

MEDICINE

Effects of Nerve Gases

Terrific eye pain, headache, inability to breathe and convulsions are symptoms of poison from military nerve gases. The poison remedy is atropine.

► THE most poisonous and most devastating war gases yet revealed—the nerve gases—were discussed in San Francisco in the first detailed report on these specialized poisons released by the Army.

Col. John R. Wood, since 1945 chief of the medical division of the Army Chemical Center at Edgewood, Md., told members of the American Medical Association how these nerve gases affect the body and what the remedy is.

Terrific eye pain, headache, inability to breathe and convulsions are among the symptoms preceding death from military nerve gas.

The poison remedy is atropine. Col. Wood did not give the names of any of the nerve gases in his report, though he indicated that they are similar to some of the newer insect killers, such as parathion and tetraethyl pyrophosphate, or TERP as it is called for short.

These nerve gases, he said, "are a family of chemicals having the common property of irreversibly inhibiting the enzyme, cholinesterase."

This blocks a vital body chemical reaction and allows excessive accumulation of another body chemical, acetylcholine, at the junction between the end of a nerve and the muscle it stimulates.

The nerve gases are almost colorless and odorless. They do not even cause any smarting of the skin or choking which would warn of their presence. They are more poisonous than formerly known war gases.

They can get into the body by inhalation of the vapor, or gas, or by absorption of the liquid form through the skin or eyes, or by being swallowed.

Atropine, the remedy reported by Col. Wood, was the German first aid treatment for nerve gas poisoning. This drug is the one eye specialists drop in eyes before examination for eye-glasses. It, or belladonna of which it is the active principle, is also used as an antispasmodic and many a patient with colitis has swallowed atropine drops in water for relief of his symptoms.

Very large doses of it must be used to counteract the nerve gases, Col. Wood said. But there is danger in using it in very severe cases with profound and prolonged oxygen lack due to the paralysis of breathing muscles. In these cases artificial respiration must be given first. The atropine, when used, is injected into the muscles or veins.

Treatment of nerve gas victims must be started very fast if they are to be saved. And the atropine doses must be repeated

every few hours for several days because the poisoning is much more persistent than the atropine effects.

When liquid nerve gas has been splashed on the skin, immediate swabbing with an alkaline fluid, such as ordinary household ammonia, is recommended. Clothing splashed with the liquid gas should be removed at once and left outdoors. Patients should not be admitted to hospitals or other enclosed spaces until all liquid nerve gas contamination of skin and clothing has been eliminated, Col. Wood warned. Otherwise the vapors will endanger other patients and hospital personnel.

The statement, often made, that these nerve gases will "destroy the enemy's will to fight" does not refer to any strange effect on the human body. The nerve gases can paralyze, convulse and kill. Used against an army or a population, they might convince an enemy that there was no use in continuing to fight, much as the atom bomb convinced the Japs that it was time to surrender.

The standard gas mask of our army will protect against nerve gases. And our army's protective clothing will protect against the liquid form.

The details about nerve gases were given

to the doctors meeting because it is felt that for civilian defense it is best to have such information given to the medical world. Knowledge of what to expect and how to handle it, military authorities believe, will reduce the casualties that come from fear and panic over a new weapon such as the nerve gases.

Further reassurance for civilian defense, not mentioned by Col. Wood in his report, comes from British sources which indicate that buildings with ventilating systems could readily be decontaminated by putting chlorine or ammonia into the air inlet tube.

Science News Letter, July 8, 1950

PSYCHOLOGY

Lie Detector Reveals Problem Children

► A LIE detector used in reverse is serving to spot a "dead-pan" emotional abnormality of children associated with delinquency.

As ordinarily employed, the lie detector reveals emotional response of an individual under questioning by recording changes in the electric conductivity of the skin.

Used with a very sensitive photoelectric recorder, the lie detector can be used to spot those who have no emotional response at all to situations that commonly rouse anger, fear or other strong emotion. This "dead pan" reaction was found characteristic of problem children, 85% of whom had spent time in disciplinary and penal institutions.

This novel use of the recorder, a General Electric product, is reported by Bernard R. Higley, of the Alfred L. Willson Children's Center, Columbus, Ohio.

Science News Letter, July 8, 1950



DETECTOR FOR DELINQUENTS—The lie detector is being used with a sensitive recorder to spot problem children, many of whom are juvenile delinquents. The problem children tend to exhibit a "dead pan" lack of emotional reaction.