

Poland Sets Up Gas War Defense

Chemistry

America Finds Protection From Gases of Peace

POLAND is undertaking to protect its civilian population against the often-painted horrors of wholesale gassing expected if a "next war" ever comes, the International Red Cross has learned.

A corps of men trained in clearing up gas-drenched areas is being formed, gas masks for civilians are to be provided and the people to be instructed in their use, and civilians are to be trained to supplement the work of the regular corps of anti-gas experts. Peace-time uses for war gases are being sought, especially in agriculture.

WARNING of the presence in the air of carbon monoxide and other deadly gases such as hydrogen sulfide, may now be given by a chemical in a handy little container similar in appearance to the first-aid ampuls of aromatic ammonia. This carbon monoxide detector has been tested and found satisfactory by the Pittsburgh Experiment Station of the U. S. Bureau of Mines.

The little ampul may be carried by the workman going into garages, sewers, mines, or other places where the air might be contaminated. When the outer covering is crushed, a white filter paper or wad of white cotton soaked in palladium chloride is exposed to the air. Palladium chloride is a light straw color and does not discolor the white cotton, but as soon as it meets carbon monoxide or several other poisonous gases, the palladium is freed and the cotton turns gray or black, the density of the black depending upon the amount of the poisonous gas present.

Unfortunately for scientific purposes, palladium chloride does not distinguish between carbon monoxide and several other gases, but for practical purposes this does not matter in the least, since none of the gases is recommended for breathing purposes.

THE MINGLED smell of garlic, onions, decayed cabbage, sewer gas and ancient eggs will soon wake the careless sleeper who blows out the gas and goes to bed.

For engineers of the Bureau of Mines have developed a warning

chemical of terrible smell that they urge should be added to odorless illuminating and fuel gases by gas companies before the fuel is placed in city mains.

Ethyl mercaptan, an organic sulfur compound, is the smelly stuff that would be added to provide an unmistakable signal of escaped gas. It has such an intense, disagreeable odor that only one hundredth of a pound of it in a million cubic feet of air will warn. Gas companies could put about eight pounds of it in each million feet of gas and any slow leaks in houses would soon be detected, and about forty pounds per million cubic feet of gas would allow their inspectors to detect leaks in mains and service lines underground.

Most manufactured gas has an odor that can be detected when the gas escapes into a room, but natural gas is practically odorless. This is because natural gas is practically pure methane, CH₄. Artificial gas, how-

ever, in the process of its manufacture from coal accumulates oxygen and complicated compounds of methane, ethylene, and acetylene which cause the odor.

Natural gas was until recent years allowed to escape from wells but is now piped to a distance of a thousand miles and promises eventually to supersede coal as a fuel in industry. This has brought forward the problem of safe and economic distribution over vast gas systems and made necessary the evolution of a super-smell like ethyl mercaptan.

Possibilities of using ethyl mercaptan for a danger signal were first tested about 10 years ago in mines. A little of it was put in the air supply lines and within 5 or 10 minutes the miners were beating a hasty exit.

Ethyl mercaptan is a liquid closely related to the alcohols, and is sometimes called thio-alcohol.

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Prehistoric Indian "Melting Pot"

Archaeology

A MELTING pot of prehistoric Indian cultures, in which were blended the ways of the settled, farming Pueblos and those of the wandering plains tribes, has been discovered along the Canadian River in Northern Texas.

Ruins of the villages of this ancient mixed culture are yet so little investigated that the culture has been given no name by archaeologists, Dr. J. Alden Mason, of the Museum of the University of Pennsylvania, states. An expedition from the museum spent some time excavating one of these sites last summer. Other sites have been visited by Texas scientists and a survey made by Prof. Warren K. Moorehead, of Phillips Academy, Andover.

The Canadian River is one of the few streams which rise in the Pueblo region in New Mexico and flow eastward to meet the Mississippi, Dr. Mason points out. It therefore served as a river highway for cross-country travel and along this route there was a meeting not only of tribes but of ideas.

The houses along this Indian highway are rather small and of irregular shape. The foundations are sunk, pit-like, and above these basement walls the outlines of the houses can still be seen set in stones. Excavations show that the roofs were of poles, straw, thatch, and mud, and supported by four large posts.

Traces of destructive fires are discovered in some houses, where the charred and damaged debris was trampled down, covered over, and a new floor laid above it. Some of the charred charcoal beams have been saved, Dr. Mason states, in the hope that the tree-rings in these beams may show the dates when the houses were built.

The houses are in the early Pueblo or pre-Pueblo style. But the pottery is quite unlike Pueblo ware. These villages had very little household pottery and what they had was rudely made, similar to that of the plains. Weapons and tools flaked and chipped from stone are common in the ruins, Dr. Mason found.

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