

The Advent of Biological Warfare and the Impact of Human Experimentation



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Introduction

According to the definition given by the World Health Organization, biological weapons, also sometimes referred as Germ Weapons, are “microorganisms like virus, bacteria, fungi, or other toxins that are produced and released deliberately to cause disease and death in humans, animals or plants”. They are one of the four Weapons of Mass Destruction (WMD) and a biological attack can potentially result in an epidemic or a pandemic, therefore creating a massive disruption in the society, and complexifying the response of health authorities¹. Biological warfare is a big threat and international norms therefore ban biological weapons. In 1972, world leaders of over 180 countries had set up the biological weapons convention which banned the development, production, and stockpiling of an entire category of weapons of mass destruction². It is believed that at least six countries today could have an ongoing bioweapons program including Iraq, Iran, Libya, China, Russia and North Korea. Although the world knows little about these programs, it is believed that China possesses an advanced biotechnology infrastructure as well as the requisite munitions production capabilities necessary to develop, produce and weaponize biological agents³. It also has an advanced chemical warfare program that includes development, production and weaponisation capabilities. Another report, says China is also focusing its attention on gene editing technologies⁴. So far, the world has guarded itself against biological agents that are of natural origin. But with the help of technology, rivals can use the technological capacity to hack diseases and make them deadlier.

In the context of biological warfare, human experimentation refers to the use of human beings as experimental subjects of biological weapons⁵. Human subject research is the systematic, scientific investigation that can be either interventional or observational and involves human beings as research subjects. Human subject research can be either medical research or non-medical research. It coincides with the development of modern medicine and its changing perceptions in the late eighteenth and early nineteenth centuries, particularly in the Paris, and included the perception of disease which came

¹ Ophélie Guillouet –Lamy, Covid 19- a Biological Weapon? A Guide to Biological Weapons to Answer that Question, < <https://nct-magazine.com/nct-magazine-may-2020>> accessed September 17, 2020

² 1972 Convention on the Prohibition of Biological weapons, International Committee of the Red Cross < <https://www.icrc.org/en/document/1972-convention-prohibition-bacteriological-weapons-and-their-destruction-factsheet>>

³ Weapons of Mass Destruction: Biological Weapons., Global Security.Org <<https://www.globalsecurity.org/wmd/world/china/bw.htm>>

⁴ “What are biological weapons? Here is a list of countries that possess them!”, www.wionews.com/science/what-are-biological-weapons-here-is-a-list-of-countries-that-possess-them-330033 Accessed October 2, 2020

⁵ Human Experimentation, <<http://www.faqs.org/health/topics/36/Humanexperimentation.html#ixzz6dnlYNI1V>> Accessed August 1, 2020

to be seen as the effect of pathological entities within specific organs and tissues of the body. Researchers, in awe of this new scientific approach to medicine, deliberately infected humans, with samples of blood and other material taken from ill patients, to test their theories without any regard for the harm that was inflicted. Examples of these unethical studies, included “Tuskegee Study of Untreated Syphilis in the Negro Male,” conducted by the United States Public Health Service⁶. Discussions of the ethics of human experimentation have focussed on the uniqueness of human experimentation, the relationship of the individual to society, health as a public good, informed consent and nondisclosure, special privileges of the sick, the design of experiments, risk, and intentional deception.

This research paper aims to study the usage of these biological weapons and also the adverse forms of and human experimentation, based on more contemporary case studies, and even certain conspiracy theories. These will include, the testing of mustard gas on the US Navy, CIA’s Mind Control Experiments such as Operations MK-Ultra, QKHILL, Artichoke, and Midnight Climax, Tearoom Sex Study, Electroshock Therapy on Children, Project 4.1, The Monster Study, The Aversion Project, Stanford Prison Experiment, Milgram Experiment, Unit 731, Russian Sleep Experiment. In the contemporary world, the emerging threat of bioterrorism has been heightened with the possibility of Covid-19 being a result of a bio-chemical experimentation, Although several theories prevail over China’s supposedly infamous role in manufacturing COVID-19 in its Wuhan Lab, scientists do not have proof that it is a bioweapon. Also concerns rising from B. anthracis-laced envelopes from Iraq, anthrax, smallpox, plague, cholera, tularaemia, Q fever, monkey-pox, arboviral encephalitides, viral hemorrhagic fevers, and staphylococcal enterotoxin B, it can be said these substances hold the potential to be used as means of warfare in the contemporary times. Furthermore, the lack of effectiveness of the 1972 treaty, the Soviet Union’s ultra-secret bio-weapons programme and current terrorist threats, which are posed by groups such as Aum Shinrikyo, amplify the need to draw feasible solutions and have thus remained the main focus of this research paper.

Biological Warfare

Roy Porter has argued: ‘the latter part of the nineteenth century brought one of medicines few true revolutions: bacteriology. Seemingly resolving age-old controversies over pathogenesis, a new and immensely powerful aetiological doctrine rapidly established itself.’⁷ The knowledge gained in this

⁶Ada Mcvean, “40 Years of Human Experimentation in America: The Tuskegee Study”, 25.01.2019
<<https://www.mcgill.ca/oss/article/history/40-years-human-experimentation-america-tuskegee-study>>

⁷ Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present*, (Harper Collins), London, 1997

‘Golden Age of Bacteriology’ was quickly applied to medical practice. The ‘Golden Age’ of virology in the 1950s⁸, for example, led to a proper description of viruses, while advances in genetic engineering and genomics in recent years hold out the promise of major improvements in our capabilities for controlling infectious diseases⁹. However, it raised the possibility that the new knowledge might be misused in offensive biological-warfare programmes. The UNODA states that the “Biological Warfare is the intentional application against humans, animals or plants, for hostile purposes, disease-causing micro-organisms, other entities that can replicate themselves, toxins, poisonous substances produced by living organisms, and their synthetically manufactured counterparts.”

The Background:

We know now that, during the First World War, both sides attempted to use biological weapons to sabotage the other side's valuable animal stocks. Subsequently, during the middle of the twentieth century, other advances in biology and medicine — such as in aerobiology and production microbiology — were used in major offensive biological-warfare programmes by countries such as the United Kingdom and United States. During the First World War, for example, both sides were attempting to use disease agents such as anthrax and 1 Glanders to damage the valuable draft animal stocks of the opposition¹⁰. The United Kingdom produced what is believed to have been the first effective biological weapon during the Second World War and passed the details on to the United States during the war. The German army was the first to use weapons of mass destruction, both biological and chemical, during the First World War, although their attacks with biological weapons were on a rather small scale and were not particularly successful: covert operations using both anthrax and glanders attempted to infect animals directly or to contaminate animal feed in several of their enemy countries. After the war, with no lasting peace established, as well as false and alarming intelligence reports, various European countries instigated their own biological warfare programmes, long before the onset of the Second World War¹¹.

WWI became infamous for its introduction of poisonous mustard gas, which was used effectively against humans. By odd coincidence, WWI also overlapped with a deadly outbreak of influenza, the Great Pandemic of 1918, which eventually killed more people than the Great War itself.) International

⁸ Waterson AP, Wilkinson L (1978) *An Introduction to the History of Virology*. Cambridge University Press, Cambridge.

⁹ Malcolm R. Dando, *Preventing Biological Warfare -The Failure of American Leadership*, Palgrave, New York, 2002, p. 1

The Problem of Biological Warfare

¹⁰ Onyenekenwa Cyprian Eneh , (2012). Biological Weapons-agents for Life and Environmental Destruction. *Research Journal of Environmental Toxicology*, 6: 65-87.

¹¹ Friedrich Frischknecht, The history of biological warfare: Human experimentation , modern nightmares and lone madmen in the twentieth century, EMBO reports, VOL 4 (Special issue), 2003 (European Molecular Biology Organization)

revulsion at the horrors of WWI led to the signing of the Geneva Protocol of 1925, which went into force on February 8, 1928, with 29 participating nations, including the U.S. The treaty contained “A Protocol for the Prohibition of the Use in War of Asphyxiating gas, and of Bacteriological Methods of Warfare.”

Although the Geneva Protocol didn't expressly forbid the production and development of biological weaponry, it did ban all use during war. Disappointingly, neither the U.S. nor Japan ratified the treaty before the advent of World War II, when anthrax and other bioweapons were secretly being developed by both countries—as well as by Germany, the U.S.S.R. and Great Britain. The Japanese and British bioweapons programs were particularly extensive¹².

In North America, it was Sir Frederick Banting, the Nobel- Prize-winning discoverer of insulin, not the government who initiated a bioweapons research programme., created what could be called the first private biological weapon research centre in 1940, with the help of corporate sponsors¹³. Soon afterwards, the US government was also pressed to perform such research by their British allies who, along with the French, feared a German attack with biological weapons, even though the Nazis apparently never seriously considered using biological weapons. However, the Japanese embarked on a large-scale programme to develop biological weapons during the Second World War and eventually used them in their conquest of China. Indeed, alarm bells should have rung as early as 1939, when the Japanese legally, and then illegally, attempted to obtain yellow fever virus from the Rockefeller Institute in New York.

The Phases:

The evolution of chemical and biological weapons is broadly categorised into four phases¹⁴. World War I saw the introduction of the first phase, in which gaseous chemicals like chlorine and phosgene were used in Ypres. The second phase ushered in the era of the use of nerve agents e.g. tabun, a cholinesterase inhibitor, and the beginnings of the anthrax and the plague bombs in World War II. The Vietnam War in 1970 constituted the third phase which was characterised by the use of lethal chemical agents e.g. Agent Orange, a mix of herbicides stimulating hormonal function resulting in defoliation and crop destruction. This phase included also the use of the new group of Novichok and mid-spectrum agents that possess the characteristics of chemical and biological agents such as auxins, bioregulators, and physiologically active compounds. Concern has been expressed in regard to the

¹² Steven M. Block, “The Growing Threat of Biological Weapons”, *American Scientist*, Volume 89, 2001, pp. 29-30.

¹³ Friedrich Frischknecht , n 10.

¹⁴ Edgar J. DaSilva, “Biological warfare, bioterrorism, biodefence and the biological and toxin weapons convention”, *EJB Electronic Journal of Biotechnology*, Vol.2 No.3, Issue of December 15, 1999, p.111.

handling and disposal of these mid-spectrum agents by “chemobio” experts rather than by biologists. The fourth phase coincides with the era of the biotechnological revolution and the use of genetic engineering. Gene-designed organisms can be used to produce a wide variety of potential bioweapons such as:

- organisms functioning as microscopic factories producing a toxin, venom or bioregulator
- organisms with enhanced aerosol and environmental stability
- organisms resistant to antibiotics, routine vaccines, and therapeutics
- organisms with altered immunologic profiles that do not match known identification and diagnostic indices
- organisms that escape detection by antibody-based sensor systems

Why Do States Use Biological Weapons?

Countries prefer using biological weapons as they are easier to deploy, are less easily traced (as opposed to nuclear weapons), and they do not degrade the environment. They can inflict an unusual number of casualties, involve unusual distribution of casualties with random geographic distribution and unusual disease pattern. Biological weapons do not come with mutually assured destruction in the same way that nuclear warfare or another form of explosive warfare has. Moreover, there is easy access to wide range of disease producing biological pathogen. Non-detection by routine security system and easy transportation are some of the other reasons for their usage by certain states. The fatality rate is also quite high as – a small quantity can kill a large number of people.

The cost of production of these weapons is low and is called the poor man’s atomic bomb¹⁵. While atom bombs and conventional weapons cost would be around 2000 USD per casualty but for biological weapons its only 1USD. Steven Block in *American Scientist* argues that bioweapons offer terrorist groups and "rogue states" (such as Iraq and North Korea) an affordable way to counter the overwhelming military superiority of the United States and other nuclear powers¹⁶. The agent of choice for most biological warfare programs, writes Block, is anthrax. Anthrax bacteria produce extremely lethal spores, and breathing in large numbers can lead to inhalation anthrax -- a disease that usually is fatal unless treated with large doses of a penicillin-type antibiotic immediately after exposure. Anthrax spores are easy to produce and can remain viable for more than 100 years if kept

15 Mark Shwartz, Biological warfare: an emerging threat in the 21st century, Stanford News Service , News Service (650) 723-929. <<https://news.stanford.edu/pr/01/bioterror117.html>>

16 Ibid.

dry and out of direct sunlight. Their long shelf life makes them "well suited to weaponization in a device that can deliver a widespread aerosol," Block notes. Anthrax also is relatively easy and safe to handle.

Bio terrorism

Bioterrorism refers to the intentional release of toxic biological agents to harm and terrorize civilians, in the name of a political or other cause. The U.S. Center for Disease Control has classified the viruses, bacteria and toxins that could be used in an attack. Category A Biological Diseases are those most likely to do the most damage. They include: Anthrax (*Bacillus anthracis*), Botulism (*Clostridium botulinum* toxin), The Plague (*Yersinia pestis*), Smallpox (*Variola major*), Tularemia (*Francisella tularensis*), Haemorrhagic fever, due to Ebola Virus or Marburg Virus¹⁷

The use of biological agents in warfare isn't new. The concept of biological agents dates back to the ancient times where it involved deliberate food and water poisoning, use of microorganism and toxins in the weaponry systems and using biologically inoculated fabrics. For example, in 400Bc, archers used arrows infected through dipping them in decaying bodies or blood mixed with manure. In the 12th century, the dead soldiers' bodies and those of people infected with the plague were used to inflict harm to the enemy in battles¹⁸. Pre-modern armies tried to use naturally occurring diseases to their advantage. In 1346, the Tartar (or Tatar) army tried to turn the Plague to their advantage in their siege of the port city of Kaffa, which was then a part of Genoa.

States, not terrorists, have been the biggest developers of biological warfare programs. In the twentieth century, Japan, Germany, the (former) Soviet Union, Iraq, the United States and Great Britain all had biological warfare development plans. In the 18th century, smallpox was used as a tool of war by the British against the Americans. In the 1900s, sophisticated biological agents were developed with the Germans developing anthrax, cholera and wheat fungus as biological weapons during World War 1. "They infected livestock exports, bound for Russia and Allied countries, with the disease..... in the United states, German agents were reported to have injected horses, mules, and cattle with anthrax"(Congressional Record, p.26377).

Between 1942 and 1945, the British developed and tested anthrax bombs. Anthrax is caused by the bacterium *Bacillus anthracis*. The symptoms for infection appear one to six weeks after exposure.

¹⁷ Zalman, Amy, Ph.D. "What is Bioterrorism?" ThoughtCo. <https://www.thoughtco.com/what-is-bioterrorism-3209377> (accessed November 19, 2020)

¹⁸ "Biological Warfare: Case Study Template", < <https://acasestudy.com/biological-warfare>>,

Accessed August 12, 2020

They include fever, fatigue, and shortness of breath. The severities of the symptoms vary depending on the means of dissemination of the agent and the amount the casualty was exposed to¹⁹.

There have been a few confirmed bioterrorism attacks. In 1984, the Rajneesh cult in the United States made hundreds ill with food poisoning when they put *Salmonella typhimorium* in an Oregon salad bar. In 1993, the Japanese cult Aum Shinrikyo sprayed anthrax from a rooftop.

Douglas C. Lovelace, Jr., the Director of the Strategic Studies Institute, suggests four reasons bioterrorism has become a concern in the last generation:

The first, beginning around 1990 ...was the official U.S. Government suggestion that proliferation of offensive BW programs...was an increasing trend. The second was the discovery ...that the USSR...had built a massive covert biological weapons program... The third was the corroboration by the United Nations Special Commission in 1995 that Iraq ... had stockpiled large quantities of agents ... The last was the discovery, also in 1995, that the Japanese Aum Shinrikyo group ...had spent 4 years attempting ...to produce ...two pathogenic biological agents. (December 2005)

Case Studies

B. anthracis laced envelopes from Iraq: The 2001 anthrax attacks, also known as Amerithrax (a portmanteau of "America" and "anthrax") from its FBI case name,[3] occurred in the United States over the course of several weeks beginning on September 18, 2001, one week after the September 11 terrorist attacks. Letters containing anthrax spores were mailed to several news media offices and to Democratic Senators Tom Daschle and Patrick Leahy, killing five people and infecting 17 others. According to the FBI, the ensuing investigation became "one of the largest and most complex in the history of law enforcement". Five letters are believed to have been mailed at this time to ABC News, CBS News, NBC News and the New York Post, all located in New York City, and to the National Enquirer at American Media, Inc. (AMI) in Boca Raton, Florida. Robert Stevens, who worked at the Sun tabloid, also published by AMI, died on October 5, 2001, four days after entering a Florida hospital with an undiagnosed illness that caused him to vomit and be short of breath. Only the New York Post and NBC News letters were found; the existence of the other three letters is inferred because individuals at ABC, CBS and AMI became infected with anthrax. Scientists examining the anthrax from the New York Post letter said it appeared as a clumped coarse brown granular material looking like dog food. Demonstration by the "anthrax letter" in the following time of World Trade Center attack in September 11, 2001, the occurrence of only a small number of

¹⁹ "Biological Warfare: Case Study Template", < <https://acasestudy.com/biological-warfare>>,

Accessed August 12, 2020

infections can create an enormous psychological breakdown and uncertainty feeling, leads to the belief that anthrax as a bio-terrorist weapon possessed a high credibility in coming era²⁰. Usually terrorists use conventional means of destruction but unprotected biological weapons may be accessed by them too to create a deep psychological impact.

Ricin letters in USA (2003)

The 2003 ricin letters refers to two ricin-laden letters found on two separate occasions between October and November 2003. Ricin is a white powder that can be produced as a liquid or a crystal. Ricin is an extremely toxic plant protein that can cause severe allergic reactions, and exposure to small quantities can be fatal. The package contained a letter and a small metal vial containing ricin powder²¹. One letter was mailed to the White House and intercepted at a processing facility; another was discovered with no address in South Carolina. A February 2004 ricin incident at the Dirksen Senate Office Building was initially connected to the 2003 letters as well. The letters were sent by an individual who referred to themselves as "Fallen Angel". The sender, who claimed to own a trucking company, expressed anger over changes in federal trucking regulations. As of 2008, no connection between the Fallen Angel letters and the Dirksen building incident has been established. A \$100,000 reward was offered in 2004 by the federal law enforcement agencies investigating the case, but to date the reward remains unclaimed²².

Human Experimentation



“Bacili pestis were injected into human bodies for observing the course of pathological changes.” The hypodermic in the physician’s hand (forefront of the artwork) both literally and figuratively illustrates the breakdown of medical ethics in the biowarfare program in wartime Japan. Rather than using the hypodermic to treat disease, these physicians used it to initiate disease for the sole purpose of gaining information to further the use of disease as a weapon—the very antithesis of the medical profession.

²⁰ Choudhary J, Bhattacharya M, Bose D. Anthrax and Bio-terrorism. *Biomed. Pharmacol. J.*2008;1(2) Available from: <http://biomedpharmajournal.org/?p=439>

²¹ Drociuk, Daniel. "Epidemiological Investigation of a Ricin-Containing Envelope at a Postal Facility - South Carolina 2003", Centers for Disease Control and Prevention, 2005 Preparedness Conference, accessed August 5, 2020.

²² 2003 Ricin Letter, https://en.wikipedia.org/wiki/2003_ricin_letters

Photograph of painting (including captions) from displays at the Ping Fan Museum, Harbin, Manchuria, China, from the collection of Sheldon Harris.

Selected Case studies in Human Experimentation²³:

Mustard Gas Tested on American Military

In 1943, the U.S. Navy exposed its own sailors to mustard gas. Officially, the Navy was testing the effectiveness of new clothing and gas masks against the deadly gas that had proven so terrifying in the first World War. The worst of the experiments occurred at the Naval Research Laboratory in Washington. Seventeen and 18-year old boys were approached after eight weeks of boot camp and asked if they wanted to participate in an experiment that would help shorten the war. Only when the boys reached the Research Laboratory were they told the experiment involved mustard gas. The participants, almost all of whom suffered severe external and internal burns, were ignored by the Navy and, in some cases, threatened with the Espionage Act. In 1991, the reports were finally declassified and taken before Congress.

Project MKUltra

MK-Ultra, also called the CIA mind control program, is the code name given to a program of experiments on human subjects that were designed and undertaken by the U.S. Central Intelligence Agency, some of which were illegal. It experimented in human behavioral engineering. Experiments on humans were intended to identify and develop drugs and procedures to be used in interrogations in order to weaken the individual and force confessions through mind control. From 1953 to 1973, the program employed various methodologies to manipulate the mental states of American and Canadian citizens. These unwitting human test subjects were plied with LSD and other mind-altering drugs, hypnosis, sensory deprivation, isolation, verbal and sexual abuse, and various forms of torture. The project was organized through the Office of Scientific Intelligence of the CIA and coordinated with the United States Army Biological Warfare Laboratories. The scope of Project MKUltra was broad, with research undertaken at more than 80 institutions, including colleges and universities, hospitals, prisons, and pharmaceutical companies. The CIA operated using front organizations, although sometimes top officials at these institutions were aware of the CIA's involvement. Project MKUltra was ended by a Congress-commissioned investigation into CIA activities within the U.S.

Project QKHILLTOP

²³The 30 most disturbing human experiments in history , < <https://www.bestpsychologydegrees.com/30-most-disturbing-human...>> accessed July 30,2020

In 1954, the CIA developed an experiment called Project QKHILLTOP to study Chinese brainwashing techniques, which they then used to develop new methods of interrogation. Leading the research was Dr. Harold Wolff of Cornell University Medical School. After requesting that the CIA provide him with information on imprisonment, deprivation, humiliation, torture, brainwashing, hypnosis, and more, Wolff's research team began to formulate a plan through which they would develop secret drugs and various brain damaging procedures. According to a letter he wrote, in order to fully test the effects of the harmful research, Wolff expected the CIA to "make available suitable subjects."

Operation Midnight Climax

Initially established in the 1950s as a sub-project of a CIA-sponsored, mind-control research program, Operation Midnight Climax sought to study the effects of LSD on individuals. In San Francisco and New York, consenting subjects were lured to safehouses by prostitutes on the CIA payroll, unknowingly given LSD and other mind-altering substances, and monitored from behind one-way glass. Though the safehouses were shut down in 1965, when it was discovered that the CIA was administering LSD to human subjects, Operation Midnight Climax was a theater for extensive research on sexual blackmail, surveillance technology, and the use of mind-altering drugs on field operations.

The Tearoom Sex Study

Sociologist Laud Humphreys often wondered about the men who commit impersonal sexual acts with one another in public restrooms. He wondered why "tearoom sex" — fellatio in public restrooms — led to the majority of homosexual arrests in the United States. Humphreys decided to become a "watchqueen" (the person who keeps watch and coughs when a cop or stranger get near) for his Ph.D. dissertation at Washington University. Throughout his research, Humphreys observed hundreds of acts of fellatio and interviewed many of the participants. He found that 54% of his subjects were married, and 38% were very clearly neither bisexual or homosexual. Humphreys' research shattered a number of stereotypes held by both the public and law enforcement.

Prison Inmates as Test Subjects

In 1951, Dr. Albert M. Kligman, a dermatologist at the University of Pennsylvania and future inventor of Retin-A, began experimenting on inmates at Philadelphia's Holmesburg Prison. As Kligman later told a newspaper reporter, "All I saw before me were acres of skin. It was like a farmer seeing a field for the first time." Over the next 20 years, inmates willingly allowed Kligman to use their bodies in experiments involving toothpaste, deodorant, shampoo, skin creams, detergents, liquid diets, eye drops, foot powders, and hair dyes. Though the tests required constant biopsies and painful procedures, none of the inmates experienced long-term harm.

Project Artichoke

In the 1950s, the CIA's Office of Scientific Intelligence ran a series of mind control projects in an attempt to answer the question "Can we get control of an individual to the point where he will do our bidding against his will and even against fundamental laws of nature?" One of these programs, Project Artichoke, studied hypnosis, forced morphine addiction, drug withdrawal, and the use of chemicals to incite amnesia in unwitting human subjects. Though the project was eventually shut down in the mid-1960s, the project opened the door to extensive research on the use of mind-control in field operations.

Syphilis Experiments in Guatemala

From 1946 to 1948, the United States government, Guatemalan president Juan José Arévalo, and some Guatemalan health ministries, cooperated in a disturbing human experiment on unwitting Guatemalan citizens. Doctors deliberately infected soldiers, prostitutes, prisoners, and mental patients with syphilis and other sexually transmitted diseases in an attempt to track their untreated natural progression. Treated only with antibiotics, the experiment resulted in at least 30 documented deaths. In 2010, the United States made a formal apology to Guatemala for their involvement in these experiments.

Tuskegee Syphilis Study

In 1932, the U.S. Public Health Service began working with the Tuskegee Institute to track the natural progression of untreated syphilis. Six hundred poor, illiterate, male sharecroppers were found and hired in Macon County, Alabama. Of the 600 men, only 399 had previously contracted syphilis, and none were told they had a life threatening disease. Instead, they were told they were receiving free healthcare, meals, and burial insurance in exchange for participating. Even after Penicillin was proven an effective cure for syphilis in 1947, the study continued until 1972. In addition to the original subjects, victims of the study included wives who contracted the disease, and children born with congenital syphilis. In 1997, President Bill Clinton formally apologized to those affected by what is often called the "most infamous biomedical experiment in U.S. history."

Human Experimentation in the Soviet Union

Beginning in 1921 and continuing for most of the 21st century, the Soviet Union employed poison laboratories known as Laboratory 1, Laboratory 12, and Kamera as covert research facilities of the secret police agencies. Prisoners from the Gulags were exposed to a number of deadly poisons, the purpose of which was to find a tasteless, odorless chemical that could not be detected post mortem. Tested poisons included mustard gas, ricin, digitoxin, and curare, among others. Men and women of varying ages and physical conditions were brought to the laboratories and given the poisons as "medication," or part of a meal or drink.

Human Experimentation in North Korea

Several North Korean defectors have described witnessing disturbing cases of human experimentation. In one alleged experiment, 50 healthy women prisoners were given poisoned cabbage leaves — all 50 women were dead within 20 minutes. Other described experiments include the practice of surgery on prisoners without anesthesia, purposeful starvation, beating prisoners over the head before using the zombie-like victims for target practice, and chambers in which whole families are murdered with suffocation gas. It is said that each month, a black van known as “the crow” collects 40-50 people from a camp and takes them to an known location for experiments.²⁴

Unit 731

From 1937 to 1945, the imperial Japanese Army developed a covert biological and chemical warfare research experiment called Unit 731. Based in the large city of Harbin, Unit 731 was responsible for some of the most atrocious war crimes in history. Chinese and Russian subjects — men, women, children, infants, the elderly, and pregnant women — were subjected to experiments which included the removal of organs from a live body, amputation for the study of blood loss, germ warfare attacks, and weapons testing. Some prisoners even had their stomachs surgically removed and their esophagus reattached to the intestines. Many of the scientists involved in Unit 731 rose to prominent careers in politics, academia, business, and medicine.

Conclusion: The Question of Ethics in Warfare

The issue of biological warfare and human experimentation is intrinsically connected to the issue of war ethics. Ethics of War starts by assuming that war is a bad thing, and should be avoided if possible, because it involves deliberately killing or injuring people, and this is a fundamental wrong - an abuse of the victims' human rights. The purpose of war ethics is to help decide what is right or wrong, both for individuals and countries, and to contribute to debates on public policy, and ultimately to government and individual action. War ethics also leads to the creation of formal codes of war (e.g. the Hague and Geneva conventions), the drafting and implementation of rules of engagement for soldiers, and in the punishment of soldiers and others for war crimes²⁵.

Six conditions must be satisfied for a war to be considered just: the war must be for a just cause, the war must be lawfully declared by a lawful authority, the intention behind the war must be good, all other ways of resolving the problem should have been tried first, there must be a reasonable chance of success, the means used must be in proportion to the end that the war seeks to achieve. A war that starts as a Just War may also stop being a Just War if the means used to wage it are inappropriate ie.

²⁴ The 30 most disturbing human experiments in history , < <https://www.bestpsychologydegrees.com/30-most-disturbing-human...>>

²⁵ BBC, <www.bbc.co.uk/ethics/war/just/conduct.shtml>. Accessed 5 August, 2020.

if innocent people and non-combatants are harmed, appropriate force is not used, internationally agreed conventions regulating war is not obeyed.

For a war to be a just war it must be fought according to certain rules. The principle issues are: whom is it ethical to fight with, how much force is ethical to use, is the use of certain weapons always wrong and what is the role of international conventions on war. For example, is it immoral to involve civilians in a war? Who is, and who isn't, a combatant? The force used should be 'proportional' or 'appropriate': the force needed to win, and no more. So it is probably unethical to use a machine gun against an enemy who is armed only with clubs or it is certainly unethical to kill the soldiers of an army that has surrendered.

Similarly there are Weapons that are considered intrinsically evil. These are usually taken to be chemical and biological weapons. These were banned by the Geneva Protocol in 1925. Many argue that nuclear weapons are inherently evil. There is a growing view that landmines, because they are indiscriminate weapons which cause great harm to civilians, are inherently evil. Certain military methods are also regarded as intrinsically evil such as genocide, mass rape, torture and so on.

The Hague Convention of 1907 bans certain kinds of weapons such as poisoned weapons, projectiles and so on. Where countries have signed an international convention governing warfare, soldiers are considered to merit punishment if they break any of the rules in that convention.

There is widespread consensus against the possession and use of biological weapons. The use of chemical and bacteriological weapons in war had been widely condemned since the end of the First World War, and was prohibited by the 1925 Geneva Protocol, the forerunner to the Convention. The Regulations annexed to Hague Convention IV of 1907 already banned the use of poison or poisoned weapons as a means of conducting warfare. All these prohibitions are based on a basic principle of the law relating to the conduct of hostilities, that is, that the right of parties to an armed conflict to choose methods and means of warfare is not unlimited. The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction was drafted during the Conference of the Committee on Disarmament and subsequently adopted by the United Nations General Assembly²⁶. It was opened for signature on 10 April 1972 in London, Moscow and Washington. The Convention entered into force on 26 March 1975, and is now binding on the vast majority of States. Most countries are party to the Biological and

²⁶ 1972 Convention on the Prohibition of Biological weapons, Legal Factsheet, International Committee of the Red Cross (ICRC), December 4, 2019. < <https://www.icrc.org/en/document/1972-convention-prohibition-bacteriological-weapons-and-their-destruction-factsheet>> accessed on July 21, 2020.

Toxin Weapon Convention, but there is no way to know whether countries are complying with their commitments.

Adoption and implementation of a law to protect human research participants, promote and foster the concept of a Human Research Protection Program (HRPP) at the local institution, developing a mechanism to identify high-quality investigative sites, develop education campaigns for patients and the public are proposed to deal with the unethical aspect of human experimentation are important to prevent unethical human experimentation. The responsibility to protect human research participants should be shared. Institutions can adopt this framework for conceptualizing how to oversee research by developing HRPPs in which they clearly define the roles of the institutions, the EC, investigators and study staff, and other parties that are involved in protecting research participants. From this frame-work, institutions should evaluate their policies, procedures, and practices to ensure the basic infrastructure for overseeing research is in place, each party is knowledgeable about his or her role, and there open lines of communication among all the department and offices within the institution. Better protections for participants and better compliance by investigators and staff begin with clear expectations set by the institution.