

## Plausible Deniability and Proliferation of Bio-Weapons: The Elephant in the Room

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### Summary

The mysterious origin of Covid-19 has given rise to many debates, allegations, denials and controversies. However, the entire history of biological threats and bio-weapons is full of such denials and allegations. Though classified as weapons of mass destruction along with nuclear and chemical weapons, the global arms race for biological weapons remained relatively inconspicuous. As evidenced by many historical examples certain features of Plausible deniability of bioweapons such as the covert nature, blurred boundaries of defensive and offensive research and ambiguity about the required set of equipment, resources, expertise and infrastructure make them distinctly different.

Plausible deniability of bioweapons is a critical feature and needs to be a central theme while designing policies for credible deterrence and bio-defence.

### Introduction

Every feature of the biological weapons (BW) arms race is intriguing; whether the very complex nature of all the biological agents, the challenges of weaponization, parameters of deployment, complexities of biological crimes, terrorism, or warfare. While studying the documents related to Unit 731, the Khabarovsk trials, Biopreparat, Oregon attacks, Amerithrax, Korean War or the experimental testing at Porton Down or Fort Detrick, the more one dives deep into these documents, the barometer of intrigue rises further!

The history of biological warfare is simple and easy to understand. However, when one investigates deeper, the investigations throw up more complicated questions than simple answers. The ability to persist with these questions, however, allows one to appreciate the evolving grey abstract patterns leading to probable answers and is critical for the appreciation of the true potential of this deceptive threat.

When a nation is building its own preparedness against such surreptitious threats, there is a need to appreciate the antecedents of historical biological events, irrespective of current international political affiliations and the role of other nations involved in these events in the past. An unbiased and unclouded vision is necessary to appreciate the historical backdrop and inherent traits of the players.

### The Invisible Bio-weapons Race

The origin of COVID-19 is unequivocally the most controversial and ferociously debated issue of this century. Without firing a single bullet, COVID-19 has caused deaths of about 6 million people, psycho-social disruptions,

ready-to-burst-at-the-seams social infrastructures, economic setbacks, misinformation campaigns and lots of controversies around it. It is almost a war-like situation! An average citizen, quite helplessly is asking simple questions, “But who started it all and why can’t *authorities* find the culprit?”

The answers to these questions are as mysterious as they can get.

The very nature of biological agents is such that the perpetrator can get away in a shroud of mystery; *Plausible Deniability* of intentions just adds to this mystery! The most common excuses are of it being a natural infectious disease caused due to zoonotic crossover, evolution of virus or eating infected raw meat, etc.

As it was evident during COVID-19, biological agents causing infectious diseases in this globalized world spread like Trojan Horses across international borders. The origin of COVID-19 has polarized the entire world, including scientists, scientific publication houses, policy makers and average citizens. In the absence of any unbiased investigation, this eternal enigma that has already killed millions, will continue.

This article has three objectives. First, it will describe the historical context of the global arms race for bio-weapons. In particular, the article will make an effort to capture the *fierceness of this competition* for research, development and technological excellence, under the garb of the benefit for humanity, actually focused on development and weaponization of more and more lethal bio-weapons.

Second, it will elaborate on the truly *deceptive nature of biological weapons*. There is a long precedent of biological incidences in the human history– whether

bio-crimes, bioterrorism or biological warfare. There are numerous examples of large- scale bio-weapon programmes of nations competing in arms races, unethical human experimentation of bioweapons, state-sponsored terrorist organizations, apocalyptic non-state terrorist groups, nations colluding in hiding heinous biological war-crimes in exchange of biological weapons technology.

Third, the effort is to elaborate on the *Plausible Deniability* of the biological incidences, which have helped cover the ugly underbelly of the biological arms race, which was unceremoniously brought into the open by COVID-19. Now, average educated citizens have started finding out for themselves via the worldwide web and asking questions about issues such as frequent life-threatening incidences of laboratory accidents, and controversies about Gain of Function Research (GoFR), information about which was earlier restricted and limited to scientific circles.

The plausible deniability of biological weapons is of such high order that even after a century of the first successful weaponization of modern bio-weapons, and in spite of a fierce bio-weapons race throughout the period, there is minimal willingness to call out the Elephant in the Room!

### **Backdrop of Chemical Warfare during the First World War**

In 1915, the first large-scale chemical weapon attack in the form of chlorine gas by Germany, started an incredible arms race within all Western nations involved in the First World War. Tremendous technological developments during the War led to liberal deployments of chlorine, mustard gas, and phosgene by Germany, Britain, France, Russia, Italy, and the US; with British use of

mustard gas proving to be the most significant one. The War ended with a trainload of humiliated and blinded German soldiers; including a twenty-nine-year-old Corporal promising himself to avenge this humiliating defeat, Adolf Hitler<sup>1</sup>. Deployment of 113,000 tons of chemicals during the War resulted in more than a million men wounded by the chemical weapons with an equal number of deaths. The peace efforts after the War did not dampen the chemical arms race. In fact, in 1919 the British Holland Committee recommended,

“...that it is impossible to divorce the study of defence against gas from the study of the use of gas as an offensive weapon, as the efficiency of the defence depends entirely on an accurate knowledge as to what progress is being made in the offensive use of this weapon.”<sup>2</sup>

This principle is at the centre of the *Plausible Deniability* of the bio-weapons, irrespective of what the British or any other nation's public renunciation of chemical warfare achieved.

The technological advances in Chemistry and Bacteriology during and after the First World War further fuelled the chemical and bio-weapons arms race in these developed nations. The accusations by Allies of infecting horses with Glanders by Germany and the suspected use of Anthrax in Stalingrad by the Soviets during the War, are known examples of the use of the biological agents. But Winston Churchill's statement in 1925 actually gives an insight into the nature of the fierce ongoing biological weapons arms race during that period.

‘Pestilences methodically prepared and deliberately launched upon man and beast ... Blight to destroy crops, Anthrax to slay horses and cattle, Plague to poison not

armies only but whole districts – such are the lines along which military science is remorselessly advancing.’<sup>3</sup>

At Porton Down, originally known for its chemical weapons development, the British were also developing, experimenting and weaponizing biological agents like Anthrax spores. Though a bulk of the documents related to development of bio-weapons remain classified and closed to inspection, some of documents that were leaked out, have now shown that it was the British who manufactured on a large-scale the West's or probably the world's first bio-weapons.<sup>4</sup> The British categorically stated and reiterated that ‘the UK never possessed and has not acquired microbial or other biological agents and toxins in quantities which could be employed for weapon purposes’. However, the historical documents give evidence to the contrary.<sup>2</sup>

## Geneva Protocol and Germ Warfare

Fifty years of bacteriological research before the First World War led to allegations of Germans utilizing glanders, anthrax and plague during the War. The search for a new generation of weapons by the war scientists in Europe inevitably edged towards bacteriological weapons race immediately after the First World War ended. This is one of the finest examples of *Plausible deniability of Bio-weapons*. Even though none of the nations had either declared research findings or possession of bio-weapons, or a single laboratory doing research on developing some, still by 1925, the need to incorporate ‘the prohibition of bacteriological methods of warfare’ within the scope of the Geneva Protocol. The year 1925 saw the Geneva Protocol signed by all major powers and a very telling statement from Churchill the same year.

## Unit 731

The paradoxical effect of the Geneva Protocol of banning Bio-weapons was also evident at the beginning of the Japanese biological weapons development programme by Shiro Ishii. His logic was flawless about the effectiveness of biological weapons,

*“...otherwise statesmen at Geneva would not have gone to the trouble of banning them.”*

Ishii built the world's first major documented biological warfare programme in 1937. The Japanese were working hard to develop an effective anthrax bomb for the next seven years. Ishii had erected a large manufacturing facility for each pathogenic bacterial strain growing in large aluminium containers at tailor-made specifications at Pingfan.<sup>3</sup> The pathogens included anthrax, brucellosis, typhoid, typhus, plague, cholera, smallpox, and gas gangrene tested on guinea pigs, horses, mice, sheep, and humans; further, delivery systems were developed in the form of aerosol sprays, shells, and sabotage devices. The human experimentation would include exposure to aerosols or biological bombs, followed by victims being killed by an overdose of morphine and dissection to study the progress of the disease or vivisection. In addition, Japan had carried on an actual biological war against the Chinese population by air-dropping large quantities of plague-infested fleas along with rice or wheat, resulting in a plague epidemic that killed thousands of people.

However, at the end of the Second World War, when captured by the Allies, Ishii denied all the charges including the war crimes of unethical human testing. He stated in 1946: *“Biological warfare is inhumane and advocating such a method of warfare would defile the virtue and benevolence of the Emperor.”*

## The Khabarovsk Trial

Post- Second World War, several Japanese officers involved in Unit 731 war crimes were captured by the Allies and the USSR. The Soviet authorities made an attempt to conduct judicial trials of the Japanese officers for war crimes. The Khabarovsk War Crimes Trial brought out the horrific details of these war crimes. The evidence from the Khabarovsk Trial indeed showed that, though the criminal human experimentation was as horrific as those of the Nazis, the United States dispassionately provided immunity to Shiro Ishii and other Japanese officers, from war crime charges in exchange for scientific data on human experimentation<sup>1</sup>. Behind the smokescreen of the Khabarovsk trials, the Russians were doing the same as the Allies– utilizing Japanese data to build their own biological weapons capacity.

The potential utility of Japanese wartime knowledge to enrich the Allied biological warfare programmes, could far outweigh the demand for justice. The American biological weapons investigation in 1947 concluded:

*“Evidence gathered in this has greatly supplemented and amplified previous aspects of this field. It represents data which have been acquired by Japanese scientists at the expenditure of many millions of dollars and many years of work. Information has accrued with respect to human susceptibility to these diseases as indicated by specific infectious doses of bacteria. Such information could not be obtained in our own laboratories because of scruples attached to human experimentation. These data were acquired with a total outlay of \$250,000 to date, a mere pittance by comparison with the actual costs of the studies....It is hoped that individuals who voluntarily contributed this information will be spared embarrassment because of it, and that every effort be made to prevent this information falling into other hands.”<sup>1</sup>*

In an extraordinary American decision, which remained a secret for thirty years, General Ishii and his fellow officers were offered immunity from prosecution for the world's most horrific biological war crimes<sup>4</sup> against humanity. *Plausible Deniability* of a different kind!

### **Porton Down and Gruinard Anthrax Island**

Just like the Japanese, the banning of biological warfare in the Geneva Protocol prompted the British to launch their own biological warfare programme in 1934. The world's first effective biological bomb using Anthrax spores, was developed, mass-manufactured and tested on sheep on Gruinard Island in Britain. Porton Down, the centre of the British chemical weapon programme, was now mastering the techniques of manufacturing anthrax spores, weaponizing and testing them at Gruinard Island. An accidental outbreak of anthrax in the Scottish mainland was reported due to a dead sheep, which floated across from Gruinard. But it was trivialized, and was labelled a natural outbreak.

Alarmed by the Chinese allegations about the scale of Japanese biological warfare, the Anglo-American biological warfare programme started competing with Manhattan Project for priority. The collaborative development efforts of the US, Britain and Canada also included sharing of self-inoculating syringes against probable biological attacks from the Germans. During the Second World War, the US invested US\$ 40 million in manufacturing plants and equipment. These collaborative biological weapon developments included studies at Camp Detrick on anthrax, glanders, typhus, yellow fever, fowl pests, rinderpest, various viruses, anti-crop agents as well as development of vaccines, laboratory trials, large-scale field trials all across the universities in the US.

Botulinum toxin or BTX, one of the most toxic substances known, was another favourite biological agent with a mortality rate of 60 per cent. Though the British did not officially confirm this, but by 1941, BTX was successfully weaponized and code named as 'X'. One notable biological assassination by British Secret Service during the Second World War was *Operation Anthropoid*– the assassination of Reinhard Heydrich, Hitler's personal choice to be his successor, by Botulinum-laced-grenades in Prague (1942).

Though the Germans had conducted horrific human experimentations on inmates of concentration camps, the development of their biological warfare programme was far behind that of the Allied forces, literally by years!

And, Britain categorically denied of having any biological weapons programme ever! The true picture of British biological warfare is difficult to portray because of the extreme secrecy regarding defence matters, even to this date.

Another small detail that often gets lost is that, even though BTX was successfully weaponized 50 years prior (and regularly used as a bioweapon for years after that), to the Chemical Weapons Convention (CWC), BTX was never listed in any of the three Schedules of the CWC.

### **Weaponization of Biological Agents and Experimentations**

Since 1950, for the next two decades, the United States spent over \$700 million for the development of biological weapons and many more millions in research and testing in the US, Britain and Canada. During this period, the US, Britain and Canada secretly conducted numerous testing experiments using pathogenic as well as some apparently harmless indicator micro-organisms, the targets being animals, humans, citizens of

other countries, their own citizens and entire cities to simulate germ attacks. For example, the entire 117 square miles of San Francisco were covered under the bacterial cloud, contaminating almost everyone on the 800,000 citizens. The civic officials were misled into believing that it was part of defence exercises of creating an invisible smokescreen to protect the city from radar detection. Similar experiments were conducted in Winnipeg, New York subways, the Bahamas, and Scotland.

Human experimentation using volunteers was not very uncommon in the 1960s. The British experimentation on terminally ill cancer patients using Langkat Virus and Kyasanur Forest Disease in Porton Down, American testing of airborne Tularaemia on their own Seventh Day Adventist soldiers during the Vietnam War, are some examples. During this period, anti-crop agents and entomological agents: plague-infected flea, tularaemia ticks, yellow fever mosquitoes were also developed and tested as weapons.

During the Korean War in 1952, North Korea and China alleged that a captured American Air Force officer confessed to dropping Germ Bombs on North Korea. The China led 'International Scientific Commission'<sup>5</sup> composed of Soviet, Italian, French, Swedish, Brazilian and British scientists, in a 700-page report concluded that, "*the people of Korea and China did actually serve as targets for bacteriological weapons*" which included fountain pens with infected ink, anthrax-laden feathers, and fleas, lice and mosquitoes carrying plague and yellow fever. The United States, of course denied the allegations! '*An unverifiable report and its unverifiable denial*'!

The pneumonic plague in Surat in 1994 too was suspected to be coming out of US experimentation of a potent strain in India. The controversy divided scientific

communities, doctors, politicians and what was left was an unanswered enigma<sup>6-8</sup>. The US of course denied it.

## **Biopreparat**

With woefully inadequate Western intelligence on the Soviet biological warfare programme, the only clues gathered were those from scientific publications, academic achievements and obvious gaps in a series of publications by Soviet scientists. However, in the 1940s, a Russian defector, Von Apen, revealed the secrets of Russian biological weapons' human experimentation in Mongolia to the Western world.

Many Wehrmacht files of German Intelligence accessed by the Allies after the Second World War, revealed that the Soviet biological defence programme had started in 1930s.

An anthrax accident at a military facility in Sverdlovsk was reported by Germany in 1979, which killed thousands of people and animals in the vicinity. The epidemiological data revealed that most of the victims lived in a narrow zone from the military facility extending towards the southern city limits, indicating an accidental release of aerosol<sup>9</sup>. The accident was caused by a missing air filter during a shift change in a manufacturing facility, running three shifts to manufacture a highly virulent strain of anthrax for inhalation. The Soviets of course, denied it completely, blaming the contaminated meat instead!

Another Soviet defector, microbiologist Vladimir Pasechnik, who defected to Britain in 1989, during his de-briefing described not just the scale but also the ambition of the Soviet biological warfare programme, of developing genetically engineered antibiotic resistant strains of Black Death. The American and the British agreed to keep

Pasechnik's defection and the knowledge of the Soviet biological warfare programme secret from the world, in exchange for full disclosure and cooperation for a diplomatic initiative.

However, the true nature of the Soviet bio-warfare programme, Biopreparat saw the light of day only through an insider, Kanatjan Alibekov (Ken Alibek) who headed Biopreparat and defected after the dissolution of the USSR. Alibek's defection to the US and his explosive book *Biohazard*,<sup>10</sup> stunned the world with its sheer magnitude, range and the ambitions of the Soviet Biopreparat programme. The most virulent strains of almost all known biological agents against humans, plants, animals, antibiotic-resistant and genetically engineered toxin-pathogen combination strains, mood-altering peptides, numerous delivery mechanisms from aerosol sprays, grenades to intercontinental ballistic missiles (ICBMs) loaded with pathogen bomblets, constantly running huge manufacturing facilities! This account simply mesmerized anyone who cared to listen. The Soviets never disclosed the details of their enormous biological warfare programme!

At the end of the Second World War, the Russians got hold of thousands of tons of German nerve agent stockpiles such as Tabun, Sarin, Soman and state-of-the-art manufacturing facilities to churn out these nerve agents in large quantities.<sup>11</sup> These manufacturing units were shifted to the USSR. The overall power balance prevailed due to the presence of most senior German chemists as precious POWs and consolation to the Allies. However, the biological weapons programmes of the Allies were justified to be continued as an excuse that the post-Hiroshima nuclear imbalance would prompt non-nuclear USSR to pursue aggressive biological weapons programmes.

## **The Domino Effect of the Global Arms Race**

The domino effect of the biological arms race within the elite club was bound to spill over to all spheres of the world. Similar state-sponsored biological warfare programmes of many countries like France, Iraq, Iran, Italy, China, South Africa<sup>12</sup> are well-known. However, the value of biological agents was not lost on non-state actors for bioterrorism purposes.

### **Oregon**

In 1984, devotees of Bhagwan Shree Rajneesh sprayed Salmonella cultures on salad bars infecting 721 people (12 per cent of the community) in order to control local election results in Oregon. The Salmonella cultures were acquired from an American company. However, no one suspected it to be a bioterror attack until after the commune collapsed due to infighting amongst the devotees. Here again, only an insider could establish the biological agent connection<sup>13</sup>.

### **Aum Shinrikyo**

An apocalyptic group in Japan led by Shoko Asahara, conducted number of chemical and biological attacks against the Japanese population using sarin, and Botulinum toxin sprays<sup>14</sup>. Though unsuccessful in achieving results, this group had weaponized botulinum, using sprays fitted on top of cars and air-sprayed it across Tokyo.

### **Amerithrax**

Post-9/11, the United States was shaken with Anthrax letters sent to several media houses and senators, supposedly by Bruce Ivins, a scientist working on specific potent strains in US defence labs at Fort Detrick. Five people were killed and 17 injured due

these mailers containing military-grade Anthrax spores. While Ivins was detained as a prime suspect, he committed suicide.

### **Laboratory accidents and Gain of Function Research**

Handling highly infectious and toxic biological agents, irrespective of defensive or offensive purposes, requires very high safety labs with elaborate infrastructure, strict SOPs, elaborate reporting and redressal mechanisms for accidental spillage or thefts, highly skilled manpower and protocols for their safety. In spite of meticulous planning and execution of bio-safety regulations, there is a long history of such accidental releases of Potentially Pandemic Pathogens (PPPs) at regular intervals throughout the world and the history of denials of these laboratory accidents.<sup>15</sup>

Another facet of the *Plausible Deniability* is intentions. The debate on Gain of Function research and associated risks has been prevalent since 2012. The boundaries between the noble intentions of developing vaccines against anticipated potential pandemic pathogens (PPP), and developing highly potent biological weapons with ill intent, are almost non-existent. The research laboratories, equipment, manpower and manufacturing facilities used for both may look indistinguishable. How can one determine the intentions behind such actions?

### **Plausible Deniability of Bio-weapons and Global Arms Race**

Biological weapons are classified as potent weapons of mass destruction (WMD) along with chemical, radiological and nuclear weapons (CBRN) due to their ability to cause large-scale mortality and morbidity. However, biological agents have distinctly different abilities due to their stealth. And,

the entire history is full of denials! Unlike nuclear or chemical weapons, the biological weapons race was never part of public geopolitical debates.

The unique feature of infectious biological weapons is that even a small vial containing a potent viral or bacterial culture can debilitate the target stealthily. The front-running countries of this arms race have conducted bio-defence exercises during the Cold War, to assess surveillance, early detection, warning systems and public health reinforcements. This feature of the impossible challenge of saving millions of citizens in case of a bio-attack, is attractive to many military scientists to further develop more potent bio-weapons against the enemy.

The military strategists and bio-weapon scientists have been designing biological weapons for assassinations, contaminating water resources, PPP-loaded scud-like missiles and ICBMs, bomblets for airdropping, targeted not only against the opposing armed forces, but also as anti-personnel weapons against entire cities. The technological advancement in biological sciences such as CRISPR and synthetic biology and its interdisciplinary spread across other technological verticals like Cybersecurity, Artificial Intelligence and Big data analytics, has added fuel to ambitions.

History is also full of examples of the way narratives are built according to self-interest and convenience. Though Unit 731 and Khabarovsk war crime trials revealed the gruesome nature of war crimes against innocent citizens, which was very similar to Hitler's war crimes, the Khabarovsk trial was quietly pushed under the carpet! Similarly, assassination of Reinhard Heydrich with Botulinum toxin (BTX)- laced bombs, (and long history of BTX weaponization and use in wars) was quietly blurred behind the

assassination of a Bulgarian writer Markov by Ricin. Ricin is a relatively far less toxic agent with questionable WMD potential, but it ended in Schedule 1 of CWC instead of BTX. Narratives!

To create a credible bio-defence, one of the most important things is to learn lessons from history. Without being clouded by the *Plausible Deniability* aspect of it all, it is imperative to appreciate that there is a full-fledged biological arms race raging since the days of the First World War. The nation should step up efforts of threat assessment, awareness and creation of a *Web of Prevention for Biosecurity and Bio-defence*.

## Endnotes:

1. J. Paxman, and R. Harris, *A Higher Form of Killing*, Random House, 2011.
2. A. Anderson, "Some Recollections of Porton in World War I" *BMJ Mil. Health* 118, 1972, pp.173-177.
3. "Unit 731 and the Japanese Imperial Army's Biological Warfare Program", *The Asia-Pacific Journal: Japan Focus* at <https://apjff.org/-Tsuneishi-Keiichi/2194/article.html>.
4. S. H. Harris, *Factories of Death: Japanese Biological Warfare and the American Cover-up 1932-1945*, Psychology Press, 2002.
5. "ISC Full Report Pub Copy - DocumentCloud" at <https://www.documentcloud.org/documents/4334133-ISC-Full-Report-Pub-Copy.html>.
6. "GreatGameIndia, 1994 Surat Plague - A Forgotten Case Of Bioterrorism", GreatGameIndia at <https://greatgameindia.com/1994-surat-plague-bioterrorism/> 2020.
7. S. Kumar, "Surat plague caused by a novel strain", *The Lancet* 345, 1995, p. 1626 .
8. "Surat 1994 Plague - That Never Was!" at <https://www.japi.org/w2f4a474/surat-1994-plague-that-never-was>.
9. M. Meselson et al., "The Sverdlovsk Anthrax Outbreak of 1979", *Science*, 266, 1994, pp. 1202-1208.
10. K. Alibek, *Biohazard*, Random House, 2008.
11. "Toxic", | Hurst Publishers HURST at <https://www.hurstpublishers.com/book/toxic/>.
12. M. Burger, *Secrets & Lies: Wouter Basson and South Africa's Chemical and Biological Warfare Programme*, Penguin Random House South Africa, 2012.
13. Joseph P. Byrne and Jo N. Hays, *Epidemics and Pandemics: From Ancient Plagues to Modern-Day Threats [2 volumes]*, - | Foyles Bookstore, Foyles at <https://www.foyles.co.uk/witem/health-wellbeing/epidemics-and-pandemics-2-volumes,joseph-p-byrne-jo-n-hays-9781440863783>.
14. W. S. Carus, "A century of biological-weapons programs (1915-2015): reviewing the evidence", *Nonproliferation Review*, 24, 2017, pp. 129-153 () .
15. K. Piper, "How deadly pathogens have escaped the lab - over and over again", *Vox*, 2019 at <https://www.vox.com/future-perfect/2019/3/20/18260669/deadly-pathogens-escape-lab-smallpox-bird-flu> .