

CURRENT OPINION

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Chemical Warfare Is Called Humane

*Poison Gas Not So Barbaric As
Firearms, Says Noted Chemist*

IF the world is going to have war, by all means let it be chemical warfare. Poison gases are the most humane fighting instruments man has ever developed, and their thorough, ruthless employment in place of cruel and barbaric firearms would be evidence of human progress. These are the contentions of J. B. S. Haldane, English war veteran and chemist, in an iconoclastic article in the *Atlantic Monthly*.

Mr. Haldane says that the widespread prejudice against poison gases is due in part to popular terror based on ignorance, and in part to the comprehensible but unintelligent conservatism of soldiers who hate to see the whole art of warfare as they learned it scrapped for something they do not understand. The public "still thinks about poison gases as it was told to think by newspapers during the Great War." And the army officers who would like to give up gas masks and return "to those curious relics of eighteenth-century musketry which still occupy so much of the time of our recruits" are strikingly similar to the Chevalier Bayard, a mediaeval armored knight reputed for his courage and honor. "To captured knights and bowmen he was the soul of courtesy," but any base wretch who was cowardly enough to use the newfangled and cowardly gunpowder received short shrift at his hands.

According to Haldane, tear gas is the "most humane weapon ever invented," its effects being purely transient. Chlorine and phosgene, which wreaked devastating effects when first employed, are "probably as obsolete as muzzle-loading cannon." The future lies with poisonous smokes made from arsenic compounds and with mustard gas. Of the latter, he says, it "kills one man for every forty it puts out of action, whereas shells kill one for every three."

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Contrary to popular belief, "the blisters produced by mustard gas are considerably less dangerous than measles. It was predicted during the war that the survivors of lung-irritant gases would get consumption, while those burned by mustard gas would develop cancer. This has not happened." Haldane was himself gassed and wounded in the War, and he found the pain from septic shell-wounds greater than the discomfort caused by enemy gases.

One startling fact is called to public attention by this writer for the first time. Certain persons are immune to mustard gas, and the immunity rises among Negroes to eighty per cent. of their number, owing to the similarity between sunburn and the gas irritation. This makes probable extensive reliance in future wars on Negro troops who will occupy enemy positions reeking with recently sprayed mustard gas.

For a bio-chemist like Haldane, familiarity with noxious gases apparently breeds contempt, and he minimizes the prospect of any radically new discoveries of poisonous vapors not now known. This is because chemists have almost exhausted the possible molecular combinations. "Only a limited number of chemical substances are appreciably volatile, and of their vapors only a small proportion are poisonous. Most of the possible volatile chemical substances are already known." There may be certain dense vapors still to be developed, but all dense vapors are because of their density readily absorbed by respirators.

Poisonous "smokes," derived mostly from arsenic compounds, are distinct from the gases and offer many possibilities of development. Little used in the World War because discovered late, they include the American "Lewisite," about which so many rumors were current in the closing days of the struggle. These smokes caused excruciating pains in the head, often leading their victims to attempt suicide, but most of them recovered within forty-eight hours. No satisfactory respirator has yet been invented to exclude them.

Haldane regards the possibilities of "explosive" warfare as virtually exhausted. The gun is about ready to follow the bow and the catapult. He would like a gas to be found which would put the enemy to sleep and thus permit their easy capture; but he observes that

Poison Gas Not So Barbaric As Firearms

stupifying gases are ineffective in small quantities, although fatal in excessive doses, and it is impossible in the open air to control them adequately. He dismisses as remote the harnessing of atomic forces. We have no more chance of unlocking and controlling the atom than we have of subduing the stars, the atom being as small as the heavenly bodies are vast, and scientists cannot construct apparatus "small enough to disintegrate atomic nuclei any more than we can make it large enough to reach the moon. We can only bombard them with particles of which perhaps one in a million hits, which is like firing keys at a safe door from a machine-gun a mile away, in an attempt to open it."

J. B. S. Haldane is specially severe on "Mr. Facing-both-ways, who says that, though prepared to fight on occasions, he will not fight with nasty new-fangled weapons. If it is right for me to fight my enemy with a sword, it is right for me to fight him with mustard gas; if the one is wrong, so is the other. The use of mustard gas in war on the largest possible scale would render it less expensive of life and property, shorter, and more dependent on brains rather than numbers."

