

sulted in fire danger, for the insulation is highly inflammable with so much oxygen present.

Carrying out Navy suggestions, Paul Gayne, president of the Colvinex Company, of New York City, developed the new suits. These are insulated with fiberglas, which is cloth woven of thin glass fibers, and is non-inflammable. The wires are insulated with glass, and they are sewn with glass thread between two

layers of fiberglas cloth in the diver's underwear.

The use of helium-oxygen was one of three important advances that resulted from studies initiated by the U. S. Navy after the submarine S-4 sank off Provincetown in 1927. The others were the Momsen "lung" and the McCann Rescue Bell, which saved the lives of 33 trapped men from the Squalus in 1939.

Science News Letter, October 26, 1940

PUBLIC HEALTH

To Protect Health of Army In Case It Goes to Tropics

Rockefeller Foundation in Cooperation with U. S. Health Service Preparing Much Yellow Fever Vaccine

OFFICERS and men of the U. S. Army will be protected by vaccination against yellow fever if they are sent to Central or South America on a hemisphere defense mission, Col. George C. Dunham, speaking for Surgeon General James C. Magee, U. S. Army, announced to the American Public Health Association.

To prepare for this potential need of the Army, enormous quantities of yellow fever vaccine are being prepared by the Rockefeller Foundation in cooperation with the U. S. Public Health Service. The vaccine, developed by Dr. Wilbur Sawyer and associates of the Rockefeller Foundation, has already been given to some two million persons in South America. Difficulties in preparing large quantities of the vaccine have so far limited its use largely to the protection of scientists, explorers and others especially exposed to the disease or to groups of civilians taking part in studies of the effectiveness of the vaccine.

Enough vaccine will be ready, it is expected, to protect the Army from the dreaded Yellow Jack which plagued U. S. troops during the Spanish-American war before Walter Reed and his associates discovered that the disease was spread by mosquitoes.

Protection of American soldiers by vaccination against cholera and diphtheria is also planned if war conditions make this necessary, in addition to the routine protection now given our troops against smallpox, typhoid fever and tetanus or lockjaw.

New vaccines for protection against pneumonia, typhus fever and influenza,

plagues of the World War, are now being given field trials, Col. Dunham said, to find whether these protective measures can also be used for American soldiers in event of war.

Science News Letter, October 26, 1940

Prostitution a Fifth Column

GENERAL Charles R. Reynolds, recently retired Surgeon General of the U. S. Army, warned against prostitution as a "fifth column in our midst" which threatens the new national defense army that will start for training

camps shortly after the peace-time draft next week.

Syphilis and gonorrhea will attack the men in training camps unless prostitution, both commercial and clandestine, is controlled, General Reynolds warned. A plan for such control was given by General Reynolds before a special session of the American Public Health Association.

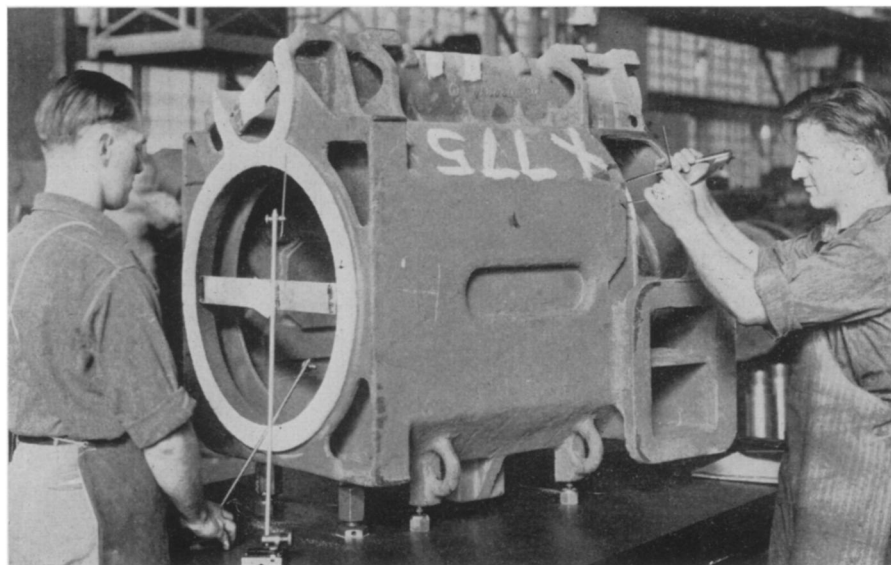
Outbreaks of syphilis and gonorrhea among the men on maneuvers near two southern cities last spring were immediate results of prostitution in those localities, General Reynolds reported. In one of the cities, among 85 prostitutes examined by health officers, one-third were found to have syphilis and one-half gonorrhea, and many had both.

Protection of the men against venereal diseases will be possible, he believes, because military and civil authorities will cooperate in this vital defense project and because of the "awakened public attitude toward this menace which provides an ally to the military forces which never before has been adequately mobilized."

Science News Letter, October 26, 1940

Petroleum engineers say that more than 99½% of the recoverable oil known in underground reservoirs can ultimately be recovered.

A zoologist at the American Museum of Natural History who recently was asked to examine George Washington's dental plate reported that an elk or wapiti had contributed the teeth.



IN QUANTITY PRODUCTION

Casting for a motor frame to be used on one of the Diesel-electric locomotives is marked for machining.



SHINING THEM UP

Pistons for 2,000 horse-power Diesel-electric locomotive units on the production line, being polished prior to being fitted with piston rings and being placed on the engine.

ENGINEERING

Diesel-Electric Motors Are Built on An Assembly Line

Powerful Locomotive Engines Similar to Those in Submarines Expected to Speed Defense Program

WORK on the largest order for Diesel-electric passenger locomotives ever placed began in La Grange, Ill., on a 24-hour basis when employees of the Electro-Motive Corporation started production-line operations on the 18 2,000-h.p. units ordered by the Atlantic Coast Line Railroad.

America's industrial preparedness will be speeded greatly by powerful locomotives of this type, say railroad officials, who point out that war requirements tax transportation facilities to the limit.

The locomotives are powered by motors similar to those now used in Uncle Sam's latest submarines. But it is only since 1935 that motors of this type have been used in passenger locomotives. They are the most compact, powerful, and economical engines ever devised by man for these purposes. Capable of 600-mile runs without refueling, the locomotives can make the 1,160-mile trip between Washington and Miami without change.

They embody all the latest developments of Electro-Motive and General Electric engineers for fast, luxurious transportation with safety and comfort.

Due to the greater inherent ability of Diesel locomotives to accelerate and decelerate quickly, and the fact that they do not have to be stopped for servicing as often as steam locomotives, they are expected to shorten the running time between New York and Florida.

The power in each unit is supplied by two 1,000 h.p. V-type, 12-cylinder Diesel motors. The locomotives are equipped with electric transmission. This consists of a 600-volt direct-current generator, coupled to the front end of each of the Diesel motors, from which the current is delivered by cables to 4 traction motors mounted on the trucks, two in each truck. The traction motors are geared directly to the driving axles. Power reaches the rail at 8 wheel points.

Controls of the new locomotives are

as simple as those of an automobile despite the enormous power and weight at the command of the engineer. Astonishingly enough, the actual manual effort exerted to start and stop a Diesel locomotive is less than is used in driving an automobile. An illuminated annunciator box on the control panel flashes the operator by red, green, and orange lights should a "hot engine," "low oil pressure" or a "heating boiler" develop.

Science News Letter, October 26, 1940

PHYSIOLOGY

Cats Have One Blood Type Instead of Four As in Man

BLOOD transfusion problems in cats are greatly simplified by the apparent fact that cats have only one blood type, J. L. Rowland and Glenn McElory of Central College have discovered. In their experiments, they even mixed blood samples taken from seven different cats, and when a part of this mixture was introduced into the veins of another cat no ill effects followed.

Transfusions are not often called for in veterinary practice, but if a sick cat is so valuable as to make it worth while, there would appear to be no need for the troublesome and time-consuming job of "typing," necessary in human medicine because of the four human blood types, which get into physiological quarrels if they are mixed, with distressing or even fatal results to the patient. Among cats, any other cat can be the blood donor, with no fear of consequences.

The two physiologists did have some trouble in their first transfusions, because the cats receiving other cat blood showed signs of shock. However, this was readily taken care of by mixing a little glucose solution with the donated blood.

The thing that makes trouble when bloods of alien types are mixed is the phenomenon known as agglutination. Something in the blood serum causes the blood corpuscles to stick together in clumps.

Messrs. Rowland and McElory discovered the curious fact that whereas cat blood serum will not cause agglutination of human corpuscles, human serum will produce the clumping effect on the corpuscles in cats' blood. They also found that the specific gravity of cat and human blood is almost identical.

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A new high-speed printing press will print books entirely from *rubber* plates.