

## MEDICINE

# Tooth Decay Vaccine

Preparation made from living, dead and a combination of both living and dead lactobacilli is being tried to build resistance to caries.

► A VACCINE against tooth decay is being tested at the Army Medical Center in Washington, D. C. The vaccine is made from lactobacilli, the kind of germs believed responsible for decay, Capt. Ned Williams, formerly of Dayton, Ohio, explained at a press conference at the center's dental laboratories.

Both living and dead germs and a combination of the two are being tried in the hope of building up resistance to the germs. After guinea pig tests showed that the vaccine was not irritating, 14 enlisted men as well as Capt. Williams volunteered to serve as human guinea pigs for further tests of the vaccine. Results will not be known for some time.

Use of chrome cobalt alloy and a new material, methal-methacalat, as substitutes respectively for gold and for vulcanized rubber in making soldiers' false teeth, was announced by Major Robert M. Appleman, director of the central dental laboratory at the Army Dental School.

The new metal alloy does not tarnish in the mouth and is made to resist strain. It is used for the plates into which the false teeth are set. Some 30 to 40 a month are made at the Army Dental School. Since the Army dental standards have been revised to take in completely toothless men, the business of making plates and false teeth is booming. The dental school with a staff of 47 technicians made 2,150 plates last month, most of them with the methal-methacalat base instead of vulcanite.

Besides supplying full and partial sets of false teeth the Army supplies single teeth when necessary. All are supplied

to order and specifications from the dental officers in the field. A stock of 70,000 individual teeth of different colors, and shapes and sizes is kept at the center. All the metal alloy plates for the Army in the eastern half of the United States and the Atlantic bases are made there, those for the western half of the country and the Pacific bases being made at the dental center at Fort Sam Houston. The more frequently used plates, with methal-methacalat base, however, and the teeth for them are supplied from the center in Washington for only the three eastern service commands.

*Science News Letter, April 24, 1943*

## GENERAL SCIENCE

## Franklin Medals Awarded To Urey and Pierce

► THE COVETED Franklin Medals and Certificates of Honorary Membership to the Franklin Institute were presented on Medal day, April 21, to two American scientists.

Dr. Harold C. Urey, Nobelist and professor of chemistry at Columbia University, is being honored for his discovery and production of heavy hydrogen which has proved of immense importance in furthering research in chemistry, physics, and biology.

Dr. George Washington Pierce, the other recipient of the Franklin Medal, is best known for his development of "electrically squeezed" quartz crystals used to narrow the range of radio frequencies. The use of this principle in obtaining accurate oscillations has facilitated the construction of the most precise electric clocks.

The Elliott Cresson Medal of the Franklin Institute was awarded to Prof. Charles M. Allen of Worcester Polytechnic Institute. His contribution to the field of hydraulics is a more rapid method of measuring the flow of water by adding a known amount of salt to the water and noting the time required for it to pass electrodes inserted in the pipe lines downstream.

A native of Lima, Dr. Don Francisco Ballen, received one of the Howard A. Potts medals for restoring a valuable

natural resource of his country to productivity.

The other Potts medal went to Dr. Paul R. Heyl of the National Bureau of Standards for his theoretically important formula to determine the constant of gravitation.

The Frank P. Brown Medal for achievements in building and allied industries was awarded posthumously to Albert Kahn, Detroit architect.

A joint award of the Edward Longstreth Medals was made, one each to Robert Griffin De La Mater and William Schwemlein. Their design and successful application of a fluid brake has made practical the drilling of wells to great depths with increased safety to life and property.

Robert Howland Leach of Fairfield, Conn., received a John Price Wetherill Medal. Harry Miller Pflager, senior vice president of the General Steel Castings Company, was granted the George R. Henderson Medal. A certificate of Merit was awarded to Carl S. Hornberger.

The 1943 Louis Edward Levy Medal for the best paper published in the Journal of the Franklin Institute during 1942 was presented to Anders Henrik Bull of Forest Hills, N. Y., for his paper, "Soil Pressure Distribution along Flexible Foundations."

*Science News Letter, April 24, 1943*

## ENGINEERING

## Resistance Welding Used For Welding of Aluminum

► ENERGY storage resistance welding has been extensively developed as an improved tool for the welding of aluminum, H. L. Palmer of the General Electric Company told the American Institute of Electrical Engineers meeting in Pittsfield, Massachusetts.

Resistance welding and arc welding have replaced much of the former fabrication of metals by the use of rivets.

"Some operating figures indicate that a spot weld costs one-tenth as much as a rivet," the speaker stated. "This means a saving in labor, material and time—all important factors in the war of production."

In arc welding a filler called a welding rod or electrode is melted into the space between the two pieces of metal being fused and joined. Resistance welding has been described as a "heat and squeeze process." The parts to be welded are heated to a fusion temperature and mechanically pressed together.

New problems have developed in re-

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sistance welding because many new and special alloys have been brought into common use and because welding must be done by comparatively unskilled men and women.

"Conventional alternating current resistance welding control has been expanded to meet the exacting requirements of welding the many new alloys made available for war use," Mr. Pal-

mer said. "A current regulator has been developed that will maintain constant current. Special sequence controls are available to meet any cycle of power applications found necessary to weld and heat treat the material to be fabricated."

*Science News Letter, April 24, 1943*

*Sugar beets* produced about one-fourth of the sugar used in the United States before the war.

## CHEMISTRY

## Gas Attacks Expected

If Hitler's bombers make raids on American cities, they can be counted on to drop poison gases in bombs or sprays, official declares.

► **HITLER'S BOMBERS**, if they make their expected raids on American cities, can be counted on to drop poison gases in bombs or sprays, Col. A. Gibson of the Chemical Warfare Service declared in Detroit.

Col. Gibson, who is chief of the inspection section, Office of Civilian Defense, took part in a special symposium on civilian preparedness at the meeting of the American Chemical Society.

Gas will be used in raids on civilian populations whenever Axis war planners think it will be advantageous to them to do so, the Colonel asserted, and he added that a gas attack on an industrial area is capable of doing us a good deal of mischief because of the necessity to stop work in all places affected until they have been thoroughly decontaminated.

He disagreed with the widely accepted doctrine that civilians can avoid danger during a gas attack by going to the second story or higher and closing all windows tightly. Shutting the windows will do no good, he pointed out, because the enemy can be counted on to drop high explosive bombs along with the gas, and these will shatter the windows.

Neither can the heavy poison gases be expected to settle to the ground at once, Col. Gibson added. In chemical warfare demonstrations over New York City, in which harmless white smoke was used, the fumes piled up as high as the tallest skyscrapers; and at least some concentration of poison gases could be expected to do the same kind of thing.

In Germany, where civilians also expect to be gassed, basement air raid shelters are given gas protection, so that the same refuge can be used in

either high-explosive or gas bombardment or (what is much more likely eventually to happen) in a mixture of both.

*Science News Letter, April 24, 1943*

### Panic Is Feared

► **PANIC IS FEARED** even more than poison gas by those charged with the defense of the civil population against possible chemical attacks, Prof. Chauncey D. Leake of the University of Texas stated. People do not know about war gases, and they are afraid of them; but "Tell the people the truth about war gases and they will probably respect them more and fear them less," he said.

Some fumes that arise in certain types of fires may be mistaken for poison gases spread by the enemy, Prof. Leake pointed out, and this can give rise to reports of chemical attacks that have not actually taken place.

*Science News Letter, April 24, 1943*

## AERONAUTICS

### Mass Production of Wood Planes Means Good Glues

► **EFFORTS** to turn out wood aircraft in mass-production quantities and at the same time take full advantage of recent developments in glues, design and fabrication techniques, are problems facing the manufacturers of wood airplanes. These were discussed by Ivar C. Peterson at the National Aeronautical meeting of the Society of Automotive Engineers in New York. Mr. Peterson, an aeronautical engineer, is with the U. S. Civil Aeronautics Administration in Washington.

"Fabrication is intimately related to gluing operations and until the aircraft manufacturers solve their gluing problems they will always have fabrication problems," declared Mr. Peterson. Most glue manufacturers supply users of their products with general instructions on gluing temperatures, pressures, and assembly periods which the aircraft manufacturers are advised to follow. Supplementary instructions were given by the speaker.

Above-normal temperatures have been recommended to reduce the period required for pressing for cold-press glues.

*Science News Letter, April 24, 1943*

## PHYSIOLOGY

### High Blood Pressure After 40 Not Abnormal

► **SLIGHT** and moderate degrees of high blood pressure, as represented by readings around 150 systolic and 90 diastolic, in persons 40 years old and older are not abnormal. Probably half the population over 40 has such blood pressure readings.

These opinions, based on careful studies of 14,849 persons over age 40 from all walks of life, are reported by Commander A. M. Master, U.S.N.R., and H. H. Marks, of the Naval Medical School at Bethesda, Md. and Capt. Simon Dack, M.C., A.U.S. (*Journal, American Medical Association, April 17*). Part of the work was done at Mount Sinai Hospital, New York, and the Metropolitan Life Insurance Company before the scientists entered the services.

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