**United States Army Biological Warfare Laboratories**

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The **U.S. Army Biological Warfare Laboratories** (USBWL) were a suite of research laboratories and [pilot plant](https://en.wikipedia.org/wiki/Pilot_plant) centers operating at [Camp (later Fort) Detrick](https://en.wikipedia.org/wiki/Fort_Detrick), [Maryland](https://en.wikipedia.org/wiki/Maryland), USA beginning in 1943 under the control of the [U.S. Army Chemical Corps Research and Development Command](https://en.wikipedia.org/wiki/Chemical_Corps_(United_States_Army)). The USBWL undertook pioneering research and development into [biocontainment](https://en.wikipedia.org/wiki/Biocontainment), [decontamination](https://en.wikipedia.org/wiki/Decontamination), [gaseous sterilization](https://en.wikipedia.org/wiki/Sterilization_(microbiology)#Chemical_sterilization), and agent production and purification for the [U.S. offensive biological warfare program](https://en.wikipedia.org/wiki/U.S._Biological_Weapon_Testing). The Laboratories and their projects were discontinued in 1969.

**History**



Researchers working with [Class III cabinets](https://en.wikipedia.org/wiki/Biocontainment) at the USBWL, [Camp Detrick](https://en.wikipedia.org/wiki/Camp_Detrick), [Maryland](https://en.wikipedia.org/wiki/Maryland) (1940s). Cabinet air was filtered and drawn by negative pressure from the room and cabinet systems.

**Origins**

The USBWL were created after [Secretary of War](https://en.wikipedia.org/wiki/Secretary_of_War) [Henry L. Stimson](https://en.wikipedia.org/wiki/Henry_L._Stimson) requested the [National Academy of Sciences](https://en.wikipedia.org/wiki/United_States_National_Academy_of_Sciences) (NAS) in 1941 to review the feasibility of biological warfare (BW). The following year, the NAS reported that BW might be feasible and recommended that steps be taken to reduce U.S. vulnerability to BW attack. Thereafter, the official policy of the United States was first to deter the use of BW against U.S. forces, and secondarily to retaliate if deterrence failed.

**World War II**

Throughout the war years, Dr [Ira L. Baldwin](https://en.wikipedia.org/wiki/Ira_Baldwin), professor of bacteriology at the [University of Wisconsin–Madison](https://en.wikipedia.org/wiki/University_of_Wisconsin%E2%80%93Madison), was scientific director of the Laboratories.

**Cold War**

The USBWL were the United States' front-line defense against BW during the first half of the [Cold War](https://en.wikipedia.org/wiki/Cold_War).

**Disestablishment**

In 1969, the USBWL ceased to exist when President [Richard Nixon](https://en.wikipedia.org/wiki/Richard_Nixon) disestablished all offensive BW studies and directed the destruction of all stock piles of BW agents and munitions.

**Operations**

At **Fort Detrick**, the USBWL consisted of various labs and divisions, including:

* The Safety "S" Division, first to be activated (1943)
  + Biological Protection Branch
* The [Special Operations Division](https://en.wikipedia.org/w/index.php?title=Special_Operations_Division&action=edit&redlink=1) (1949–68), conducted hundreds of field tests of aerosolized simulants
* The [Crops Division](https://en.wikipedia.org/w/index.php?title=Crops_Division&action=edit&redlink=1) (called "Plant Sciences Laboratories" after 1966), evaluated thousands of compounds for herbicidal activity (including [Agent Orange](https://en.wikipedia.org/wiki/Agent_Orange); see [Herbicidal warfare](https://en.wikipedia.org/wiki/Herbicidal_warfare))

The USBWL was also a parent facility overseeing testing and production centers **elsewhere**, including:

* [Pine Bluff Arsenal](https://en.wikipedia.org/wiki/Pine_Bluff_Arsenal), [Arkansas](https://en.wikipedia.org/wiki/Arkansas)
* [Horn Island](https://en.wikipedia.org/wiki/Horn_Island_(Mississippi)), [Mississippi](https://en.wikipedia.org/wiki/Mississippi)
* [Dugway Proving Ground](https://en.wikipedia.org/wiki/Dugway_Proving_Ground), [Utah](https://en.wikipedia.org/wiki/Utah), including [Granite Peak Installation](https://en.wikipedia.org/wiki/Granite_Peak_Installation)
* [Vigo Ordnance Plant](https://en.wikipedia.org/wiki/Vigo_Ordnance_Plant), near [Terre Haute](https://en.wikipedia.org/wiki/Terre_Haute), [Indiana](https://en.wikipedia.org/wiki/Indiana)

**Work-related deaths**

Three deaths related to occupational [bio-agent](https://en.wikipedia.org/wiki/Bio-agent) exposures occurred during the USBWL program. (Additionally, an unnamed [lieutenant](https://en.wikipedia.org/wiki/Lieutenant) died in a pump explosion in Building 201 in 1943.)

* William Allen Boyles, a 46-year old microbiologist, contracted [anthrax](https://en.wikipedia.org/wiki/Anthrax) and died on 25 November 1951. Broyles Street, on Fort Detrick, is named in his honor.
* Joel Eugene Willard, a 53-year old electrician, died in 1958 after contracting [pulmonary anthrax](https://en.wikipedia.org/wiki/Pulmonary_anthrax). Willard Place, on Fort Detrick, is named in his honor.
* Albert Nickel, a 53-year old animal caretaker, died in 1964 after being bitten by an animal infected with [Machupo virus](https://en.wikipedia.org/wiki/Machupo_virus). Nickel Place, on Fort Detrick, is named in his honor.

The Army made details of these deaths public in 1975.

**Reunions**

The "Fort Detrick Reunion Group" met most years between 1991 and 2008 when they disbanded for lack of participants. When they met at [Nallin Pond](https://en.wikipedia.org/wiki/Nallin_Pond) in 1994, their numbers peaked at 400, consisting of a diverse group of USBWL participants, ranging from animal caretakers to top scientists.

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| **Researched agents** | * [AHF](https://en.wikipedia.org/wiki/Argentine_hemorrhagic_fever) * [BHF](https://en.wikipedia.org/wiki/Bolivian_hemorrhagic_fever) * [Bird flu](https://en.wikipedia.org/wiki/Avian_influenza) * [CHIKV](https://en.wikipedia.org/wiki/Chikungunya) * [Dengue fever](https://en.wikipedia.org/wiki/Dengue_fever) * [EEE](https://en.wikipedia.org/wiki/Eastern_equine_encephalitis_virus) * [Glanders](https://en.wikipedia.org/wiki/Glanders) * [Hantavirus](https://en.wikipedia.org/wiki/Korean_hemorrhagic_fever) * [Lassa fever](https://en.wikipedia.org/wiki/Lassa_fever) * [Melioidosis](https://en.wikipedia.org/wiki/Melioidosis) * [Newcastle disease](https://en.wikipedia.org/wiki/Newcastle_disease) * [Plague](https://en.wikipedia.org/wiki/Bubonic_plague) * [Potato blight](https://en.wikipedia.org/wiki/Phytophthora_infestans) * [Psittacosis](https://en.wikipedia.org/wiki/Psittacosis) * [Ricin](https://en.wikipedia.org/wiki/Ricin) * [RVF](https://en.wikipedia.org/wiki/Rift_Valley_fever) * [Rinderpest](https://en.wikipedia.org/wiki/Rinderpest) * [Smallpox](https://en.wikipedia.org/wiki/Smallpox) * [Typhus](https://en.wikipedia.org/wiki/Typhus) * [WEE](https://en.wikipedia.org/wiki/Western_equine_encephalitis_virus) * [Yellow fever](https://en.wikipedia.org/wiki/Yellow_fever) |
| **Weaponized agents** | * [Anthrax](https://en.wikipedia.org/wiki/Anthrax) * [Botulism](https://en.wikipedia.org/wiki/Botulism) * [Brucellosis](https://en.wikipedia.org/wiki/Brucellosis) * [Q fever](https://en.wikipedia.org/wiki/Q_fever) * [Staphylococcal Enterotoxin B](https://en.wikipedia.org/wiki/Staphylococcal_Enterotoxin_B) * [Rice blast](https://en.wikipedia.org/wiki/Magnaporthe_grisea) * [Tularemia](https://en.wikipedia.org/wiki/Tularemia) * [VEE](https://en.wikipedia.org/wiki/Venezuelan_equine_encephalitis_virus) * [Wheat stem rust](https://en.wikipedia.org/wiki/Stem_rust) |
| **Weapons** | * [E120 bomblet](https://en.wikipedia.org/wiki/E120_bomblet) * [E133 cluster bomb](https://en.wikipedia.org/wiki/E133_cluster_bomb) * [E14 munition](https://en.wikipedia.org/wiki/E14_munition) * [E23 munition](https://en.wikipedia.org/wiki/E23_munition) * [E48 particulate bomb](https://en.wikipedia.org/wiki/E48_particulate_bomb) * [E61 bomb](https://en.wikipedia.org/wiki/E61_anthrax_bomblet) * [E77 balloon bomb](https://en.wikipedia.org/wiki/E77_balloon_bomb) * [E86 cluster bomb](https://en.wikipedia.org/wiki/E86_cluster_bomb) * [E96 cluster bomb](https://en.wikipedia.org/wiki/E96_cluster_bomb) * [Flettner rotor bomblet](https://en.wikipedia.org/wiki/Flettner_rotor_bomblet) * [M114 bomb](https://en.wikipedia.org/wiki/M114_bomb) * [M115 bomb](https://en.wikipedia.org/wiki/M115_bomb) * [M143 bomblet](https://en.wikipedia.org/wiki/M143_bomblet) * [M33 cluster bomb](https://en.wikipedia.org/wiki/M33_cluster_bomb) |
| **Operations and testing** | * [Edgewood Arsenal experiments](https://en.wikipedia.org/wiki/Edgewood_Arsenal_experiments) * [Operation Big Buzz](https://en.wikipedia.org/wiki/Operation_Big_Buzz) * [Operation Big Itch](https://en.wikipedia.org/wiki/Operation_Big_Itch) * [Operation Dark Winter](https://en.wikipedia.org/wiki/Operation_Dark_Winter) * [Operation Dew](https://en.wikipedia.org/wiki/Operation_Dew) * [Operation Drop Kick](https://en.wikipedia.org/wiki/Operation_Drop_Kick) * [Operation LAC](https://en.wikipedia.org/wiki/Operation_LAC) * [Operation Magic Sword](https://en.wikipedia.org/wiki/Operation_Magic_Sword) * [Operation May Day](https://en.wikipedia.org/wiki/Operation_May_Day) * [Operation Polka Dot](https://en.wikipedia.org/wiki/Operation_Polka_Dot) * [Operation Whitecoat](https://en.wikipedia.org/wiki/Operation_Whitecoat) * [Project 112](https://en.wikipedia.org/wiki/Project_112) * [Project Bacchus](https://en.wikipedia.org/wiki/Project_Bacchus) * [Project Clear Vision](https://en.wikipedia.org/wiki/Project_Clear_Vision) * [Project Jefferson](https://en.wikipedia.org/wiki/Project_Jefferson) |
| **Facilities** | * U.S. Army Biological Warfare Labs * [Blue Grass Army Depot](https://en.wikipedia.org/wiki/Blue_Grass_Army_Depot) * [Building 101](https://en.wikipedia.org/wiki/Building_101) * [Building 257](https://en.wikipedia.org/wiki/Building_257) * [Building 470](https://en.wikipedia.org/wiki/Building_470) * [Deseret Test Center](https://en.wikipedia.org/wiki/Deseret_Test_Center) * [Dugway Proving Ground](https://en.wikipedia.org/wiki/Dugway_Proving_Ground) * [Edgewood Arsenal](https://en.wikipedia.org/wiki/Aberdeen_Proving_Ground) * [Fort Detrick](https://en.wikipedia.org/wiki/Fort_Detrick) * [Fort Douglas](https://en.wikipedia.org/wiki/Fort_Douglas,_Utah) * [Fort Terry](https://en.wikipedia.org/wiki/Fort_Terry) * [Granite Peak Installation](https://en.wikipedia.org/wiki/Granite_Peak_Installation) * [Horn Island Testing Station](https://en.wikipedia.org/wiki/Horn_Island_Chemical_Warfare_Service_Quarantine_Station) * [One-Million-Liter Test Sphere](https://en.wikipedia.org/wiki/One-Million-Liter_Test_Sphere) * [Pine Bluff Arsenal](https://en.wikipedia.org/wiki/Pine_Bluff_Arsenal) * [Rocky Mountain Arsenal](https://en.wikipedia.org/wiki/Rocky_Mountain_Arsenal) * [Vigo Ordnance Plant](https://en.wikipedia.org/wiki/Vigo_Ordnance_Plant) |
| **Related topics** | * [Biological agent](https://en.wikipedia.org/wiki/Biological_agent) * [Biological warfare (BW)](https://en.wikipedia.org/wiki/Biological_warfare) * [Entomological warfare](https://en.wikipedia.org/wiki/Entomological_warfare) * [Korean War BW allegations](https://en.wikipedia.org/wiki/Allegations_of_biological_warfare_in_the_Korean_War) * [List of topics](https://en.wikipedia.org/wiki/List_of_U.S._biological_weapons_topics) * [Unit 731](https://en.wikipedia.org/wiki/Unit_731) * [U.S. bio-weapons ban](https://en.wikipedia.org/wiki/Statement_on_Chemical_and_Biological_Defense_Policies_and_Programs) * [War Bureau of Consultants](https://en.wikipedia.org/wiki/War_Bureau_of_Consultants) * [War Research Service](https://en.wikipedia.org/wiki/War_Research_Service) |

**See also**

* [Building 470](https://en.wikipedia.org/wiki/Building_470)
* [Fort Terry](https://en.wikipedia.org/wiki/Fort_Terry)
* [One-Million-Liter Test Sphere](https://en.wikipedia.org/wiki/One-Million-Liter_Test_Sphere)

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* 1. [**^**](https://en.wikipedia.org/wiki/United_States_Army_Biological_Warfare_Laboratories#cite_ref-1#cite_ref-1) Martin, James W., George W. Christopher and Edward M. Eitzen (2007), “History of Biological Weapons: From Poisoned Darts to Intentional Epidemics”, In: [Dembek, Zygmunt F. (2007), *Medical Aspects of Biological Warfare*](http://www.bordeninstitute.army.mil/published_volumes/biological_warfare/biological.html), (Series: [Textbooks of Military Medicine](https://en.wikipedia.org/wiki/Textbook_of_Military_Medicine)), [Washington, DC](https://en.wikipedia.org/wiki/Washington,_DC): The [Borden Institute](https://en.wikipedia.org/wiki/Borden_Institute), pg 5.
  2. [**^**](https://en.wikipedia.org/wiki/United_States_Army_Biological_Warfare_Laboratories#cite_ref-2#cite_ref-2) ["A History of Fort Detrick, Maryland"](http://www.detrick.army.mil/cutting_edge/index.cfm?chapter=contents), by Norman M. Covert (4th Edition, 2000)
  3. [**^**](https://en.wikipedia.org/wiki/United_States_Army_Biological_Warfare_Laboratories#cite_ref-3#cite_ref-3) Tucker, Pat (2011), "Reunion Group Continues to Give to Fort Detrick Community", [*Fort Detrick Standard*](https://en.wikipedia.org/w/index.php?title=Fort_Detrick_Standard&action=edit&redlink=1), 23 June 2011, pg 4.

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