

AERONAUTICS

New German Plane Called "World's Oddest Airplane"

"WORLD'S oddest airplane." That is the mild British judgment on the weird design of a new German Blohm and Voss plane just coming into service with the Luftwaffe.

Although powered with only one engine, the plane has two nacelles. One holds the engine; the other—much shorter—looks like a sight-seeing side car, and is provided merely to insure a better view. To balance the one-sided craft, only half a tail plane is used.

For armament, this two-seated contraption has fixed guns in the nose and a cone turret in the tail. It will fly 220 miles per hour at 17,000 feet. Length is 49 feet; wing span 66 feet. The unusual design was the work of Dr. Richard Vogt.

Details and silhouettes of the plane were brought out of Germany and published in the British aviation journal, *The Aeroplane*, in a recent issue which has just reached here. Other new types for which detailed descriptions were made available include a new six-engine Blohm and Voss long-range transport plane and a new Messerschmitt two-seat long-range fighter-bomber that will carry 4,000 pounds of bombs.

Science News Letter, June 20, 1942

CHEMISTRY

Sugar Made from Sorghum By New Patented Method

A METHOD of getting as much sugar from sorghum as from average Louisiana cane, with valuable by-products as well, is the invention of Emil K. Ventre, of Baton Rouge, La., and Howard S. Paine of Chevy Chase, Md., for which U. S. patent 2,280,085 has been awarded. The inventors, both U. S. Department of Agriculture chemists, have assigned their rights to Claude R. Wickard, Secretary of Agriculture, without payment of royalties to themselves.

Syrup and a sweet silage has been obtained from sorghum for years, but the sugar contained could not be efficiently and economically crystallized out by the usual methods of boiling in a vacuum pan and then centrifuging, because of the formation of "gums."

These gums, the inventors found, were composed principally of starch and alkaline earth salts, the latter principally

calcium, with some magnesium. They made the syrup too viscous when boiled down. The inventors' process removes these impurities and recovers starch and calcium and aconitic acid as valuable byproducts. The syrup can then be easily reduced to sugar by the usual processes.

From a good quality of sorgho cane they obtained yields of raw and refined sugar equivalent to those from Louisiana sugar cane of similar quality. Each ton of sorghum gave 3.5 pounds of calcium aconitate, and 2.3 pounds of aconitic acid.

Sugar cane requires two years to mature and needs therefore a climate free from killing frosts in the winter. Sorghum, on the other hand, can be planted in the spring and harvested in the autumn. It grows over large sections of the country and does well in the dry areas. It could be used to replenish our sugar supplies.

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ENGINEERING

For Welding of Airplanes Special Technics Required

ARC WELDING of thin metal airplane parts is a delicate job requiring a technic quite different from that which applies to heavier parts, E. W. P. Smith, consulting engineer of the Lincoln Electric Co., of Cleveland, told the American Society of Mechanical Engineers aviation meeting in that city.

The electrodes must be smaller, current and voltage must be closely controlled and operators must be experienced in the work. Above all, there must be a thorough understanding of the properties of the metals employed and special adaptation in each case of the welding methods to the particular metal used.

The problem is complicated, Mr. Smith said, by the fact that the welded parts will be severely stressed, and the heat of the weld must not reduce the strength of the material nor interfere with the proper distribution of the load.

Much progress has been made in the art of welding metal sheeting and tubing as thin as 1/32 inch.

Two pieces of chromium-molybdenum steel can now be joined by a weld having a tensile strength after heat treatment of 125,000 to 160,000 pounds per square inch, which compares with the 200,000 pounds tensile strength of the original metal. Proper heat treatment nearly doubles the tensile strength of both the metal and the weld, Mr. Smith said.

Science News Letter, June 20, 1942

IN SCIENCE

AERONAUTICS

Movie in Chinese Made By U. S. Army

A MOVIE that talks in Chinese with a Jap fighter plane for villain is the U. S. Army's latest aid to battling Chinese troops.

It is a training film made to help the Chinese to distinguish friendly American and British aircraft from enemy planes. Chinese Embassy officials worked with the Army Signal Corps Photographic Laboratory in making the film.

Armies of the other American republics are also using U. S. Army training films with the dialogs in their own language, either Spanish or Portuguese.

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MEDICINE

B Vitamin Relieves Bad Headache Attacks

SUFFERERS from the devastating headache attacks of migraine, as well as those who have the dizzy spells, ringing in the ears and deafness of Meniere's disease, can be relieved of their troubles by doses of the pellagra-preventing B vitamin, nicotinic acid, Dr. Miles Atkinson of New York reported to the American Medical Association meeting in Atlantic City.

The nicotinic acid treatment works not because these people are suffering from hidden hunger for the vitamin but because most of them owe their trouble to constriction of blood vessels and nicotinic acid dilates blood vessels.

Meniere's disease, hitherto curable only by a nerve-cutting operation, and migraine, for which many remedies have been tried without universal success for any, are identical diseases so far as their cause is concerned, Dr. Atkinson declared.

The only difference, he believes, is that in Meniere's disease the spasmodic blood vessel contraction affects the labyrinth of the ear while in migraine the occipital lobe of the brain is affected. Many patients have migraine in their youth but as they get older the migraine turns into Meniere's disease, Dr. Atkinson said.

Science News Letter, June 20, 1942

E FIELDS

PUBLIC HEALTH

TNT Is Found Toxic to Munition Plant Workers

TNT and the complex chemicals used in munitions may do damage in the peaceful factories where they are manufactured as well as when dropped or shot at the enemy.

The U. S. Public Health Service in a special bulletin, "The Aromatic Amino and Nitro Compounds, Their Toxicity and Potential Dangers," by W. F. Von Oettingen, tells what happens to the munitions worker who inhales these chemicals, absorbs them through his skin, or otherwise gets them into his system, and how he can be protected from such danger.

TNT is only one of a long list of those chemicals which start with aniline, famous dye chemical, and includes some well-known headache powders and anti-fever medicines.

Science News Letter, June 20, 1942

MEDICINE

All-Time Record Set By Royal American "Fat Lady"

THE FATTEST Fat Lady of all time was probably Mrs. Ruth G. Pontico, star of the Royal American traveling show, who died recently following surgical removal of a "fatty tumor" from her left thigh.

Credit for setting the out-size record of all time, horizontally speaking, was given Mrs. Pontico in a comparative anthropometric study by David P. Willoughby, of the California Institute of Technology, Pasadena (*Human Biology*).

Mrs. Pontico apparently did more with her height, 5 feet 5½ inches, than anyone else has ever achieved, tipping the scales at 800 pounds net. While there have been bigger people in the world, notably Miles Darden, the North Carolina giant who died in 1857 weighing a little over 1,000 pounds, Mr. Willoughby's index for height vs. weight gives Mrs. Pontico the championship.

The fattest Fat Lady "owed it all to the little woman," her mother, who

reached the 720-pound mark herself, while her father was a skinny fellow of six feet who weighed a mere 250.

Mrs. Pontico weighed 16 pounds at birth, which was no mean size for an infant, and as a toddler of a year old she was tipping the scales at 50 pounds.

You may think she had to eat a great deal to keep her strength up, but Mr. Willoughby explains that her actual intake was only about half again the normal amount. This, in proportion to her weight, is only a third as much as the average person eats. But of course, in her case, "everything she ate turned to fat."

In view of the new emotional and psychological theories of obesity, natural competition with her mother, also a professional fat lady, may have played some role. However, considering her birth weight, heredity certainly gave Mrs. Pontico a head start.

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MEDICINE

Babies Treated With 5-Day Syphilis Method

"VERY encouraging" results in treating babies born with syphilis by the intensive 5-day method now used successfully in grown-up syphilis patients were reported to the American Medical Association meeting in Atlantic City by Dr. I. Michael Levin, Dr. Samuel J. Hoffman, Dr. David S. Koransky, Dr. Irving B. Richter and Dr. Bernard Gumbiner, of Chicago.

The treatment, consisting of massive doses of an arsenic preparation, mapharsen, injected directly into the veins, was given to 36 babies and children, 12 of them less than ten weeks old. No deaths and no serious reaction to the poisonous effect of arsenic occurred. Blood tests showed that the four children with early syphilis were cured, or at least had negative instead of positive blood tests, within four to eight months. Blood tests became negative in seven of the 32 babies born with syphilis and possibly negative in another five.

Congenital syphilis produces widespread changes throughout the body and is more resistant to treatment than acquired syphilis, the Chicago doctors pointed out. Before babies are given this strenuous treatment they must show that they can take food and get along all right. The treatment should not be adopted for general use in syphilitic babies, the doctors cautioned, until it has been studied further.

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PUBLIC HEALTH

Respiratory Diseases May Spread Through the Air

THE CURRENT and revolutionary theory that colds, influenza and other respiratory diseases, which cause the most illness in any age group, may be spread through the air, rather than by direct contact with the infected person, is supported by detailed evidence in the current *Journal of the American Medical Association* (Feb. 28).

Three distinct lines of investigation are reported by Dr. Leon Buchbinder of the DeLamar Institute of Public Health of the Columbia University College of Physicians and Surgeons. These are the discovery of germs from the throat and mouth of humans in their indoor environment, means of identifying individual strains of streptococci bacilli, and development of several effective means to control respiratory infections on the theory that they are air-borne rather than spread by direct contact.

Most interesting perhaps are the means of control. There is suggestive evidence, Dr. Buchbinder reports, that the spread of contagious infections in children's hospitals and in operating rooms can be reduced by ultraviolet light. Similar results, though less supported by evidence, are obtained with chemical sprays.

Some time ago the contact theory seemed verified by the success of the so-called barrier method of nursing in contagious disease hospitals. However, the method did not entirely prevent spread of disease from bed to bed or ward to ward. Current success with ultraviolet light and spraying the air with chemicals seems now to indicate that disease organisms may be carried for some distance through the air without losing their vigor, and may perhaps be halted by the light or spray.

There have been several reports, Dr. Buchbinder points out, that the spread of chickenpox in institutions is slowed by ultraviolet light.

The air-borne theory of contagious disease is particularly interesting at present, he continues, because of the congregation of soldiers in Army camps.

One of the chemical "mists" used to halt air-borne infections is propylene glycol. Some researchers have found that a one part to two million dilution of propylene glycol vapor will completely protect mice against dilutions of influenza virus, usually fatal.

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