

agencies in the United States.

Defoliant use was controversial. Protesters claimed herbicides were a chemical weapon, prohibited by international treaties. Furthermore tests had indicated dioxin, a compound found in these herbicides, was a carcinogenic, or cancer-causing, agent. President Nixon halted defoliant use in 1971, and five years later President Ford pledged the U.S. would not initiate further use of herbicides in wartime.



Dioxin has since been confirmed as a carcinogen, and the detrimental effects on troops exposed to it during their service in Vietnam has been recognized by the Department of Veteran's Affairs.

### *Napalm*

Napalm was widely used in Vietnam as an anti-personnel weapon. Napalm was gasoline mixed with detergent thickeners to create a sticky, long-burning explosive. Dropped from aircraft in aluminum drop tanks, it burst into flames, enveloping enemy positions. In smaller containers it was used for perimeter defense, night illumination, and to burn away vegetation that might otherwise conceal the enemy.



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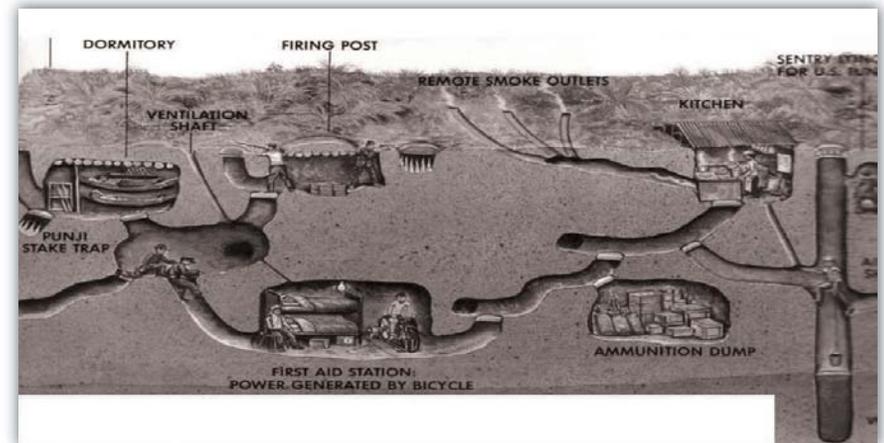


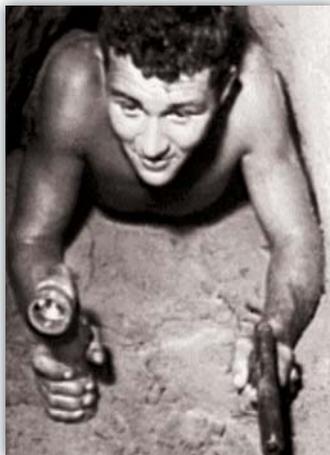
## *The Chemical Corps in Vietnam*

When U.S. Army units arrived in Vietnam in 1965 they found an enemy who lived and fought underground. For thirty years communist Vietnamese forces had dug tunnels, which they used as safe havens from their French, and later Japanese, foes. Many of the tunnel systems had several levels, containing barracks, supply depots, and armament workshops.



Viet Cong forces would emerge to attack American patrols, then seemingly “disappear” through camouflaged trapdoors back to the safety of their tunnel system. Bombing or shelling the area simply destroyed the uppermost levels, leaving the enemy safe in lower tunnels. Tear gas (CS) also proved ineffective, as it failed to penetrate the entire system. Finally it was decided a specialized force of tunnel warfare experts be created, later known as “Tunnel Rats.”





Among the first Tunnel Rats were members of the 242<sup>nd</sup> Chemical Detachment under command of Captain Herbert Thornton, who established a school to instruct volunteers in tunnel warfare. Insertions, locating booby traps, mapping the system, and safe extractions were all studied and practiced. Tunnel Rats traveled light, usually with little more than a flashlight and pistol. Booby traps, poisonous snakes, and enemy personnel were constant threats in the claustrophobic tunnels, here the Tunnel Rats would spend up to eight hours at a time. This exploration resulted in a wealth of intelligence, gleaned from captured documents and prisoners.

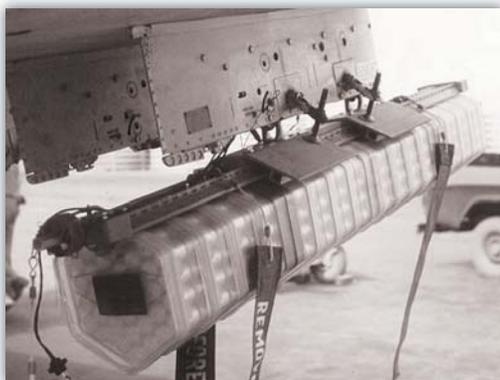
### *People Sniffers*

Finding the enemy in the thick vegetation of Vietnam presented a problem, leading to the development of the "Detector, Concealed Personnel." Widely known as the "People-Sniffer," it was an electronic device created and maintained by the Chemical Corps to test air samples for high levels of ammonia and carbon monoxide. As both are byproducts of human activity (urine and cooking fires) these would indicate enemy presence when visual contact could not be made. Artillery and air strikes would then be called in to destroy the enemy position. "People-Sniffers" were carried on a soldier's back, or mounted in helicopters to survey large sections of jungle.



### *Riot Control Agents*

Riot Control Agents (RCAs), also known as "tear gases," were used by the American and Vietnamese forces throughout the Vietnam War, especially in situations where non-combatant contact was likely. The most common gas, CS, was dispersed in a variety of ways, from grenades to aircraft delivered drums and bombs. CS was used to clear bunkers and caves, suppress small arms fire, and take prisoners who would die used extensively to clear tunnels and deny terrain in certain areas. CS was also used



defensively, as a powder or in booby-trapped grenades, along the perimeter of fixed installations, to alert sentries of enemy sapper activity. Convoy escort vehicles used side-mounted CS dispensers as a defense against ambush, to help break contact with the enemy.

Viet Cong and NVA forces also used RCAs. CS powder, sprinkled on roads, would blind American truck drivers and trigger convoy ambushes, and CS grenades were used in assaults on U.S. outposts and firebases. Effective as they were, RCAs were viewed by many as a poisonous gas, and in 1969 President Nixon declared that the U.S. would no longer initiate RCA use in wartime.

### *Herbicides*

The herbicides employed in Vietnam were commonly used in commercial agriculture in the U.S. and other countries, and were introduced primarily to deny the enemy the concealment provided by thick vegetation and jungle canopies. Sprayed in large quantities from aircraft, and in small quantities by hand, these chemicals were used to defoliate terrain around U.S. and South Vietnamese positions and along lines of communication and supply, preventing ambushes and opening fields of fire. Spraying jungles helped locate the enemy and their infiltration routes, base camps, and supply dumps, forcing enemy troops out into the open, where U.S. artillery and airstrikes were more effective.



These chemicals could be manufactured in large quantities and were known by the colored bands marking their shipping containers. Agents Purple, Orange and White caused defoliation, while Agent Blue targeted enemy food production by destroying rice crops. Between 1961 and 1971 over 19 million gallons of herbicides were sprayed over Vietnam and Laos, an amount roughly equal to that used by farmers and civil