

Acknowledging Plunder: The Consequences of How the United States Acquired Japanese and German Technological Secrets After WWII

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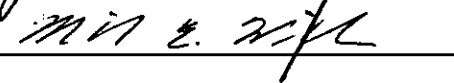
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Introduction

The end of WWII and the opening days of the Cold War were marked by an intense competition for scientific supremacy primarily between the United States and the Soviet Union. Men determined to ensure their country's safety embarked on a journey into postwar Germany and Japan to find the greatest minds in new fields of technological and scientific expertise. Advances in military and civilian science that were guarded as state secrets in wartime began to be sold to the highest bidder amidst the chaos of postwar reconstruction. However these advances were built on the backs of slave labor and mass murder. Scientists, who disregarded the sanctity of human life in prison camps across Europe and Asia, walked away from the experience untouched by the hand of justice. The knowledge those scientists were responsible for was sold to America in exchange for their own protection.

That those scientists were able to do so was largely because several Americans were actively engaged in trying to ferret out the secrets of their enemies' research after the war. With the threat of the Soviet Union on the horizon, the growing competition for enemy state secrets was beginning to make the need for American security trump any other issue. Many Americans made the decision to willfully overlook the actions that several German and Japanese scientists had taken during the war to secure what could only be considered intellectual plunder. In Japan, Ishii Shirō, the Lieutenant General and mastermind of Japan's biological weapons program, helped negotiate a data for immunity deal from the Tokyo War Crimes Trials. In Germany, Operation Paperclip served as

the primary vehicle for bringing German researchers in rocketry, chemical, biological, and conventional weapons to the US regardless of whether or not they were a war criminal after the Nuremberg trials. In both deals the United States overlooked the disquieting foundations of the research it received from its former enemies. Nevertheless there was an important difference between the two deals that has hitherto remained unexplored in existing literature: the German scientists were brought to the US to continue their research while the Japanese were not. This was due to a combination of America's control of information within its occupation of Japan, a lack thereof in Germany, racist dimensions in the American attitudes toward the Japanese, an American conception of the German precedent for technological superiority, and the beginning of a complex arms race with the Soviet Union and other powers immediately after the war. However as a consequence of that difference the malevolence associated with the German research was likely tempered by the Germans' presence in the US while the Japanese research was not. Up to this point that consequence has gone without investigation.

There is a significant amount of academic literature on both Operation Paperclip and the deals the Americans made with the Japanese. In *Operation Paperclip: the Secret Intelligence Program that Brought Nazi Scientists to America* by Annie Jacobsen, the lives of several German scientists and their paths to the US are mapped out, and *The Paperclip Conspiracy: the Hunt for the Nazi Scientists* by Tom Bower examines the politics behind America's attempt to fool the public into accepting its new Nazi scientists. There are several other books

that go in depth into the lives of particular Paperclip scientists and examine the historical events that put them in the US including *Von Braun: Dreamer of Space Engineer of War* by Michael J. Neufeld and *The Nazi Rocketeers: Dreams of Space and Crimes of War* by Dennis Piskiewicz. Several works also dwell on the deal the US made with Ishii and the other Japanese scientists, including its aftermath, like Daniel Barenblatt's *A Plague Upon Humanity: the Secret Genocide of Axis Japan's Germ Warfare Operation* and Sheldon H. Harris's *Factories of Death: Japanese Biological Warfare, 1932-1945, and the American Cover-Up*. Tsuneishi Keiichi, a noted Japanese scholar on the subject of Unit 731 and its proxies has also written extensive works on the unit and its deal with the US. However though most of the existing literature comments on the two immunity deals separately none of them do a comparative study of the deals or look at the results of their differences.

This report is the first attempt at a seriously comparative analysis of the two deals within the world of scholarship. The similarities between the agreements the US made with Japan and Germany and their consequences are significant for America's legacy after WWII and the Cold War. Therefore the first chapter in this report looks at the history of Japan's biological and chemical weapons programs and the atrocities associated with them. The second chapter deals with the rise of Nazism and its effect on German science in the fields of rocketry, biological, and chemical development. Chapter three provides a brief interlude detailing America's own troubled history with racial science and experimentation on humans without consent in the name of national security.

Chapter four details efforts the Japanese scientists made to hide the evidence of their human experimentation by making a deal with America, and chapter five examines the same issues in the German theater. Chapter six examines the deals the US made more closely by focusing on the differences between them and the consequences of those differences.

Walter Benjamin was an assimilated German Jewish literary critic who lived during the rise of the Nazi Third Reich and witnessed the beginnings of many of the innovations in question within this report. He moved to Paris to flee the German persecution of the Jews in 1937, and then to Spain with papers to get him to the United States in 1940. However the French government that had come under Nazi control canceled his papers, and he was ordered to return to Paris. Rather than return to a Europe dominated by thought controlling fascists, Benjamin killed himself by overdosing on morphine.¹ Before he did so Benjamin wrote his last and arguably most esoteric work in 1940 entitled *Theses on the Philosophies of History*. “There is no document of civilization which is not at the same time a document of barbarism. And just as such a document is not free of barbarism, barbarism taints also the manner in which it was transmitted from one owner to another. A historical materialist therefore disassociates himself from it as far as possible. He regards it as his task to brush history against the grain.”² With a literary form reminiscent more of Psalms than prose Benjamin spelled out why history as the story of progress and simple advancement of knowledge, what

¹ Hanna Arendt, introduction to *Illuminations*, by Walter Benjamin (New York: Harcourt, Brace & World, 1968), 18.

² Walter Benjamin, *Illuminations* (New York: Harcourt, Brace & World, 1968), 256.

he labels as historical materialism, was a flawed concept as our past is created by one group of people who vanquish another; the victors write history.

Disease prevention, the Apollo landings on the moon, and the modernization of several American industries in aerospace, chemicals, and high technology came about as a result of these historic immunity and employment agreements. However these achievements were built on knowledge taken from the Germans and Japanese that came with significant moral shortcomings, and unfortunately, in a classic example of victor's self vindication, the atrocities associated with these achievements have been glossed over and faded out of popular memory. This report aims to draw attention to those moral hazards and beg the question of whether or not the benefits of many of America's achievements in the twentieth century were indeed worth the cost that they came by.

Genesis: the Creation of the Japanese BW and CW Programs

The United States' story of intellectual plunder begins thousands of miles from its soil in the heart of East Asia. As John Dower relates in his book, *Embracing Defeat*, the history of Japan in this period was both begun and ended by US warships.³ The country that Commodore Mathew Perry and his black ships forced open in 1854 was worlds apart from the one that General Douglas MacArthur and his shining armada occupied in 1945. While both allowed their fellow Americans to enter the exotic country and extract all sorts of riches and knowledge as a consequence, the lush countryside towns, Ukiyo-e culture of Edo, and estates of the various daimyo (Japanese feudal lords) differed considerably from the war-torn populace living on the washed out moonscapes caused by the firebombs dropped from B-52s. However the part of consequence for this story within that narrative starts with the close of World War I and the dissolution of the Taishō Democracy in Japan.

WWI was formerly known as the “Great War,” and its combatants fought it as the last war. It was a fugue of industrialization and brutal national spirit that resolved into four years of trench warfare and a devastating 15,000,000 casualties.⁴ WWI saw the utilization of warfare on an industrial scale; men were brought down in scores by the revolutionary applications of machine guns, airplanes, tanks, and poison gases. One of the idealistic, perhaps optimistic,

³ John W. Dower, *Embracing Defeat: Japan in the Wake of World War II* (New York: W.W. Norton & Co., 1999), 20-21.

⁴ White, Mathew. "Source List and Detailed Death Tolls for the Primary Megadeaths of the Twentieth Century," *Twentieth Century Atlas - Death Tolls*, <http://necrometrics.com/20c5m.htm> (accessed February 3, 2014).

lessons many learned from the war was that it must never be repeated, and the world must do what it could to ensure that was so via disarmament.⁵ The decade after the guns went silent in 1918 saw the hosting of several arms reduction and limitation treaties within and without the League of Nations. For the purposes of this story there are three treaties to focus on: the Washington Naval Conference of 1921-1922, the London Naval Conference of 1930, and the Geneva Protocol of 1925.

To gain control of Germany's holdings in China and the Japanese Navy's desire to take hold of other territory in the South Pacific, Japan entered WWI on the side of the Allies. It singlehandedly ended Germany's presence in East Asia, gained a hold in China in addition to the Kwantung Leased Territory, and simultaneously secured a position for itself among the postwar councils of the US, Britain, France, and Italy. The latter achievement, an admission of hegemony as a world power by the West, was something unheard of for a non-Christian, non-white nation up to that point.⁶ Industrialized Japan had made a name for itself by defeating Czarist Russia and humiliating China in battle, and Japan set itself up as a colonial power in East Asia. By joining the "Council of Five" at Versailles to hammer out the details of a postwar Germany and new world, Japan became an acknowledged military power and one that would eventually join the rest of the Allied powers in a spirit of demilitarization.

⁵ Sheldon H. Harris, Factories of Death: Japanese Biological Warfare, 1932-1945, and the American Cover-Up, Rev. ed. (New York: Routledge, 2002), 16.

⁶ Dower, Embracing Defeat, 21.

America, under the spell of its Wilsonian ideologies, often led the world in its bid for disarmament (though some of those deals were meant for its own benefit). These deals were aimed not only at landed military power but also at naval capability. The bulk of Japan's power lay in the navy that took a swift hold of Germany's holdings at sea and sent the former colonialists on a chase back to Deutschland. Moreover expanding Japanese naval capabilities were becoming a threat to Britain and America's hegemony in the Pacific, thus prompting the need to address the issue. Therefore the Washington Naval Conference, otherwise known as the Washington Disarmament Conference, was presided over by President Warren G. Harding from 1921-22. The conference hosted representatives from nine different nations though it notably excluded the Soviet Union and Germany. Nevertheless the resulting treaties signed at that conference forced Japan to scale back its colonial holdings and revert control of the Shandong peninsula to the Chinese. More importantly it set cumulative weight limits on the navies of the great powers at a US-Britain-Japan-France-Italy weight ratio of 5:5:3:1.75:1.75⁷ respectively as part of the Five Power Naval Limitation Agreement. An extension of that treaty was signed at the London Naval Conference of 1930 that raised the tonnage limits on battleships to 10:10:7.⁸

The Japanese leadership felt that the signing of these treaties was necessary though limiting. For the average citizen of the Japanese home islands

⁷ 525,000:525,000:315,000:175,000:175,000 tons via a ten year agreement.

⁸ "The Washington Naval Conference, 1921-1922 - 1921-1936 - Milestones - Office of the Historian." U.S. Department of State, Office of the Historian, accessed February 13, 2014, <https://history.state.gov/milestones/1921-1936/naval-conference>.

however, the opinion was noticeably different. Whereas Commodore Perry encountered a Japan divided into feudal domains with stark regional differences, post Meiji Restoration Japan could actually be called a nation state. Meiji policies were driven towards creating a modern, national Japanese character built on the foundations of a state sponsored Shinto reverence for imperial power,⁹ one of the few pillars that held steady as economic outlooks appeared bleak and men saw their families suffering during this period.¹⁰ Interestingly, it was the youth of Japan that was constantly at the heart of these pushes. As the freedom of expression enjoyed during the Taishō period eroded, it was replaced with a militant nationalism driven by young officers in the Imperial and Kwangtung armies. By late 1930 Japanese ultranationalists has pushed out the liberal parliamentarians who thrived during the democratic renaissance of the 1920s and took control of the government. Although somewhat divided on the means of doing so, the previous reservations on employing its strength of arms by Japan's old guard were washed aside by young army officers looking for ways to make Japan a truly great nation.¹¹

The ways in which the new Japanese authorities wished to respond to other nations' efforts to contain their military and great power ambitions were not always uniform. During the times of increased economic hardship in the early 1930s there was an intense factional disagreement within the Imperial Army as it

⁹ Jing-Bao Nie, "On the Altar of Nationalism and the Nation-state," in Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics ed. Jing-Bao Nie et al. (London: Routledge, 2010), 12-15.

¹⁰ Sheldon H. Harris, Factories of Death, 7.

¹¹ *Ibid.*, 20-21.

rose to prominence within Japanese society. The Tōseiha and Kōdōha, known as the Control Clique and Imperial Clique respectively, each tried to set the agenda of the government from their posts in the Kwantung and Imperial Armies in the next half decade. While the latter advocated a more aggressive preemptive strike policy, the former was led by Generals Nagata Tetsuzan and Tōjō Hideki¹² who advocated cautious expansion in coordination with Japan's family owned industrial conglomerates, the zaibatsu. However each agreed on the need to expand Japan's military capability while curbing nonmilitary government controls, and with their merger into the Imperial Way Party the era of national mobilization came on in full force.¹³

However it is necessary to take a step back at this point to address the Geneva Protocols of 1925, for it was the terms laid out there that changed the course of one young Japanese officer's life and, by consequence, that of thousands of others. As it was stated previously, WWI marked a revolution in the means of killing. For example, the German Army in Ypres employed the horrific use of poison gas for the first time as a weapon in 1915.¹⁴ Its use so shocked and terrified the other world powers that they felt the need to set limits on its development and ban the use of chemical weapons after the war. Germany was banned from any development or manufacture due to the Versailles Treaty in

¹² Excluding noted citations, all Japanese mentioned within the body of this report will be given in traditional Japanese form with the family name preceding the given name. For example, Tōjō is the family name and Hideki is the given name.

¹³ Keiichi Tsuneishi, The Germ Warfare Unit that Disappeared: the Kwantung Army's 731st Unit (Tokyo, Japan: Kai-meisha, 1982), 30.

¹⁴ Daniel Barenblatt, A Plague Upon Humanity: the Secret Genocide of Axis Japan's Germ Warfare Operation (New York: HarperCollins Publishers, 2004), 105.

1919 (though that ban would come to nothing in the next two decades), and the convention in Washington three years later placed bans on its use as a standard weapon of war.¹⁵

Nevertheless the international community felt it should go further, and under the authority of the League of Nations the Geneva Protocols were signed on June 17th, 1925. While the treaty was aimed at restricting chemical warfare, the Polish delegation had the foresight to put in a provision banning the use of “bacteriological warfare” – a weapon usable in theory but not yet in practice on an industrial scale.¹⁶ Not all the member nations present at the signing ended up ratifying the protocols, and other countries which were not present at the signing like the USSR, held themselves to the terms of the agreement. Nevertheless a strong chemical lobby ensured that the US did not ratify the protocols, and Japan responded to the failure by forgoing ratification in kind.¹⁷ As a consequence the chemical weapons development Japan had begun in 1919 would continue on through to the end of WWII across various staging point in East Asia.¹⁸

As a responsible doctor keeping abreast of the developments in the medical world Ishii Shirō, a young military doctor and medical officer in the Imperial Army, got wind of the Geneva Protocols. A report on biological warfare written by one such Second Class Physician Harada detailed that officer’s

¹⁵ Robert Harris, and Jeremy Paxman, A Higher Form of Killing: the Secret History of Chemical and Biological Warfare (New York: Random House Trade Paperbacks, 2002), 44.

¹⁶ Harris and Paxman, A Higher Form of Killing, 45.

¹⁷ *Ibid.*, 45-46.

¹⁸ GHQ, AFPAC, Office of the Chief Chemical Officer, *Intelligence Report on Japanese Chemical Warfare*, Vol. 1, APO 500, (National Archives: 1946), 5.

attendance at the proceedings in Geneva.¹⁹ The report described how both the use of chemical and biological warfare was banned. For many reasons the report failed to impress most of the young officers who read it. Ishii on the other hand came away with a vastly different impression. Fellow former members of Ishii's medical unit would later go on to tell of how Ishii was awestruck by the potential of biological weapons as a result of the report. To Ishii the fact the Geneva Protocols banned weapons that were still only theoretical at that point held the implication that if the great European Powers were so scared of using them, they must immensely powerful weapons.²⁰ As early as 1927 it had become Ishii's singular goal to deliver these weapons into the arsenals of the Japanese nation.²¹

Born on June 25th, 1892 as the fourth son of a wealthy family with a landed estate,²² Ishii went through traditional schooling and was noted to have become an ultranationalist from a very early age.²³ Regarded as a brilliant student, Ishii graduated from the Medical Department of Kyoto Imperial University in 1920. Thereafter Ishii enlisted in the Imperial Army as a medical doctor, and he was stationed to various medical posts as a surgeon before returning to his alma mater as a researcher from 1924-1926.²⁴ Ishii's aggressive personality, sycophancy, and personal ambition allowed him to quickly rise up the ranks,²⁵

¹⁹ Sheldon H. Harris, Factories of Death, 19.

²⁰ United States Army, Intelligence Administrative Division, *Biological Warfare (BW)*, (National Archives: 1946) 2.

²¹ Sheldon H. Harris, Factories of Death, 19; Barenblatt, A Plague Upon Humanity, 10.

²² Barenblatt, A Plague Upon Humanity, 5.

²³ Sheldon H. Harris, Factories of Death, 15.

²⁴ Tsuneishi, The Germ Warfare Unit that Disappeared, 21.

²⁵ Barenblatt, A Plague Upon Humanity, 7-9.

and throughout this time he conducted significant medical research on such varied topics as the newly identified “Japanese B” strain of encephalitis and malaria blood cells.

Throughout his career, Ishii made it a point to ingratiate himself with his commanding officers.²⁶ He never hesitated to go straight to the top to achieve his own ends, and once his ambition and jingoism converged on the need for Japan to develop biological weapons, he began to move back and forth from his base in Kyoto to the War Ministry in Tokyo to convince them of the merits of the weapons between 1926-1928. His case rested on the tactical advantages biological warfare capabilities could bestow Japanese forces in war though in a testimony to US authorities detailed in the *Thompson Report*,²⁷ he changed his emphasis to a defensive capability. He further explained that there was ample proof that the Chinese poisoned their wells with Russian support during their retreat in the first Sino-Japanese War. To keep Japanese soldiers from being susceptible to such underhanded tactics he felt they should develop a defensive biological capability. He also implied that the responsibility could fall to him to develop the program due to his experience with successful water purification techniques that had already saved a number of Japanese lives.²⁸ Regardless of how Ishii justified his weapons program, his case failed to impress the Japanese top brass in 1928.²⁹

²⁶ Sheldon H. Harris, *Factories of Death*, 16.

²⁷ One of four reports detailing information on the Japanese biological weapons capability by US weapons experts during SCAP control of Japan.

²⁸ United States Army, Army Service Forces, *Report on Japanese Biological Warfare (BW) Activities*, by Lt. Col. Arvo T. Thompson, (National Archives: 1946).

²⁹ Sheldon H. Harris, *Factories of Death*, 19-20.

Frustrated by the cool reception his ideas were met with, Ishii embarked on a two-year world tour, primarily across Europe and America, to gather intelligence on other countries' germ warfare capabilities. Unfortunately the details are scant regarding this trip and there is little documentation about it. While in postwar testimony, self-described Ishii rival Kitano Masaji said Ishii funded the trip himself, yet as Sheldon Harris points out, it is unlikely a military officer in Japan at that time could have the freedom to embark on a trip around the globe for that duration without some sort of official support.³⁰

Most scholars regard Ishii's expedition as somewhat of a global hodgepodge rather than a logical list of destinations.³¹ However his world tour was actually quite systematic in how it traversed the major steamship and rail lines popular in 1920s. Ishii's trip likely went from Japan to Hawaii to Los Angeles on the US "Presidential Line," and then through North America by rail to Chicago, (possibly Canada), Boston, New York City, Baltimore, and Washington, D.C. though Canada would have been the last stop if Ishii departed to Britain from Montreal. He then presumably traversed Europe by continental rail lines from Britain to Belgium, France, Switzerland, Italy, Germany, Poland, the Soviet Union (probably Moscow then Leningrad), and proceeded to the Baltic States (Finland, Latvia, Estonia, Sweden, and Denmark) by ship or ferry. From there it is logical that he returned to Japan by ship via Turkey, Egypt, likely Bombay,³² Ceylon, and Singapore, yet if his final port of call was Kobe Ishii reasonably

³⁰ *Ibid.*, 19-20.

³¹ Tsuneishi, The Germ Warfare Unit that Disappeared, 22-23.

³² Bombay was a major trade hub though it was not a recorded destination of Ishii's.

stopped in Hong Kong and Shanghai on the way as well.³³ Regardless of his route, it is improbable that Ishii learned much of anything that could be readily utilized or considered valuable intelligence on his expedition. However as a consequence of his journey he came back even more energized about the application of biological warfare from the medical research he saw being conducted by the European powers he visited.³⁴

Fortunately for Ishii the passive civilian government of Tanaka Giichi resigned in July 1929, and upon his return he learned that the new faces in the War Ministry that he needed to court were far more hawkish than their predecessors. The new authorities' receptivity to rearmament combined with Ishii's newly adopted cost effective argument in favor of biological weapons development (also given as a reason for parallel chemical weapons development)³⁵ vaulted his dream into reality. Ishii was granted the post of chief scientist in the newly established Epidemic Prevention and Research Lab (Bō-eki Kenkyūjo) in the Tokyo Army Surgeon School by 1932.³⁶ During this time Ishii also successfully fostered several ties to the civilian medical world, and the mutually beneficial relationship wherein each would request research from the other would only continue to grow as the weapons program matured.³⁷

The Japan's biological weapons program flourished alongside its chemical weapons program due to the fact that many big players in the military and

³³ Heyward Parker-James, conversation to author, April 28, 2014.

³⁴ Tsuneishi, The Germ Warfare Unit that Disappeared, 22-23.

³⁵ Barenblatt, A Plague Upon Humanity, 11.

³⁶ Tsuneishi, The Germ Warfare Unit that Disappeared, 22-23.

³⁷ Nie, "On the Altar of Nationalism and the Nation-state," 12-15; Tsuneishi, The Germ Warfare Unit that Disappeared, 26.

government were lending support between them. The man considered the father of Japan's chemical weapons program, Koizumi Chikahiko, was one such character. Koizumi was considered one of the chief military doctors in early Shōwa Japan. He had been involved in gas mask development since 1918,³⁸ and after recognizing the similarities in the development of biological and chemical weapons Koizumi became an important patron of Ishii as the latter courted the military research community. Koizumi's own chemical weapons program received a brief head start over Ishii's, and in 1928 mustard gas production was beginning at the Tandanoumi Arsenal and weapons testing was underway in Formosa by 1930.³⁹ Regardless Koizumi used his connections and the experience he had gleaned from the chemical development to link up Ishii and his colleagues with such important names as the aforementioned General Nagata Tetsuzan and Colonel Ryuji Kajitsuka.⁴⁰ These men gave Koizumi the power to promote Ishii to major and lead Japan down a dark path of scientific investigation.

Patriotism, nationalism, and an ardent drive to make Japan the greatest nation in the world drove many of those men to court the power that was promised in the possibilities of biological and chemical weapons. However there was a darker side to Japanese nationalism: a racial dimension. Not uncommon to most countries at the time was the intrinsic belief that one's nation was ethnically superior other nations. However the ethnocentrism the Japanese held onto was a three-tiered version of racism that became official educational policy. At the top

³⁸ Barenblatt, *A Plague Upon Humanity*, 14.

³⁹ Harris and Paxman, *A Higher Form of Killing*, 47.

⁴⁰ Sheldon H. Harris, *Factories of Death*, 22-24.

were the Japanese, the ones below them were the Koreans and Chinese, and beneath them were the Asian islanders and races of the Pacific Rim.⁴¹ Below the third tier were monstrous barbarians who held no resemblance to the great Japanese nation whatsoever. Even within Japan itself certain minorities like the *Burakumin*,⁴² Okinawans, Ainu were barred from certain social rights, and the further away from Japan one got the lower the collective opinion was about the local inhabitants there.⁴³ These stereotypes helped reinforce the image of a dominant Japanese state and contributed to the colonization of Korea and Manchuria: what became the staging ground for Japan's weapons programs.

Moreover the Japanese leadership was always acutely aware of their status as an island nation and the pitfalls associated with it. Several of the arguments between the Tōseiha and Kōdōha revolved around the need to strike out into China and take its resources for Japan in order to sustain its rise. In those arguments the oil and metal reserves of Manchuria always served as an important first step to securing Japan's lifeline to greatness, and the Kwantung Army always made itself active in those conversations.⁴⁴ Japan had held certain privileges in Manchuria since the Russo-Japanese War of 1904-5 by acquiring the Kwantung Leased Territory and more in the form of railroad and land holdings when the Manchu Dynasty fell in 1911, but it was not enough. The Kwantung Army, the

⁴¹ Boris G. Yudin, "Research on Humans at the Khabarovsk War Crimes Trial," in *Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics* ed. Jing-Bao Nie et al. (London: Routledge, 2010), 75.

⁴² An outcast group remnant from feudal Japan; they are "village people" who dealt in professions that were impure because they were involved with death.

⁴³ Barenblatt, *A Plague Upon Humanity*, 19-20.

⁴⁴ Peter Williams and David Wallace, *Unit 731: The Japanese Army's Secret of Secrets* (London: Hodder & Stoughton, 1989), 13.

nominally subordinate and ultranationalist army set up by Japan in the Kwantung Leased Territory always chose to advance Japan's nationalist agenda on its own terms rather than on Tokyo's. It ordered the assassination by bombing of Zhang Zoulin, the Generalissimo of Beijing, on June 4th, 1928 and had its young officers set off weak bombs again at Japan's South Manchurian Railway on September 18th, 1931. Known as the Mukden Incident, this episode spurred a full on Kwantung invasion of Manchuria, and by 1932 the Kwantung Army had taken the entire territory from its former Chinese warlord Zhang Xueliang (Zoulin's son). All this took place without consent from the authorities in Tokyo.⁴⁵ Though imperial officials were upset by the unilateral action taken by the Kwantung Army the territory was set up officially as Manchukuo, a puppet state of the Japanese Empire administrated by the Kwantung Army.

Up to that point Ishii's development of the biological weapons program had yielded some results, almost all of which were certainly defensive rather than offensive in capability.⁴⁶ From 1931-32 Ishii and his colleagues continued to experiment in Tokyo but the simple fact remained that their offensive work was still primarily theoretical. To Ishii the weapons needed to be field-tested, and the sensitive nature of his work was such that if his work was expected to be turned into an effective weapon then human experimentation would be necessary to determine its success rates. To Ishii the newly acquired Manchurian territory was

⁴⁵ Barenblatt, *A Plague Upon Humanity*, 19.

⁴⁶ *Ibid.*, 18.

the perfect place to conduct such experimentation confidentially.⁴⁷ Appealing to his senior officers in a vague communiqué, Ishii made the appeal to head over to Manchuria to set up an extension of his work in Tokyo.⁴⁸ He was granted his request and made his way to Harbin, a great commercial hub at the time made up mostly of Chinese and Russians. The expedition was led personally by Ishii and clandestinely given the alias of the Tōgō Unit.⁴⁹ The unit was named for Ishii's personal hero Captain Tōgō Hajime, the famous strategist and commander that defeated the Russians at the renowned Battle of Tsushima in 1905. Despite Ishii's vision driving the enterprise, the unit's new location placed it under Kwantung leadership who enthusiastically supported the program.⁵⁰ They initially set up a medical research center in an abandoned distillery on the outskirts of Harbin.⁵¹ Eventually the program moved out to the small nearby village of Beiyinhe, and retrofitted the area to conduct their primary experimentation, which gained the nickname Zhong Ma Castle.⁵²

Zhong Ma saw the first glimpse of the Ishii and the Tōgō Unit's hellish research methods. According to several sources, Ishii took prisoners from the Zhong Ma prison camp for his experiments. At his compound they were treated better than most Japanese prisoners at the time with full meals and a supervised

⁴⁷ Keiichi Tsuneishi, "Unit 731 and the Japanese Imperial Army's Biological Warfare Program," in Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics ed. Jing-Bao Nie et al. (London: Routledge, 2010), 23.

⁴⁸ Barenblatt, A Plague Upon Humanity, 20-21.

⁴⁹ Tsuneishi, The Germ Warfare Unit that Disappeared, 26.

⁵⁰ Sheldon H. Harris, Factories of Death, 28.

⁵¹ Williams and Wallace, Unit 731, 15.

⁵² Sheldon H. Harris, Factories of Death, 33-34.

exercise schedule, but that did not mitigate the horrors those prisoners faced. Live body experimentation was routine at Beiyinhe, and Ishii used injections without anesthetic to get results for his frostbite, plague, glanders, and anthrax experiments.⁵³ Despite a prison riot that effectively rendered the camp inactive and suspended operations there, his Kwantung superiors found his experiments to be incredibly successful – Ishii was promoted.

Furthermore he had developed a water filtration device back in Tokyo in 1931 of which its experimental implementation saved several Japanese soldiers' lives in the field. High command's acknowledgement of Ishii's success represented a further boon to his reputation as well as the acknowledgement that medical staff on site with special training was necessary for successful combat operations.⁵⁴ The combination of Ishii's success with his water filtration device and his experiments in Manchuria was marked in 1936 by an imperial edict from the Japanese emperor that reorganized Ishii's unit into a 1,000-man strong force under the auspices of the Kwantung Army.⁵⁵ Peter Williams and David Wallace recorded the words of one of Ishii's superiors, Col. Ryuji Kajitsuka recalling the event as follows:

“Detachment 731 was formed by the command of the Emperor of Japan Hirohito, issued in 1936. The Emperor's command was printed and copies of it were sent to all units of the Japanese Army for the information of all the officers. ... The detachment's location was determined by the Kwantung Army headquarters. Until 1941, the detachment had no number but was called the Water Supply and Prophylaxis Administration of the Kwantung Army, and also the Ishii Detachment, because it was the custom in the Japanese

⁵³ *Ibid.*, 33-35.

⁵⁴ Williams and Wallace, Unit 731, 17.

⁵⁵ Tsuneishi, The Germ Warfare Unit that Disappeared, 47.

Army to call Army units by the names of their commanders. The detachment was given the number 731 in 1941 by order of the Commander-in-Chief of the Kwantung Army, who gave definite numbers to all Army units and institutions.”⁵⁶

At the same time several other units were set up to similar ends including the Military Equine Epidemic Prevention Depot later known as Unit 100 and otherwise as the Wakamatsu Unit (for Brigadier General Wakamatsu Yūjirō). These units were Kwantung on paper and given innocuous names to cover their suspicious research, yet their complex funding structures made them essentially imperial institutions with control over them resting in Tokyo rather than Manchuria.⁵⁷ Among the other units that were set up concurrently with the 1936 imperial edict was the infamous Manchuria Unit 516 meant to advance chemical weapons research. Several other extensions of Unit 731 and 100 were set up in major Chinese cities as the Second Sino-Japanese war began and later in Singapore after 1942 as auxiliary units for gathering data and field testing.⁵⁸

Nevertheless Ishii in coordination with the higher powers in Tokyo began the move to a much larger facility at Pingfan. Pingfan initially consisted of a cluster of eight to nine Chinese villages just 24 kilometers south of Harbin proper, but the institution built for weapons development there was recorded to have been enormous. From the moment building began in 1936 until the facility’s destruction during the Japanese retreat in 1945, 10,000 to 15,000 Chinese laborers were forced to work on the

⁵⁶ *Ibid.*, 16.

⁵⁷ *Ibid.*, 27-8.

⁵⁸ *Ibid.*, 24-25.

industrial complex. Surviving blueprints show that Pingfan hosted 78 building's worth of laboratories, dormitories, detention facilities, barracks, and even live stock pens.⁵⁹ The institution boasted the finest scientific and medical facilities at the time, though its then modern facilities made practices such as hen and rat herding as much a regular sight as any research advancement.⁶⁰ Consequently Pingfan was set to be (what was later designated as) Unit 731's base of operations. Pingfan simultaneously allowed Unit 731 to issue directives to its extensions on the field of battle and maintain seclusion from the prying eyes of the outside world. Indeed Pingfan was built and secured in such a way that renowned Unit 731 scholar Keiichi Tsuneishi concluded that the total isolation that the Ishii and his colleagues enjoyed there allowed the scientists to disconnect from the outside world, and that made it easier to preform and justify such vile experiments as live body experimentation and vivisections.⁶¹

At the 1936 inauguration of the facility at Pingfan (though construction had not yet finished) Ishii made a rousing speech to the then assembled personnel. Fully aware of the nature of the research he planned on conducting at Pingfan and eager to enlist support he stated, "our God-given mission as doctors is to challenge all varieties of disease-causing micro-organisms; to block all roads of intrusion into the human body; to annihilate all foreign matter resident in our bodies and to devise the most

⁵⁹ Sheldon H. Harris, *Factories of Death*, 43-45.

⁶⁰ United States Army, *Biological Warfare (BW)*, 4.

⁶¹ Tsuneishi, *The Germ Warfare Unit that Disappeared*, 234.

expedient treatment possible. However the research work upon which we are now to embark is the complete opposite of those principles, and may cause us some anguish as doctors.”⁶² Ishii’s disarming words along with his reputation as a respected microbiologist helped several doctors overcome the moral hurdles they faced. His influence as a researcher with ties to both Tokyo and Kyoto Imperial University was so widespread that his network employed some several thousand rotating civilian researchers in Japan and Manchuria during his stay at Pingfan.⁶³ As the war progressed ardent believers in Ishii’s nationalist agenda in the pharmaceutical world would lend their expertise to him and his auxiliaries worldwide, and from Japan the companies would put in requests (that were often accepted) to review his research.⁶⁴

With the considerable resources Ishii’s efforts had procured for the military technicians and medical personnel at Pingfan, work began in earnest around 1936. The Japanese military kept the facilities’ prisons extremely clean so as not to infect their subjects with any common diseases, but rather the men and women in Manchuria were exposed to diseases far more deadly and were tragically dehumanized in the process. The researchers at Pingfan referred to their human research subjects as *maruta* (丸太), the Japanese term for log, and Pingfan as the lumber

⁶² Barenblatt, *A Plague Upon Humanity*, 42.

⁶³ Tsuneishi, “Unit 731,” 26.

⁶⁴ Suzy Wang, “Medicine-related War Crimes Trials and Post-war Politics and Ethics,” in *Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics* ed. Jing-Bao Nie et al. (London: Routledge, 2010), 44-45.

mill.⁶⁵ The sinister nickname came about as a direct result of their vivisection activities. Men, women, and children would be injected with biological agents while their doctors monitored the results. Once symptoms began to show at various stages the doctors would operate on the live subjects without anesthetic, and once the test subject finally perished they were sent to pathologists in other parts of the facility for further examination.⁶⁶ Under Ishii's tenure the experiments were by no means limited in scope, but when he shipped off to Nanjing in 1942 his successor Lt. General Kitano Masaji (then Maj. General) actually expanded the scope of the research and conducted even more human experiments.⁶⁷ While the Japanese had taken meticulous notes on their research, most of it was destroyed during their retreat in 1945 from the advancing Soviet forces. Therefore the number of victims who died as a result of the experiments cannot accurately be concluded. Nevertheless there are several estimates ranging from a bit lower than 1,000 to somewhere near 9,000-10,000 as a result of the biological weapons experimentation not including the 2,000 deaths associated with joint chemical weapon field testing executed during the Sino-Japanese War.⁶⁸ Nevertheless the general consensus revolves somewhere around the estimate of Kawashima Kiyoshi, head of 731's Division I, whose testimony at the Soviet run Khabarovsk trial for captured Japanese

⁶⁵ Barenblatt, A Plague Upon Humanity, 48-49.

⁶⁶ *Ibid.*, 48-50.

⁶⁷ Sheldon H. Harris, Factories of Death, 105-106.

⁶⁸ *Ibid.*, 86-87.

scientists put the number of victims of human experimentation at 3,000 between 1940-1945.⁶⁹

Ishii and several military personnel later analyzed the summation of their research for their own experiments in weaponizing the bacteria. Their purpose had always been to create a powerful weapon, and their innovations resulted in the development of several bombs armed with biological agents. Though it might be counter intuitive, the successful development of a biological bomb was much harder than it might seem. Balancing altitude drops, exploding parts, germ cultivation, and the prevention of friendly fire was a difficult task for Unit 731 and its extensions. Nevertheless Japan made several advancements on the concept. The weapons most widely acknowledged by the Americans as having significant potential with further development were the Uji-type and Ha-type germ bombs.⁷⁰ The Uji bomb was one of nine anthrax bombs developed at Pingfan by 1940 that held porcelain containers filled with fleas, feathers, and other spreadable materials to be dropped by aircraft.⁷¹ However the Ha bomb was the deadliest of them in that it was an explosive that infected its victims with the spores of anthrax coated on the shrapnel it ejected upon impact – it was reported to have had a 90% mortality rate when successfully employed.⁷²

⁶⁹ Yudin, “Research on Humans at the Khabarovsk War Crimes Trial,” 66.

⁷⁰ Thompson, *Report on Japanese Biological Warfare (BW) Activities*.

⁷¹ Barenblatt, *A Plague Upon Humanity*, 75.

⁷² Harris and Paxman, *A Higher Form of Killing*, 77.

The Ha and Uji bomb may have been recognized as the weapons with the most devastating potential, but those do not do justice to the many other types of weapons employed and developed by the institute at Pingfan. The human experiments conducted there told their researchers a great deal about the infectiousness of the deadly diseases they were working with, and they actively sought out the best ways to make use of their new knowledge. One effective method was simply a return to the oldest one – sabotage. Using carrion to poison wells had been utilized as a strategy at least since the times of Ancient Greece,⁷³ and Unit 731 employed similar techniques to infect enemy water supplies with typhoid cultures. One particularly nasty approach to foodstuff sabotage was to drop a “fugu toxin” made from the poison livers of blowfish into wells in enemy territory.⁷⁴ The veterinary scientists of Unit 100 located on the outskirts of Changchun, the capital of Manchukuo, were particularly adept at developing new sabotage techniques. The Wakamatsu Unit’s soil and water pathogen testing was so effective, certain Manchurian water tables are still marked off as hazardous zones.⁷⁵ Finally the extension of 731 known as the “Tama Unit” or Unit Ei 1644 established in April 1939 and initially headed by Tomo Masuda was the host of collaboration in biological and chemical warfare in Nanjing. These scientists made

⁷³ Barenblatt, *A Plague Upon Humanity*, 86-87.

⁷⁴ Harris and Paxman, *A Higher Form of Killing*, 78.

⁷⁵ Sheldon H. Harris, *Factories of Death*, 132-133.

inroads into the effects of poison by prussic acid and anthrax nose bacteria by testing them clandestinely on prisoners and residents of the city.

The opening of the Second Sino-Japanese War in 1937 represented yet another avenue for the proponents of Japanese biological and chemical warfare research to gain more test subjects and by extension results. The ultimate end of this research was a weapon usable on the field of battle, of which the Japanese made several inroads at the front. From the very outset of the war the Japanese were using poison gas on their poorly equipped Chinese opponents.⁷⁶ They used this research to literally write the book on the most effective utilization of chemical warfare, and by 1938 they were routinely employing mustard gas on the field of battle.⁷⁷ Without the fear of reprisal in kind Japanese scientists continued to research, manufacture, and test new weapons on their opponents until 1944 and only ceased doing so after Western reprisal became a possibility.⁷⁸

The Imperial Army was brutal in how it dealt with the Chinese, yet the first biological weapon field-test did not take place in a campaign against them. Rather Ishii and the scientists at Pingfan found that the first opportunity to employ their weapons was against the Russians during the Nomonhan Incident in mid 1939. From May until September of that year Kwantung and Manchukuoan forces skirmished with Soviet and Mongolian communist forces across the river of Khalkhyn Gol. Once

⁷⁶ Harris and Paxman, *A Higher Form of Killing*, 48.

⁷⁷ *Ibid.*, 48.

⁷⁸ *Intelligence Report on Japanese Chemical Warfare*, 6.

again without the express consent of Tokyo, the Kwantung Army ordered airstrikes against Soviet bases in retaliation for their defeated reconnaissance units and thereby triggered a series of escalating battles that ultimately ended up in a Kwantung defeat and a restoration of quiet along the Soviet border. As these events unfolded Ishii dispatched technicians to infect the river flowing into Soviet territory with typhoid bacillus, yet the results were minimal.⁷⁹

Ironically while Ishii's endeavors at Nomonhan were a failure, they were far overshadowed by the displeasure the Emperor directed at the Kwantung Army. Their disgrace at the hands of the Russians forced them onto a tighter leash and simultaneously convinced Tokyo to invest more resources into nonconventional warfare – Ishii's unit received orders to progress in their endeavors.⁸⁰ Ishii used the directive to launch a series of strikes against major Chinese civilian centers with his prototype weaponry. Using a few of the 18 proxy units of Unit 731, Ishii ordered biological weapon strikes throughout 1940 in such cities as Ningbo, Hangzhou, Nanjing, and various sites across the Chinese opposition's capital province of Shanxi.⁸¹ The resulting casualties totaled out to 106 people and, like the attempt at Nomonhan, were deemed a short-term tactical failure.⁸²

Nevertheless bioweapon satellite units carried out various strikes across China from the end of 1940 through 1941, notably in the Hunan

⁷⁹ Tsuneishi, "Unit 731," 27.

⁸⁰ Tsuneishi, The Germ Warfare Unit that Disappeared, 69-71.

⁸¹ Sheldon H. Harris, Factories of Death, 94-100.

⁸² Tsuneishi, "Unit 731," 27.

and Zhejiang provinces.⁸³ However the largest field-testing conducted under Ishii's auspices came during the Imperial Army's major Zhejiang-Jiangxi Campaign from May until September, 1942. As Japanese forces marched through those two Chinese provinces in retaliation for the Chinese harboring American servicemen sent to bomb the home islands as a part of the Doolittle Raid, Ishii set his own agenda. He used the turmoil to his advantage and employed aircraft to drop cholera pathogens directly onto the field of battle. The resulting chaos led to over 10,000 casualties and at least 1,700 deaths as a result of dysentery, yet the campaign was a catastrophic failure – almost all the casualties belonged to Japanese soldiers.⁸⁴ Not only were the tests a failure, the Chinese began to log the attacks and passed on the information to their British and American counterparts in 1942.⁸⁵ Japan's secret was out. Nevertheless testing continued throughout the war, and as the hostilities were drawing to a close, high command in Tokyo and Unit 731 created a contingency plan to conduct a biological strike test against the American mainland via submarine toward the end of December 1944.⁸⁶ However that plan never came into fruition due to a veto from the Chief of the Japanese General Staff, Umezu Yoshijirō, and the joint army-navy strike represented the

⁸³ Eiji Takemae, Robert Ricketts, and Sebastian Swann. Inside GHQ: the Allied Occupation of Japan and its Legacy (New York: Continuum, 2002), 255.

⁸⁴ Tsuneishi, "Unit 731," 28.

⁸⁵ Harris and Paxman, A Higher Form of Killing, 81.

⁸⁶ Hal Gold, Unit 731: Testimony (Tokyo: Yenbooks, 1996), 90-91.

closest to coordination with higher military authority the biological program got to throughout the war.

In spite of all the money and authority thrown behind it, most of the biological weapons program's accomplishments only went as far as field testing.⁸⁷ One American analysis determined that while the Japanese did make significant inroads into the creation of usable biological weapons, an ultimate lack of coordination with other wings of the armed forces limited its potential.⁸⁸ Japan's chemical weapons did not suffer from the same handicap and were routinely employed across several fronts by both the army and navy. However by 1944 the Allies had made enough significant gains to force Japan to rethink its offensive posture, and ultimately the offensive program was abandoned in favor of defensive preparations for the home islands.⁸⁹

Nevertheless by the close of the war the Japanese had made some significant scientific advancement through their unscrupulous methods. While their bombs were widely acknowledged after the fact as requiring more research, Ishii and the Japanese scientists had developed top of the line germ manufactories, and Ishii himself claimed to have helped perfect the best way to reproduce largely noninfectious germs.⁹⁰ Furthermore despite the disregard for the subjects in their experiments, several advancements were made in military medicine as a result of their tests. At

⁸⁷ Tsuneishi, "Unit 731," 27.

⁸⁸ Thompson, *Report on Japanese Biological Warfare (BW) Activities*.

⁸⁹ *Intelligence Report on Japanese Chemical Warfare*, 6.

⁹⁰ Thompson, *Report on Japanese Biological Warfare (BW) Activities*.

the Khabarovsk War Crimes trials, several researchers giving testimony admitted that one of the many aspects of their research was meant to test the limits of human endurance and see how far it could be pushed.⁹¹ Though quite a few tests were superfluous and cruel the inroads Unit 731 researchers made in frostbite research had several applications for those willing to use the tainted data. Rather than drawing things out in list form, perhaps the best way to summarize the advances the Japanese made as the war drew to a close is through the testimonies of Unit 731 chiefs Kitano Masaji and Kasahara Shirō to US interrogators after both were repatriated to Japan after 1946. Both figures proudly boasted how they were responsible for lowering Japanese soldiers' own mortality rates through their treatments from 30% to 15%. Non-Japanese mortality was admitted at 100% - they were simply sacrifices.⁹²

This was the nature of the information the United States acquired from Japan.

⁹¹ Yudin, "Research on Humans at the Khabarovsk War Crimes Trial," 66-7.

⁹² Till Bärnighausen, "Data from BW Experiments in China," in Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics ed. Jing-Bao Nie et al. (London: Routledge, 2010), 82.

The Shadow of German Scientific Achievement in WWII

While the interest the United States took in Japanese advancement has the benefit of having one passionate jingoist and his research serve as the linchpin of the US' involvement with Japanese research, its German counterpart does not. German advancement up to the end of World War II followed a very diverse path, and the approaches to research its citizens took that led to their later relationships with the US was unique to each circumstance. Those men pushed Germany to the peak of its advancement in such areas as rocketry, aeronautics, medical development, poison gases, and biological weapons. Their stories are dealt with in much further depth in other corpora, yet for our purposes we shall touch on each at least briefly.

The First World War was not the beginning of German technological superiority in the West, but for the United States it was. As a result of the hostilities and strange new world of total war that it found itself in during the Great War, Germany ended up losing a great deal. A war that was fought for revenge and the glory of the German nation-state ended in total disaster in 1918 once Germany's western front fell and an armistice was imposed. By the time the guns went silent two million German men had been killed and 4.2 million were wounded, one fifth of the male German population at the time.⁹³ The staggering loss of life Germany, and the world as a whole, had to endure was further

⁹³ Wayne Biddle, Dark Side of the Moon: Wernher von Braun, the Third Reich, and the Space Race (New York: W.W. Norton), 2009, 33.

compounded by the humiliation it was forced to face in the negotiations that took place at Versailles without her. The treaty was drafted by the victorious powers for each of their own ends: vindication for France, reparations for Britain, and a new world order for the United States, yet in reality the treaty that was drafted in 1919 went much further. The Treaty of Versailles crippled the future potential of the German war machine, ceded away 13% of its territory, a tenth of its population, assigned Germany the sole guilt for WWI, and called for 130 billion gold marks in reparations, and yet it failed to address a German nationalism that wholly rejected the terms placed upon the Fatherland.⁹⁴ The aforementioned list was referred to by the Nazi Party as *Knechtschaft*, or slavery, and the terms put in place at Versailles and the chaos it later created played directly into the hands of the German far right and the Nazis when they came to power in the early 1930s.⁹⁵

In spite of the initial satisfaction that the Allies felt, particularly France, at constraining Germany's capacity to go to war with its neighbors because of their treaty, the irony was that Versailles played directly into the hands of those Germans urging the army to innovate. The Treaty established the Reichswehr (Reich Defense Force) that limited Germany to a tiny 100,000-man army, tiny 15,000-man navy, and banned the

⁹⁴ Biddle, Dark Side of the Moon, 34-35.

⁹⁵ *Ibid.*, 35.

creation and utilization of an air force.⁹⁶ At least initially the German military was severely restrained by its newfound limitations, and the conservative monarchists of the Junker noble classes that traditionally stocked the German officer corps suffered from both the lack of funds and manpower. The limitations imposed on the army even cut into the heart of German society. The high ranking and status, particularly for the nobility, that came with army service that once permeated German society was significantly limited.⁹⁷ However in the face of those handicaps the army was eager to rearm almost from the outset of its defeat in whatever way it could do so as fast as it could muster.⁹⁸

The official controls imposed upon the Reichswehr that banned conscription effectively turned it into a professional army, and its size and the composition of its officer corps increasingly removed it from civilian life. Nevertheless as it moved in the shadows the army drafted and adopted the unofficial policy of the *Zukunftsarmee* (army of the future) plan to advance its capacities for its next war.⁹⁹ The army embarked on a series of covert development programs using its small budget, and it collaborated with several nationalist paramilitary organizations to skirt enlistment number violations including the Nazi *Sturmabteilung* (SA)¹⁰⁰

⁹⁶ Michael J. Neufeld, *Von Braun: Dreamer of Space, Engineer of War* (New York: A.A. Knopf), 2007, 50-51.

⁹⁷ Neufeld, *Von Braun*, 9.

⁹⁸ *Ibid.*, 4.

⁹⁹ Biddle, *Dark Side of the Moon*, 35.

¹⁰⁰ The Nazi Storm Detachment or Assault Division, also known as the Brownshirts.

and *Schutzstaffel* (SS)¹⁰¹.¹⁰² These operations had grown large enough that by 1928 systematic rearmament had begun, and Germany was testing new tanks, aircraft, and poison gases at secret bases in Russia with the help of the Soviet Red Army via a secret alliance.¹⁰³

The backdrop of economic turmoil and a distrust of republican government continually affected the German cultural and technical developments in the two decades before the outbreak of WWII. The Weimar Republic, named after the city where its constitutional assembly was held, was established in 1919. From the outset many Germans were wary about a government that was set up in the wake of its defeat in WWI, and that mistrust was amplified by the embarrassing terms imposed by Versailles that government seemingly held itself to. The resulting distrust in government saw uprisings from both the far left and far right during the 1920s. These issues with the republic were further compounded by a period of hyperinflation where by November 1923 the Reichsmark “fell to a value of 4.2 trillion to the dollar, or one-trillionth the prewar gold standard.”¹⁰⁴ While the inflation crisis did stabilize in 1924 and the republic’s golden years continued until 1929, there was never much lasting confidence in Germany’s elected government.¹⁰⁵

¹⁰¹ The Nazi Protection Squadron or Defense Corps.

¹⁰² *Ibid.*, 35.

¹⁰³ Neufeld, Von Braun, 50-51.

¹⁰⁴ *Ibid.*, 17.

¹⁰⁵ Biddle, Dark Side of the Moon, 30.

All of the issues the German people had with its government came abruptly to a head with Wall Street's crash in 1929. The Dawes and Young Plans of 1924 and 1929 that were meant to help Germany pay for its reparations with loans guaranteed by American banks fell through, and the collapse had profound consequences for the German economy. The resulting depression led unemployment to hit the 6 million mark by mid 1932 (30%). The socioeconomic maelstrom enveloping the country drove several Germans into the arms of previously fringe political parties like the National Socialist German Workers' Party (Nazis, NSDAP) and those of the communists (KPD).¹⁰⁶ By 1930 the last Weimar government with a majority coalition in the Reichstag, the German parliament, collapsed. The jaded president, the Great War field marshal Paul von Hindenburg, appointed a number of right wing chancellors from minority governments that ruled essentially by emergency presidential decree over the next three years due to the obdurate divisions within the Reichstag.¹⁰⁷

In 1933 when Hitler was appointed chancellor by Hindenburg, despite the latter's reservations about doing so, the Nazis had reached 44% representation in the Reichstag, but their appetite for full control was hardly sated.¹⁰⁸ Within a few weeks of taking power the Nazis began what was widely referred to as the Blood War, or Blutkrieg, where gangs allied to Hitler assaulted the political parties opposed to him, particularly those

¹⁰⁶ Neufeld, Von Braun, 42.

¹⁰⁷ *Ibid.*, 42-43.

¹⁰⁸ Dennis Piskiewicz, The Nazi Rocketeers: Dreams of Space and Crimes of War (Westport, Conn.: Praeger), 1995, 29.

who identified as communists and Jews.¹⁰⁹ However the street fighting paled in comparison to what was to come. After the Nazis covertly set fire to the Reichstag four weeks after Hitler was raised to the chancellorship,¹¹⁰ Hitler called an emergency meeting of parliament to pin the blame on a Dutch anarchist and allow him emergency powers.¹¹¹ The resulting “Enabling Act” of 1933 granted Hitler the power to issue law without consulting the Reichstag for a period of four years. A two-thirds majority passed the act and marked the end of the Weimar Republic and beginning of the Third Reich.¹¹²

The Nazis set to work on their new domain with noted zeal; Jews across Germany were exiled from the public sphere as the engineers of the disasters of WWI and the recent financial collapse, and Jews of note like Albert Einstein even had bounties placed on their heads when they went abroad.¹¹³ With their enemies slowly being silenced Nazi ministers went to work remolding the public sphere to the desires and principles of the party. The world of German art and culture saw the newly appointed Minister of Propaganda and Public Enlightenment, Joseph Goebbels, pick and choose according to his whims what was acceptable art and what was not for the German people. Poet Bertolt Brecht, composer Kurt Weill, Bauhaus art school director Mies van der Rohe, and contemporary painters

¹⁰⁹ Biddle, *Dark Side of the Moon*, 5-6.

¹¹⁰ Piskiewicz, *The Nazi Rocketeers*, 29.

¹¹¹ Biddle, *Dark Side of the Moon*, 6-7.

¹¹² Piskiewicz, *The Nazi Rocketeers*, 29.

¹¹³ *Ibid.*, 30.

George Grosz, Max Beckmann, and Vasily Kandinsky all emigrated from Germany as the intellectual and cultural air became stifled.¹¹⁴

The Nazis took the 1930s as a gift to reshape Germany to their image, yet the ultimate form Germany was meant to take centered on the cult of personality and vision of its leader, Adolf Hitler. At the peak of World War Two, Hitler remarked to his inner circle at a 1942 dinner party, “I’m mad on technology.”¹¹⁵ Beyond the general advancement and rearmament occurring in Germany, there was an immense technical debate taking place throughout the Weimar Republic and into the Third Reich that came to influence Hitler’s ideology. The philosophy of *Technik und Kultur* that began to evolve in the late 1920s stated that Germany could be technologically advanced but still hold true to its old folkways. Germans who followed the debate in technical institutions across the country abandoned the ideals of the Enlightenment that held mythology and rationality mutually exclusive. This discourse that Hitler was privy to helped engender science to the National Socialist government and helped place the advancement of German technical interests wholly into state directed hands.¹¹⁶ Indeed, whatever Hitler was mad on, so was Germany. The development of high technology and military innovation immediately gained new gravitas.

¹¹⁴ *Ibid.*, 30.

¹¹⁵ Annie Jacobsen, introduction to Operation Paperclip: The Secret Intelligence Program that Brought Nazi Scientists to America (New York: Little, Brown and Company, 2014), ix.

¹¹⁶ Biddle, Dark Side of the Moon, 37.

Hitler's whims were transmitted to his lower ministers and from there into general society with startling alacrity and complicity, and these transformations were not limited to Germany. After the French defeat as a result of the German blitzkrieg, in 1940 Heinrich Luitpold Himmler, the *Reichsführer* of the Nazi SS, retrofitted the University of Strasbourg in Alsace-Lorraine to become a front for biological weapons with hardly a whimper of recorded resistance.¹¹⁷ The ideology was so effectively disseminated by propaganda efforts and the possibilities of state scientific funding that doctors and other researchers were given the license to be as aggressive as they wanted as long as they applied themselves utterly to Hitler's vision for Germany.¹¹⁸ German science by the end of WWII was thoroughly politicized and transformed into Nazi science.

Germany was also the victim of a deep-rooted and historic racial bigotry that assumed a new sense of legitimacy under the Nazi regime. Several aspects of German biological research became mired in the pseudo science of eugenics, and under the direction of senior Nazi authorities researchers continually tried to use science to prove the superiority of German race.¹¹⁹ Eugenics and historical prejudice helped drive several

¹¹⁷ Annie Jacobsen, Operation Paperclip: The Secret Intelligence Program that Brought Nazi Scientists to America (New York: Little, Brown and Company, 2014), 4-5.

¹¹⁸ Ole Döring, "Bioethics and Exceptionalism," in Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics, ed. Jing-Bao Nie et al. (London: Routledge, 2010), 147.

¹¹⁹ Peter Degen, "Racial Hygienist Otmar von Verschuer, the Confessing Church, and Comparative Reflections on Postwar Rehabilitation," in Japan's Wartime

Nazi propaganda efforts to establish the legitimacy of their pseudo science. Himmler and the SS disseminated the idea of *Untermenschen*, or subhumans, like Jews, Poles, Slavs, homosexuals, gypsy Roma, the handicapped, and mentally ill. The degradation of these human beings into a category of inferior creatures helped convince the wider German scientific community to accept turning men into lab rats.¹²⁰ Like the Japanese, the racial prejudices the researchers held also contributed to the creation of their own subhuman epithets for their research subjects. In their meticulous lab reports, the German scientists who engaged in human experimentation often referred to their subjects as “guinea pigs,” “adult pigs,” and “large pigs,” that were all references to the different types of human beings being experimented on.¹²¹ One of the many unfortunate side effects this behavior created was turning once respectable men into accessories of depravity on a large scale. Physicians trained in medicine and western ethics like Dr. Eugene Haagen, the man who helped develop the first yellow fever vaccine in New York, became men who could casually remark about their use of human research subjects and their disposability in memos to peers as the war progressed.¹²² Many of those memos would come to form the basis of US knowledge of what Germany

Medical Atrocities: Comparative Inquiries in Science, History, and Ethics, ed. Jing-Bao Nie et al. (London: Routledge, 2010), 156.

¹²⁰ Jacobsen, Operation Paperclip, 122.

¹²¹ *Ibid.*, 128-129.

¹²² *Ibid.*, 4-7.

was up to during the war as well as the basis for postwar criminal investigations.

This change in attitude towards men and women who were once colleagues and equals in German society did not simply evolve in a vacuum. Hitler dictated his foreign and domestic policy with Germans in mind as a superior race. In all the territories controlled by the Reich this meant going by any and all means to expunge its unwanted “subhuman” elements by forcing them to leave the country. However domestic policy gave the victims nowhere to run, and Hitler dictated foreign policy according to his dream of creating German *Lebensraum*, or living space forcibly taken from other European countries. By 1937 Hitler was briefing his inner circle about an upcoming war to those very ends.¹²³ The Reich’s expansion was pulling more people in who were unwelcome but could not get out, and that left the Nazis with the problem of how to deal with the subhuman Jewish, gypsy, homosexual, and other elements that inundated German territory and either refused to or could not leave. Starting in 1938 most Jewish populations were forced into ghettos, and several other groups were interned to the SS run concentration camps. Dachau was the first of those Nazi concentration camps, and it was established by Himmler on March 20th, 1933.¹²⁴ Though originally meant for communists and other Nazi political enemies, its success led to Dachau becoming the

¹²³ Biddle, *Dark Side of the Moon*, 101.

¹²⁴ Jacobsen, *Operation Paperclip*, 62-64.

model for all concentration and death camps to follow including its research facilities that operated outside conventional law.¹²⁵

Furthermore Germany had always had a chronic shortage of labor for the amount of arms it produced and soldiers to field with them. Therefore when the SS took over control of the concentration camp system, they recognized the potential solution to the labor shortage that lay squandered at their feet. When the Nazis gained full political control of Germany, Himmler immediately moved to rectify the situation through the use of slave labor available in the camps. By 1939 Himmler organized the SS Business Administration Main Office for the purpose of coordinating slave labor and research subject distribution across occupied Europe to the labor camps and testing facilities of huge companies like IG Farben, Volkswagen, and Heinkel.¹²⁶

The government-sponsored system of patronage in arts, business, and sciences that the Nazis masterminded made it exceedingly hard to avoid tapping into their racial paradigms. Nevertheless the pride that Hitler recaptured for the German people dissuaded dissent from even the liberal minded Germans who flourished under the Weimar Republic. Opposition to Germany's new militarist path under the guidance of Hitler did not receive much internal dissent. Germany first withdrew from the World Disarmament Conference in Geneva and then the League of Nations in 1933. The WWI flying ace Hermann Göring initiated the

¹²⁵ *Ibid.*, 62.

¹²⁶ *Ibid.*, 14.

development of the Luftwaffe, the German air force, in the same year as an open secret.¹²⁷ After Hindenburg's death in 1934 and Hitler's ascent to the presidency and new office of the Führer of the Third Reich, the Reichswehr became the Wehrmacht: a fully mobilized and conscripted army. Nevertheless each office within the army in turn was instructed to work with its civilian counterparts in earnest for the advancement of Germany and its rearmament.¹²⁸ This dark combination of abundant slave labor, highly advanced industrial capacity, and immense political willpower bore fruit. By 1939 Germany's technological capabilities had completely eclipsed its neighbors, and the Führer of Germany felt emboldened enough to boast in a public speech of having developed a weapon that no country possibly stand against.¹²⁹ After that Goebbels began to publicly refer to the many advances in German weaponry as the Nazi wonder weapons, or *Wunderwaffe*.¹³⁰ The propaganda simultaneously helped the war effort and played important mind games with Allied scientists who scrambled to interpret what Germany had developed to no avail.

In his speech Hitler was actually referring to a brand new class of weapons that the world had never yet bore witness to – ballistic missiles. The Aggregat class, otherwise known as the *Vergeltungswaffe*, or

¹²⁷ Piszkievicz, *The Nazi Rocketeers*, 39.

¹²⁸ Ole Döring, "Bioethics and Exceptionalism," 146.

¹²⁹ Tom Bower, *The Paperclip Conspiracy: The Hunt for the Nazi Scientists*, (Boston: Little, Brown, 1987), 27-29.

¹³⁰ Jacobsen, *Operation Paperclip*, 80-82.

Vengeance Weapon class of rockets as Goebbels' Propaganda Ministry named them,¹³¹ was the culmination of more than a decade worth of research and testing by several German engineers and the toil of thousands of slave laborers. By 1944 Germany had successfully developed the V-2 missile, arguably the most advanced flying weapon created during the war apart perhaps from the atom bomb. The technical specifications of the V-2 measured in at approximately 42 ft. long with a nose cone packed with 2,000 lbs. of explosives. The V-2 and its predecessors were primarily developed at the Mittelwerk and Nordhausen facilities. They functioned as underground factories and housed an adjacent concentration camp called Dora.¹³² The slave laborers housed at Dora were originally supplied from the Buchenwald concentration camp starting in September 1943. However the first military work on the missiles originally took place at the Peenemünde facility, but after British RAF bombardment Himmler requested a new facility to be built by the bare hands of camp inmates.¹³³ The postwar investigations at Nuremburg concluded that at least 30,000 people were worked to death on the Nazi missile project at Nordhausen.¹³⁴

The dark irony of the terrible cost the missile project incurred was how innocuously it began. One of the most important personalities associated with the Nazi V-missile program, and later the American space

¹³¹ Michael J. Neufeld, A Note on the Name and on Terms in Von Braun: Dreamer of Space, Engineer of War (New York: A.A. Knopf), 2007.

¹³² Jacobsen, Operation Paperclip, 11-13.

¹³³ *Ibid.*, 11-13.

¹³⁴ *Ibid.*, 14.

program, was SS-*Sturmbannführer* (major) Wernher von Braun. Von Braun was the descendent of an East Prussian Junker family that could trace its male lineage back to 1285, and reasonably earlier to the defenders against the Mongol invasions in East Prussia at Liegnitz in 1241.¹³⁵ Despite his pedigree and upbringing, he took an interest in rocketry over politics as a teenager in the Weimar Republic. Taken by the *Raketenrummel* (Rocket rumble or fad) of 1928-29, the movement in popular culture that had regular Berliners and other urbanites obsessed with space travel and the future of rocketry, von Braun took it upon himself to build his own homemade rockets. It helped cement his dreams to dedicate his life's work to space travel.¹³⁶ By the end of high school he had become a noted math whiz and opted to join the spaceflight society VfR before moving on to graduate school for engineering. While he finished his studies at the Technical University of Berlin he helped the society set up at the *Raketenflugplatz* (Rocketport) in Berlin and helped the society with its small rocket development through 1932.¹³⁷

The work of the society culminated in the small Repulsor class rocket, but that was as far things progressed for the group. The money and willpower of the scientists at the *Raketenflugplatz* was nearing its end by 1931 forcing one of its leaders, Rudolph Nebel, to seek alternative sources of funding: namely the German Army that was obsessed with innovation.

¹³⁵ Neufeld, *Von Braun*, 7-8.

¹³⁶ *Ibid.*, 30-32.

¹³⁷ *Ibid.*, 41.

Germany's interest in rocket based weapons for its artillery corps began with its army's limited budget and the technical limits imposed on German weaponry in 1919. The army saw rocketry as a cheap way to precisely bombard enemy territory and still uphold the terms of Versailles that banned heavy artillery and made no mention of rockets.¹³⁸ As such, in 1930 the army meted out a 5,000 mark subsidy for the VfR's operations at Nebel's behest.¹³⁹ However in both the beginning and end of 1932 German officers clothed as civilians made visits to the Berlin based operations and left unimpressed. Outside groups like the VfR were deemed unreliable, and restricting funding to in-house development became the new army policy.¹⁴⁰ One of the three men who paid visits to the VfR would become the military head of Germany's rocket program: Major General Walter Dornberger. Dornberger was a career soldier that fought in both world wars though he was by trade an engineer. Along with his engineering degree from the Institute of Technology in Berlin, he went on to hold four separate patents in rocket development by the end of the war, and Dornberger proved instrumental in securing SS support for further development as time went on.¹⁴¹ His solid fuel rocket work for the army was the perfect complement to von Braun's own liquid development.

Then captain Dornberger and his colleagues may have been unimpressed with the society's developments, but they felt the exact

¹³⁸ Neufeld, Von Braun, 50-51; Piszkiwicz, The Nazi Rocketeers, 20-21.

¹³⁹ Neufeld, Von Braun, 50.

¹⁴⁰ *Ibid.*, 52.

¹⁴¹ Jacobsen, Operation Paperclip, 8.

opposite about the young von Braun. The army was impressed by his poise and high intellect, and after having a conversation with von Braun, they convinced him that working for the military at the Kummersdorf artillery range ensured the best future for his rocket projects.¹⁴² Von Braun accepted the offer and cemented his reputation as an amoral opportunist, as Michael Neufeld seeks to portray the young scientist throughout his opus, *Von Braun*. Von Braun was immediately transferred to the University of Berlin to conduct a dissertation on rocket development for the army on contract.¹⁴³ By 1934 he had tested the Aggregat-1 and Aggregat-2 (A-1 and A-2) rockets,¹⁴⁴ gained his right hand man in engineering Walter Riedel, and finished his physics dissertation.¹⁴⁵ The rocket program's astounding success continued into 1935 with the development of the A-3: an advanced rocket with an internal guidance system and 1,500-kg (3,300 lbs.) of thrust.¹⁴⁶ Compared with the A-2's 300-kg, the possibilities afforded by the A-3 as a long-range weapon were very exciting to the army's higher ups. Furthermore as Hitler began to openly ignore the Treaty of Versailles, development money began to flow into projects like the rocket program in the form of millions of German

¹⁴² Neufeld, *Von Braun*, 53-54.

¹⁴³ *Ibid.*, 56.

¹⁴⁴ Pizskiewicz, *The Nazi Rocketeers*, 33.

¹⁴⁵ Neufeld, *Von Braun*, 67-68.

¹⁴⁶ *Ibid.*, 74-75.

marks,¹⁴⁷ yet the rocket program at Kummersdorf had not nearly reached its heyday.

In 1935 the Luftwaffe may have shed the secret veneer it once had under the Air Ministry, but the ties between the two organizations still ran very deep, as did their mutual thirst for new development. The SS dominated German air force would become a key player in the advancement of that development up to and through WWII. For example, sixty miles north of Nordhausen, the eventual home of the rocket program, was Völkenrode, otherwise known as the Hermann Göring Aeronautical Research Center at Völkenrode. Operational since 1935, the facility was the Luftwaffe's main test bed for advancement and became the subsequent target of the US air force's intelligence gathering mission, Operation Lusty. The research center contained an unprecedented seven wind tunnels and became where Germany would dwarf Allied innovations by breaking the sound barrier for the first time in human history.¹⁴⁸

Therefore it is no surprise that the A-3's potential had reached the ears of Major Wolfram Freiherr von Richthofen in the same year. Von Richthofen was the new head of development in the Air Ministry, a WWI flying ace, and the nephew of the infamous Red Baron.¹⁴⁹ It was his job to ensure that the advancement of the German air capability remained well ahead of Germany's rivals, and the rocket engines that the Kummersdorf

¹⁴⁷ *Ibid.*, 74.

¹⁴⁸ Jacobsen, Operation Paperclip, 50-53.

¹⁴⁹ *Ibid.*, 77.

team had developed piqued his interest. By the end of 1935 the Luftwaffe high command had been impressed, but by April of 1936 they were excited enough to commit five million marks to the development of air breathing rocket engines. The traditionally fiscally conservative army, not to be outdone in funding for its own division, subsequently marked off six million marks for the rocket project.¹⁵⁰ However in order to maintain secrecy for the rapidly expanding program a new development and manufacture site needed to be picked well away from its current location near urban Berlin. On recommendation from his mother and on command from the then Major Dornberger, von Braun looked to his ancestral East Prussian home by the Baltic for a new base of operations. Von Braun therefore chose Peenemünde as the new home for German rocketry.¹⁵¹ Furthermore while Peenemünde was under development the schematics for the first A-4 rockets were put down on paper.¹⁵² In 1936 what became the V-2 was born.

By the spring of 1937 the Kummersdorf group had successfully transferred to Peenemünde while commander Dornberger and technical director von Braun had gone on a recruiting spree.¹⁵³ In spite of all their efforts 1937 did not see much advancement for the program. On several occasions the A-3 launches that had been planned failed as a result of mismatch between the thrust forces and the guidance systems, yet those

¹⁵⁰ *Ibid.*, 79-80.

¹⁵¹ *Ibid.*, 80-81.

¹⁵² Piszkiwicz, The Nazi Rocketeers, 43.

¹⁵³ *Ibid.*, 50.

failures led to the development of the larger A-5 (the A-4 was already in development as a long range ballistic missile).¹⁵⁴ By 1938 Germany had annexed Austria in the *Anschluss* without the Wehrmacht's notification. The end of that year brought home a deal bringing in German-speaking Sudetenland from Czechoslovakia and with it a changed mood. By 1939 Czechoslovakia had become a German protectorate and Hitler began touring the army's new developments. When he observed the static rocket engine demonstrations the team at Peenemünde had to offer, Hitler only appeared ready to push for the A-4 – the rocket that could rain down on Paris and London.¹⁵⁵

After Hitler's fateful visit, von Braun and Dornberger's self described research paradise went through two phases: the experimental weaponization of rocketry from September 1939 to August 1943 at Peenemünde, and the underground SS guided production of the V-2 with slave labor at Mittelbau-Dora from September 1943 to the end of the war.¹⁵⁶ During the first phase of this development Dornberger was constantly fighting for his program's share of the limited resources of a country at war. However the inability of the rockets to deliver large payloads compared to the long range bombers the Allies were employing and the lack of engineering staff who could devise a way to mass produce the rockets cemented the enterprise as a grand scientific endeavor but a

¹⁵⁴ Biddle, *Dark Side of the Moon*, 100.

¹⁵⁵ *Ibid.*, 107-108.

¹⁵⁶ *Ibid.*, 110.

doomed one militarily while it remained as it was.¹⁵⁷ The whole program might have been scuttled in 1940 due to Hitler's need to divert steel rations from the rocket program to the production of conventional weapons going to the Western front had not Albert Speer, the Third Reich's Minister of Armaments and War Production and Hitler's architect of choice, been so overawed by the developments at Peenemünde.¹⁵⁸ Speer continued to ensure the rocket program had the resources it required.

Nevertheless between 1940 and 1941 several modifications of the A-4 were made so as to make it the Paris Gun (the German Great War artillery piece that was capable of firing 23 lbs. of explosives about 80 miles)¹⁵⁹ of WWII. To seduce Hitler into diverting more money to the rocket program von Braun and his technical team sketched out a winged A-4, or the A-9 and A-10. These missiles were purely theoretical concepts able in theory to hit the mainland US from the outskirts of Nazi occupied Europe. The first conceptualized Intercontinental Ballistic Missile (ICBM) had been created, but its miniscule one-ton payload made it simply another way to curry favor with a leader obsessed with being able to attack the US rather than a weapon that could pose a real threat to the US mainland.¹⁶⁰ Indeed the A-4 project had come to directly competing with another of the

¹⁵⁷ *Ibid.*, 112.

¹⁵⁸ Neufeld, Von Braun, 119-120.

¹⁵⁹ Dornberger's aim with the missile project had always been to top the technical expertise of the Paris Gun through his work at the Ordnance; Neufeld, Von Braun, 81.

¹⁶⁰ *Ibid.*, 127.

Luftwaffe's pet projects, the Cherry Stone program, otherwise known as the development of the V-1 buzz bomb.¹⁶¹

However the watershed moment came in October 1942 with the third test launch of the A-4. It was the first to perfectly fire on its trajectory and break the sound barrier on its ascent. During the celebrations afterwards Dornberger, a man who did not share von Braun's dreams of space travel, was recorded as saying, "Do you realize what we accomplished today... This afternoon the spaceship was born!"¹⁶² Immediately after, Speer and Hitler came around to the missile program and full-scale manufacturing began. According to both men the rocket had truly matured into a wonder weapon to respond to British Royal Air Force bombardment,¹⁶³ and Hitler even bestowed von Braun with the title of Professor in honor of his achievements. It was a title he held with honor into the 1950s until its disquieting origins were discovered in the United States.¹⁶⁴

The success the rocket program had finally come to achieve was short lived as the RAF almost immediately came to target German infrastructure and developments that had the potential to harm the British Isles. The British "Operation Hydra" took place on August 18th, 1943 and was responsible for the near total destruction of the German research

¹⁶¹ *Ibid.*, 134.

¹⁶² *Ibid.*, 137.

¹⁶³ Piszkievicz, *The Nazi Rocketeers*, 106-107.

¹⁶⁴ Neufeld, *Von Braun*, 151.

facility on the Baltic coast.¹⁶⁵ The target, like many of the RAF's objectives, had been the civilian and officer living quarters, rather than the actual facilities. The objective had been to destroy the brains behind the menacing engineering program, despite not being entirely sure what it was about, but the RAF only managed one high profile killing and left several of the factories and test stands entirely intact.¹⁶⁶ Nevertheless Peenemünde became nonoperational.

With the status of the rocket program now in limbo, Himmler took the opportunity to step in and help set up a new facility.¹⁶⁷ The RAF bombings, although increasingly infuriating to Hitler, were nothing new by 1943, and Speer had already managed to create a contingency plan for German industry from Berlin. He would later explain to the American captors who found Germany's massive underground facilities that despite the severity of Allied bombing campaigns German industry survived due to the engineering triumph of moving it all underground. Indeed once the bombings first started, Franz Dorsch and Speer's deputy Walter Schieber orchestrated the mass movement of the wartime production to underground.¹⁶⁸ At Himmler's behest the A-4/V-2 would receive the same treatment, and the whole project was forced onto the backs of slave laborers. Himmler also had Dornberger replaced by one of his own SS henchmen, *SS-Brigadeführer* Hans Kammler for the overall command of

¹⁶⁵ Piszkiwicz, The Nazi Rocketeers, 113.

¹⁶⁶ Neufeld, Von Braun, 154.

¹⁶⁷ Biddle, Dark Side of the Moon, 109.

¹⁶⁸ Jacobsen, Operation Paperclip, 80-82.

the rocket facilities. Kammler might have had a degree in civil engineering, but he had used his expertise to develop and build the gas chambers at Auschwitz-Birkenau, arguably the most infamous of all the death camps in the Nazi Final Solution to the Jewish Question.¹⁶⁹ It is unlikely that Dornberger and von Braun were aware of his leadership role in the Holocaust, but regardless neither man held much fondness for the SS chief.¹⁷⁰

However the question remains as to what extent the two rocket engineers were aware of the harsh methods employed by the SS and in Mittelwerk's concentration camp, Dora. For his part, von Braun made several trips to Mittelwerk between 1943 and 1945, and it is highly implausible that he was not aware of how his rockets were being manufactured. Though he would only admit to seeing the tunnel complex where the prisoners were in the 1970s, he still denied having any involvement or knowledge of the death camp in his midst as he was not stationed with the SS therein.¹⁷¹ Nevertheless it is also likely that von Braun, and by extension Dornberger, was aware of the situation. Their tours around Germany advocating and working on the A-4 brought them in contact with at least eight different slave labor camps including the one that was included in the RAF bombings of Peenemünde.¹⁷² Both men were also involved in labor allocation discussions at Mittelwerk, and

¹⁶⁹ Biddle, Dark Side of the Moon, 120-121.

¹⁷⁰ Neufeld, Von Braun, 159.

¹⁷¹ Biddle, Dark Side of the Moon, 123.

¹⁷² Neufeld, Von Braun, 160.

handwritten notes on the subject survived the war.¹⁷³ One such note of von Braun's has him accompanied by a colleague to Buchenwald itself to procure the right slave laborers,¹⁷⁴ yet regardless of whether or not the men had moral misgivings about their complicity in Nazi industry they likely had very little power or will to do anything about it – they were at war.¹⁷⁵

Several French survivors of Dora in particular dispute von Braun's sworn statements about his level of involvement. Survivor and former French Resistance fighter Guy Morand insisted in 1995 that von Braun had ordered him to take 25 lashes and a beating for suspected sabotage. Another captured fighter, Robert Cazabonne, wrote in a sworn affidavit that von Braun was present for the hanging of prisoners suspected of sabotage as well. Both events were alleged to have taken place in the later half of 1944.¹⁷⁶ Unfortunately the problems associated with recalling traumatic events and the possibility of mistaken identity ipso facto leaves Dornberger and von Braun's level of involvement and knowledge of Mittelwerk's hellish environment somewhat in doubt.

Nevertheless by New Year's Eve of 1943 the factories under the mountains had produced the first thousand V-2 missiles.¹⁷⁷ By September 1944 production had increased to the point where thousands of V-2's

¹⁷³ *Ibid.*, 161.

¹⁷⁴ Jacobsen, Operation Paperclip, 16.

¹⁷⁵ Neufeld, Von Braun, 160-162.

¹⁷⁶ Biddle, Dark Side of the Moon, 124-126.

¹⁷⁷ *Ibid.*, 126.

began to rain down on London well after the first V-1 buzz bombs had crashed into the metropolis starting on June 13th, 1944.¹⁷⁸ Their successful employment moved Dornberger to tears during the first launch, and in recognition of their efforts Albert Speer awarded one of the highest noncombat medals, the Knight's Cross of the War Service, to Dornberger, von Braun, Riedel, and a man named Heinz Kunze, a representative from the Reich's Ministry of Armaments.¹⁷⁹ The ceremony in the mountainous Castle Valar was capped off with the first launches off of Dornberger's mobile launch pads towards Antwerp in the German counteroffensive to retake the city.¹⁸⁰ Soon after Antwerp reported the highest single casualty rate from a V-2 strike. 567 people were killed when the rocket landed on a busy movie theater.¹⁸¹

With the V-2's successful deployment the Allies became obsessed with finding out the details of the German missile program, but neither was it the only scientific arena where Germany eclipsed their research nor was it the only one to advance through nefarious means. The Third Reich had also made inroads into biological weapons development. However according to one of the heads of development, Professor Heinrich Kleine, weaponization of German research lagged well behind the Allies due to

¹⁷⁸ Jacobsen, Operation Paperclip, 8.

¹⁷⁹ *Ibid.*, 9.

¹⁸⁰ *Ibid.*, 7-9.

¹⁸¹ *Ibid.*, 9.

Hitler's reported aversion to using biological weapons.¹⁸² Furthermore later American assessments of the program state that, "While the German biological warfare program was in general limited in extent and inadequate in experimental tests, this was undoubtedly less due to the inability of German scientists successfully to develop such a program than to Hitler's personal opposition to the use of B.W. [biological weapons]."¹⁸³ Combined with the effectiveness of Germany's missile program, a biological weapon could have been devastating, yet Hitler's whims were absolute; the German atomic bomb project suffered in similar ways as atomic physicists were sent to the front and squandered their potential until 1943.¹⁸⁴

Nevertheless Germany had arguably been one of the first European powers to experiment with industrialized biological attacks. The very first instance of a modern engineered attack came during WWI when the Germans were accused by the Allied powers of seeding cattle and horses with anthrax and glanders respectively and sending them to Russia between 1915 and 1916. The act of sabotage was confirmed by American intelligence at the time.¹⁸⁵ For whatever reason official research and experimentation ceased after that point, and whether it was for fear of official reprisal, treaty accords, funding restraints, or just general lack of

¹⁸² United States Navy, *Naval Aspects of Biological Warfare*, RG 330, Box 103, Folder 41.

¹⁸³ *Ibid.*

¹⁸⁴ Neufeld, Von Braun, 162.

¹⁸⁵ Harris and Paxman, A Higher Form of Killing, 74-75.

interest is impossible to know. German intransigence on the subject delayed any official program for a little less than 30 years. The first official calls for its development and utilization came from a Wehrmacht high command issued from a secret council in July 1943. The command ordered large-scale investigations into bacterial development to take place at the Military Medical Academy at Posen.¹⁸⁶ The Germans had begun too late to develop a weapon that could be used during the war, yet development began in earnest immediately after the directive was issued.

The Wehrmacht in coordination with the SS named Professor Dr. Friedrich Ludwig Kurt Blome as the head of the new weapons program. Blome was then serving as the deputy surgeon general of the Third Reich and reported directly to Göring and perhaps to Himmler.¹⁸⁷ In his medical capacity he had been part of the cadre of doctors focused on the advancement of German hygiene – an innocuous term for the eradication of the Jewish people. Blome’s connections with the higher echelons of the SS played to his advantage with the new promotion. After the initial creation of the weapons program Blome was ordered to immediately report to the program’s commander, Himmler himself. Himmler had assumed command of the program due to his little known background and training as a chicken farmer, and the subject piqued his interest in a way

¹⁸⁶ *Ibid.*, 85.

¹⁸⁷ Jacobsen, Operation Paperclip, 75-76.

that Hitler's did not. Hitler was largely kept in the dark about the program's specifics due to his opposition to the program.¹⁸⁸

Himmler and Blome met five times after the program's creation to talk specifics. The first nailed down the scope of the development, and the rest were simply impositions on Blome to expand the program. He was made to experiment on humans at the mutually agreed upon and isolated Bacteriological Institute at Nesselstedt (a small town by Poznań University in Poland).¹⁸⁹ In addition to the plague experiments carried out on SS prisoners, Blome used his time with Himmler to update the latter on the institute's innovations in rat dissemination techniques, procurement of a highly contagious strain of rinderpest virus from neutral Turkey to poison enemy cattle supplies, and the concurrent development of vaccines to shield the German populace from the backlashes of a biological strike by Major General Dr. Walter Schreiber.¹⁹⁰ In spite of the pressure Himmler put on the program to deliver results a usable weapon was never developed though they did make several inroads into certain aspects of bacterial dissemination. However it is unclear how many lives were lost in the experimentation at Nesselstedt, if any. In his many memorandums to Himmler, Blome repeatedly expressed the need to conduct live human experimentation to advance his research, but regardless whether the records were destroyed or Blome never had the chance to act on his

¹⁸⁸ *Ibid.*, 160.

¹⁸⁹ *Ibid.*, 161-162.

¹⁹⁰ *Ibid.*, 162-165.

desires as he claimed to US interrogators,¹⁹¹ the fact remains that the quantifiable human cost of the Nazi biological weapons program remains elusive.

The Third Reich's chemical weapons program was the exact opposite of its biological weapons program by the close of the war. The frightening story of how Germany completely outclassed the Allies in chemical weapons development also began with another innocuous origin. A German chemist named Dr. Gerhard Schrader was investigating new insecticides at the end of 1936. Through his research he accidentally discovered the most lethal nerve gas ever discovered up to that point and came perilously close to killing himself in the process.¹⁹² Colorless and odorless, the new gas that killed humans between one to ten minutes after direct inhalation did so in a completely unfamiliar way that was not fully understood until 1940:

“...Nerve gases inhibit the action of a specific chemical in the body called cholinesterase. Cholinesterase's function is to control the muscles by breaking down the chemical which causes muscular contraction, acetylcholine. If this is not done, the level of acetylcholine in the body builds up to a disastrous level, sending all the muscles of the body into contraction. The body thus poisons itself, as it loses control of all its functions. The muscles of the arms and legs along with those which control respiration and defecation go into a state of violent vibration. Death comes as a result of asphyxiation.”¹⁹³

¹⁹¹ *Ibid.*, 273.

¹⁹² Harris and Paxman, *A Higher Form of Killing*, 53.

¹⁹³ *Ibid.*, 54.

Its potential as a weapon was immediately picked up by the army, which began mass production of the gas in 1937 and was named tabun. One year later the same researcher discovered a relative of tabun that was ten times as powerful, isopropyl methylphosphonofluoridate, and named it sarin based on the four key individuals involved in its development: Schrader, Otto Ambros, the army's head of poison gas production at Spandau, Colonel Rüdiger (some dispute this in favor of Gerhard Ritter), and fellow developer Van der Linde.¹⁹⁴

The dynamic new possibilities the gasses afforded the German war machine convinced Hitler to support their large-scale manufacture and development. At the secret new manufactory in Poland known as Dyhernfurth, Germans and slaves produced the vast quantities of tabun Hitler ordered into the Fatherland's arsenals beginning in 1942 with the full collaboration of the giant chemical conglomerate IG Farben. Because the new gases killed upon skin contact and therefore made gas masks irrelevant,¹⁹⁵ their combined efforts resulted in enough production that by 1945 German possessed enough tabun and sarin reserves to decimate the population of either London or Paris on a whim.¹⁹⁶

German superiority in gas warfare should not come as a surprise as they had held the historical lead in its development since the beginning of the Great War. During that conflict the *Interessen Gemeinschaft*, or IG

¹⁹⁴ *Ibid.*, 54.

¹⁹⁵ Jacobsen, Operation Paperclip, 54-55.

¹⁹⁶ *Ibid.*, 24-5.

chemical combines, in the Ruhr produced what Great Britain could only produce 1/10th during the same period. Furthermore it was the conglomerates and their synthetic innovations that kept the Kaiser from surrendering to the British blockade in 1915.¹⁹⁷ German chemical factories had a long history of wartime success, and the German chemical industry remained on the cutting edge of new research through WWII. Moreover though the Kaiser Wilhelm Institute, the main patron of chemical weapons development in WWI, had been shut down after the war limited defensive research continued until there was enough political will to establish an offensive program. Once the Wehrmacht no longer felt constrained by Versailles in the mid 1930s full-scale offensive development began anew.¹⁹⁸

As WWII erupted with Hitler's lightning raids across the continent, Britain felt it could once again constrain Germany as it had with its Great War blockade, yet it was never possible to do so. WWII was a different animal as the fall of France soon showed them. Industry in the Reich flourished largely as it had in the first war, and German ingenuity continued to defy British expectations. However the key difference now was the addition of slave labor to equation, and thanks to the SS that was never in short supply. At the Auschwitz-Birkenau death camp Dr. Otto Ambros of IG Farben oversaw the coordination with the central authorities in Berlin led by Speer for chemical weapons, synthetic rubber, and fuel

¹⁹⁷Harris and Paxman, A Higher Form of Killing, 8.

¹⁹⁸ *Ibid.*, 43.

factories (including the one at Dyhernfurth) as part of the devilish Nazi industry.¹⁹⁹ Nevertheless due to the many technical and hazardous complications inherent in nerve gas production, Dyhernfurth's facilities were not operational until 1942, as the factory's safety precautions took several years to install. Even in spite those safeguards doubts about the lethality of the substance the Nazis were producing were quickly dispelled by the many pernicious work accidents that plagued the facility.²⁰⁰ In the two and a half years that the facility was operational more than ten men were killed, often before they could not have their protective rubber suits removed in time for medical support after contamination.²⁰¹ Moreover the death tolls as a result of the human experimentation at Auschwitz drove the number surely higher. Though most chemical warfare records were destroyed in the closing days of the war many documents relating to testing on concentration camp inmates were found. The tests were so widespread that despite vehement postwar protests to the contrary, it seems likely that the SS and most non-SS personnel knew the testing was happening.²⁰² 1.1 million people perished in the death camp often at the hands of another of the Nazis' noxious gases, Zyklon B. However the numbers of those who died as a result of tabun and sarin experimentation and those in the rest of the camp are not easy to separate and estimate.

¹⁹⁹ Jacobsen, Operation Paperclip, 21.

²⁰⁰ Harris and Paxman, A Higher Form of Killing, 56-57

²⁰¹ *Ibid.*, 56-57.

²⁰² *Ibid.*, 61-62.

Ultimately one of the largest triumphs of the German program was how closely guarded a secret it was. Tabun and sarin were touted as the V-rockets were as being considered Nazi wonder weapons. However the Allies had almost no idea they existed until they found thousands of green striped bombs that held tabun and sarin in storage in addition to 100,000 yellow striped mustard gas bombs once the war had concluded.²⁰³ So successful was German chemical counterintelligence that even in 1943 when the British got wind of an incredible new gas being developed by IG Farben in Berlin through a captured scientist in North Africa, the most they could decipher was its code name, "Trilon 83."²⁰⁴ The Germans were tight lipped enough about their new gases that killed upon skin contact that the Allies were thoroughly convinced that they didn't exist, for the farthest American and British research had advanced to was the development of DDT as an insecticide.²⁰⁵ Therefore the British made the executive decision to leave their gas masks behind during the D-Day and the liberation of Normandy.²⁰⁶ Had Germany employed its vast reserves on the beaches that day the war might have fundamentally altered for the worse.

At the end of the war the Luftwaffe had produced nearly half a million gas bombs and invented ingenious ways to use them. Luftwaffe inventions ranged from anti tank gas lined machine guns and grenades to

²⁰³ Jacobsen, Operation Paperclip, 54-55.

²⁰⁴ *Ibid.*, 39-40.

²⁰⁵ Harris and Paxman, A Higher Form of Killing, 62.

²⁰⁶ *Ibid.*, 62-64.

mustard gas booby traps for incoming forces that were all meant to coax Hitler into authorizing the introduction of chemical warfare to the European theater.²⁰⁷ With all the money and development being poured into the development at Dyhernfurth, it seems surprising that a regime as brutal as the Third Reich would avoid employing its potentially devastating chemical option, yet there were distinct reasons why it never did so. The first was that Hitler was wounded by a mustard gas attack during WWI, and the memories of his injuries and the fates of his fellow soldiers made him reluctant to unleash a chemical strike. The second was a German overestimation of the Allies' ability to retaliate in kind. Speer and Ambros were both insistent to Hitler that the US censorship of scientific journals that had to do with similar compounds as their nerve agents meant that the US too possessed tabun.²⁰⁸ However untrue their beliefs were they ultimately swayed Hitler, and this case was one of the few where Hitler's arbitrary decisions ended up saving lives as opposed to the millions that were squandered in his quest for high technology.

This was the nature of the information and personnel that the US brought home to American soil after WWII.

²⁰⁷ *Ibid.*, 58-59.

²⁰⁸ Harris and Paxman, *A Higher Form of Killing*, 62-64.

The First Half of the Twentieth Century and US Innocence Rebuffed

Once WWII had finally come to a close, the Allied powers held to their agreements to take the ringleaders of both the Japanese and German governments and put them on trial. During the proceedings that took place at both Nuremburg and Tokyo, the defendants were charged with war crimes that evolved from the complicated mixture of Common Law, Continental Law, Soviet Codes, and a lattice of binding international treaties. However international the prosecutions seemed, both were initiated at America's behest, and the United States led the charge into the brink of international jurisprudence to dictate the proceedings as best it could. Indeed when the US Secretary of State Cordell Hull went to meet with his Soviet and British counterparts at the Third Moscow Conference to tackle the issue of war crimes and postwar remuneration in October 1943, the US had to talk her allies out of summary Nazi executions before they could even talk about holding a fair tribunal.²⁰⁹

As a result of their international deliberations, the previously unheard of charge of crimes against humanity that the US helped shape was meant to give a voice to the millions who were slaughtered as a result of vicious German scheming (Japan was an afterthought). Furthermore even before the US was a belligerent forward thinkers like US Supreme Court Justice Robert H. Jackson were convincing their fellow domestic

²⁰⁹ William J. Bosch, Judgment on Nuremburg: American Attitudes Toward the Major German War-Crime Trials (Chapel Hill: University of North Carolina Press, 1970), 23.

leaders of the importance of spearheading such an effort. In a written address to the American Bar Association in Indianapolis, Indiana on October 2nd, 1941 Jackson noted that, “At the end of this war we must either throw the full weight of American influence to the support of an international order based on law, or we must outstrip the world in naval, air, and perhaps in military, force. No reservation to a treaty can let us have our cake and eat it too.”²¹⁰ As a result of Jackson’s diligence in helping to draft the Nuremburg Codes as the US chief prosecutor therein, one cannot deny how far the US’ influence went on the postwar proceedings at both trials.

Unfortunately one of the most damaging accusations thrown against the Tokyo and Nuremburg trials was that both were show trials and nothing more than mouth pieces for the regimes fronting them – in other words, victors’ justice. The US and its delegation to the military tribunals that drafted the international justice system in use at Nuremburg and Tokyo were sensitive to those accusations. They made several attempts to circumvent them such as including a native defense attorney in the proceedings and a combination of various legal systems’ notions of

²¹⁰ Robert H. Jackson, “The Challenge of International Lawlessness,” in Perspectives on the Nuremburg Trial, ed. Guénaél Mettraux (New York: Oxford University Press, 2008), 12.

defendants' rights to ensure a fair trial.²¹¹ However sometimes those allowances backfired on the prosecution during its witness testimonials.

One notable gaffe came during Kurt Blome's section as part of the famous doctors trials of 1946, the first ones to proceed after the trials for the major criminals like Göring. As will be expounded later, Blome had seen the writing on the wall in 1945 and surrendered to the Americans after letting on he had useful information for them. However the surprise testimony of Major General Walter Schreiber, the highest-ranking physician in the Third Reich, supplied at Russia's behest during the initial Nuremburg Trial had the consequence of having Blome moved from US recruitment and interrogation lists to the criminal defendants list for the Palace of Justice at Nuremburg.²¹² Thereafter as the head of Hitler's biological weapons program and a possible supervisor of human experimentation without consent his lawyer helped rest his defense on two points. The first, as he repeatedly pointed out to both American and other tribunal authorities, was that he was planning to experiment on humans but never preformed them.²¹³ The second, planned by Blome's wife Bettina, was that the United States itself was in the wrong to try a man for human experimentation on prisoners without due dispensation because the US too was guilty of the same crimes. Blome's defense cited research

²¹¹ Robert H. Jackson, "Nuremburg in Retrospect: Legal Answer to International Lawlessness," in Perspectives on the Nuremburg Trial, Ed. Guénaél Mettraux (New York: Oxford University Press, 2008), 357.

²¹² Jacobsen, Operation Paperclip, 240.

²¹³ *Ibid.*, 273.

experiments conducted by the U.S. Office of Scientific Research and Development (OSRD) on Terre Haute federal inmates during the war and other infamous 19th century US Army experiments where several volunteers died from the testing. According the article in *Life* magazine published in June 1945 where Bettina had located the information, the OSRD conducted malaria experiments on eight hundred federal prisoners, and the doctors featured in the article commented on how the monitored nature of prison life was ideal for laboratory work on humans.²¹⁴ Blome's defense had caught the Nuremburg prosecution completely off guard, and neither they nor the tribunal judges were aware of the experiments the American Army had conducted during WWII.²¹⁵ The defense had leveled the moral ground between the German scientists and their American counterparts. Indeed many Nazi legal defense cases rested on the idea that desperate times called for desperate measures, and ultimately the head of the Third Reich's biological weapons program was declared innocent of wrongdoing.

However the key to this particular story rests in the dichotomy between the two Americas of the 20th century. The first is the America that helped rewrite the international order to ensure peace for the next generation and was responsible for guaranteeing its former enemies justice in a fair trial. The traditions of liberty inherited from the founding of the country and even the Wilsonian ideals of fighting for international self-

²¹⁴ *Ibid.*, 274.

²¹⁵ *Ibid.*, 274.

determination that this first America clung to with vigor is the one people like to focus on. It is the America that won and secured the survival of freedom in the face of tyranny in both World Wars. It is the America that fought for the people disadvantaged by the racist and degrading Imperial Japanese and Nazi policies when the hostilities concluded. It is the America that led the world to a new era of prosperity in the wake of a total war that devastated three separate continents, and yet the irony of those historical facts was the price at which they came with. The OSRD experiments that Blome's defense exposed were not the only case of illicit US human experimentation and contraventions of human rights. In fact it was only the tip of the iceberg of US exceptionalism.

Some of the most historically disturbing experiments US personnel embarked upon began once the United States emerged as a colonial power. As a result of Madrid's decision to surrender and sue for peace in the Spanish-American War of 1898, the US acquired Cuba, Puerto Rico, Guam, and the Philippines and began anew the discussion of US expansionism and the responsibilities it had as a great power. The nation's new experiment in colonialism had particularly profound consequences for the Philippines beyond the geopolitical arena as some of the first instances of human experimentation took place during the occupation. One of the most vexing challenges surmounting mobilized armies is the problem of hygiene and how to prevent infectious diseases from inflicting avoidable casualties. The US Army had made disease control a vital issue since the

New York campaign in the War of Independence,²¹⁶ and under the Taft administration in the Philippines, research on new tropical diseases that had the propensity to hobble western forces there began in earnest. Two notable experiments were conducted by Dr. Robert P. Strong, the Director of the Biological Laboratory in the Philippine Bureau of Science and later Professor of Tropical Science at Harvard University. In 1906 and 1910, Strong conducted plague and beriberi experiments on Filipino prisoners sentenced to death at the Bilibid prison in Manila. The inmates were offered tobacco in exchange for their participation, yet both experiments were death sentences for many of the research subjects – 13 deaths in the first experiment and several (exact numbers unconfirmed) in the second.²¹⁷

The soil of the United States itself was not immune to such experiments either. From the turn of the twentieth century through WWII (and even beyond), scientists in the US turned to prisons repeatedly for subjects to participate in their medical experiments. Several malaria, blood substitute, animal to human vascular transplant, and drug experiments were conducted on inmates across the country up to 1946. The compensation for many of those experiments remains unclear, and several of the known awards like governor's pardons, parole, and free medical treatment, were never actually doled out to the participants.²¹⁸ In another

²¹⁶ David Hackett Fischer, *Washington's Crossing* (Oxford, England: Oxford University Press, 2004), 86-87.

²¹⁷ Appendix B in *Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics*, ed. Jing-Bao Nie et al. (London: Routledge, 2010).

²¹⁸ *Ibid.*, Appendix B.

experiment at a Vanderbilt University health clinic in 1945, pregnant women were exposed to then untested doses of radiation with the specific intention of measuring the mortality rates of prenatal children and their mothers.²¹⁹ In 1943 Dr. Walter J. Freeman was pushing the VA to recognize his divisive new lobotomy experimentation on veterans with mental diseases and injuries. Though his conclusions about the practice were controversial and not necessarily conclusive, Freeman commissioned mentally impaired patients, subjects who in most cases could not be responsible to give legal consent, and sliced into their neural fibers to alter their brains in an effort to rid them of their diseases. Over the next dozen years the US government would commission Freeman to cut into over 2,000 veterans, but it would take years until other medical experts could conclude how damaging his procedures were.²²⁰

Moreover the racist Tuskegee syphilis experiments initiated in 1932 by the U.S. Public Health Service represent another low point in experimentation without consent but with the added onus of racial prejudice. In experiments that would continue until 1972, the US government infected and then monitored the progression of syphilis in

²¹⁹ David B. MacDonald, "America's Memory Problems," in Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics, ed. Jing-Bao Nie et al. (London: Routledge, 2010), 171.

²²⁰ Michael M. Phillips, "The Lobotomy Files: One Doctor's Legacy," *Wall Street Journal*, December 12, 2013, accessed March 9, 2014, <http://projects.wsj.com/lobotomyfiles/?ch=two>.

rural African American men in Macon County, Alabama.²²¹ The men who thought they were receiving free medical treatment from US authorities were the guinea pigs of an unethical experiment in venereal disease,²²² and the research represents an important example of a lapse in American medical ethics.

Unfortunately the racial dimensions of official US policy and prejudice's taint on the decisions of several independent American actors do not end there. When one compares the tobacco rewards the Filipino prisoners were offered compared to the rewards of the prison inmates on US soil, it is easy to infer the presence of racial prejudice in the experiments in the Philippines. Indeed the primarily Anglo-Saxon make-up of the nineteenth and twentieth century United States had left profound racial biases in US dealings with other races and cultures. Members of Asian ethnicities specifically had been the victims of several rounds of anti-immigration legislation including the Chinese Exclusion Act of 1882, the Immigration Act of 1917, and the Immigration Act of 1924. The legislation targeted the ethnicities as undesirables and threats to American homogeneity, yet perhaps the penultimate form of this duplicity came in FDR's Executive Order 9066 on February 19th, 1942. Issued in the wake of the Japanese attack on Pearl Harbor and the American entrance into WWII and upheld by the Supreme Court in *Korematsu v. United States*

²²¹ Jonathan D. Moreno, "Lessons Learned: A Half-Century of Experimenting on Humans." *The Humanist* 59 (1999): 15.

²²² MacDonald, "America's Memory Problems," 171.

(1944), the order effectively created the system for interning anyone of Japanese descent, including US citizens, on the grounds that they might be spies for Japan.

The men and women who made the immigration legislation and conducted the prison experiments without consent or reward, represented an important American movement often suppressed in the American popular memory of WWII. However one must stress the importance of the parts Americans like those mentioned previously would play once the war concluded. They would diverge from the currents that were pushing the proponents of America as the moral beacon in the post WWII order. As Blome's defense attorneys pointed out, men in the US were not quite so different as their Japanese and German counterparts in certain respects. While America's military tribunals would be transfixed on how to rebuild a world with humans rights ingrained into its moral fiber,²²³ their counterparts would participate in a race against other nations to plunder their enemies and ensure that the security of the American nation would not be compromised while under their vigilance.

²²³ Moreno, "Lessons Learned," 10.

Stay Home: The Deal the US Struck with Japanese Scientists

What had begun as a glorious assault had turned into a slow retreat towards defeat. As the Japanese embarked on their war of aggression in China, US public opinion towards the island nation began to slump, and in order to contain Japanese ambitions in Southeast Asia, embargos of raw material exports to Japan took effect as early as 1939. The embargos took a significant toll on the Japanese war machine, as without the imports of oils, gas, and rubber their war in China was unsustainable. To the imperialists in power like former Kwantung General and Japanese prime minister, Hideki Tōjō the embarrassment of withdrawing from China would represent a death knell to the regime.²²⁴ As such when negotiations fell through between the two pacific powers in 1941, Japan embarked on a campaign to secure the lucrative raw materials of Southeast Asia and simultaneously expand its hegemony in the rest of the Pacific.

On December 7, 1941 Japan moved the carriers and battleships of the Imperial Navy into US waters and 350 Japanese dive-bombers and fighters began the assault on the American naval base of Pearl Harbor. The attack would destroy or render inoperable 21 US Navy ships, 323 aircraft, kill 2,400 servicemen, and injure almost 1,200 others, and hours later Japanese forces would rout American and Filipino forces on Luzon,

²²⁴ Eiji Takemae, Robert Ricketts, and Sebastian Swann, introduction to Inside GHQ: The Allied Occupation of Japan and its Legacy, (New York: Continuum, 2002), xxxii.

the main island of the Philippines.²²⁵ By the December 10th Imperial troops occupied Bangkok and proceeded to crush American, British, Canadian, and Indian defense forces to secure Hong Kong, Malaya, Singapore, Guam, and Wake Island by January 1942. In May of that year the Japanese Empire reached its territorial zenith, and the rapid succession of its victories left both the Americans and British without the necessary force to retaliate. In the wake of such conquest British Prime Minister Winston Churchill reflected, “As I turned and twisted in bed the full horror of the news sank in upon me. There were no British or American capital ships in the Indian Ocean or the Pacific except the American survivors of Pearl Harbor who were hastening back to California. Over this vast expanse of waters Japan was supreme, and we everywhere were weak and naked.”²²⁶

The tides of battle would soon be reversed. General Douglas MacArthur, the highest-ranking American general in the Pacific, the son of the former military governor of the Philippines, and the man who was responsible for coordinating the Allied counter offensive against Japan through the war,²²⁷ made the famous declaration to Australian reporters

²²⁵ Takamae, *Inside GHQ*, 9.

²²⁶ Barry Gough, "Prince of Wales and Repulse: Churchill's "Veiled Threat" Reconsidered," accessed March 10, 2014, <http://www.winstonchurchill.org/support/the-churchill-centre/publications/finest-hour/issues-109-to-144/no-139/840-prince-of-wales-and-repulse-churchills-veiled-threat-reconsidered>.

²²⁷ Takamae, *Inside GHQ*, 4-5.

after his retreat from the Philippines, “I shall return.”²²⁸ The fact that the Japanese failed to completely scuttle the American fleet at Pearl Harbor or knock out its docking facilities, the effectiveness of American Navajo and second generation Japanese citizens in its intelligence services, and the success Allied forces scored in reversing Japan’s southward progression toward Australia allowed MacArthur to quickly fulfill his promise.²²⁹ The American policy of slowly island hopping their way into striking range of the Japanese home islands saw successful campaigns at Midway, the Solomon Islands, Guadalcanal, and up to Saipan by 1944, and the liberation of the Philippines took place that October.²³⁰ In 1945 the Allies managed to destroy the remaining power of the Japanese Imperial Navy and became poised to strike mainland Japan to bring the war to a close.

The Japanese inferiority in numbers, logistical coordination, technological research, and overall materiel doomed Japan’s empire in the Pacific, yet Japanese obstinacy in the face of defeat remained a salient feature throughout the Pacific campaigns. The Japanese Imperial regime in Tokyo indoctrinated its soldiers on its ultranationalist message, and protecting the emperor’s interests was so important that fighting men were forbidden from surrendering. Rather they were encouraged to die in a fit of glory – they would be the “shattered jewels” of the Japanese empire.²³¹ This high-stakes propaganda led to the hard-fought battles and high

²²⁸ *Ibid.*, 3.

²²⁹ *Ibid.*, 16-21.

²³⁰ *Ibid.*, 26-27.

²³¹ Dower, Embracing Defeat, 38.

casualty rates of the Pacific Theater, and it was not until most Japanese realized that they could not prevail in the face of the forthcoming American onslaught that most soldiers began to choose surrendering in shame over than dying in glory.²³² Furthermore after the American counteroffensives had run their course in 1943, the military authorities began to notice an unusually high concentration of medical and scientific trained personnel being captured in addition to the regular Japanese infantrymen.²³³ These adjuncts of Ishii's biological weapons program were slowly being gathered in and interrogated by the Americans hopping closer and closer to the Japanese home islands. The medical personnel they captured varied considerably from one another in the answers they gave to their captors, but the overall picture from their testimonies was becoming clear. They discovered that the Japanese were conducting research into biological warfare, and that the US had the good fortune of capturing several of their researchers.

That the Japanese had an active biological weapons program was not a new piece of information for military intelligence back in Washington. The American press had reported rumors of Japanese biological weapons testing in China since 1937, but interest in Japanese biological weapons development really began to pique the curiosity of US intelligence circles in 1939. During that year several alarming reports came in to Washington that at least two separate times Japanese scientists,

²³² Sheldon H. Harris, Factories of Death, 223.

²³³ *Ibid.*, 223-224.

including famous bacteriologist Dr. Miyagawa Yonetsugi and Unit 731 lieutenant Naitō Ryōichi, had approached the Rockefeller Institute in New York (now Rockefeller University) to bribe researchers there into supplying them with the isolated virus that causes yellow fever for at least \$3,000.²³⁴ Both times the Japanese scientists were rebuffed and their solicitation was immediately reported to Military Intelligence Service of the War Department, otherwise known as G-2.²³⁵ Moreover in April of 1942 the Kuomintang government held a press conference in their wartime capital of Chongqing to officially accuse the Imperial Japanese government of resorting to spreading plague through germ warfare.²³⁶ The conference and its accompanying Chen report on the historical and modern scientific analysis of the plague dissemination by epidemiologist, Dr. Wen-Kwei Chen was translated into 10 different languages and distributed amongst the Allied governments, yet it did not generate much of a response.

In fact most American officials dismissed the potential threat posed by the Japanese biological weapons program for two distinct reasons. The first was a very simple and malicious sense of racial superiority over the Japanese, and consequently most Western analysts incorrectly implied that the Japanese lacked the sophistication to create

²³⁴ *Ibid.*, 203.

²³⁵ Barenblatt, *A Plague Upon Humanity*, 200-202.

²³⁶ *Ibid.*, 185.

advanced weapon development programs without Western assistance.²³⁷

The second was simply a question of proximity. Japan was much too far from the US mainland to pose a threat to its population, and most officials were inclined to believe that the Japanese had no delivery system capable of spanning the 10,000 miles between the West Coast of the US and mainland China.²³⁸

For its part, the United States did not have anything resembling a workable biological weapons program until well after most other major military powers, and its own capability did not come online until the early 1940s. As it was stated previously the United States, though one of the key international proponents of arms reduction during the Geneva Conference of 1925, lacked the political will at home to ratify the treaty though it abided by its limitations simply by refraining from developing a program due to an overall lack of interest though its military experts did consider it.²³⁹ In 1932 Major Leon A. Foxx, chief of the Medical Section, in the U.S. Chemical Warfare Service, published his thesis on the viability of biological attacks. Though he did acknowledge that wartime diseases had always had a higher casualty rate than combat, a potential that could be applied with new weapons,²⁴⁰ he concluded that they were unreliable. Biological weapons had too much potential for blowback, and the prospect of immunization largely mitigated any advancement such a weapon might

²³⁷ Sheldon H. Harris, Factories of Death, 219.

²³⁸ *Ibid.*, 218.

²³⁹ Tsuneishi, The Germ Warfare Unit that Disappeared, 6.

²⁴⁰ *Ibid.*, 15-16.

be capable of. US military strategists ultimately adopted his view. Though in 1937 Lt. Col. James S. Simmons of the same Medical Corps reported on how biological weapons could easily be developed and pose a threat to the US via insect dissemination, he was largely ignored.²⁴¹ However even if the US had the requisite will to develop such a program, it lacked the resources. The Great Depression has hobbled the US economy and forced government authorities to look to spending its precious resources on developing social welfare programs rather than weapons programs.²⁴²

What ultimately swayed the United States towards weapons development were not the disquieting rumors about the Japanese capability, but rather the German one. Throughout its history, most existential threats the US faced had come from across the Atlantic Ocean, and thus that is where its attention was constantly focused. As such a mid 30's British exposé on supposed German biological weapons research and intelligence that included how Germany had turned the Koch Foundation laboratories near Paris, France's premier biological weapons development facility, towards large-scale botulin toxin development, gathered well into 1941 compounded the concerns of US security personnel.²⁴³ The escalation of these rumors had begun to unnerve many of the officials who had followed Foxx's old doctrines, and between 1939 and 1941 a flurry of

²⁴¹ Sheldon H. Harris, *Factories of Death*, 202.

²⁴² *Ibid.*, 203.

²⁴³ United States Department of War, *Activities of the United States in the Field of Biological Warfare: A Report to the Secretary of War*, by George W. Merck (National Archives: 1946), 3; Sheldon H. Harris, *Factories of Death*, 203.

internal reports passed between the War Department and various military branches about the threats that the new weapons posed to America.²⁴⁴

In October of 1941 the WBC Committee (a transposition from its brief predecessor the Biological Warfare Committee) was created by the War Department. The Committee was commissioned to investigate how much of a threat biological weapons were for the US and corroborate the reports of representatives from the Office of the Surgeon General, Chemical Warfare Service, National Research Council, G-2, and the Committees on Medical Research of the OSRD.²⁴⁵ Chaired by Dr. Frank B. Jewett of the National Academy of Sciences and a good friend of Secretary of War, Henry Stimson, the WBC colluded with its Canadian counterpart that had ties with a more advanced British program to investigate the full threat of biological weapons.²⁴⁶ The report the WBC Committee produced in February of 1942 determined that the threat was real, and if the US did not act soon to develop at least a defensive capability it could be in danger of a serious biological attack.²⁴⁷ As a result of that report a civilian committee, the War Reserve Service (WRS) headed by George W. Merck of New Jersey's Merck pharmaceutical company was created to coordinate all of the biological weapons work between America's alphabet soup of agencies and the Chemical Warfare

²⁴⁴ Sheldon H. Harris, *Factories of Death*, 204-205.

²⁴⁵ *Ibid.*, 205.

²⁴⁶ United States Army, *Biological Warfare (BW)*, 5-6.

²⁴⁷ Harris and Paxman, *A Higher Form of Killing*, 95.

Service (CWS). President Roosevelt released an initial \$250,000 from his Special Emergency Fund to get work started immediately in late 1942.²⁴⁸

Originally work began at the CWS headquarters at Edgewood Arsenal in Maryland, yet the space the new program demanded was not enough so it was moved to the inconspicuous National Guard airfield called Camp Detrick in Maryland. By 1944 Fort Detrick, as it became known, was at full intelligence and research gathering operation under its head, Dr. Theodor Rosebury.²⁴⁹ Fort Detrick had recruited a large swath of scientists from the US Army, Navy, Surgeon General's office, and civilian science centers and surged to employing 3,900 personnel at its height.²⁵⁰ The CWS concurrently constructed large field-testing facilities at Horn Island, Mississippi and a massive facility at Granite Peak, Utah. It also pooled its resources with Britain that totaled to an additional \$40,000,000 investment into plant and equipment development to complement the already advanced research coming out of the UK.²⁵¹

The US assimilated the British research it began receiving from its ally at an astonishing pace, and its massive new enterprise bore fruit remarkably faster than its older British, German, and Japanese counterparts. By the end of the war Fort Detrick was home to 200 different germ bomb projects that became as highly classified as the atomic

²⁴⁸ Sheldon H. Harris, *Factories of Death*, 207.

²⁴⁹ United States Army, *Biological Warfare (BW)*, 10.

²⁵⁰ Sheldon H. Harris, *Factories of Death*, 208.

²⁵¹ Harris and Paxman, *A Higher Form of Killing*, 95.

bomb.²⁵² In one case by May of 1944 the US had created its first batch of 5,000 anthrax prototype bombs, and in the next year its production facility at Vigo, Indiana would be capable of producing 50,000 4-pound anthrax bombs a month – not even the apogee of its production capacity.²⁵³ The facility would never be used as a weapons factory because the war ended before it was necessary to start producing weapons, but in an emergency Fort Detrick specialists could make the Vigo facility operational again within three months.²⁵⁴ Moreover by 1945 America possessed a wide range of anti-crop agents like fungi and insects meant to destroy enemy foodstuffs, and there is a high likelihood the US tested the agents it possessed. For example in the autumn of 1944 a mysterious and severe plague of Colorado Beetles hobbled German crop production enough to divert Schrader, tabun's progenitor, away from his impressive chemical weapons work back to emergency insecticide development, and in Japan in early 1945 rice blights immediately followed American bomber attacks.²⁵⁵ Former British Foreign Secretary Edward Grey aptly summed up the rapid success of this enterprise, by saying the US was like a "giant boiler. Once the fire is lighted under it, there is no limit to the power it can generate."²⁵⁶

²⁵² Jacobsen, Operation Paperclip, 230-231.

²⁵³ Sheldon H. Harris, Factories of Death, 210.

²⁵⁴ Harris and Paxman, A Higher Form of Killing, 103-104.

²⁵⁵ *Ibid.*, 99-100.

²⁵⁶ *Ibid.*, 97.

The advanced state of the US biological program had meant that it needed to be ready to respond to any perceived threat to the nation. As the program evolved further senior US security personnel changed their position on Japan's program from one of ambivalence to an intelligence priority. As the Japanese Army's mysterious medical personnel began to occupy a curiously increasing percentage of the captured of Japanese POWs, the US began to look more closely at what the prisoners were saying to them in interrogations. Coupled with the allegations coming out of China about biological attacks the US became convinced that Japan was ready and capable of using its biological weapons. As a result of the upgraded intelligence assessment, on August 15th 1944 G-2 released an urgent memorandum to all soldiers in the Pacific to be "impressed with the importance of capturing and securing any medical equipment and supplies," and ended with, "any evidence of enemy use of bacteriological warfare, no matter to what extent, will be reported immediately."²⁵⁷

While the US and her allies continued to liberate more and more territory from Japanese forces, the intelligence poured in. Between 1944 and 1945 American intelligence began to piece together essentially what was happening with the Japanese program despite its high level of secrecy. Freedom fighters that had helped the Allies liberate Burma reported their discovery of a Water Purification Unit's prison in Rangoon where human

²⁵⁷ Barenblatt, A Plague Upon Humanity, 190; Sheldon H. Harris, Factories of Death, 224.

medical experimentation took place,²⁵⁸ and other partisan forces across Southeast Asia began to corroborate the Chinese accounts that been filtering in for a half decade. Japanese prisoners themselves had provided information on some of the medical work being done at Changchun, the prison layout of the biological weapons complex at Nanjing including hints of human experimentation there, and alarming information on how to identify a Japanese bacillus bomb.²⁵⁹

Moreover while the US was estimating the wartime potential of the Japanese program they received another shock. In December 1944 the US was alerted to a new type of Japanese experimental weapon that had the potential to deliver biological agents to American soil. In November of that year, Japan's Ninth Army Research Technical Division, the same unit responsible for experimenting on Unit 1644 prisoners in Nanjing, sent 9,000 incendiary paper balloons from the main home island of Honshu in Japan to catch the jet stream to America.²⁶⁰ The 33 ft. diameter balloon bombs, a technical success but a tactical failure, took three days to reach American soil. They were meant to cause widespread panic and resource fires, but never did so due to their failure to ignite on impact. The FBI initially censored any reporting about it to avoid a public panic, and War Department authorities were alarmed enough to dispatch experts from Fort

²⁵⁸ Barenblatt, A Plague Upon Humanity, 191.

²⁵⁹ Sheldon H. Harris, Factories of Death, 225-226.

²⁶⁰ Barenblatt, A Plague Upon Humanity, 191-192.

Detrick to analyze the crashed balloons.²⁶¹ Much to everyone's relief testing for lethal bacteria came back negative, but the threat posed by Japanese weapons became very real. Thereafter securing a realistic picture of what the Japanese program was capable of became a top priority for US intelligence.

The windfall for American authorities on Japan's program however, did not come from the Pacific. Quite the contrary, once Germany had capitulated in May of 1945 the looting of Berlin for information had begun. One of the unexpected treasures US authorities uncovered from the rubble of Berlin was Japan's science attaché to Germany, Col. Hojo Enryo. The fifty one year old bacteriologist had been one of Ishii's contemporaries during the early Manchurian operations and at Pingfan due to his work in Tokyo on epidemic prevention. In 1940 Ishii dispatched Hojo to Germany to investigate charges that the USSR had used biological weapons against the Finns during the 1940 Soviet-Finnish war. He was also secretly instructed to secure any data on Germany's program that was available and to encourage joint development.²⁶² Hojo was shipped to Berlin in an official capacity as the scientific attaché of Imperial Japan to cover his real mission from Ishii, and while in Berlin, he took it upon himself to give thinly veiled lectures on biological weapons utilization to German scientific circles up until the Nazi defeat in the Battle of Berlin.²⁶³

²⁶¹ *Ibid.*, 97.

²⁶² Sheldon H. Harris, *Factories of Death*, 227.

²⁶³ *Ibid.*, 228.

Once Hojo was identified as a biological weapons expert by newly arrived US forces he was immediately forwarded to the Pentagon for questioning. By the time of his repatriation back to Japan in December of 1945 after his name as a war criminal had been cleared the US had secured Hojo's cooperation. Hojo ended up identifying Ishii as one of the heads of development, corroborated POW testimonies that the Japanese had biological weapons research laboratories in Tokyo, Canton, Nanjing, Dairen, Changchun, and Harbin, and that Japan had developed to relative success the "Mark-7" bacillus bomb.²⁶⁴ Though several points in the Japanese program remained elusive to US intelligence experts, one thing became clear: Shirō Ishii's continual appearance in POW testimony marked him as a top priority for intelligence operatives.

Meanwhile as the war was approaching its conclusion, any attempts Ishii made to engage in testing his weapons against Western powers were met with pushback from higher-ranking generals in Tokyo. Their relatively new reservations about employing Ishii's biological option were being drawn from their fear of hardening US resolve against them unnecessarily.²⁶⁵ The full reversal the Japanese generals had made from the active encouragement of Ishii's program to a policy of containment underlies how the dire the Japanese situation was in 1945, yet the situation turned truly bleak when the Soviets finally fulfilled their promise of declaring war on Japan once Germany had been defeated. On August 8th

²⁶⁴ *Ibid.*, 228-229.

²⁶⁵ Barenblatt, A Plague Upon Humanity, 190.

1945, the Soviet Union formally declared war on Japan, and the next day 1.6 million Soviet forces launched two major operations from Siberia to purge Japanese forces from the Far East.²⁶⁶ The Japanese had always held a deep-seated fear of Russian aggression into their territory, and this sudden assault prompted most Japanese forces into ordering a full-scale retreat. Nevertheless the Japanese knew what there would be consequences if their illicit chemical and biological operations were found out, and the day the Soviets launched their offensive the commander-in-chief of the Kwantung Army, General Yamada Otozō, ordered all evidence of the units destroyed.²⁶⁷ With the Soviet entry into the war Ishii too began to realize that he needed to cover his trail. The collective fear of Soviet advancement for the Japanese forces was almost palpable, and as a result the destruction of evidence of human experimentation in Manchuria was so thorough that later most Japanese information supplied to US authorities could only be given from memory. Moreover there could not be any evidence to implicate the emperor.²⁶⁸

Regardless the imminent Soviet invasion coupled with the specter of the atomic bombs dropped on Hiroshima and Nagasaki on August 6th and 9th hammered the last nails into the coffin of Japanese resolve. In order to avoid the catastrophe that would follow an invasion of the home islands, for the first time in history Emperor Hirohito spoke directly to his

²⁶⁶ Takamae, *Inside GHQ*, 46.

²⁶⁷ Tsuneishi, *The Germ Warfare Unit that Disappeared*, 226.

²⁶⁸ United States Army, *Biological Warfare (BW)*, 4.

people to inform them that Japan was surrendering and was ready to usher in a new era of peace.²⁶⁹ In other words Japan had lost, and when Ishii heard the emperor's shortwave broadcast from Manchuria he was incapacitated by the shock of the event for several days.²⁷⁰ Nevertheless he quickly regained his composure and moved from his station in Kwantung HQ in Changchun back to Pingfan in order to better coordinate Unit 731's retreat and destruction of evidence. In spite of how disappointed he was at the prospect of erasing most of the documentary evidence of his experimentation, Ishii and his subordinates eradicated most of the material, structures, and remaining prisoners within three days. He did return for a few hours on August 11th to briefly transport some documents he had saved personally before the remainder of the base was gutted, but that was all he could save.²⁷¹ Ishii returned with his family and most of the major participants in the biological program to mainland Japan, whereupon each took a vow to keep what went on in Manchuria a secret and to divide the remaining documentary evidence between them for security purposes. He took the further precaution of coordinating with the authorities in his home Chiba prefecture to fake his death with a fully attended funeral.²⁷² His colleagues Kitano Masaji and Wakamatsu Yūjirō also managed to return to the mainland to bide their time. While Ishii, Kitano, and Wakamatsu

²⁶⁹ Dower, *Embracing Defeat*, 35.

²⁷⁰ Sheldon H. Harris, *Factories of Death*, 244.

²⁷¹ *Ibid.*, 245.

²⁷² *Ibid.*, 246.

faded into the background each were planning their next steps from the comfort of their own homes.

Japan's surrender was not simply an admission of defeat. The pomp and ceremony that accompanied the signing of its declaration of surrender heralded a brave plunge into an uncertain future guided by the United States. Aboard the U.S. battleship *Missouri*, so chosen because of the birthplace of President Harry Truman, US servicemen flew the same flag Commodore Perry had when he wrenched open Japan with his black ships as historic rebuke.²⁷³ Furthermore in an acknowledgement of his successful leadership by the Joint Chiefs of Staff, General MacArthur was named as the Supreme Commander for the Allied Powers (SCAP) in Japan.²⁷⁴ With MacArthur at the helm, American authorities embarked on a rather optimistic plan to reshape Japan with demilitarization and democratization as the paramount tenets of the agenda, yet in reality the occupation was more of an experiment in learning how former enemies could live and work together.²⁷⁵

Though the complexities with regard to Japan's occupation were manifold, Washington's attentions were habitually focused on the situation unfolding in Germany. The coalition of forces that the Allies power had built up to occupy Germany contrasted directly with the primarily American makeup of the occupation force in Japan, and the

²⁷³ Dower, *Embracing Defeat*, 40-41.

²⁷⁴ Takamae, *Inside GHQ*, 48.

²⁷⁵ Dower, *Embracing Defeat*, 23.

consequences of those realities were two fold. Washington's Eurocentric policies left MacArthur with an unprecedentedly freehand in his jurisdiction.²⁷⁶ Furthermore official US policy was being formulated against the backdrop of the growth of a new communist threat to the international order.²⁷⁷ The sometimes vague communiqués between Washington and American General Headquarters (GHQ) in Tokyo often pointed MacArthur in the direction of ferreting out intelligence to counter communist influence while the rebuilding took place.²⁷⁸ The same general orders were being directed to Germany, but the multinational forces therein kept the focus on Germany's crimes rather than the threat of the Soviet Union that loomed beyond the horizon. The lack of representation of former colonial Asian nationals in Japan's rebuilding allowed the crimes committed against them to be easily forgotten while the US had the room to set its own Japanese agenda.²⁷⁹

Despite the immense outlay of effort that was required to rebuild Japan, American operatives wasted no time to look for their highly sought after intelligence prizes. Though Ishii and his colleagues endeavored to cover their trails and lead quiet lives after the war, the increasing pile of interrogations reports that implicated Ishii, Kitano, and Wakamatsu only put off their seizure for a few months.²⁸⁰ Nevertheless US intelligence

²⁷⁶ *Ibid.*, 27.

²⁷⁷ Takamae, *Inside GHQ*, 49.

²⁷⁸ Wang, "Medicine-related War Crimes Trials," 33.

²⁷⁹ Dower, *Embracing Defeat*, 27.

²⁸⁰ Sheldon H. Harris, *Factories of Death*, 247.

secured their prizes by mid-January 1946. Lt. Gen. Ishii was brought in to SCAP headquarters for questioning as the primary suspect for Japan's weapons program and was then confined to his home in Chiba for the many following rounds of questioning. Concurrently Kitano, who had been brought to the Japanese mainland by US authorities, was questioned separately. Wakamatsu had escaped suspicion for the time being: his under the radar approach to leadership led US authorities to believe Ishii had also headed up Unit 100.²⁸¹ Regardless Ishii used his cunning to initially fool American investigators into thinking the program was much more benign than it actually was, and his ability to manipulate superior officers once again played to his advantage as he fielded questions from Fort Detrick examiners Lt. Col. Arvo Thompson and Dr. Norbert H. Fell in 1946.²⁸² Kitano continued to be brought in for questioning in Tokyo though he remained obstinate. He denied any connection to human experimentation or biological research and was noted to be holding back information. When Wakamatsu was finally brought in for questioning in Osaka he denied similar charges although he admitted to knowing Ishii.²⁸³ Similarly every major player with knowledge or connections to the program remained tight-lipped – no one wanted to end up on trial as a war criminal.

²⁸¹ *Ibid.*, 247.

²⁸² *Ibid.*, 16; 250-252.

²⁸³ *Ibid.*, 254-256.

Lt. Col. Murray Sanders, another of the military scientists from Fort Detrick, had been in the Philippines since 1945 following an investigation of the balloons Japan had launched against the US mainland. He was tasked by MacArthur to find the top biological weapons scientists in Japan and question them secretly. When he arrived in Japan, Naitō Ryōichi, an English-speaking Unit 731 scientist and one of the men who had gone to the Rockefeller Institute, greeted Sanders at port.²⁸⁴ Clearly Naitō had been tipped off about Sanders' imminent arrival. His network had prepared for how to deal with American investigators and suggested to Sanders that they would cooperate in exchange for immunity from the war crimes trials that were set to begin soon. However the threat of criminal repercussions was not enough to shock the Japanese scientists into volunteering honest testimony. Kitano tried to play off the program as a rogue operation, Wakamatsu's admissions were full of inconsistencies, Naitō tried to paint an innocent picture of the operation, and Ishii was as wily as he had ever been with his answers. In spite of all this, by 1947 the Americans had amassed a large depository of testimonies that implicated both civilian and military scientists in involuntary and lethal human experimentation.²⁸⁵ Though Naitō was probably manipulating Sanders, the conditions for more information filtered directly to MacArthur, as did almost anything that had any relevancy in East Asia at that time. In mid 1946 MacArthur, presumably with the permission of the authorities in

²⁸⁴ Barenblatt, *A Plague Upon Humanity*, 205.

²⁸⁵ Sheldon H. Harris, *Factories of Death*, 258.

Washington, acquiesced to the terms Sanders and Naitō had hammered out. For the time being anyone who was willing to participate candidly and honestly in the biological warfare investigations would be exempt from the war crimes trials that were set to begin in May regardless of any knowledge of wrongdoing.²⁸⁶

MacArthur's decision was buttressed by three separate investigation reports from experts dispatched out of Fort Detrick to interview the Japanese scientists. The data gathered was one of the many Faustian dilemmas American authorities were facing at the close of the war. The Japanese data had come at the cost of thousands of lives, and yet American scientists, in spite of their great leaps in a short time, had no first hand data on either humanity's susceptibility to toxic agents, dissemination techniques, or adequate field testing in a wartime simulation. American scientists, though horrified by the Japanese methods, were forced to recognize the shortcomings in their own program. Securing Ishii and his colleagues' experience and data to advance the effectiveness of their program came from data could never have been ethically obtained in areas under American jurisdiction.²⁸⁷ Moreover the growing rift between the Soviets and the Americans was another justification to secure the only keys to the biological weapons program. By January of 1947, the US began to rebuff Soviet requests to interview Ishii and other biological experts based on their findings in Manchuria, yet the Joint Chiefs of Staff

²⁸⁶ Barenblatt, *A Plague Upon Humanity*, 207.

²⁸⁷ Sheldon H. Harris, *Factories of Death*, 264.

informed MacArthur that any information gleaned from the Japanese would be kept secret from everyone, including US allies. Ishii and his cohorts were only interviewed by the Soviets with American supervision.²⁸⁸ Furthermore, though the US had secured the primary Japanese personnel responsible for the weapons programs they lacked any access to what the Japanese had left behind on the mainland. The Soviet occupation of Manchuria and Korea to the 38th parallel had left the majority of any physical remains of the program squarely in communist control, and for the time being the Americans were not allowed into the Soviet zone to investigate there.²⁸⁹ In reality both sides were using similar stonewalling tactics, for while the Americans were cutting deals with the Japanese scientists, the Russians were secretly carting documents across Siberia to Moscow for analysis.²⁹⁰ Indeed, the USSR had begun collecting Japanese scientists for their own purposes as early as 1947.²⁹¹

Nevertheless the combination of American promises and the growing mutual fear of Soviet interrogation had a galvanizing effect on the candor of Japanese testimony. Ishii's guile up to 1947 had finally rewarded him when news of Naitō's deal reached him. He came to understand his worth to the Americans and was ready to exploit it. Up to that point Naitō had already detailed a chain of command for the biological program that started with the Emperor and went all the way

²⁸⁸ *Ibid.*, 208-209.

²⁸⁹ *Ibid.*, 265.

²⁹⁰ Yudin, "Research on Humans at the Khabarovsk War Crimes Trial," 61.

²⁹¹ Sheldon H. Harris, Factories of Death, 291.

down to the auxiliaries of Unit 731 by 1947.²⁹² However Naitō's implications went against what the remainder of the Unit 731 and Unit 100 commanders continued to tell their investigators: that Emperor Hirohito was not involved and would not have allowed the program to continue if he had been. Nevertheless it was all just the tip of the iceberg for Ishii in particular. In 1947 he offered to tell the Americans everything he knew, and that he would like to be employed by the US as a bacteriological expert.²⁹³ He insisted that his experience was invaluable to the Americans and would be especially helpful in their coming war with the Soviet Union.²⁹⁴

Though it is debated as to whether the United States accepted Ishii's proposal for employment, it is unlikely that they did so. After the war, Ishii was reported to have shipped off to Fort Detrick to assist with the research there.²⁹⁵ Nevertheless most of the evidence for his work in the United States is based on hearsay rather than hard evidence or testimony. Furthermore Ishii suffered from occasional bouts of poor health. He also became afraid to leave his home for fear of blackmail by his former subordinates as the relationship between him and his interrogators blossomed.²⁹⁶ This makes it highly unlikely that he would risk his health

²⁹² Barenblatt, A Plague Upon Humanity, 206-207.

²⁹³ Takamae, Inside GHQ, 255.

²⁹⁴ Sheldon H. Harris, Factories of Death, 265.

²⁹⁵ Richard Drayton, "An Ethical Blank Check," *The Guardian*, May 9, 2005, accessed October 13, 2013,

www.theguardian.com/politics/2005/may/10/foreignpolicy.usa.

²⁹⁶ Sheldon H. Harris, Factories of Death, 274.

to pursue new research in the country of his former enemies where a language was spoken that he had no recorded grasp of.

Despite how much the Americans wanted the Japanese data, there was still a real debate in Washington and General Headquarter in Tokyo as to whether it was worth it to spare war criminals from trial when news of their immunity might get out and seriously embarrass the United States. GHQ's legal section was simultaneously trying Class A and B war criminals in Tokyo, and the gruesome experimentation that America's potential partners engaged in made them very logical candidates for trial. Be that as it may the American thirst for justice, especially in light of the Doctors Trials simultaneously commencing in Nuremburg, did not outweigh its thirst for security. The scale and scope of the Japanese program had dwarfed its American counterpart by their own estimations.²⁹⁷ Therefore Fort Detrick scientists and War Department policy makers dispassionately concluded that, despite being an auxiliary weapon only to be used outside of conventional warfare,²⁹⁸ the benefits of previously unattainable information far outweighed the risks of discovery.

“Evidence gathered in this investigation has greatly supplemented and amplified previous aspects in this field. It represents data which have been acquired by Japanese scientists at the expenditure of many millions of dollars and 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

²⁹⁷ Harris and Paxman, *A Higher Form of Killing*, 153.

²⁹⁸ Thompson, *Report on Japanese Biological Warfare (BW) Activities*.

were acquired with a total outlay of \$250,000 to date, a mere pittance by comparison with the actual cost of the studies. ... It is hoped that individuals who voluntarily contributed this information will be spared embarrassment because of it, and that every effort will be made to prevent this information falling into other hands.”²⁹⁹

In exchange for the information they wanted, the US came to the conclusion that there was not enough evidence to charge Ishii and his subordinates anyway.³⁰⁰ There was also the possibility that a trial might bring the information the US wanted to keep to itself, including about its own program, into the public domain. Though after the war Merck and his WBC committee would prod the War Department into issuing a vague press release informing the American public that the United States had a biological weapons program for transparency’s sake,³⁰¹ it was still not keen to reveal any of its covert operations taking place in Maryland. Moreover embarrassing the Japanese they were trying to woo by bringing to light the brutal evidence of its human experimentation would not be conducive to the trust the Americans were trying with the Japanese public.³⁰² Ultimately justice wasn’t worth the bad publicity.

After the deal was secured and Ishii had attained immunity for himself, his superiors, and his subordinates in May of 1947, the information began to pour out of him. By the end of all the interrogations with Ishii, Kitano, Naitō, and several other players in the weapons

²⁹⁹ Harris and Paxman, *A Higher Form of Killing*, 154.

³⁰⁰ SFE, Appendix A in *Interrogation of Certain Japanese by Russian Prosecutor*, by State Member, SFE, SFE 188/2 (National Archives: 1947).

³⁰¹ Merck, *Biological Warfare: A Report to the Secretary of War*, 7-8.

³⁰² Williams and Wallace, *Unit 731*, 209-211.

program, the US found itself sitting on a huge stash of secret data. Ishii and his colleagues still had the tendency to skirt certain information on human experimentation to avoid implicating themselves even with guarantees of immunity, but generally there were high levels of cooperation.³⁰³ The former Unit 731 officers provided the US all the information on their experimentation with anthrax, botulism, bubonic plague, cholera, dysentery, glanders, smallpox, typhoid, tuberculosis, gas gangrene, syphilis, frostbite, and pressure changes on the human body.³⁰⁴ The cooperation with researchers from Unit 100 further burnished the new information with their own report on chemical and biological herbicide techniques to supplement the chemical weapons research being hauled back from Tokyo.³⁰⁵ Many of these experiments had useful results and direct applications for use by the US military, and though most were tainted by Unit 731's unethical methods, that hardly stopped American scientists from taking the information.³⁰⁶ Moreover there is a distinct possibility that the Japanese scientists overstated and exaggerated success of their research in order to further entice the Americans to take their information on top of the US scientists' eagerness to acquire it.³⁰⁷

³⁰³ Sheldon H. Harris, *Factories of Death*, 275.

³⁰⁴ Takamae, *Inside GHQ*, 255.

³⁰⁵ Sheldon H. Harris, *Factories of Death*, 277.

³⁰⁶ Bärnighausen, "Data from BW Experiments in China," 93-96.

³⁰⁷ *Ibid.*, 83.

The contemporary and secret nature of biological warfare program ensured that very little written research had been created up to that time.³⁰⁸ Overinflated research or not, the combination of the Japanese data and the research the US had synthesized and improved upon back in Maryland ensured that America had likely amassed the most advanced and largest collection of biological weapons research in the world within a very short time. This unprecedented boon to American research was a great success for the diplomats and militarists focused on the growing Soviet threat to American security. All it had cost them was an additional outlay of ¥250,000 for Japanese scientists' pensions, freedom for those same scientists, and a betrayal of justice for the victims of Japan's experiments.³⁰⁹

³⁰⁸ Sheldon H. Harris, Factories of Death, 40.

³⁰⁹ Wang, "Medicine-related War Crimes," 33.

The US as the New Patron of Nazi Science

By 1945 Germany was closed in on all sides. Operation Barbarossa, the codename for its campaign against the Soviet Union, had been completely reversed. American and British Commonwealth forces had made landing in Normandy and were slowly making their way to the Fatherland. To force Germany to capitulate the Allied firebomb campaigns of 1944 and 1945 had left Dresden, Munich, Hamburg, and Berlin in ruin, and the Nazi leaders of the Third Reich had no other choice but to grit their teeth and watch their empire implode around them. Nowhere was this more apparent than in Berlin, the city that had become the jewel of Hitler's new German world order. Albert Speer, the Minister of Armaments and War Production, had started out as the original architect of Berlin's transformation from what Hitler saw as simply a provincial center into the *Welthauptstadt Germania*, the World Capital Germania. Speer helped design buildings that captured the raw spirit and ideals of the new Nazi order in spite of whatever misgivings anyone had about the city's new image.³¹⁰ However by 1945 those dreams were at an end. Berlin's massive projects stalled as the buildings around them were incinerated by Allied strategic bombings, and the city the Allies divided between them was more rubble than not.³¹¹ The Allies were baptizing Germany by fire and blood, yet the total destruction of Germany cannot solely be pinned on Allied raids and offensives.

³¹⁰ Jacobsen, Operation Paperclip, 43.

³¹¹ *Ibid.*, 10.

There was no question in hindsight that almost all of the German developments in weaponry were superior to those of the Allies. The effectiveness with which Germany advanced its technological capabilities stunned the invading forces that were trying to figure out how the Germans got to those advances first. However the scientists who participated in the Reich's system of patronage recognized that the slave labor system they had harnessed to boost their research was considered a crime by their enemies, and as the Allies moved into former German territory they received more and more reports about how German scientists were trying to destroy or otherwise conceal their research records to cover up their misdeeds.³¹² Moreover the reports were hardly based on hearsay. The Yalta Conference held in early February 1945 declared that there would be no separate peace agreements and no end to the war without an unconditional German surrender. In response to Yalta and in spite of Albert Speer's plea to try and negotiate anyway, Hitler issued one of his last edicts while in power. Whenever German troops were ordered to retreat they were to embark on a scorched earth campaign all the way back to Berlin. Officially the edict was called the "Demolitions on Reich Territory Decree," but the name it subsequently came to be known by was the Nero Decree, or *Nerobefehl*, named after Nero, the

³¹² Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 92-93.

Roman Emperor who engineered the great fire of 64 AD and watched Rome burn.³¹³

Nevertheless the reality that Germany was losing the war dawned on every German separately and in his or her own time. For some it was the rise of the USSR's counteroffensive. For others it was Allied liberation of Paris on August 25, 1944, but for most the ties that bound them to the Third Reich dissolved on May 1, 1945 – the day Germany announced Hitler was dead. The unprecedented broadcast changed the lives of Germans across Europe, for on May Day it was announced that the Führer died gloriously in battle against invading Bolshevik forces.³¹⁴ In reality Hitler shot himself in a bunker beneath the ruins of Berlin, but the effect of his death signaled to all that the end was nigh.

For Wernher von Braun and his commander, Walter Dornberger, that realization came a bit sooner than most. Though both men had received Germany's highest honors and had watched their rockets launch while rubbing shoulders with the Third Reich's top brass, von Braun and Dornberger were made to realize that their rocket's future in Germany had been nothing more than a dream. With the war turning against them, the superintendent of Mittelwerk, SS officer Hans Kammler, was being granted more power from Berlin to singlehandedly win the war. Kammler eagerly took to his new powers and used them to issue orders to boost production in a last ditch effort to stymie the Allied invasion. As

³¹³ Jacobsen, Operation Paperclip, 29-30.

³¹⁴ Neufeld, Von Braun, 199.

American, British, and Canadian troops advanced on their position at Nordhausen, Kammler put extreme pressure on his German staff to perform and began working the concentration camp inmates to death more so than before. The breakneck pace of production forced upon the already malnourished concentration camp inmates of Mittelbau-Dora led to mass fatalities – SS officers resorted to burning bodies en masse on hastily made pyres to erase inmate remains.³¹⁵ No matter how hard the personnel worked at Mittelwerk to produce missiles it was not enough to break the Allied advance. After firing the last V-2s on April 1, 1945 Dornberger was ordered to halt all V-1 and V-2 manufacturing to retreat with 400-500 important staff members to the Messerschmitt factories in the Bavarian Alps.³¹⁶

For his part, von Braun was already convinced that his rocket project had advanced as far as it could within the auspices of Nazi patronage. Though he had advanced to the rank of SS-*Sturmbannführer*, or major, he was ready to concede defeat and look for new employment, particularly with the Americans. His decision had already been reinforced by his month of interrogation by the Gestapo in 1933 for his connection to leftist Rudolph Nebel of the VfR, the rocket engineering society the German Army Ordnance recruited him from.³¹⁷ Furthermore another incident where von Braun was arrested in March, 1944 and detained for

³¹⁵ *Ibid.*, 195.

³¹⁶ *Ibid.*, 197.

³¹⁷ Biddle, Dark Side of the Moon, 78-79.

two weeks at the Stettin prison in Poland by the SS on suspicions of being a communist sympathizer had convinced him of the instability and unreliability of the regime he was working for.³¹⁸

In March of 1945 his driver fell asleep at the wheel and crashed into a ditch breaking von Braun's arm in the process and knocking both driver and passenger unconscious. When von Braun awoke at the hospital he was informed by his close aides Dieter Huzel and Bernhard Tessmann that it was only a matter of time before they were ordered to retreat – von Braun's time had come. He told his aides to hide the V-2 documents he had secretly stashed away in the event of retreat or surrender, and that they together with General Dornberger were going to submit themselves for employment by the Americans.³¹⁹ His associates agreed, but von Braun did not inform Dornberger until the day Hitler's death was broadcast to the world. Dornberger agreed that their creation needed to be put in the right hands, and together they hatched a plan to surrender but keep their V-2 documents as a bargaining chip.³²⁰ The next day they sent Wernher's younger brother Magnus von Braun, who was brought in as his assistant in Mittelwerk to keep him from combat, on his bicycle to surrender to the Americans. Magnus came down from the Bavarian town of Oberjoch using the mountain road on the German-Austrian border, and while waving a white handkerchief in surrender to American infantry, said with

³¹⁸ Neufeld, Von Braun, 199.

³¹⁹ Jacobsen, Operation Paperclip, 32-33.

³²⁰ Neufeld, Von Braun, 199.

his rough grasp of English that the V-2 team surrendered and wanted to see Ike: General Dwight David Eisenhower, the Supreme Allied Commander in Europe.³²¹ The next day Magnus brought down Wernher, Dornberger, and Arthur Rudolph from the mountains to celebrate their surrender with American forces.³²²

That same month the key players in both Germany's chemical and biological weapons programs concluded the war was over and now was their time to move. Kurt Blome, the head of the Third Reich's biological weapons program chose to lay low in Munich until May 17th when he was identified during a routine identification check by US forces. Blome had been moved up to a first priority list for US intelligence in 1943 as a part of the Manhattan Project's foreign intelligence operation, termed Operation Alsos, and came quietly with his arrest.³²³ Otto Ambros, the manager of IG Farben's facilities at Dyhernfurth and one of Hitler's prized chemists, tried a different tactic than either his rocket or bioengineering colleagues. He directly approached the Americans when they rolled into Gendorf, a southern German town on the border with Austria. Ambros and his colleague had originally come to the town straight from Auschwitz to dismantle its chemical weapons factory and destroy documents. Their preparation was successful enough to turn the partially underground factory into what appeared to be a fully functioning and innocuous soap

³²¹ Biddle, Dark Side of the Moon, 129.

³²² *Ibid.*, 130-131.

³²³ Jacobsen, Operation Paperclip, 75-76.

manufactory.³²⁴ When American forces approached, Ambros offered them soap from the factory, introduced him and his colleagues as simple scientists, and in their best clothes offered to help the GIs wash tanks and uniforms that hadn't been cleaned in nearly a month.³²⁵ The American soldiers genuinely thanked Ambros, and he remained in American hands under house arrest. Though they noticed how he tended to smile an unusual amount, his captors remained none the wiser to his true identity.

By the end of May, the European theater of WWII had gone quiet. Germany surrendered after losing 5.3 million men in the course of a war that drew in 61 different countries. However the problem of what to do with its remaining people became an open question for both US military commanders on the ground and politicians back in Washington.³²⁶ By the end of May of 1945 the US held Blome, Ambros, von Braun, Dornberger, and hundreds of other Nazi scientists but had no idea what to do with them. After careful investigation the question would essentially boil down to whether to exploit them or put them on trial, and sometimes the Americans would do both.

The origins of the American willingness to exploit German science can be traced to 1944 as the war was beginning to turn in the Allies favor. At that time many American and British scientists began to consider the benefits of subsuming German science into their operations as the

³²⁴ *Ibid.*, 74-75.

³²⁵ *Ibid.*, 72-73.

³²⁶ *Ibid.*, 84.

advanced state of German technology began to become more apparent. To the Americans advancing into Europe, the Nazi retreats were simply a way for them to keep information out of Allied hands. A regular scientific investigator was not aware that the German retreat was a cover for their death camps, human experimentation research, and uses of slave labor.³²⁷ Quite the contrary, when the Americans and British engineers began to clamor for inquiries into the German data they gathered, most scientists thought their German counterparts were on the same level of moral equivalence: they were simply doing work for their country.³²⁸ It would only be later that the Allied investigators came to realize the blood cost of the German technology as they advanced deeper into the heart of Europe.

Nevertheless the calls for German technology were legion; they prompted the British and Americans to establish the Combined Intelligence Objectives Subcommittee (CIOS) in the summer of 1944. CIOS was responsible for dispatching teams into German territory as early as September of 1944 to gather important scientists for questioning and to locate their records. This important program complemented the same directives of other military organizations like the American V-2 missions, a US naval Henschel Hs 293 (a guided torpedo) intelligence gathering mission, along with plans by the American Air Force to find Luftwaffe parts that fell from the sky.³²⁹ Furthermore the Jews and political prisoners

³²⁷ Jacobsen, Operation Paperclip, 21-23.

³²⁸ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 109.

³²⁹ Jacobsen, Operation Paperclip, 36-37.

who desperately fled Germany in the wake of Hitler's ascent to the chancellery in 1933 supplemented these missions. The Nazi laws barring Jews from state employment and high science effectively sent them into the arms of American and British researchers.³³⁰ These first trickles of German intelligence provided an important insight into what was happening in Germany, and their valuable information helped push US researchers to find out more about their German counterparts.

Two American service arms in particular observed what was coming out of Europe and stood to gain significantly from the German innovations: the US Chemical Warfare Service and the Rocket Branch of the U.S. Army Ordnance. These heretofore relatively neglected branches of the US military hungered for a relevancy that contributed to their eventual advocacy for German research. The United States Chemical Warfare Service, the forerunner to the US Chemical Corps, was established in late 1918 in response to German chemical attacks. It was responsible for the creation of a massive chemical weapons reserve at the Edgewood Arsenal in Maryland. Though a new division in 1918, the force at Edgewood Arsenal was the largest research organization ever assembled for a single purpose at that time. It employed 1,200 military researchers and around 700 technical assistants that were capable of producing 200,000 chemical bombs and shells per day by the end of

³³⁰ *Ibid.*, 115-116.

WWI.³³¹ The industrial force of the Chemical Warfare Service was enough to awe voters into keeping it alive while the American government was simultaneously negotiating arms reduction treaties. Though the lobbying by the CWS with civilian support staved off the ratification of the arms reduction treaties signed in Geneva in 1925, production still shut down until 1936 when the other great powers like France and Britain began rearming.³³² However the antagonism President Franklin D. Roosevelt felt towards the service precluded it from receiving funding for any major breakthroughs, and the commander-in-chief went so far as to prevent them from changing their name to the Chemical Corps before the war because of the new permanence the name change signified.³³³ The success of the biological weapons program that was being worked on at Fort Detrick notwithstanding, the most relevance the CWS and Edgewood Arsenal enjoyed through the end of WWII was its development of DDT. Even that did not persuade American technocrats into pushing more funding towards the chemical weapons program.³³⁴

On the other hand the Rocket Branch of the U.S. Army Ordnance was a relatively new development begun under the auspices of Col. Gervais Trichel in 1942.³³⁵ The missile program's origins could be traced back to the buzz generated by the liquid fuel rocket research of Hungarian

³³¹ Harris and Paxman, A Higher Form of Killing, 33.

³³² *Ibid.*, 50.

³³³ Jacobsen, Operation Paperclip, 143.

³³⁴ Harris and Paxman, A Higher Form of Killing, 67.

³³⁵ Jacobsen, Operation Paperclip, 12.

émigré Theodore von Kármán at the California Institute for Technology in the early 1930s.³³⁶ The Army remained lukewarm about the military applications of rocketry until the US entered the war in 1941, and funds only began to be put aside for rocket development once Trichel got wind of the equivalent German program making huge strides. By 1945 the ambitious colonel had secured a rocket firing range at White Sands, New Mexico.³³⁷ However, as with the US chemical program, American rocketry remained some twenty years behind German developments. Nevertheless a new opportunity arose for many of America's languishing programs with Germany's surrender. The advanced and previously unattainable German knowledge became available to those who dared to reach for it.

Regardless the system of competing intelligence objectives among multiple service units made the system of data gathering up through Germany's surrender untenable. Men looking out for the United State's security interests would do their best to appease German researchers to get their data in direct conflict with the objectives of military detectives who would see those same researchers behind bars. The whole system suffered from these competing interests arguably until early May of 1945. In the immediate aftermath of the German surrender the US compiled the CROWCASS List or Central Registry of War Criminals and Security Suspects. It did so in response to the public pressure at home to punish

³³⁶ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 108.

³³⁷ *Ibid.*, 108-109.

Nazis for their war crimes after the Buchenwald and the extent of Nazi death camp system was revealed to the public.³³⁸ The significance of this list lay in its simplicity; the men moved onto it simultaneously became prey for war crimes investigators and technical intelligence teams like CIOS.

The system received another necessary reorganization with the creation of the Office of Military Government for Germany by the United States (OMGUS). This government entity under the command of Eisenhower's deputy, General Lucius D. Clay, reported to the international Allied Control Council (and the US State Department) starting in July of 1945.³³⁹ The military government took control of the US' zone of occupation in Germany and its share of Berlin, both of which had been agreed to be portioned into four parts administered by France, Britain, and the USSR separately. Unlike the Japanese occupation that followed the US did not retain full hegemonic control of Germany, and the American soldiers stationed in Europe failed to share the feeling of novel exoticism that their counterparts in Japan did.³⁴⁰ However the international makeup of the German occupation forced the US to galvanize its own data gatherers into ruthless organization. OMGUS immediately got to work trying to decide what to do with the many

³³⁸ *Ibid.*, 112.

³³⁹ *Ibid.*, 144.

³⁴⁰ Dower, Embracing Defeat, 23.

scientists it was now holding for interrogation at locations like Kransberg Castle, codenamed Dustbin, high in the Taunus Mountains.³⁴¹

It might seem preposterous that the US authorities would consider anything short of war crimes trials for the Nazi scientists it had in its possession. However for the people sitting at OMGUS headquarters in Frankfurt am Main, new political realities on the horizon made the option of scientific exploitation of German scientists a very real possibility. The real concern for most military commanders on the ground in the summer of 1945 was the war that was continuing across the world in the Pacific Ocean. General Allied naivety as to the extent of the German scientists' participation in the Nazi machine notwithstanding, it was the British on the eve of the landings in Normandy who first suggested that bringing in German expertise could be useful and necessary to shorten the war with Japan.³⁴² The possibility of using German technology to shorten an already drawn out war in the East became a key US consideration a year later. By May of 1945, the United States was in the middle of the Battle of Okinawa: a contest for the Ryukyu Island chain that Japan would cede only at the cost of thousands of lives. The horrifying prospect of repeating that scenario in a full-scale invasion of the Japanese home islands gave its tacticians enough pause to consider what the British were saying to them. If there was a way to exploit Nazi science to cut short a war that was still

³⁴¹ Jacobsen, Operation Paperclip, 145.

³⁴² Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 67.

expected to take at least another year to conclude,³⁴³ then the American commanders stationed in Europe felt it was worth a try albeit with a small cap on the number of scientists the US employed to keep the program under control.³⁴⁴

The other impetus for recruiting Nazi scientists came in response to the other powers that were either having the same thoughts as the United States or that had even less moral scruples about the prospects to begin with. America and Britain, countries that had shared each other's closest secrets and became tied together thoroughly in war, began to drift apart as the rivalry over scientific knowledge began to manifest itself. The joint British-American intelligence-gathering mission CIOS split into its constituent national components: Field Information Agency, Technical and British Intelligence Objectives Sub-committee, otherwise known as FIAT and BIOS.³⁴⁵ If the rivalry for German knowledge and expertise could drive a wedge between such erstwhile allies then what it did to the collaboration between the USSR and the US, awkward bedfellows at the best of times, was another matter entirely.

Though the Cold War had not yet begun between America and the USSR, its opening was quickly incoming as each power began to deny the other access to the German scientists in their zones. As the last shots were

³⁴³ Neufeld, *Von Braun*, 206.

³⁴⁴ US Department of War, *Exploitation and Denial of German and Austrian Specialists In Science and Technology in the United States*, SWNCC 257/22 (National Archives: 1946).

³⁴⁵ Jacobsen, *Operation Paperclip*, 145.

being fired in Germany, the Joint Intelligence Committee reported to the Joint Chiefs of Staff that the country was in critical need to prepare for a war with the Soviet Union that had a “realistic” start date estimated to 1952.³⁴⁶ Furthermore the lines that the Allied powers had agreed upon for their occupation of Germany also played their part in the rivalry with the Soviets. Rapidly approaching withdrawal deadlines from Eastern Germany were placing more and more territory and personnel into communist hands. Regardless of whether it was legally right to do so, keeping information away from the communists was an opportunity most American commanders thought they could not afford to miss.

Take for example the American Special V-2 mission to secure missile parts and the rocket engineers formerly employed at Nordhausen before it was transferred to Soviet forces. Though the Mittelwerk facility technically fell under Soviet jurisdiction, the American and British forces that liberated it had first grabs on everything there. As a result in May of 1945 the US had almost every piece of the V-2 puzzle: the engineers like von Braun, the actual parts, and the factory.³⁴⁷ What they didn't have were the documents and blueprints that made the rocket possible, for von Braun had stashed them away to play as his trump card, as was stated previously. The US was ready to ship everything it could to the US to recreate the V-2 program, but without both the scientists and the documents there was almost no point. Creating empty V-2 shells without the necessary backend

³⁴⁶ Jacobsen, introduction to Operation Paperclip, xi.

³⁴⁷ Jacobsen, Operation Paperclip, 99-103.

mathematics made them almost useless as weapons that could strike with precision, and reverse engineering the calculations the Germans had been working on for two decades would have been no easy task.

More importantly the US was about to give up access to the factory and let the Soviets have the production secrets contained within its hardware. Dornberger and von Braun understood the impending situation from their place in American detention. Both men also believed enough in their own overinflated importance that they were sure they could strike an employment deal with the United States for themselves and the entire contingent of V-2 scientists – nearly 400 people.³⁴⁸ With this in mind, von Braun became particularly gregarious with his American captors. The day after his surrender he went around the Bavarian base in broken English telling GIs about how far along *his* rocket program had developed at Peenemünde, how it could have won the war for Germany with more time, and his dreams for its next steps. He did so all while posing for pictures and shaking hands with a swagger more suited to a politician than a POW,³⁴⁹ yet for all his amiability the one thing his orations were lacking was any hint of remorse for what had happened Peenemünde or Nordhausen.³⁵⁰

Nevertheless von Braun's words were always carefully chosen, as were the testimonies of all the major German prisoners. Though

³⁴⁸ Neufeld, Von Braun, 203.

³⁴⁹ *Ibid.*, 201.

³⁵⁰ Jacobsen, Operation Paperclip, 69; Neufeld, Von Braun, 201.

Dornberger and his men had initially agreed amongst themselves to cooperate in hopes of a deal with the Americans, no deal was forthcoming. A story that already tiptoed around issues of slave labor and SS tactics became notably short of new information, and the scientists began stonewalling their CIOS interrogators.³⁵¹ Most were trying to strike a fine line between volunteering information and holding back. Reveal too much and you were likely to end up at a war crimes tribunal like V-2 rocket engine developer Arthur Rudolph.³⁵² However revealing too little was never one of their fears. After all, the Germans held all the documents that the US needed – or so they thought.

The assistants von Braun had trusted to hide his documents, Huzel and Tessmann, had secretly informed Karl Otto Fleischer, a Wehrmacht business manager connected to the program living in Nordhausen of their location in an abandoned mine shaft by a village called Dörnten. They did so without informing von Braun.³⁵³ A US Army Ordnance officer named Major Robert Staver had tricked Fleischer into revealing the location of the documents, and he managed to sneak them past British check points and solely into US hands by late May. However fortunately for von Braun and Dornberger, Staver's goal was never just securing the V-2 documents. While he was in Paris securing transport for the V-2 records stuck in the mineshaft in Dörnten, Staver convinced Colonel Joel Holmes of the Army

³⁵¹ *Ibid.*,96.

³⁵² *Ibid.*,96.

³⁵³ Neufeld, Von Braun, 206.

Technical Division to bring the scientists back along with their documents before any more German personnel fell into Russian hands.³⁵⁴ The Colonel agreed, and as the Red Army began to move into the area surrounding Nordhausen, every scientist and engineer connected to the V-2 program was rounded onto railcars and shipped west. The US may have given up the advanced factories in Nordhausen, but they had secured von Braun's and Dornberger's secret documents, several V-2 parts, and the cooperation of about 80 scientists and their families by June of 1945.

The US military in Europe had already been convinced that the German scientists should be exploited. Eisenhower even observed that the intellectual reparations paid with German science was the only compensation they were likely to glean from the broken Reich.³⁵⁵ Washington D.C. only began to address the question of what do with Hitler's scientists after the Pentagon was cabled of Staver's evacuation from Nordhausen that had left the major in possession of a cumulative 400 German scientists.³⁵⁶ However the War Department could not decide the question independently. If it wanted to offer contracts to German scientists that demanded its attention it had to clear the hurdles of State Department regulation, and the State-War-Navy Coordinating Committee (SWNCC) got involved to coordinate policy between the two. In the interim the War Department decided to encourage offering contracts to German scientists

³⁵⁴ Jacobsen, Operation Paperclip, 99.

³⁵⁵ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 8.

³⁵⁶ Jacobsen, Operation Paperclip, 103.

on a temporary basis assuming that they were not suspected of being war criminals.³⁵⁷ The State Department was uniformly opposed to the idea. They were busy trying to encourage South American countries offering Nazis safe haven into extraditing them to Germany to be put on trial, and if the public were to find out about the America's own Nazi imports then their position would be completely compromised.³⁵⁸ The Department of Justice was equally opposed if only for the reason that they did not want to create contracts that tiptoed around the work they were simultaneously producing for the International Military Tribunal (IMT) that was set to try major Nazis at Nuremberg.³⁵⁹

Nevertheless the movement towards exploiting their former foes could not be put in check by the bureaucrats who were opposed to it, for the proponents of scientific exploitation were moving apace to secure an official policy to bring the Germans to America. In fact it appears that they were outpacing those opposed to them. Col. Trichel from the Rocket Branch of the US Army Ordnance had already secured the contracts and imported five V-2 scientists to his facility in White Sands, New Mexico in June.³⁶⁰ In early May, Dr. Heinz Schlicke, a German Navy electronics expert in the areas of radiolocation camouflage, jamming, remote control, and infrared, surrendered off the coast of the United States from his U-boat. Like many other submarines being sent to Japan to bolster their war

³⁵⁷ *Ibid.*, 106.

³⁵⁸ *Ibid.*, 133-134.

³⁵⁹ *Ibid.*, 134.

³⁶⁰ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 123.

effort as Germany's floundered, his submarine was filled with Nazi wonder weapons like the Hs 293 glider bomb, V-1, V-2, and 1,200 lbs. of uranium oxide. The scientist determined the effort was in vain and therefore offered his surrender and cooperation.³⁶¹ From his detention center at Fort Meade, Schlicke began giving lectures to the Navy that convinced them to seek clearance from the State department to employ him.³⁶²

At the same time a deal was struck between the US Army Air Force (AAF) and Luftwaffe doctor Hubertus Strughold to set up a provisional top-secret research facility in the former Kaiser Wilhelm Institute in Heidelberg. They called it the Army Air Forces Aero Medical Center.³⁶³ Strughold and his infamous colleagues like Dr. Siegfried Ruff, Dr. Konrad Schäfer, and Dr. Theodor Benziger, had been instrumental in planning a series of freezing and rapid pressure change experiments with human subjects whom Himmler had provided straight from the Dachau concentration camp.³⁶⁴ However both the RAF and AAF officers in charge of interrogating them had no way of knowing that. Only the war crimes investigators operating separately in the area had access to Himmler's files that implicated the doctors in their questionable medical experimentation. Therefore with only the knowledge of Strughold's reputation and medical expertise, the AAF approached him to set up this secret center in direct

³⁶¹ Jacobsen, Operation Paperclip, 103-104.

³⁶² *Ibid.*, 104.

³⁶³ *Ibid.*, 132.

³⁶⁴ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 220-224.

violation of edict JCS 1076 that stated no military research of any kind, including in medicine, was to take place in Germany.³⁶⁵ For the Americans, the situation was meant to be temporary. Many of the Germans Strughold was gathering for the center would be shipped either to America for work or to war crimes trials within two years. For the Germans the arrangement was an easy shortcut into a former enemy's confidence.

The actions of Trichel, the US Navy, and the AAF were all demonstrations of policy being created on the ground. Without checks from the American executive on the contracts the politicians in Washington were forced to catch up to events growing out of their control. However by the beginning of July the SWNCC and Joint Chiefs of Staff finally approved an initial plan to bring the Germans to the United States. At that point the German specialists in the new temporary program could not be known or alleged to be war criminals.³⁶⁶ This was the beginning of Operation Overcast, a program that brought an initial 216 scientists to US soil to be distributed across various military projects for optimal exploitation.³⁶⁷ This initial group included Wernher von Braun and many of his Nordhausen colleagues, but not Dornberger. Dornberger ended up in a British prison for the next two years. Though he was initially loaned to Britain to help with its own V-2 exploitation program, Operation Backfire,

³⁶⁵ Jacobsen, *Operation Paperclip*, 132.

³⁶⁶ *Ibid.*, 176.

³⁶⁷ US Department of War, *Denial of German and Austrian Specialists*.

he was held prisoner for his perceived deceitful nature, a personality assessment they passed along to the Americans when he finally returned to their custody.³⁶⁸

This give and take between Britain and the US was further exacerbated by the rumors that both the French and Soviets were actively recruiting Nazi scientists with contracts more lucrative than those of the United States. Some of the more appealing terms simply stemmed from the fact that the scientists were alone in a foreign country without their families. Many scientists, whether they were stationed in Texas, New Mexico, Illinois, or Massachusetts, were regretful that they could not bring their families over to the US. Many scientists felt that working while their families were suffering in the chaos of postwar Germany was a less than ideal situation. Without the possibility of bringing their families to the US in some sort of permanent arrangement continued employment in America was not in their best interest – the Germans were threatening to leave.³⁶⁹

These developments prompted the Joint Chiefs of Staff, the State Department and OMGUS to rethink their position on the temporality and limited scope of Operation Overcast. In order to keep the men on a newly drafted list of 1000 top German scientists from ending up in rival hands, the Joint Chiefs of Staff devised a way to speed up the visa process for the scientists in question. In order to differentiate between former Nazis who had been actual ideologues that needed more questioning and regular

³⁶⁸ Jacobsen, *Operation Paperclip*, 262.

³⁶⁹ *Ibid.*, *Exploitation and Denial of German and Austrian Specialists*.

Germans, an OMGUS official could attach an innocuous paperclip to the file in question. That paperclip would denote a case demanding immediate attention and military escort within the US, including for family members with a Nazi past.³⁷⁰ This clandestine marker coupled with the fact that the families of the German scientists had compromised the name Operation Overcast in their correspondence between Germany and America gave birth to the enterprise's more infamous epithet, Operation Paperclip.³⁷¹

Operation Paperclip ended up bringing more than 800 German specialists in such crucial areas as atomic, chemical, biological, and conventional weapons to augment the United States' warfare capabilities through the end of 1946 alone.³⁷² Though the terms the SWNCC and Joint Chiefs of Staff thought up were meant to differentiate between the real believers in Nazism and those who were simply doing what they were told, the parameters that discriminated between them were stretched beyond the point of breaking on multiple occasions. The visa evaluation became even more lax after President Truman signed a directive at the end of 1946 that changed the program's nature from immigration to security. In order to deny other nations access to information and personnel that could compromise US security, the State Department examinations of the

³⁷⁰ Jacobsen, *Operation Paperclip*, 227.

³⁷¹ *Ibid.*, 227.

³⁷² US Department of War, *Denial of German and Austrian Specialists*.

Germans were moved from Europe to America, a direct violation of preexisting US immigration law.³⁷³

As the number of German scientists employed through secret military contracts in American universities, military bases, and engineering plants began to increase, their American counterparts, and eventually the press, began to take notice. Three weeks after the change in policy began to take effect in November of 1946, an article in the *New York Times* reported for the first time that Nazis were being employed in America, and an article in *Newsweek* soon after revealed the name of the operation as Project Paperclip.³⁷⁴ The State Department could only respond with a sterile press release, to complement a previous one from the War Department in October of 1945,³⁷⁵ detailing how German scientists without a Nazi past were coming to the United States to help it leap to the forefront of innovation.³⁷⁶ However the damage was done. On February 11th, 1947 an article in the *New York Herald Tribune* attributed to a disgruntled State Department employee appeared that argued that the Germans being brought in to the United States for work had lied about their histories. They were clearly Nazis in spite of what the government was saying.³⁷⁷ In the Senate, a body that had the power to revoke the tenuous US visas, three bills were introduced during 1947 either to halt all

³⁷³ Jacobsen, *Operation Paperclip*, 247.

³⁷⁴ *Ibid.*, 248.

³⁷⁵ U.S. War Department, Bureau of Public Relations Press Branch, *Outstanding German Scientists Brought to U.S.*, October 1, 1945.

³⁷⁶ *Ibid.*, 247-2499.

³⁷⁷ Bower, *The Paperclip Conspiracy: the Hunt for the Nazi Scientists*, 189.

immigration for former Nazis or prohibit the US military from employing Nazi scientists.³⁷⁸ The bills failed to pass, but the increasingly negative press coverage of Paperclip helped to turn public opinion against the unwieldy program.

In response to the public outcry, the War Department initially tried to placate them by attempting to associate Paperclip with private industry. It did not want German scientists falling into enemy hands, and if public outcry was enough to force the War Department to shut down the operation, there had to be alternatives. Alas, there were none. Any attempt to associate or shift the program towards civilian oversight or partnership was met with a cold response. The Department of Commerce was the only government entity to offer a modicum of support with a limited policy to help pair the scientists with American industry but only when the army deemed it a vital security case.³⁷⁹ The pressure was there, yet no one could think of an alternative means to salvage the program. Ultimately, the Truman administration had to consider the simple questions posed by Hans Bethe, an atomic researcher who fled from Nazi Germany in 1933 and a contributor to the Manhattan Project, and Dr. Henri Sack, his colleague at Cornell University, in the 1947 *Bulletin of the Atomic Scientists*.

“Was it wise, or even compatible with our moral standards to make this bargain, in light of the fact that many of the Germans, probably the majority, were die-hard Nazis? Did

³⁷⁸ *Ibid.*, 191.

³⁷⁹ *Ibid.*, 200.

the fact that the Germans might save the nation millions of dollars imply that permanent residence and citizenship could be bought? Could the United States count on [the German scientists] to work for peace when their indoctrinated hatred against the Russians might contribute to increase the divergency between the great powers? Had the war been fought to allow Nazi ideology to creep into our educational and scientific institutions by the back door? Do we want science at any cost?''³⁸⁰

For President Truman, the answer to that final question was no.

Civilian bureaucracy was ready to close the book on the whole affair, and with approval from the commander-in-chief, the army announced that Operation Paperclip was officially terminated September 30th, 1947.³⁸¹ However a few months before on July 26th President Truman signed off on the National Security Act which completely reorganized and restructured the armed services and intelligence branches into what they are today. The War Department became the Department of Defense, the State-War-Navy Coordinating Committee (SWNCC) became the National Security Council, and the Central Intelligence Agency (CIA) was born to fill the void between the two and augment the work of the Federal Bureau of Investigation (FBI).³⁸²

For the three new agencies born from Truman's signature, particularly the CIA, the answer to the question of science at any cost, was yes. Following the removal of senior State Department officials

³⁸⁰ Jacobsen, Operation Paperclip, 264.

³⁸¹ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 210.

³⁸² Jacobsen, Operation Paperclip, 287.

stonewalling the visa procurement program like Samuel Klaus,³⁸³ Operation Paperclip became a clandestine program meant to continue with the exploitation of German science. The president was not informed.³⁸⁴

The newly formed Central Intelligence Agency was the most keen to patron the Paperclip recruitment process that continued largely unhindered in secret up until the end of the American occupation in Germany and the opening of the Korean War. Within the CIA's Office of Collection and Dissemination 18,000 biographical records were requested for German scientists by 1948, and the intelligence administration worked very closely with the Joint Intelligence Objectives Agency (JIOA), the agency in charge of Paperclip, to coordinate scientific planning and military research that remained classified until 2008.³⁸⁵

The astounding number of scientists being evaluated by US intelligence gained renewed significance two years later in June of 1950. That summer the Cold War began to heat up as soldiers from the Democratic People's Republic of Korea (DPRK), colloquially known as North Korea, crossed the 38th parallel to invade its southern neighbor, the Republic of Korea. Communist forces commanded from Pyongyang, with Russian and Chinese backing, stormed the peninsula marking the commencement of the Korean War. The consequences of the hostilities for the Germans and Operation Paperclip were felt as soon as July of 1950,

³⁸³ *Ibid.*, 279-282.

³⁸⁴ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 212.

³⁸⁵ Jacobsen, Operation Paperclip, 315.

when American forces stationed in Europe were put on high alert to watch for a Soviet push to overrun the continent.³⁸⁶ The possibility of the USSR overrunning Western Europe while the Americans were distracted by the events unfolding in Korea was a chilling possibility. John J. McCloy, the US high commissioner for Allied Germany, used the crisis to coordinate a new program with the JIOA in the Pentagon. This program was known internally as Accelerated Paperclip, but it was called Project 63 for agents working with directly with the German scientists due to the stigma a number of them had developed toward Paperclip. The new program functioned as a modified personnel denial program to other powers, designed to transfer the particularly dangerous top-level Nazi scientists out of Europe before the Soviets or any other nations had a chance to get to them.³⁸⁷ To accomplish these ends the Joint Chiefs of Staff approved an emergency \$1 million dollar procurement budget.³⁸⁸ Work began immediately to recruit at least 150 Class I criminal offenders to work in the United States, some of whom were still languishing in prison after the Nuremburg trials.

Among the men included in that list were Walter Schreiber, Kurt Blome, and Otto Ambros. Dr. Walter Schreiber, a Major General and the former surgeon general of the Third Reich had not been seen since the Soviets called him as a surprise witness at Nuremburg to implicate Kurt

³⁸⁶ *Ibid.*, 338.

³⁸⁷ *Ibid.*, 339.

³⁸⁸ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 253.

Blome, the former head of the Reich's biological weapons program known to be in American custody. Between then and the fall of 1948, Schreiber had been in Soviet custody and was trusted enough to be named *starshima*, or elder, in the Soviet military forces. However when his Soviet handler left him alone in Dresden while securing his employment as a university professor, Schreiber managed to slip onto a train bound for Berlin. He rendezvoused with his family and submitted himself into US custody for safety.³⁸⁹ Many West Germans and Americans were suspicious that he might still be working on Soviet orders. After all, no one as high ranking as Schreiber managed to be left alone by Soviet guards let alone avoid regular beatings. Nevertheless his story was thought to be credible by his interrogators, and through the eyes of Project 63 Schreiber, a man with insights into both Russian and German intelligence, was particularly valuable. The absolute need to deny other nations access to German engineering research, personnel, and intelligence allowed the former high ranking military official who had worked for both the Nazis and the Soviets to sign a government contract through Operation Paperclip. Schreiber began working in the United States in November 1951.³⁹⁰ Kurt Blome, though he had been offered a contract in March, also began working that same month.³⁹¹ He would supplement the cadre of German

³⁸⁹ Jacobsen, *Operation Paperclip*, 322-330.

³⁹⁰ *Ibid.*, 352.

³⁹¹ *Ibid.*, 342-343.

scientists that had been gathering in Fort Detrick since 1950.³⁹² Slowly but surely the United States was assembling its Nazi team.

Otto Ambros made up one of the last pieces to the Paperclip puzzle. Once American interrogators had figured out who he was despite his soap factory smoke screen, Ambros became the ultimate object of desire for the Chemical Warfare Service. He also became the object of desire for war crimes investigators from the Supreme Headquarters of the Allied Expeditionary Force (SHAEF). Though he was known as an ardent and dangerous Nazi, he was also known as the key player in German chemical warfare production.³⁹³ At first Ambros was willing to exploit his knowledge by working for the Dow Chemical Company. However after getting wind the US Sixth Army had an order to arrest him, Ambros betrayed his American retainers and fled into the French zone of occupied Germany. He signed a contract with the French to do weapons development there in impunity.³⁹⁴ While Ambros bided his time in the French Zone, perturbed American forces began to build a stronger case against him for war crimes, and in January of 1946 when he made the mistake of leaving the French zone, US authorities promptly arrested him. After squeezing him for any information he had, Ambros was shipped off to Nuremberg prison – his usefulness had briefly run its course.³⁹⁵

³⁹² Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 255.

³⁹³ Harris and Paxman, A Higher Form of Killing, 55.

³⁹⁴ Jacobsen, Operation Paperclip, 181.

³⁹⁵ *Ibid.*, 186-187.

At the IG Farben trials, the third tier of trials by the International Military Tribunal that specifically targeted Hitler's chemists, Ambros was declared guilty of mass murder and slavery in July of 1948.³⁹⁶ He languished in Landsberg Prison, the same one where Hitler had written *Mein Kampf*, while trying his best to end his sentence early. Most West Germans had come to view the men at Landsberg as the victims of political punishments, and the citizens of the US had long lost interest in the trials. Therefore when McCloy approved Project 63 to take immediate action Ambros was moved to the JIOA's recruitment list in 1950 while he continued to sit in prison.³⁹⁷ Ambros secured his release a year later. Almost fifteen years later Ambros, a man convicted of being a key player in Auschwitz, was on the payroll of five state funded chemical companies in West Germany and was a consultant to US Department of Energy on government contract.³⁹⁸

For the Germans being brought to the United States, the government contracts given through Paperclip offered tremendous advantages, at least until West Germany emerged as an independent and functioning state. A typical contract stipulated that the scientists had a job and access to good living conditions while American bureaucrats ensured them safe passage into the US often with the possibility of citizenship.³⁹⁹ Several of these advantages were simply the products of an amoral

³⁹⁶ *Ibid.*, 333.

³⁹⁷ *Ibid.*, 342.

³⁹⁸ *Ibid.*, 415-419.

³⁹⁹ US Department of War, *Denial of German and Austrian Specialists*.

opportunism. For example when Dornberger and von Braun were deciding their next steps on May Day, their calculations were largely based on a comparison between who was more likely to bid highest on their V-2 invention.⁴⁰⁰ For von Braun in particular this type of behavior was simply an extension of the opportunism he had already exhibited when he first abandoned his VfR rocket club for the German army back in 1932.⁴⁰¹ Perhaps he summed up the attitude of many German researchers on an offhand comment to David Lang of the *New Yorker* magazine a few years after he came to the US. “We felt no moral scruples about the possible future use of our brainchild. We were interested solely in exploring outer space. It was simply a question of how the golden cow could be milked most successfully.”⁴⁰²

However to simply pin German motivations to participate in Operation Overcast, Paperclip, and Project 63 on simple pragmatism does not do justice to what these German scientists gained from their participation from US patronage. In the chaos that was Germany in 1945, there was a palpable sense that the Germans needed to cover their tracks to avoid the impending war crimes trials. German scientists who had tapped into Nazi science were guilty of illegal human experimentation and they knew it. While denial and destruction of evidence was one way to manage the situation the other path was that of negotiation. The American teams

⁴⁰⁰ Bower, *The Paperclip Conspiracy: the Hunt for the Nazi Scientists*, 114.

⁴⁰¹ Neufeld, *Von Braun*, 55.

⁴⁰² Jacobsen, *Operation Paperclip*, 178.

scouting for intelligence and evidence of war crimes often found themselves competing with each other and the teams of other nations, as was the initial case of Otto Ambros. The former Nazi researchers realized the shortcomings of their captors, and by working with their retainers they managed to protect themselves. For example, during *USA v. Karl Brandt et al*, otherwise known as the Doctors Trials,⁴⁰³ the US was forced into the awkward position of protecting certain Germans of interest while preventing their peers from testifying against them.⁴⁰⁴ The US perceived it was in its own interest to handicap the justice system it helped create, and the courts that were meant to eradicate Nazism were prevented from doing so. By the time of Accelerated Paperclip, some of the Class I Nazis had their pasts rewritten by OMGUS in order to get their visas expedited approval.⁴⁰⁵ After all by 1950 the threat of Nazism was a dead horse – they had to worry about the communists now.

Furthermore once their Nazi pasts had been exonerated by US trials, visa checks, and covert intelligence manipulation many German scientists also had the advantage of moving to America: a land untouched by a war that had destroyed almost three other continents. While many Americans felt that the new arrangement should only be temporary, their German counterparts seemed to disagree. Within their initial contracts the US did not even stipulate that they would be required to return to

⁴⁰³ Wang, “Medicine-related War Crimes Trials,” 36.

⁴⁰⁴ Bower, *The Paperclip Conspiracy: the Hunt for the Nazi Scientists*, 228-229.

⁴⁰⁵ *Ibid.*, 239-240.

Germany.⁴⁰⁶ Nevertheless it became clear that America was their new home once the families of the German scientists were allowed to join them. Initially the scientists were hired to do their work until the war with Japan was over. With the war having been won quicker than expected, the US decided that they had not exploited their Germans enough. Furthermore it became clear that the 216 initial scientists brought in 1945 would not continue to work for the Americans unless they arranged some sort of permanent arrangement.⁴⁰⁷ The Americans agreed it was in their best interests to accede to the German demands. From 1948 on many Nazis became American citizens and settled across the country into their new lives with their families.

Although public outcry would force a few Germans to emigrate to South America or back to Germany almost two decades after Paperclip's prospects for recruitment petered out in the mid 1950s, most of the scientists got a sweet deal from the US. They managed to secure a prosperous new life in a wealthy free country, their murky pasts were erased, and most managed to breathe new relevancy into their life's research with US funding. The US on the other hand got the shorter straw. As a result of these covert bargains the US Government received research and personnel, but at the cost of betraying an American public upset with the warmongering and atrocities that their new neighbors had been

⁴⁰⁶ US Department of War, *Interim Exploitation of German and Austrian Specialists Under Project Paperclip*, SWNCC 257/24 (National Archives: 1946).

⁴⁰⁷ US Department of War, *Denial of German and Austrian Specialists*.

responsible for as Nazis. Most importantly America undercut the system of justice it was trying to create at Nuremburg. Operation Paperclip casts a dark shadow on proceedings created to bring justice for the victims of warfare. The survivors of Mittelbau-Dora, Dachau, Auschwitz, and scores of other Nazi camps would never get the chance to see justice served. Through Operation Paperclip the choices made by several powerful Americans in the name of preserving their national security took precedence over the need for international justice.

Devil in the Details: An Explanation on the Differences in Immunity

With Japan's official surrender to Allied forces in 1945, Korea came under the occupation of the Soviet Union above the 38th parallel and the United States below it. However the single independent country that the Koreans were promised in the Cairo Conference in November of 1943 never came to pass – Korea was divided in half. With American protection anti-communist Syngman Rhee became the first ruler of the newly declared Republic of Korea in the south in May 1948. With the blessing of the Soviet Union, the communist Democratic People's Republic of Korea was declared in the north in September of the same year. Unfortunately what began as a nation-state building project devolved into a bitter war between the North and South from June 25th, 1950 – July 27th, 1953. What became known as the Korean War drew in the United States, the United Nations, and communist China, and it was a war that never officially ended. The only thing guaranteeing the continued end of hostilities today is the armistice agreement that was signed at Panmunjom, just north of the Demilitarized Korean Zone (DMZ) on July 27th 1953.⁴⁰⁸

However what was interesting about the Korean War was how much of its fighting was an extension of the previous decade's great rivalries. As stated before, Japanese and German technology had acquired new masters. On the battlefields of Korea, the US under the aegis of the UN and communist forces fought each other with the adaptations of the

⁴⁰⁸ Williams and Wallace, Unit 731, 237.

German and Japanese technology they had assimilated. The dogfights between Soviet MiG-15s and American F-86 Sabres in the Korean skies were lethal competitions to see how well each country had exploited their German engineers.⁴⁰⁹ Utilization of the Japanese personnel being held by the Soviets and Chinese after their capture in 1945 came into direct conflict with the chemical and biological weapons information MacArthur had secured in his American protectorate in Japan. If knowledge was available from either party it was exploited, and the consequences of such actions were felt nowhere more strongly than in Korea.

Indeed the turn of events between 1945 and 1950 underscored the complete shift that the United States had made in its threat assessments. The specter of fascist takeovers yielded to the communist threat, and this paradigm shift had profound consequences for the Germans and Japanese who found themselves answering to American commanders. Both began to be let in to America's war councils, and both became important bastions of freedom in a new world order meant to counter the communist threat.⁴¹⁰ However by the time hostilities in Korea ceased in 1953, there was still a key difference in the way the United States had led its German and Japanese counterparts into that brave new world. Though the US had left both countries in rubble following WWII, the German personnel America worked with had been welcomed into its heartland, but the Japanese were not. Both the Germans and the Japanese had information the United States

⁴⁰⁹ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 6.

⁴¹⁰ Wang, "Medicine-related War Crimes Trials," 33.

wanted and both negotiated ways in which the US could acquire it, yet it is still curious that over 1000 Germans and their families were imported into the US while not a single Japanese national was recorded as doing the same. In fact quite the contrary, most Japanese the US held domestically were repatriated to Japan, including its scientific attaché to Berlin, Hojo Enryo. To consider the possible consequences this small difference might have been responsible for, one must examine the reasons why the United States crafted its immunity deals the way it did.

General Douglas MacArthur, the Supreme Commander for the Allied Powers (SCAP), had the power to ship Japanese scientists to America if he so desired. As the generalissimo who had taken control of Japan, his say extended well beyond that of General Eisenhower in Europe in a relative sense. While Eisenhower was bogged down by the tides of powerful multinational politics that dogged the American plans in Europe, MacArthur was not. The cult of personality MacArthur developed in the Far East extended far enough to dictate the court procedures during the International Military Tribunal for the Far East (IMTFE), a court representing 11 nations compared to Nuremberg's primary and vocal four.⁴¹¹ Though he was ultimately responsible to Truman and the US' civilian administration,⁴¹² MacArthur could have used his power to take up Ishii's offer for employment and encourage the other Japanese under

⁴¹¹ *Ibid.*, 33.

⁴¹² US State Department, *Principles and Procedures Regarding Policy-Making and Administration of Occupied Areas*, by James F. Byrnes, Robert P. Patterson, and James Forrestal, SWNCC 295 (National Archives: 1946).

his auspices to emigrate. However the general was never recorded to have made any suggestions beyond taking up the scientists' request for immunity.

One possible reason for this discrepancy is the lack of respect that the Americans felt for the Japanese people. This dearth became evident in almost every aspect of Japanese-American interaction from the moment the war began. Despite being drawn into the war by Japan, early on the Roosevelt administration adopted a Germany first strategy for dealing with the Axis powers, and this policy trickled down to the United Nations War Crimes Commission. When the newly formed body was deciding how to deal with war criminals, it was doing so specifically with Germany in mind – the Asian theater was an afterthought.⁴¹³ Indeed, even when SCAP was considering the gravity of Japan's human experimentation, it viewed it in the light of Germany's illicit experimentation, and the juxtaposition probably helped the US delude itself into thinking that Unit 731 and 100's crimes were not significant enough to deserve a trial like the Nazis did.⁴¹⁴

Moreover every American soldier had been indoctrinated up to that point with heavy doses of anti-Japanese propaganda. During the course of the war the predominant stereotype Americans associated with the

⁴¹³ United Nations War Crimes Commission, *United Nations War Crimes Commission Progress Report*, C.48(1) (National Archives: 1948).

⁴¹⁴ SFE, *Russian Prosecutor*.

Japanese was the monkey-man.⁴¹⁵ This brutal, sadistic, and treacherous caricature of the Japanese people required an intense regimen to reverse the indoctrination that they had been responsible for it from 1942 to 1945. However even their new efforts were still tainted by racist preconceptions of the Japanese. A short instructional film entitled *Our Job in Japan* put together by the War Department shown to soldiers preparing for their roles as occupation forces tried to depict what it considered to be a realistic depiction of the Japanese. According to the film, the warlords that saturated Japan's past with pagan superstitions and military indoctrination had corrupted a nation of children trained to follow their leader. While stills of Buddhist monasteries, gruesome war crimes, and sketches of how the Japanese brain worked flashed before their eyes, the American occupiers were told that it was their job to teach Japan that this had been its last war. From now on they would get along.⁴¹⁶

However it is hard to undo a wartime hatred that had taken years to build up within a couple of months of peace. Soldiers who had been exposed to videos and reports of the Japanese starving their prisoners and wholesale executions of captured soldiers were sometimes hard to forget. During the first few months of the occupation drunken looting, robberies, rape, arson, and murder was widespread. Japanese newspapers reported over 1,000 crimes in the Kanagawa and Yokohama prefectures alone before SCAP placed a gag order on such reporting; it was detrimental to

⁴¹⁵ Dower, *Embracing Defeat*, 214.

⁴¹⁶ *Ibid.*, 214-216.

the occupation.⁴¹⁷ In response the Japanese government began opening prostitution rings and pleasure centers to sate the destructive appetites of their American conquerors. The Japanese had impressed an estimated 80,000 – 100,000 women across Asia into sexual slavery and set them up in comfort women stations across the territories it had conquered since 1932.⁴¹⁸ The Japanese believed their conquerors needing the same sexual services their own soldiers needed. As such by August of 1945 the interim government set up prostitution rings across Japan. The US government shut down the enterprise by January of 1946, but the *panpan*, the name for the Japanese and Korean prostitutes meant to entertain the GIs, helped recast the Japanese into a feminine, subservient relationship for the Americans.⁴¹⁹

That essence the Americans felt that they could take advantage of manifested itself in a multitude of interactions between the Americans and Japanese, and the Japanese dourly admitted that the Americans almost never treated them like equals.⁴²⁰ In the case of the biological weapons scientists this relationship translated into the protracted debate of whether or not the US should offer Ishii and his cohorts immunity. Many Americans back in Washington felt they could extract enough information from the Japanese without guaranteeing them immunity from the

⁴¹⁷ Takamae, *Inside GHQ*, 67.

⁴¹⁸ *Ibid.*, 69.

⁴¹⁹ Dower, *Embracing Defeat*, 130-139.

⁴²⁰ *Ibid.*, 80-81.

IMTFE.⁴²¹ They were sure their prisoners could not be sharp enough to keep the information away from them in its entirety. If they could glean the information they sought and still be able to charge them for their crimes then they could take care of two problems at once. Nevertheless it eventually turned out that the Americans had underestimated their captives – they caved on the offer of immunity.

Immunity was firmly a part of the deal, but Ishii could not seem to convince his interrogators to hire him in the US as a contractor. However chalking that up to simple American racism does not adequately account for why Ishii and his colleagues were not shipped to the United States. Therefore another plausible explanation is that America was not prepared politically or structurally for an influx of new Japanese scientists. Anti-Asian immigration legislation in the US notwithstanding, it did not seem likely that the government could take on the scientists in any official capacity – there were too many technical and cultural barriers to overcome. Whereas there was enough common culture and language to dissolve all the former organs of the Reich's government and make the direct occupation and administration of Germany possible, in Japan there was not. Isei and Nisei, first and second-generation Japanese immigrants to America, had become valuable resources for translation and overcoming cultural barriers, but there were not enough of them. Recognizing that problem before American troops touched down in Japan, the State

⁴²¹ CAD, SFE, *Memorandum by the Alternate CAD Member, SFE*, by Alternate CAD Member, 188/4 (National Archives: 1947).

Department and MacArthur determined that they would need to govern indirectly through preexisting governing mechanisms. Operation Blacklist, the policy for direct occupation, became the Initial Post-Surrender Policy that left the imperial government and its administrative organs largely intact.⁴²²

Moreover this unpreparedness somewhat manifested itself into a need for many of the Americans to hold themselves separately from the Japanese. SCAP was notorious for governing at a distance, and MacArthur rarely left the small part of Tokyo he governed from throughout his entire stay in the Land of the Rising Sun.⁴²³ His compatriots acted similarly. SCAP and US personnel had created Little America, the nickname for the small part of Tokyo that had survived the bombings. This division between the affluent Americans and the Japanese housed in the rubble around them became a microcosm for how the US dealt with their Japanese counterparts – there was always an odd sense of pride that stemmed from the separation.⁴²⁴ This sense of disassociation contrasted directly with the situation the United States was grappling with halfway across the world in Europe. Germany in 1945 was a multinational occupation that had Germans mingling with French, American, British, Canadian, Dutch, Australian, and Russian personnel and practically every other country in between. There simply wasn't room for the Americans to

⁴²² Dower, *Embracing Defeat*, 212-213.

⁴²³ Takamae, *Inside GHQ*, 5.

⁴²⁴ Dower, *Embracing Defeat*, 207-210.

hold themselves aloof, and neither did they have reason to do so. In fact for most of the scientific personnel on the ground there was a real sense of equality. The German scientists deserved respect because of who they were and not what side they had fought on, and the American engineers who were looking for their counterparts often went into the field with that in mind.⁴²⁵

The American insistence on mutual respect with their former German foes can be traced back to the history of modern engineering itself. Between WWI and WWII German became the international language of engineering, and budding scientists across Europe and the Americas often took German as their second language in order to keep abreast of the developments in German innovation.⁴²⁶ Moreover the especially talented students embarked on fellowships to study in Germany while several professors came to the US for their own research. The sense of awe that German professors at home and abroad inspired with their achievements set a precedent for German technological superiority, and the language the engineers shared helped revive the working relationship America and Germany had lost during the war. This sense of camaraderie was rekindled in peacetime and was certainly used to the advantage of certain Germans like von Braun, known for his penchant for persuasion.⁴²⁷ It also helped convince American skeptics that the Germans not only could be trusted

⁴²⁵ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 108-109.

⁴²⁶ *Ibid.*, 4-5.

⁴²⁷ Neufeld, Von Braun, 43.

but that they needed to be in the US to continue their research. Simply shipping documents across the Atlantic wasn't enough. If the US wanted to make headway quickly into what their German counterparts had been working on all they had to do was revamp the research fellowships that had brought them to America before the war.⁴²⁸ Moreover it was hard to deny that if the US attracted all the talent from Germany, the long-term status quo would change in America's favor as articulated by Major General Kenneth B. Wolfe of the Army Air Forces in 1945. With a successful enough program English could become the engineering language of choice, and a resurgent Germany would never pose the same threat it had before – the US would have all its great scientists.⁴²⁹

Ultimately the memory of a shared past and promises of a prosperous future cannot have been enough to convince the Americans to bring over the Germans. After all if the goal to gather German research was only about securing new information then the US had plenty without the scientists themselves. The Americans and the Soviets rivaled each other in their stripping Germany of its military equipment, industrial parts and schematics. By the time of OMGUS' creation in 1945, the effectiveness of the "Too Sweet Express," the nickname given to the daily American train shipping thousands of parts and documents to the US'

⁴²⁸ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 120-121.

⁴²⁹ Jacobsen, Operation Paperclip, 89.

military seaport in France, and from there across the Atlantic, had already well surpassed the expectation of commanders on the ground.⁴³⁰

Rather it was a very real lack of control on the ground in Germany that contributed to the creation of Operation Paperclip. Japan had the benefit of a single occupier, and was not the victim of division that dogged Germany and Korea after the war.⁴³¹ Germany on the other hand had essentially been divided into four zones of occupation that functioned more like national spheres of influence than a united effort to rebuild a war torn country. Though there was a general agreement to rebuild a democratic and denazified Germany for a new postwar world, the cooperation ended at that point as each nation scrambled to take advantage of whatever spoils it could extract from its old foe. In a memo from the US Department of War to the SWNCC in 1946, the US recognized that it only controlled what was really a fourth of Germany. In order to deny other nations access to the German secrets and information it wanted to secure solely for itself, and in certain cases Britain, then it would need take in former Nazis onto its own soil – a place it retained total control of.⁴³²

Moreover the US constantly had to worry about the movement of German scientists in a way it never had to for Japan. For the many Japanese citizens caught in the aftermath of the war, there was nowhere to

⁴³⁰ Bower, *The Paperclip Conspiracy: the Hunt for the Nazi Scientists*, 100-101.

⁴³¹ Eiji Takemae, Robert Ricketts, and Sebastian Swann, introduction to *Inside GHQ: the Allied Occupation of Japan and its Legacy*, (New York: Continuum, 2002), xxix.

⁴³² US Department of War, *Denial of German and Austrian Specialists*.

go but back home to Japan. With Germany divided, its citizens could hop between four different spheres of influence with impunity to escape whatever authorities it wished to avoid. Furthermore the US also had to worry about the allure of Latin America to the scientists. Argentina in particular became a safe haven for former Nazis, and its neutrality during the war had the US on edge almost as much as its efforts to secure German secrets after the war.⁴³³ Competition from that era's economic giant of South America showed just how global the threat of German secrets getting out was, and this is before one takes the Soviet Union's actions into consideration.

It was in fact the Soviets who began the race to grab German technology and personnel and keep them away from those whom it professed to be allied to. Hitler's speech in 1939 about wonder weapons that the Allies could never stand against had sent Britain into a frantic scramble to grab intelligence. Though Hitler had really been referring to new radar guided bombing systems, V-1, and V-2 development, the British jumped to a more outlandish conclusion – a death ray.⁴³⁴ Regardless with the entry of the Soviets into the war in 1941, the British shared their assessments with their new ally as well as communicated to them the desperate need to understand what Germany was developing

⁴³³ "The Tragedy of Argentina: A Century of Decline," *The Economist*, February 15, 2014, accessed February 16, 2014, <http://www.economist.com/news/briefing/21596582-one-hundred-years-ago-argentina-was-future-what-went-wrong-century-decline>.

⁴³⁴ Bower, *The Paperclip Conspiracy: the Hunt for the Nazi Scientists*, 27-29.

before it was too late. The USSR heeded the call with its own fervor. As it made its way into the heart of Western Europe after its victory over the German Sixth Army at Stalingrad in 1943, it began to use its intelligence networks to secure access to German technology.

For example, the Soviets already had the lead in rocket development thanks to reports from Walter Riedel, von Braun's colleague at the VfR rocket society in Berlin and a believer in utopian socialism. Riedel had supplied the Soviets with intelligence on German rocket development and offered his services to work in the USSR before the war broke out.⁴³⁵ The USSR used this information to secure the locations of sensitive rocket technology once the war was over, and it was not willing to share that information. In late 1944 a British-American CIOS team requested access to V-2 crash site in Poland under the Soviet's control. Their request was accepted, but their Soviet handlers kept delaying them from getting to the actual crash site. Once the CIOS team finally managed to conduct its investigation there and loaded the V-2 parts into their crates, they were waylaid again at the border into British and American held territory. Only once the team returned to their base did they realize that their supposed Soviet partners had double-crossed them. Their crate of V-2 remains had been switched with old airplane parts at the border.⁴³⁶ While the CIOS team's mission might have come up short, the USSR's policy on plunder and German state secrets became loud and clear: first

⁴³⁵ Neufeld, Von Braun, 54.

⁴³⁶ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 64-66.

come first served. The USSR would continue to use misinformation and stonewalling tactics up through and beyond the close of WWII, and while the US at least tried to secure the veneer of cooperation from its German spoils of war, the Soviets had no such scruples.⁴³⁷ By the end of WWII the USSR had secured the factories, component parts, schematics, and whatever scientists that had remained in eastern Germany and Poland.⁴³⁸ Ishii Shirō's compound at Pingfan and a number of his scientists left behind in Manchuria suffered the same fate.

In contrast to America's position as the sole arbiter of occupied Japan, the Soviet holdings in East Asia were put under similar power sharing arrangements with the other Allied powers that it was subject to in Germany. While it seeded the beginnings of communist governments in both Europe and Asia its holdings were always right across from Western powers. In Asia it needed to compete with America, Britain, and even the Chinese Kuomintang government for control of materiel and influence. Moreover no matter how much it would have liked otherwise, the Soviets never wielded the influence in Japan that the Americans did with regard to sensitive information. They certainly tried to. With regard to Ishii and the Unit 731 alumni USSR investigators operated with the same leads that the United States was working with, and it led them right to Ishii's

⁴³⁷ Office of the Military Government for Germany, by USFET signed McNarney, SX-6862 (National Archives: 1946).

⁴³⁸ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 108-109.

doorstep.⁴³⁹ However that was as far as they could go, and the only reason they were allowed onto Japanese soil to conduct any interrogations in the first place was because the US was offering limited access to Ishii and a select few other scientists as a sign of goodwill – they never had to let the Soviets anywhere near their scientific spoils of war.⁴⁴⁰ This lack of control forced the Soviets in the Far East to resort to the same stonewalling tactics they employed within their jurisdictions in Europe to ensure the security of their information.

Moreover as a result of their lack of control the Soviets resorted to similar moves that the Americans used meant to woo war criminals into giving them information. The Tokyo Tribunals that lasted from May 3rd to November 12th, 1946 had gone off with only a single mention of biological weapons testing and experimentation. An accidental slip from American officer David Sutton of the International Prosecution Service (IPS) mentioned that Unit 1644, the Tama Unit stationed in Nanjing, had injected its Chinese prisoners with poison serums in medical experimentation.⁴⁴¹ The court briefly stopped the proceedings to ask for further elaboration on this hitherto unmentioned evidence, but the information it sought was never mentioned again during those proceedings. The Soviet Union was cognizant of the fact that the United States was trying to suppress the information for its own benefit. In fact the Soviets

⁴³⁹ Sheldon H. Harris, Factories of Death, 209.

⁴⁴⁰ SFE, *Russian Prosecutor*.

⁴⁴¹ Barenblatt, A Plague Upon Humanity, 216.

had gained control of close to 600,000 Japanese POWs in their advance through Manchuria. Moscow ordered the KGB to sift through the immense amount of prisoners for any that had any knowledge or expertise with bacteriological research. Much of this information had been handed to Soviet prosecutors who were proud of the large collection of data they synthesized and were ready to submit to the “Nuremberg of the Far East.” However the US personnel refused to use even a scrap of it in court.⁴⁴²

Therefore the USSR sought to bring international attention to this omission through the highly publicized Khabarovsk War Crime Trials. From the 25th to the 31st of December 1949 the USSR prosecuted 12 high ranking Japanese personnel under their control, most of whom had been former Kwantung commanders, with the crime of the illegal manufacture and use of biological weapons during the Second World War. The defendants like General Yamada Otozō, the former commander-in-chief of the Kwantung Army and Lieutenant General Ryuji Kajitsuka, the former Chief of Medical Administration in the Kwantung Army, were forced to answer charges based on 18 volumes worth of evidence; contrary to US allegations Khabarovsk was nothing more than a show trial.⁴⁴³ Nevertheless the trials failed to exert enough pressure on the United States to admit having the information it possessed. More significant however were the punishments meted out to the 12 defendants. The sentences ranged from 25 years for men like Yamada and Kajitsuka to two to three

⁴⁴² Yudin, “Research on Humans at the Khabarovsk War Crimes Trial,” 61-62.

⁴⁴³ Sheldon H. Harris, Factories of Death, 218.

years for the lower lab orderlies of Unit 731 like Yuji Kurushima. These were unusually light sentences for the Soviet Justice system.⁴⁴⁴ Just as the Americans were trying to woo the Japanese into relaying information on their programs with lucrative deals, the Soviets were doing the same thing with their relatively lenient sentencing. This point is further illustrated by the fact that the mid-level Unit 731 operatives not only escaped sentencing, but also were paroled in Chinese territory after 1950 to help the new communist government under Mao establish its own biological research centers.⁴⁴⁵ Furthermore many of the new Soviet bioweapons facilities ordered built by Stalin like the compound in Sverdlovsk in the Ural Mountains (now Ekaterinburg) were completed only with the help of the Japanese expertise.⁴⁴⁶

Even if one can accept that the aforementioned reasons can adequately account for why the German scientists ended up in the US and the Japanese did not, the consequences of the differences in its immunity orders still need to be accounted for. When the military strategists and scientists in the United States made the conscious decision to bring the German scientists to America to continue their research they unknowingly linked that research with the human element of the scientists who created it. This was an element that the Japanese research the Chemical Warfare Service began to pore over did not enjoy. That's not to say that the United

⁴⁴⁴ Yudin, "Research on Humans at the Khabarovsk War Crimes Trial," 69.

⁴⁴⁵ *Ibid.*, 70.

⁴⁴⁶ *Ibid.*, 61.

States failed to maintain its relationship with its Japanese researchers after each side fulfilled its obligations in the immunity agreement. The respect ordinary Japanese felt towards their former military men combined with the immunity deal that kept their reputations clean allowed several members of Unit 731 to advance high into Japanese society.⁴⁴⁷ Between its founding and 1983 seven out of the eight Directors of Japan's National Institute of Health (NIH), established at Tokyo University by the Japanese Welfare Ministry in 1947 under the direction of GHQ, were connected with Ishii's network during the war.⁴⁴⁸ Two of Ishii's lieutenants, Naitō Ryōichi and Kitano Masaji, went on to create the Japan Blood Bank, Inc. In 1951 the Americans reorganized it into the Green Cross Corporation to manufacture plasma for its troops fighting in Korea. In that same year GHQ's medical section commissioned research on tropical diseases from former Ishii affiliates at the NIH.⁴⁴⁹ During the Korean War the NIH's role increased dramatically as its services were called in to fight diseases and stem the casualty rate of US troops. Indeed this type of contracting by the NIH led to medical advances that saved several lives. The specter of its past association with Unit 731 however, overshadowed those achievements.

Though the US army continued to exploit the Japanese scientists in Asia, the lack of an integral human association between the Japanese

⁴⁴⁷ Nie, "On the Altar of Nationalism and the Nation-state," 126.

⁴⁴⁸ Takamae, *Inside GHQ*, 427.

⁴⁴⁹ *Ibid.*, 427.

research and US scientists likely had profound consequences. This was particularly true during the Korean War. As early as March 5th, 1951 Communist China raised the issue to neutral parties that the United States was actively engaging in chemical and biological attacks.⁴⁵⁰ In May and October of that same year the Soviet delegate to UN, Jacob Malik, continued to insist that the US was using bacteriological weapons and dropping flies infected with bacteria into North Korean territory, thus defying established rules of warfare.⁴⁵¹ Despite vehement denials from US Secretary of State Dean Acheson that the US engaged in such tactics, mounting pressure from leftists groups throughout the free world finally prompted him to agree to send a Red Cross delegation from the UN to conduct the investigation. The primarily left leaning delegation concluded that based on the sightings of certain fleas and bacteria that were neither native to North Korea nor known to be naturally active during the periods when the attacks allegedly took place, a biological attack or weapons test most likely occurred.⁴⁵² A subsequent review from the World Health Organization (WHO) however concluded that several of the claims China and North Korea were making were impossible to verify and likely false.⁴⁵³

⁴⁵⁰ Sheldon H. Harris, Factories of Death, 325.

⁴⁵¹ Walter G. Hermes, United States Army in the Korean War: Truce Tent and Fighting Front, Washington: Office of the Chief of Military History, United States Army, 1966, 230.

⁴⁵² Williams and Wallace, Unit 731, 251-252.

⁴⁵³ Hermes, United States Army in the Korean War, 232.

Nevertheless as the powers began to sit down at Panmunjom, the designated negotiations point just north of the 38th parallel, the DPRK and People's Republic of China (PRC) lodged a series of highly coordinated accusations once again to force the US to admit it launched illegal attacks.⁴⁵⁴ The claims were once again refuted. As the talks continued into 1953 however, the communist forces produced US Marine pilots who testified, likely under duress, to dropping bacteriological payloads such as flea and feather bombs from airbases in Okinawa.⁴⁵⁵ Moreover reports in Soviet newspapers and PRC allegations to the UN attempted to link the US with Ishii, Kitano, and Wakamatsu among other Unit 731 commanders and bring them under public scrutiny. Several of their claims, including that the US brought Ishii and Unit 731 researchers to South Korea and the coastal US to give biological weapons lectures, were likely based on hearsay. However without the access to US records from the Korean War on the subject, the use of biological weapons during the war remains unconfirmed. Nevertheless the US did embark on a comprehensive campaign to repress the rumor, and several US publications, including works on Unit 731 published in the 1980s by Peter Williams and David Wallace, had the chapters on the Korean War removed from their US editions.⁴⁵⁶ No statements were made to clarify the subject.

⁴⁵⁴ Williams and Wallace, Unit 731, 237.

⁴⁵⁵ Sheldon H. Harris, Factories of Death, 325.

⁴⁵⁶ Williams and Wallace, Unit 731, 235-285.

The blatant misuse of the information the Japanese gave to the Americans would probably not have happened, or at least not in the same way, had the Americans been working directly with their counterparts on US soil. The only way to determine whether or not that is indeed the case is to look at the how the work the German scientists were producing was used by their American employers. In the United States, the former experts from the Third Reich were constantly being reminded who they were and where they came from despite US scientists' objections to the contrary.⁴⁵⁷ Public opinion forced the US personnel to testify that their scientists were not Nazis at all. This crusade to assuage public fears about the program likely had US military personnel in charge of Paperclip towing a fine line with how they used their German experts.⁴⁵⁸ The human element and level of familiarity that the US public came to know in the Nazi scientists was not evident with the research the US acquired from Japan. There was no public outcry or outright reminder of what the Japanese had done to get their information that confronted US personnel like the faces of the German scientists did. Without that human reminder to stay their hands the US personnel likely found it easier to engage in weapons testing riding on the back of what happened at Pingfan and East Asia.

However the human element of familiarity also affected the lives of the Germans themselves. Namely that the former Nazi scientists now

⁴⁵⁷ Bower, The Paperclip Conspiracy: the Hunt for the Nazi Scientists, 190-193.

⁴⁵⁸ *Ibid.*, 190-193.

had the opportunity to take control of that same research's new destiny in the US. For example Dr. Heinz Schlicke, a stealth tech specialist employed by the US Navy after his surrender in 1945, only worked for the military until 1950. At that point he moved into private industry and ended up publishing several works on electromagnetic engineering. However German scientists taking their research to new heights in civilian life was nowhere more apparent than in the quest to reach space. Wernher von Braun, Walter Dornberger, and Hubertus Strughold each moved from Nazi science into the US space race. Strughold became the father of space medicine. His research led to the pressure cabins and suits that let man survive in space. Those advancements brought him fame, recognition, and allowed him to become the namesake of the Aeromedical Library at the School of Aerospace Medicine in San Antonio, Texas until his Nazi past came back to haunt him.⁴⁵⁹ Dornberger ended up with a successful career at the Bell Aircraft Company in their rocketry section, and his memoirs ended up becoming best sellers in both West Germany and America between 1952 and 1954.

However no one enjoyed the limelight and the ability to develop their research like von Braun. Although he too was continually confronted by his Nazi past, particularly from left wing colleagues, Jewish groups, and liberal scientists, von Braun settled down in Texas. He married his German sweetheart who had immigrated to the US, and found God by

⁴⁵⁹ Jacobsen, Operation Paperclip, 403-412.

1947.⁴⁶⁰ He tapped into this newfound stability to produce short stories about space travel, publish plans for getting to Mars, and began to build enough notoriety to work with Walt Disney to produce “Man in Space,” an episode of *Walt Disney’s Wonderful World of Color* that aired on March 9th, 1955. Millions of American children tuned in to watch von Braun and two of his German Paperclip colleagues, Dr. Willy Ley and Dr. Heinz Haber, talk about the wonders of rocketry, space travel, and man’s future in the stars.⁴⁶¹ Von Braun had been afforded freedom and stability in the United States to pursue his dream of interstellar travel, a goal that had been side tracked in Nazi Germany. Two years after the creation of the National Aeronautics and Space Administration (NASA) in 1958, von Braun got another opportunity towards achieving his dreams amidst the space race by becoming the first director of the Marshall Space Flight Center in Huntsville, Alabama. During the FBI investigation that took place before his transfer to civilian administration could be cleared, von Braun’s American colleagues went to great lengths to testify on behalf of his character and love of American life.⁴⁶² Von Braun passed the inspection, and his magnum opus, the Saturn V rocket, ferried the first men to the moon as part of NASA’s Apollo Program in 1969.⁴⁶³

⁴⁶⁰ Neufeld, *Von Braun*, 234-235.

⁴⁶¹ *Ibid.*, 290.

⁴⁶² U.S. Federal Bureau of Investigation, *Wernher Von Braun*, Washington, D.C.: 1999, accessed October 15, 2013, <http://webharvest.gov/peth04/20041015180433/http://foia.fbi.gov/foiaindex/vonbraun.htm>.

⁴⁶³ Biddle, *Dark Side of the Moon*, 127.

The openness of American society allowed these men to thrive in a way that the Japanese scientists never had the chance to. Though their actions in the US hardly constituted redemption or even an expression of regret for their heinous past, it was an opportunity the Japanese were nevertheless denied. The data that the Americans secured from Ishii was the product of a simple transaction, and the men of Unit 731 were forgotten once the data was no longer theirs to control. The research's success or failure hinged on the efforts of the Americans alone, and there were no abusive memories or reminders of the research's origins in Japan to haunt or hinder its use.

Knowledge will always have those who will abuse it, and even with the constraints of Paperclip forcing its patrons to be cautious, men still made mistakes and abused the system. Some of Dr. Strughold's more morally questionable medical tests involved flash blindness tests with nuclear detonations. Operation Tumbler-Snapper in 1951 had soldier volunteers in the Nevada desert looking directly at nuclear detonations at eye level to determine the human susceptibility to retinal burning during a nuclear explosion. In 1953 an atomic test that was part of Operation Upshot-Knothole left a man with a permanent image of a fireball burned into his retina.⁴⁶⁴ Strughold and his colleagues took a photo of the burn to keep in their medical collection for inspiration. Another series of tests with unsavory origins was Operation Bluebird. Run out of Camp King, a US

⁴⁶⁴ Jacobsen, Operation Paperclip, 407.

interrogation center for high-ranking Nazis on the outskirts of Oberursel, Taunus, Bluebird remains one of the most classified CIA and programs ever run. Starting in late 1949 mind altering experiments were done in conjunction with Fort Detrick specialists and former Nazi doctors like Kurt Blome at Camp King. These captured Soviet spies were administered mind altering drugs such as LSD in order to determine what methods the Soviets might use on captured American soldiers if the situation was reversed.⁴⁶⁵

In spite of these instances of moral shortcoming, the consequences and methods that were derived from the research the US got from its Nazi counterparts were probably tempered by the Germans' presence rather than amplified by it. Some Japanese scholars like Tsuneishi Keiichi argue that the United States never would have dropped the bomb on Germany even if that was for whom it was originally intended for.⁴⁶⁶ Furthermore over the course of the Manhattan Project many US scientists even objected to the use of the bomb in practice, and many of its developers like J. Robert Oppenheimer expressed regret for it afterwards. However almost none of the Japanese scientists involved in Unit 731's biological warfare development took remorse, objected, or reflected on their own activities during the war.⁴⁶⁷ One can arguably attribute this to a germ warrior's

⁴⁶⁵ *Ibid.*, 364-365.

⁴⁶⁶ Tsuneishi, *The Germ Warfare Unit that Disappeared*, 236.

⁴⁶⁷ *Ibid.*, 236.

penchant for secrecy,⁴⁶⁸ yet this distinct lack of Japanese admission of individual responsibility and introverted reflection translated into their research and the way it was passed on.

This is not to argue that the Japanese scientists should have been brought to the US and this is not necessarily an argument that the Nazi scientists should not have been. It is however, an argument that reminders of the precious nature of human experience has the power to change and temper the ability to develop and utilize extreme weapons of war in a free society. As the French Resistance fighter and Mittelbau-Dora prisoner Jean Michel wrote in his book, *Dora: The Nazi Concentration Camp Where Modern Space Technology Was Born and 30,000 Prisoners Died:*

“I do not reproach these men [V-2 scientists] with not having made public confessions after the war. I do not hold it against the scientists that they did not choose to be martyrs when they discovered the truth about the [death] camps. No, mine is a more modest objective. I make my stand solely against the monstrous distortion of history which, in silencing certain facts and glorifying others, has given birth to false, foul and suspect myths.”⁴⁶⁹

Both the deals struck with Unit 731 and Operation Paperclip spawned great scientific achievements and immense distortions of justice. By acknowledging the pain, suffering, and murder that several of America’s postwar innovations were built on one can begin to bring justice to the memory of those who perished for them.

⁴⁶⁸ Yudin, “Research on Humans at the Khabarovsk War Crimes Trial,” 61.

⁴⁶⁹ Jacobsen, *Operation Paperclip*, 425.

Conclusion

Humanity has many parables and stories that detail the cost of great achievement. In the book of *Genesis* the patriarch Jacob wrestled with the guardian angel of his brother Esau. In Greek mythology Icarus dared to take his wings up to the high heavens. In German folklore Faust, in every adaptation, made a deal with the devil. In each story the protagonist accomplishes a seemingly impossible task. Jacob overcame the angel and was blessed for it. Icarus flew higher than any other man and experienced the exhilaration of soaring at great heights, and Faust used the power his deal granted him to attain great knowledge and love. However each suffers as a result of their encounter with the forbidden. Jacob's match left him with a limp that he retained for the rest of his life. Icarus flew too close to the sun, and the wax that sustained his wings melted off before he fell to his death in the sea. Faust's sufferance however differed depending on the context he was placed in. In Goethe's version, Faust's great works for mankind and the prayers of his beloved save him.⁴⁷⁰ In Mann's version Faust slowly loses his mind until his body collapses. However in Marlowe's version of the 16th century, the audience is led to two different conclusions. On one hand the devil carries him away, yet on the other his friends hold a party in honor of his salvation. There it was unclear what the legacy of Faust's bargain actually was.

⁴⁷⁰ Neufeld, Von Braun, 4.

Like Marlowe's Faust the legacy of the United States after WWII is also far from certain, but it had certainly made a deal with the devil. At the end of WWII, one of the top policies of the United States became securing the sophisticated technologies its wartime foes had developed and tried to keep secret. Information on such varied topics as biological weapons, chemical weapons, missiles, radar, jet engines, and human and veterinary medicine flowed into America, yet the research was tainted. The biological and chemical weapons research it received from Japan was derived at the cost of thousands of Chinese, Korean, other East and Southeast Asian prisoners of war. Ishii Shirō, the Kwantung Army's Unit 731, and its many subdivisions created their weapons by utilizing involuntary human experimentation, and live field-testing. Both the research and the personnel that the US imported from Germany carried the mark of Nazi science responsible for genocide, slave labor, and illicit human experimentation.

Despite this, the United States, not morally impeccable itself, felt that it needed to make certain that this information came into its own realm of research. Men and women obsessed with ensuring America's security in the postwar world did almost everything they could to make sure this information got back to the US. In the case of the Japanese scientists a simple deal excluding the biological and chemical experts from war crimes trials would suffice. For the Germans, several deals were signed to bring them to the US to continue their research started in

Germany as fast as possible. These were America's Faustian bargains. In many cases the men in charge of making these decisions on behalf of US interests knew, at least to some extent, of the crimes Germany and Japan had committed in the name of their development. America was forced to make several choices after war about whether to charge the men in their custody with crimes or to exploit them. Justice was often eclipsed by a competition for information, the growing communist threat on the horizon, and the desire for America to push its own fields of research to new heights.

Indeed these deals did not come without caveats, and like the heroes in our stories, America suffered moral hazards as a result of these bargains. Public outcry became a source of embarrassment for American officials trying to bring Nazis to the mainland, and the Soviets tried to blackmail their American counterparts into revealing the Japanese scientists they were hiding from the world through the Khabarovsk trials. Most importantly the fact that the Japanese were confined to Japan removed the human factor from the Japanese research and arguably contributed to the US dropping its own biological weapons in the Korean War. Advancement had its price.

Nevertheless the US stood by its bargains and achieved much because of them. The Japanese research led to several immunological medical advances in the US in addition to bolstering its formidable biological weapons capability. The German research helped make the US

chemical arsenal become one of the deadliest in the world, put men on the moon, and set the US years ahead in its engineering capabilities. Moreover due to America's open society the German scientists thrived, and the US benefitted from its new researchers enjoying the ability to stretch out in a free world. The achievements created as a result of these bargains were so great that in historical memory they have almost obscured the human degradation and murder that they were originally built on.

The key word is almost, and that is why Marlowe's Faust is still significant almost five centuries after it was put on paper. Did America's ends justify its means? While this is not the topic of this particular report the question does lead to some important issues to consider, including about the transparency of the American government and legacy it leaves behind. In light of recent revelations about the balance between personal freedom and national security today it is important to consider the dilemmas faced by the generation before us. Future scholars might wish to investigate other programs America created and ask the same questions that this report has. Indeed comparing and contrasting the deals made with Unit 731 and through Operation Paperclip has led to some important questions about the open nature of American society and the importance of maintaining a reminder of one's humanity within weapons development. Nevertheless, like Marlowe's Faust, the final question to consider is probably one that has no answer. Were America's actions in the interest of national security and scientific progress ultimately redeeming or damning?

Was it worth acquiring science at any cost? America's postwar deals are the epitome of a mixed legacy.

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