THE SECOND WORLD WAR
1939—1945
ARMY

SPECIAL WEAPONS AND TYPES OF WARFARE

VOLUME I—GAS WARFARE

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Nerve gases are liquids of varying volatility; in the field they can be regarded as liquids. Both the liquid and vapor are lethal, although the vapor has no blistering or irritant effect. The respirator action will not protect the gases, direct and long; but the gas has a direct and long effect. The use of protective clothing is necessary. Further research on the properties of nerve gases has not yet been satisfactorily solved.

As we now know, this group of gases is made up of the types of gases which have been developed in Germany and other countries. Our knowledge of these gases is incomplete, and our understanding of their effects on animals and humans is limited. Further work is necessary to understand the properties of these gases.

The existence of these gases was entirely unknown until the capture of the Tarnau factory at Djerfenthal in April 1945. Subsequent to the discovery of the Tarnau factory, plans were made to produce large quantities of these gases. Plans for a large scale production of 'Tarnau' were considered, and it was hoped to produce 12,000 tons of this gas. However, only a small amount was produced, and the production was not until 1942.

The Germans also knew of the nerve gases and were aware of their toxicity. The majority of these gases were produced at the Zoffenhamm factory in Galicia. The Germans had attempted to produce nerve gases in other places, but the production was never successful.
Dr. Gabbard was discovered at the War Ministry in September, 1945. It was a special operation. In all, formidable operation by the Germans had

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Detection and recognition are difficult. The liquid reacts with detector paint and ground detectors, but such detectors cannot be relied on to detect the fine droplets of the initial cloud of an H.E./chemical shell. The papers in the Pocket Vapour Detector give no reaction, and there seems to be little chance up to the present of developing a detector which would be sufficiently quick and reliable to give the rapid warning necessary in the case of bombardment with H.E./chemical shell. A detector for use when the time factor is not so critical, e.g. to determine whether respirators can be removed, is a possibility, but is not available up to the time of writing (1947). Detection by smell cannot be relied on. Detection would therefore often be dependent on the earliest recognition of symptoms.

To date, the only answer would appear to be the wearing of the respirator for very long periods from the beginning of any heavy bombardment. There is need for the application of personal decontamination on the lines already taught for mustard gas, but existing anti-gas ointments are ineffective. A combined anti-nerve gas/anti-mustard gas ointment is a possibility. The early medical treatment of men showing initial symptoms would be necessary. Myosis can be relieved in about an hour by drops of atropine or hyoscine in the eye. A man could not, however, be returned to duty immediately, since his sight might still be unreliable, and several hours must pass before it is known whether he has received a lethal dose or not. If the more severe symptoms then begin to evidence themselves, medical treatment is essential for a good chance of recovery. In our present state of knowledge, however, medical treatment is palliative rather than curative.

For decontamination, hosing, swabbing and aqueous bleach paste are efficacious, and boiling will decontaminate clothing.

The above is the résumé of the general effects of nerve gases. Had the Germans initiated gas warfare and used these gases against us there can be little doubt that the initial results would have been serious. Although the respirator gives complete protection from vapour to the eyes and lungs, the difficulties of recognition would have been considerable, and the danger from the liquid remained. Only battle experience would have shown the degree of effectiveness of these gases, but from laboratory experiment and extrapolation from animal results they obviously possess great potentialities for the future.