



**SAFETY AT ARSENAL**—The photograph at the left shows the old process for filling smoke pots that produce the dense, opaque white smoke used to screen battlefield operations. The dust forced up when the pots were tamped down constituted an explosion hazard. On the right is the new dust-abating apparatus for doing the same job. The skirt around the plunger prevents the upward swirl of dust, and a ventilating system draws other dust off where it can do no harm. The pictures are from Edgewood Arsenal.

SAFETY ENGINEERING

## Accidents at Minimum

Despite the deadly stuffs handled at Chemical Warfare's Edgewood Arsenal, the Army Industrial Hygiene Laboratory keeps mishaps down.

► WORKING at the Edgewood Arsenal, manufacturing and testing center of the Army's Chemical Warfare Service, would seem to rate classification as an ultra-hazardous occupation. Here men and women daily handle such deadly stuffs as lewisite, phosgene, chlorine, phosphorus, the mustard gases, in multi-carload lots, in addition to the normal risks always to be found in the neighborhood of high-powered machinery and motor transport.

Yet on the actual record this great factory of death and destruction takes very small toll of its employes; less, in fact, than the over-all average for American industry as a whole. Last month there were only 24 injuries causing loss of time, among the 9,000 persons on the civilian payroll. Total working days lost amounted to only 121; and the most severely injured case, a woman employe, is already back on the job.

The Arsenal, of course, has an excellently equipped infirmary, with medi-

cal staff and nurses, so that injuries can be attended to promptly. But most of the cases they might treat never get there: there is another organization, the Industrial Safety Division, that is constantly engaged in a beneficent conspiracy to keep the infirmary empty and its staff idle. They watch for every possible source of leakage or breakage that would let loose the toxic and incendiary materials on friend instead of foe, and head them off before they happen. They determine where protective devices like masks or respirators are necessary, and see to it that they are properly used.

As an example: The Army uses considerable numbers of 12-pound smoke-pots. Two or three of these cans, within a few seconds after they are ignited, spread an opaque curtain of fog several hundred yards in length and lasting from five to eight minutes—best kind of cover for advancing troops.

These smoke-pots are big sheet-metal cans holding a white powder, com-

pounded of zinc oxide, aluminum dust and hexachlorethane. This has to be packed in very tightly, so that it will burn at the proper rate; a high-pressure hydraulic press is used.

At first, this stirred up no end of dust every time it plunged into the open end of a canister. This dust was not particularly toxic, but of course it was unpleasant to work and breathe in, and there was constant danger of a dust explosion. The particles were extremely small (only one-fourth the diameter of a blood corpuscle on the average), so that they would be very slow about settling out of the air on their own accord.

The safety officers cleaned up the situation quickly and neatly. They put the packing machinery under a hood, with a powerful suction ventilator to pull out the dust and douse it with water to keep it down. They placed a kind of short petticoat around the head of the ramming piston, to stop the first up-puff. Now, the plump and pleasant-faced Negress who operates the press doesn't get even a suspicion of the wrong kind of powder on her nose. And there is no question of having to wear a respirator.

Safeguarding the health of the workers at Edgewood Arsenal is only a small fraction of the job of the Army's industrial safety officers, who comprise both engineers and public health workers. There are something over 500 Army-operated industrial plants, with nearly three-quarters of a million workers at present, with an increase to about 845,000 expected by September. A large proportion of these are women, and the percentage will increase from now on. All these people, in all these plants, are given the same kind of safeguarding that the workers at Edgewood enjoy.

### Headquarters in Baltimore

This work is headed up in the Army Industrial Hygiene Laboratory, located in the building of the Johns Hopkins School of Public Health and Hygiene in Baltimore. The laboratory is under the direction of Lt. Col. Raymond G. Hussey. From this center field workers go out to survey plants all over the country, carrying with them portable instruments for measuring whatever may be wrong with air, water, or any other vital element. To this place they return with samples for more detailed analysis, and for the calibration of their field equipment. (*Please turn page*)

Tens of thousands of workers will doubtless accomplish their war-production tasks and at the end go home to the works of peace, little suspecting

how they were protected from becoming home-front casualties by the unobtrusive work of a few quiet men.

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RADIO

## Marconi Award Given

East St. Louis and Johnstown, Pa., boys tie for scholarship carrying two years free tuition at School of Radio and Communication Engineering.

► FINDING it impossible to decide between the two top-ranking contestants in a nation-wide competition for the annual Marconi Memorial Scholarships offered by the Veteran Wireless Operators Association, a tie was declared by the judges. As a result, two high school graduates, Frederic Corbin Leiner of 3011 Forest Place, East St. Louis, Ill., and Francis Herbert Horne of 1261 Al-mire, Johnstown, Pa., will receive two years of free tuition at the RCA Institutes' School of Radio and Communication Engineering.

The Marconi Scholarships were set up by the VWOA as a living memorial to the inventor of radio. The contest is open to all boys and girls who are high school graduates and are members of Science Clubs of America or the American Institute Science and Engineering Clubs.

Both of the award winners are amateur radio operators—a purely coincidental finding. Leiner, the East St. Louis lad, first became interested in radio through association with a local amateur radio operator. He has built both transmitters and receivers. Using old parts, he built a short wave receiver with which he has copied messages from every continent and more than 60 countries. He also helped form the radio club at East St. Louis High School under sponsorship of J. W. Galbreath, teacher. Leiner's ambition is to become a naval radio engineer.

Although only 17 years of age, Francis H. Horne, the other winner, already knows how to fly, has his own primary training glider, was awarded honorary membership in the Pennsylvania Academy of Science for his science activities in Johnstown High School and also received the Bausch and Lomb science award on graduation. He was president of the science club sponsored by his teacher, Miss Sophia M. Moiles, who last year placed two winners in the

national Science Talent Search. Horne is working as an inspector for the U. S. Signal Corps at the American Jewels Corporation, Attleboro, Mass.

Runner up in this contest is Lothar Shnitkin, a German refugee, in this country only five years. A graduate of Brooklyn Technical High School, he receives a special award, a one year complete course in television radio engineering at the Midland Radio Schools, Kansas City, Mo. This school has no civilian classes at present so the award will be held in abeyance for the duration. Meanwhile a home study course will be provided. Shnitkin's high school record is something of which anyone would be proud; nothing less than 100% in his regent's examinations in trigonometry, plane and solid geometry. His science club sponsor was Simon A. Weissman.

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PUBLIC HEALTH

### Infantile Paralysis Cases Continue to Increase

► THE INCREASE in cases of infantile paralysis in the Southwest continues, latest reports from state health officers to the U. S. Public Health Service show. For the week ending July 17, the total for the nation was 297. For the previous week it was 244.

In Texas cases increased from 90 the week of July 10, to 102 the week of July 17. In California the increase was from 75 to 90. Arkansas reported an increase from three to seven cases and Oklahoma 39, the latter being a decrease from the previous week's figure of 44. Only other increases were: Kansas, from five to seven and New York State, from five to 11.

An outbreak of a mild type of influenza was reported by the health officer of Honolulu, where between June 16 and July 10 there have been 4,177 cases. Health authorities recall

that two years ago an influenza outbreak started on the Pacific Coast two or three weeks after one in Honolulu in October. Whether this current Honolulu outbreak will spread to the mainland, of course, cannot be predicted.

The total urban death rate as reported at the Census Bureau was, during the week of July 10, below the three-year average for the first time this year.

*Science News Letter, July 31, 1943*

PUBLIC HEALTH

### Rules Given to Prevent Infantile Paralysis Spread

► THIS IS the season when infantile paralysis epidemics are most likely to occur. There is no sure way of preventing this disease as yet, but if there are cases in your community, certain things can be done which might limit its spread. These, Dr. Philip M. Stimson, of Cornell University Medical College, reports (*Journal, American Medical Association, July 10*) are:

Avoid using any water that is possibly contaminated with sewage for either drinking, swimming or washing utensils. Doctors know that sewage can carry the infantile paralysis germs considerable distances and for an appreciable time.

Avoid exhaustion from exertion or chilling. Overexertion and chilling during the incubation period tend to make the oncoming sickness worse.

Avoid injury to the lining membranes of nose and throat, such as that resulting from a tonsil operation. Exposure to infantile paralysis soon after tonsil removal is likely to result in a severe, even fatal attack.

Treat every minor illness as a possible case of infantile paralysis, particularly if there is fever, headache and some spasm of the neck, spine and hamstrings. Very mild cases without definite paralysis are much more numerous than the cases with paralysis. Patients suspected of having this disease should be kept in bed quietly for several days and not allowed up until a competent physician or health authority says that they are well.

Try to keep home and workplaces and their surroundings in good sanitary condition and particularly destroy flies and their breeding places. Flies can carry the infantile paralysis germ, though it has not yet been proved that they can carry enough to make people sick with the disease.