

ENGINEERING

Jets Blast Well Casings

Bazooka principle is being successfully used in a new method of perforating oil well casings. Greatly increased flow is claimed.

► THE WAR-FAMED BAZOOKA, which enabled a single man to pierce enemy armor-coated fighting tanks or to destroy concrete structures with a blast or two from a hand-carried weapon, is now in use in increasing the flow of petroleum into deep, partly exhausted oil wells where the pumps can capture it.

It is a modified bazooka, of course. When lowered within the casing of the well and detonated it shoots jets through the casing walls and deep into the surrounding formation. It is designed to replace the bullet-shooting device, long used, which makes openings through which the oil can flow.

This new method of perforating oil well casings was developed in Fort Worth, Texas, by Welex Jet Services, Inc., and although less than a year old has already successfully been used on 150 wells, some low-producing new wells and others which had reached the stripper-well status. Greatly increased flow is claimed for every application.

Unlike a bullet, which is a metal projectile propelled by expanding gases, the Welex jet is a high-velocity, directionally controlled penetration force which derives

its tremendous energy from the electronic detonation of a special powder. With a velocity of some 25,000 feet per second, every jet shot penetrates the casing pipe in the well and far back through surrounding cement and formation. It is said to be far more effective than the bullet method.

The success of the bazooka rocket, which proved far more effective than bullets as armor-piercing tank destroyers, and the success of the Welex Jet as well, depends upon the detonation of so-called "shaped charges." It goes back to what physicists know as the "Munroe effect" which was announced to the world in 1888 by Prof. Charles E. Munroe.

He found that if a hollow is made in an explosive cartridge on the side toward the object to be blasted, the effect is greatly increased. The hole can be a conical cavity or hemispherical in shape. The principle is already in use in certain types of mining operations. Its first use in war was probably in the bazooka rocket which made it possible for one man to blast his way successfully through thick concrete with an explosive that he could carry in his two hands.

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GIANT TURBINE GENERATOR
—Two 15-foot sections of the frame of a 150,000 kilowatt generator are shown being welded in General Electric's turbine shop in Schenectady. It will weigh more than 400,000 pounds, including core and windings, and will furnish enough power to light a city of 450,000 people.

Winheim of St. Louis, vice-president of International Leather Chemicals, Inc. and Dr. Edward Doherty of Buford, Ga., technical director of Bona Allen, Inc., produces leather comparable to those from good vegetable tannage at a cheaper cost. It also makes possible greater versatility by giving the leather a wide range of characteristics.

With the wiping out of the chestnut trees, America's former greatest domestic source of tannins, much research has been undertaken to find chemical tannage for heavy leathers. Fine leathers can be made with synthetic agents, called syntans, but these compounds have not been accepted for heavy leathers.

In the new process, the prepared hide is first treated with a compound of the dialdehyde type, such as glyoxal, and then with resin-forming agents, such as urea or phenol (carbolic acid), or with combinations of these substances and formaldehyde.

Controlled acid treatment with formaldehyde yields leather of high quality. The rigidity which might result from the process is prevented by the addition of a blocking agent. Versatility in the characteristics of the leather is obtained through variation in the resin-forming compounds or the blocking agent.

Details of the Winheim-Doherty process were described in *Industrial and Engineering Chemistry* (August), a publication of the American Chemical Society.

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PUBLIC HEALTH

WHO Plans Its Program

► PEOPLES of the eastern Mediterranean region and east Asia will be the first to be helped to better health by the World Health Organization.

This was revealed by Dr. Thomas Parran, U. S. Public Health Service, and Dr. Martha Eliot, U. S. Children's Bureau, on their return from the first World Health Assembly held in Geneva, Switzerland, in July. Drs. Parran and Eliot were two of the U. S. delegation to the assembly. Third U. S. delegate was Dr. James R. Miller, a trustee of the American Medical Association.

WHO activities will be decentralized as much as possible, the assembly decided. Headquarters will be at Geneva, but there will be six regional centers, each with its own administrative headquarters. The six regions determined on are: the western hemisphere, Africa, the eastern Mediterranean, southeast Asia, the western Pacific and Europe.

Malaria, tuberculosis, venereal diseases, maternal and child health and environmental sanitation will be the chief concerns of the World Health Organization.

These five were picked by the World Health Assembly after consideration of what could be done to improve world health with WHO's present rather sharply limited overall budget of \$5,000,000.

Certain functions of the League of Nations Health Section and the International Office of Health of Paris, concerning exchange of information on epidemics, new methods of treating disease, standardization of drugs and so on, have been inherited by WHO and will also be carried on.

Special budgetary provision has also been made for aid to countries in case of national health emergency such as the cholera epidemic in Egypt last year.

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CHEMISTRY

Cheaper Shoes Promised by Chemical Tanning Process

► A NEW CHEMICAL PROCESS for tanning leather promises cheaper shoes and other heavy leather products.

The process, developed by Dr. A. H.