparatively old people. Many of the deaths, about one-fourth in the opinion of attending physicians, were due to

complicating diseases with pneumonia.

Sulfa drug treatment seems to have largely replaced serum treatment, the study showed. Sulfathiazole was the favorite drug last winter, but sulfadiazine is likely to be used far more widely this coming season. Bacteriological studies to determine the germ responsible for the pneumonia in each case seem to have been largely abandoned in urban centers.

Delay in calling doctors was frequent in the fatal cases of pneumonia. Even among older people with chronic disease more are dying of pneumonia than

● RADIO

Thursday, November 20, 3:45 p.m., EST

On "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Morton C. Kahn, of Cornell University Medical College, will discuss the prevention of tuberculosis.

Listen in each Thursday.

Monday, November 24, 9:30 p.m., EST

Science Clubs of America programs over WRUL, Boston, on 6.04 and 11.73 megacycles.

One in a series of regular periods over this short wave station to serve science clubs, particularly in high schools, throughout the Americas. Have your science group listen in at this time.