# Biohazard: Unit 731 and the American Cover-Up

**Brandi Altheide**

**Faculty Sponsor: Roy Hanashiro, Ph.D.**

For many young scientists in Japan, the use of chemical and biological warfare in World War I signaled the start of a race to develop bacteriological weapons for offensive use.[1] Walter E. Grunden, associate professor on Modern China and Japan, identifies the years between World War I and 1937 as a "period in which policies were formulated to strengthen science institutions and to exploit natural resources found throughout Japan's colonial empire in East Asia."[2] During this time, the dark side of Japan's bacteriological research began its ascent through Ishii Shirō, a "fierce nationalist" and mastermind behind Unit 731.[3]

Ishii saw the potential of bacteriological weapons but was "frustrated by his inability to test his laboratory results on humans."[4] In 1928 he embarked upon a two-year world study trip in which he visited other research facilities. Upon his return he convinced Minister of the Army Araki Sadao to sponsor his bacteriological experiments; Ishii also lobbied superior officers to support his research.[5] His arguments centered on the belief that all the world's powers were already undertaking such research: "everyone involved feared that once war broke out, such weapons would be used by the Soviets against the Japanese."[6] There was very little literature written on biological warfare in the 1930s; if Japan were to develop a biological weapons program that utilized human experimental data, the country could possibly gain an "unbeatable" lead.[7]

Ishii countered any reservations that military leaders may have had by reminding them that most nations had signed and ratified the Hague Convention of 1899 banning the use of poisonous gas, yet had still used gas weapons during World War I.[8] Ishii finally gained key support from several top officials after emphasizing the lower cost of biological weapons compared to conventional weapons.[9] To a nation still recovering from the Great Depression, this

argument proved quite persuasive; yet cost was not the only consideration. As Daniel Barenblatt, author of *A Plague Upon Humanity: The Secret Genocide of Axis Japan's Germ Warfare Operation*, explains:

> Germ warfare was cheap in terms of budget expenditure and the raw materials needed, frightening, and, under the right conditions, extremely effective at killing large numbers of people and causing social disruption. Germ warfare was also, more importantly, deniable.[10]

Ishii noted that "there are two types of bacteriological warfare research, A and B. A is assault research, and B is defense research. Vaccine research is of the B type, this can be done in Japan. However, the A type research can only be done abroad."[11] Abroad – specifically, in Manchuria – Ishii saw a limitless supply of Chinese POWs to experiment on.[12] Manchuria was underprivileged and remote – the perfect place for human experimentation; poor sanitary conditions would completely camouflage any field testing.[13] Ishii wrote a request to be transferred in 1932: "It is time we start to experiment. We appeal to be sent to Manchuria to develop new weapons."[14]

Ishii's request was approved. As an officer in the "Army's Main Weapons arsenal," Ishii oversaw construction of a headquarters in Beiyinhe, China.[15] The Beiyinhe facility – Zhongma Fortress – began as a prison compound in which the prisoners were viewed as "subhuman" and thus "expendable."[16] The facility had a ready supply of subjects thanks to the *kenpeitai* (Japanese military police), under specific instructions to provide young male specimens preferably under forty years of age to ensure optimum health for testing and to mimic the age of the common soldier at the front. Prisoners were initially kept healthy to allow for a clear test of the effects of anthrax, typhoid, smallpox, dysentery, bubonic plague, glanders, or blood draining.[17] It is in these environs that the precursor to Unit 731 was born – the Tōgō Unit.

Barenblatt describes Beiyinhe as "an Auschwitz before there was an Auschwitz."[18] Many stationed at the Tōgō Unit considered the transition to human experimentation simply a readily available option with real-world results.[19] Zhongma Fortress was forced to cease activity in 1934

after a prison break threatened to leak the secrets behind the facility to the local public.[20] Beiyinhe was razed in 1935.[21]

In 1936, Emperor Hirohito authorized the formal integration of the Tōgō Unit into the Kwantung Army. A larger and more secure factory was constructed in Pingfan, near Harbin (1938-1939). The Commander-in-Chief of the Kwantung Army gave the research detachment its designation number: 731.[22] Unit 731, officially known as the Kwantung Army Epidemic Prevention and Water Supply Unit, was inaugurated with Ishii being given formal command.[23] Its budget of $2.5 million (1944 dollars – roughly $35 million today) came out of a secret fund that was handed directly to Ishii for his research.[24]

The Pingfan facility "rivaled Auschwitz-Birkenau in size."[25] The facility had a high wall, a dry moat with high-voltage wires, and rail and air access. It encompassed six square kilometers and held approximately one-hundred fifty buildings, three large incinerators, barns for test animals, greenhouses, and *Ro* block – a prison for human test subjects.[26] A Special Military Region was created around the perimeter of the compound and patrolled by three different forces: The Kwantung Army police, the local gendarmerie of Manchuko's Pu Yi government, and the *kenpeitai*.[27] With these forces, Ishii had a private army under his command complete with an air force of seven planes.[28]

Throughout Pingfan's three-year construction, experiments on the breeding of bacteria and the testing of germ bombs continued.[29] At its peak, Pingfan was producing 660 pounds of plague bacteria per month – enough "to kill the world's population several times over."[30] Local residents were told that Pingfan was a lumber mill – but not that lumber was a euphemism for human test subjects (*maruta*, or logs).[31]

Ishii "never concerned himself with medical or other forms of ethics."[32] The researchers, long since desensitized by experiments with bacteria on animals, had few qualms about killing a human being or watching one suffer and die.[33] Vivisection was routinely performed without anesthetic: researchers believed that use of anesthesia would create interference with the disease

process that they were studying.[34] Subjects utilized for "surgery drills" would be shot in the thigh; the attending doctors would then "undertake drills" to see how long it would take to extract the bullet.[35] Yuasa Ken, an army doctor, tried to find meaning in the killing of people for research:

> When a man suffered…you couldn't bring him to a hospital…right there at the front line. But there weren't enough surgeons available. Even ophthalmologists or pediatricians had to be able to do it, and they didn't know, so they practiced. Everyone knew what was going on, though they all pretended they didn't.[36]

Unit 731 also experimented on human subjects by exposing them to dehydration, animal-to-human blood transfusions, and frostbite. The frostbite research, conducted by Dr. Yoshimura Hisato, was in anticipation of war with the Soviets in subzero temperatures.[37] Yoshimura discovered that to bring tissue back to a healthy state, the affected area must be subjected to running water that is slightly higher in temperature than 100° F.[38] These studies predate the 1956 "Alaskan Method" of rapid rewarming at 37.8° C (100° F) credited to and popularized by Dr. William J. Mills, Jr. which is today used in the treatment of frostbite and hypothermia.[39]

In the first two to three years of operation, the unit was staffed by approximately three hundred people, only fifty of whom were doctors.[40] Instead of medical doctors from the Tōgō Unit, Pingfan was filled with private sector medical researchers from universities and other institutions.[41] By 1936, membership was around one thousand.[42] By the end of the war, Unit 731 facilities and branches had personnel estimated around twenty thousand.[43] All staff were sworn to secrecy due to the nature of their work with human subjects and to absolve the emperor of any culpability.[44]

Despite the emphasis on secrecy, however, so many civilian researchers and doctors worked for Ishii's bacteriological program that the use of live human test subjects in germ warfare research became common knowledge throughout the scientific and medical communities.[45] Participating scientists published their results – more than one hundred articles – in peer-reviewed journals. In these articles, all the human subjects were referred to as monkeys

without a species name other than Manchurian.[46] Only the body temperatures recorded in the research in these articles proved without a doubt that these were not monkeys at all: they were human.[47]

For those researchers not stationed at Pingfan, Ishii would commute to Tokyo where he would present not only the results of his research, but also human organ specimens for Tokyo's Army Medical College to study.[48] Among the topics researched there were hard-to-detect poisons such as blowfish (*fugu*) toxin; methods to keep bacteria viable; methods for mass production of bacteria; and Cheopis fleas.[49] Research data were shared all across Japan.[50] This placed Unit 731 on a scientific pedestal as it performed a service to the medical community through human experimentation with diseases not yet in Japan.[51]

The Japanese program quickly surpassed its U.S. counterpart due to the use of human subjects.[52] The program was so successful that Adolf Hitler sent a group of medical officers, including Otto Muntsch, to Japan to study the new bacteriological warfare experiments in China.[53] In 1941 Dr. Hōjō Enryō, Ishii's assistant, lectured on "Bacteriological Warfare" to the Berlin Military Academy of Medicine.[54] The Germans reciprocated, giving samples of yellow fever virus to the Japanese after American labs declined to do so.[55] The exchange of medical samples and information – listed among the cargo of submarines – continued between Germany and Japan until May 1945.[56]

One of the main areas of Ishii's research was the delivery of disease as a military offensive strategy. Specially-fitted airplanes dispensed plague-infected fleas, sprayed out along with grain and cotton; within a month, one-hundred two people had died from the bubonic plague.[57] Between the years 1939-1940, Unit 731 contaminated one thousand wells in Harbin with typhoid, sickening and killing villagers. They gave chocolates dosed with anthrax to children and tainted steamed buns to hungry Chinese.[58] As the head of Unit 731, Ishii "devised all manner of insidious experiments to be inflicted."[59] Still, the danger of Japanese bacteriological weapons was alternately ignored and discounted by Western experts.

Most of the evidence gathered on Ishii's bacteriological program before the occupation came from Allied intelligence communications; much of that was biased, and hence dismissed. The problem of intelligence-gathering on the subject was twofold. First, the Japanese tightly controlled any knowledge of their program from the outside world. Second, allied specialists dismissed Japan as a credible threat due to patronizing racism, even though they had reports that Japan was capable of producing bio-weapons.[60]

Stories of Japanese bio-weapons attacks were so numerous that they reached the ear of Chiang Kai-shek. In November 1941, Chiang's aides sent a telegram to health officials demanding that they organize a delegation of personnel consisting of the Army Medical Corps, the Red Cross, the Sanitary Corps, and foreign doctors to travel to the affected communities and secure documentary evidence against the Japanese attacks while administering treatment to all those afflicted.[61] In 1942, Dr. Chen Wen-Kwei and specialists from the Chinese Red Cross made public a report about bubonic plague fleas that had been dropped from Japanese aircraft on the city of Changde in 1941. Though this report was made widely available, neither the United States nor their allies made any official comment concerning the event and no news media outlets in the United States carried the story.[62] It was not until 1943 that President Roosevelt issued a statement condemning Japanese biological weapons attacks:

> Authoritative reports are reaching this government of the use by Japanese armed forces in various localities in China of poisonous or noxious gases. I desire to make it unmistakably clear that if Japan persists in this inhuman form of warfare against China or against any other of the United Nations, such action will be regarded by this government as though taken against the United States and retaliation in kind and in full measure will be meted out.[63]

In 1944, Allied intelligence was beginning to recognize the full threat of the Japanese bioweapons program. An alarming admission by Pingfan alumnus Dr. Kamei Kan'ichiro that information about bacteriological weapons had been shared with Germany, coupled with reports that the Russians had captured a German laboratory, suggested to the United States that the Soviets might have seized a great deal of information on Japanese bacteriological activities.[64] By

August that year, the United States had enough information to assume with high certainty that the Japanese were engaging in biological warfare on a wide scale.

Biological weaponry in the hands of the enemy was a frightening enough concern, were it confirmed to the public; human experimentation, vastly more so. With the specter of vivisection raised, it naturally followed that captured military personnel would likely be subjected to experimentation – a suspicion confirmed in the case of Unit 731. American and European prisoners of war held at Mukden were used in dysentery research to test whether Anglo-Saxons would be immune to Chinese- and Mongol-tested bacteriological weapons.[65] It also came out that veterinary surgeons were involved in the dissection of war prisoners.[66] For the sake of national security, the U.S. government chose to remain silent.[67]

Shortly after the bombing of Hiroshima in 1945, Unit 731 "vanished off the face of the earth." [68] Ministries in Tokyo ordered the destruction of all incriminating materials including the facilities in Pingfan. Any potential witnesses – around six hundred Chinese and Manchurian laborers – were shot; the remaining three hundred prisoners were gassed or fed poison and cremated.[69] The Japanese staff were sworn to silence by Ishii and told to disappear.[70] Most employees and their families left the facilities by train; some took their own lives, and a handful were captured by the Soviet army.[71] Some structures in Pingfan, built of heavy concrete, resisted a simple dynamite explosion, so unit members loaded "eighty Ford trucks" with "50 kg bombs" and rammed them into the building walls.[72] Even these explosions could not erase all traces of the factory: the ruins of Pingfan still stand today.[73]

With specific intent toward their field results, Lieutenant Colonel Murray Sanders was chosen to investigate Japan's biological warfare program.[74] His meeting with Dr. Naito Ryoichi, Ishii's research assistant, proved frustrating – the information he sought existed, but would only be given if all personnel attached to the research were granted immunity from prosecution.[75] Realizing that Naito not only feared prosecution but also detested communism, Sanders threatened to allow Soviet negotiators to join the biological weapons investigations.[76] Naito

quickly produced a Unit 731 bio-war hierarchy chart in English and a manuscript that stated that Japan had been actively researching biological warfare while carefully omitting reference to human experimentation.[77]

Though skeptical of the denial of human subject use, Sanders forwarded the information to General Douglas MacArthur.[78] With Cold War tensions increasing and the Soviets requesting to interview Ishii and other Unit 731 members for prosecution in the International Military Tribunal of the Far East, Washington decreed that the "value to the U.S. of Japanese BW data is of such importance to national security as to far outweigh the value accruing from 'war crimes' prosecution;" MacArthur thus had no apprehension in granting complete immunity from prosecution and public disclosure in exchange for all results of the Japanese experiments.[79] Once a verbal promise of immunity was secured, Sanders recalled that "the data came in waves. We could hardly keep up with it."[80]

The first two years of the American investigation led to two reports: the Sanders Report (Nov 1, 1945) and the Thompson Report (May 31, 1946). Both included information on Unit 731's bacteria bombs; neither made any mention of human experimentation. While General MacArthur controlled many decisions pertaining to the access of Unit 731 members and access to their information, he in turn received guidance and support from officials in Washington.[81] In July 1946, MacArthur received a cable ordering him to protect scientific evidence that would "jeopardize American national security."[82] By January, 1947, the Soviets had made a formal request to MacArthur to question Ishii on biological warfare.[83] Two months later Washington officials granted the request while reiterating to MacArthur that information gained in the interviews with Japanese researchers must remain secret from the public and from other nation's governments[84]

The main goals of the United States at that time were to quickly rebuild Japan and to contain communism in the area.[85] Washington therefore dictated the conditions under which the Soviets would be allowed to interrogate the members of Unit 731; this arrangement aimed to

safeguard any scientific information previously gained and protect relations between the U.S. and Unit 731.[86] These conditions included briefing Ishii and his men before Soviet interrogation so they would know to not divulge any important information to the Soviets and to not tell them about their discussions with the United States.[87] American investigators, as additional insurance, would be present during all Soviet-Unit 731 meetings.[88]

The International Prosecution Section (IPS) was called upon to help the Japanese avoid war crimes charges in return for their valuable bacteriological warfare information.[89] Frank S. Travenner, Jr., Acting Chief of Counsel, dismissed concerns about unused evidence provided to the IPS by the Soviet counsel, allegedly supplied by two witnesses held in Soviet custody.[90] In a letter to Soviet associate prosecutor Major-General A. N. Vasiliev, Travenner stated:

> No evidence was brought to light which would indicate that these experiments were being made at the direction of the General Staff in Tokyo or that any reports have been received relating to these experiments. Chance of success…so slight that it is not considered wise or reasonable to request the U.S.S.R. to produce the witnesses under the circumstances.[91]

In a check sheet from G-2 (Army Deputy Chief of Staff for Intelligence) to the Legal Section on April 17, 1947, G-2 specifically requests that "no action be taken on prosecution or any form of publicity" in one of the cases of Ishii's unit – "this is by direct order of the C-in-C [Commander-in-Chief] and CS [Chief of Staff]."[92] Washington, in the belief that the U.S.S.R. possessed limited information on the biological weapons program, felt that any war crimes trial would reveal all of the data to all nations; "such publicity must be avoided in interests of defense and security of the US."[93] The evidence was relegated to the status of circumstantial.

Even though Colonel Thomas H. Morrow, a lawyer for the prosecution, had prepared evidence regarding bacteriological and chemical warfare, IPS deemed it insufficient for raising the issue in court. Morrow was reassigned to Washington shortly after writing his findings and recommendations. Without Morrow to dog the heels of the prosecution team, the investigators did not pursue any of his leads.[94] The International Prosecution Section alleviated any remaining fears Washington may have had though a cable communication that stated:

> IPS opinion as to whether evidence now in its possession warrants opinion that Japanese BW group headed by Ishii did violate the rules of land warfare. We are satisfied evidence now in possession Legal Sect SCAP does not warrant such charge against and trial of Ishii and his group.[95]

By this time MacArthur had overseen all the preparations for the International Military Tribunal for the Far East. This included the Tokyo Tribunal Charter, the document defining the jurisdiction and function of the trial. Though other nations exhibited concern that the Charter was drafted entirely by the United States, no one protested whether the victors of war had the right to try the defeated or even whether those victors could be impartial.[96]

As the trial ran its first year, two final investigative reports in response to Soviet allegations regarding Unit 731 were filed with Washington: the Fell Report (Jun 20, 1947) and the Hill and Victor Report (Dec 12, 1947). Based solely on interrogations, both of these reports described human experimentation.[97] In the latter of these, Edwin Hill and Joseph Victor had three objectives to their mission: first, to secure any additional data for clarifying issues that were unclear in earlier reports; second, "[t]o examine human pathological material which had been transferred to Japan from B.W. installations"; and third, "[t]o obtain protocols necessary for understanding the significance of the pathological material."[98] Hill and Victor concluded that:

> Evidence gathered in this investigation has greatly supplemented and amplified previous aspects of this field. It represents data which have been obtained by Japanese scientists at the expenditure of many millions of dollars and years of work. Information had accrued with respect to human susceptibility to those diseases as indicated by specific infectious doses of bacteria. Such information could not be obtained in our laboratories because of scruples attached to human experimentation.[99]

Still, of the men who stood trial for crimes against peace and humanity, only those who were deemed to have played important roles in the attack on Pearl Harbor or the war against China were charged and sentenced.[100] As reward for committing the most heinous acts of medical atrocity the world had yet witnessed, the members of Unit 731 went back to their homes and took positions with Japan's most prestigious universities, medical institutions, and hospitals.[101] Tamura Yoshio, Pingfan alumnus, recalled that most people who were members of Unit 731 "simply pretended not to know anything about what they had done"; even as they

disavowed their past, they nevertheless formed an association called the *Seikonkai* (Refined Spirit Association) which would meet every now and then.[102] Ishii Shirō lived a peaceful life until he died of throat cancer in 1959.[103]

Many questions still surround Unit 731. The most controversial question concerns whether Emperor Hirohito knew and approved of the experimentation on live humans. Peter Williams and David Wallace, authors of *Unit 731: Japan's Secret Biological Warfare in World War II*, suggest that the emperor could hardly have been ignorant of the fact that bacteriological warfare was "integrated into Japanese military planning at every level;" this leads to the conclusion that, at the very least, the heads of command knew and were possibly involved.[104] In defense of the emperor, Richard B. Finn, a former naval officer and diplomat during the Occupation, points out that the Kwantung Army who oversaw Unit 731 often operated independently of Tokyo High Command.[105] Stephen S. Large, a Modern Japanese history professor at Cambridge University, agrees with Finn, stating that the emperor only ratified the decisions that government leaders produced: he was neither a policy maker nor a political partisan, allowing the military to set the pace of developing foreign policy and developing a national defense.[106]

Another frequently asked question concerns whether the United States used the information they gathered from the Japanese, and if so, in what capacity. According to the U.S. Army, the Japanese experiments "lacked scientific rigor" or had a relevant hypothesis that could have been tested without live human subjects.[107] However, if the American biological warfare research was indeed so far ahead of the Japanese, the questions remain: Why was the government willing to cover up the Unit 731 atrocities in exchange for information that U.S. scientists were allegedly unable to use, and why do several scientific reports to Washington from investigators laud the usefulness of such intelligence? The possible use of biological weapons intelligence gained from Unit 731 by the United States can be seen in reports written during the Korean War.[108] Several governments including the Democratic People's Republic of Korea,

China, and the Soviet Union, stated publicly in 1951-1952 that the Pentagon was engaging in germ warfare on a large scale.[109] Chinese film footage showed U.S. military shells releasing numerous insects such as fleas and spiders in snow banks during the middle of winter.[110] Laboratory tests on these insects by an Independent Scientific Team investigating reports of germ warfare revealed the presence of bubonic plague bacteria.[111] In 1952, a captured American flier named Colonel Frank H. Schwable confessed to the Independent Scientific Team that he had used his plane to scatter germ bombs in North Korea.[112] Also in 1952, John W. Powell, an American journalist, reported in the English language *China Monthly Review*:

> The American invaders, by systematic spreading of smallpox, cholera and plague germs over North Korea have shocked and horrified the entire world. Since VJ Day Japanese war criminals turned into 'experts' have been working for the Americans in developing bacteriological warfare.[113]

In response to his report, Powell was brought before a congressional "un-American activities" committee for supporting Korea's BW accusations against the United States.[114] He was charged with thirteen counts of sedition. Formal grand jury charges were brought against him on April 25, 1956, but after the lawyers for the defense started to subpoena the State Department and CIA for documents that the United States did indeed use BW, the Department of Defense told the prosecution to back off the case. The trial ended abruptly in 1961 as the case against Powell was dropped by order of President Kennedy.[115]

Chinese survivors and victims' families have been increasingly vocal in requesting an apology and reparations from the Japanese government. In 1997, Japanese lawyers took cases on behalf of Chinese victims in a suit against the government[116] The courts initially invoked "statute of limitations" or "state immunity" to make their judgments in favor of the government.[117] In 2002 and 2005, Tokyo District and High Courts acknowledged that the Imperial Army had violated the Geneva Protocol of 1925 and used biologicals that caused the death of the people stated in the cases before them. However they dismissed any demands for compensation or apologies, stating that "foreign individuals do not have the right to sue for war damages."[118]

Until the early 1990s, only one or two books were ever written on the topic of Japanese biological warfare and Unit 731.[119] School children were denied the opportunity to learn history accurately as the Japanese government repeatedly rewrote their textbooks to conceal or at least minimize Japanese involvement in war crimes.[120] Historian Ienaga Saburo, a vocal opponent of revisionist history, brought suit against the government for the right to include Unit 731 in textbooks; he won in 1965. This judgment did not last: a stunning reversal thirty-two years later ordered Ienaga to delete all mention of Unit 731 because "no reliable academic study, paper or publication is available for reference…therefore it was too early to address this issue in a textbook."[121] The Japanese national government continued to deny the events even as local governments held a "Unit 731 Exhibition" in sixty-five different locations. The focus of the exhibit was awareness and acceptance of history; several former members of Unit 731 even came forward to speak out about the atrocities.[122]

This chapter of history is far from over and can no longer be erased or revised. Though some researchers are content to count death toll as simply those who perished in the confines of Pingfan, they fail to realize that the number killed in Manchuria due to Japanese biological weapons experiments continues to climb. As Gerhard Baader, professor of World War II history, reminds us, "the release of plague infected animals in the Harbin area…is said to have resulted in the deaths of at least 30,000 people."[123] More than that number died in 1947 alone from plague in the northeast of Manchuria, with another six thousand lost in 1948.[124] Depending on how one tallies the dead, estimates on the number of victims range from 3000 to tens of thousands.[125] Those numbers could still rise, even today: chemical weapons left behind by the Japanese after the war have yet to be properly disposed of.[126] While studying the atrocities of Unit 731 can create links in understanding between science, technology, and society, many crucial questions cannot yet be answered.[127] Sealed away in the archival depositories in Japan, Great Britain, the United States and the former Soviet Union are documents pertaining to Japan's biological experiments, still waiting to be declassified.[128]

## Endnotes

[1] This paper is a condensed version of a much larger work.
[2] Grunden. 173.
[3] Jing-Bao Nie. "On the altar of nationalism and the nation-state: Japan's wartime medical atrocities, the American cover-up, and postwar Chinese responses." *Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics*. Eds. Jing-Bao Nie, Nanyan Guo, Mark Selden, and Arthur Kleinman (London: Routledge, 2010), 124.
[4] Mangold and Goldberg, 15.
[5] Grunden, 184.
[6] Gerhard Baader, et al. "Pathways to Human Experimentation, 1933-1945: Germany, Japan, and the United States." *Osiris*: *Politics and Science in Wartime: Comparative International Perspectives on the Kaiser Wilhelm Institute* v. 20. (2005): 223. *JStor*. Web. 16 Feb 2013.
[7] Harris, 31; Williams and Wallace, 8.
[8] Peter Li. "Japan's Biochemical Warfare and Experimentation in China." *Japanese War Crimes: The Search for Justice*. Ed. Peter Li. (New Brunswick: Transaction Publishers, 2003), 3.
[9] Williams and Wallace, 8; Barenblatt, 12.
[10] Barenblatt, xx.
[11] Mangold and Goldberg, 15-16.
[12] Mangold and Goldberg, 15-16.
[13] Mangold and Goldberg, 16.
[14] Gold, 29; Barenblatt, 20.
[15] Williams and Wallace, 9.
[16] Mangold and Goldberg, 16; Barenblatt, 23; Li, 4.
[17] Barenblatt, 27.
[18] Barenblatt, 30.
[19] Baader, et al. 223.
[20] Gold, 36.
[21] Barenblatt, 37.
[22] Williams and Wallace, 16.
[23] Tsuneishi, *Dark Medicine*, 73.
[24] Mangold and Goldberg, 18; Williams and Wallace, 15.
[25] Li, 289.
[26] Mangold and Goldberg, 17; Gold, 46.
[27] Harris, 35.
[28] Harris, 39; Williams and Wallace, 27.
[29] Barenblatt, 38.
[30] Williams and Wallace, 23; Mangold and Goldberg, 18.
[31] Mangold and Goldberg, 18.
[32] Sheldon Harris. *Factories of Death: Japanese biological warfare 1932-45 and the American cover-up.* London: Routledge, 1994. P. 15
[33] Yoshio Tamura. "Demons from the East: Unit 731." *Japan at War: An Oral History*. Haruko Taya Cook and Theodore F. Cook (New York: The New Press, 1992), 161.
[34] Barenblatt, 44.
[35] Tsuneishi, *Dark Medicine*, 78.
[36] Ken Yuasa. "Demons from the East: Army Doctor." *Japan at War: An Oral History*. Haruko Taya Cook and Theodore F. Cook (New York: The New Press, 1992), 145.
[37] Gold, 80.
[38] Barenblatt, 80
[39] Luanne Freer and Christopher H.E. Imray. "Frostbite." *Wilderness Medicine*. Ed. Paul S. Auerbach. Philadelphia: Mosby, 2012. P. 181-200.
[40] Williams and Wallace, 15.
[41] Keiichi Tsuneishi. "Unit 731 and the Japanese Imperial Army's biological warfare program." *Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics*. Eds. Jing-Bao Nie, Nanyan Guo, Mark Selden, and Arthur Kleinman (London: Routledge, 2010), 24-25; In a 1947 report by

Edwin Hill and Joseph Victor, the United States investigators concluded that university researchers at Pingfan were ranked as lieutenants or above. (Tsuneishi, 25)
[42] Williams and Wallace, 16.
[43] Gold, 48.
[44] Tsuneishi, *Dark Medicine,* 73.
[45] Barenblatt, 47.
[46] Harris, 63.
[47] Barenblatt, 69.
[48] Barenblatt, 30.
[49] National Archives. "Memorandum for Lt. Col. G.W. Anderson" 12 Oct 1945. *Select Documents on Japanese War Crimes and Japanese Biological Weapons, 1934-2006.* Comp. William H. Cunliffe. Web. http://www.archives.gov/iwg/japanese-war-crimes/select-documents.pdf (accessed February 3, 2013): 24; Harris, 63.
[50] Gold, 46.
[51] Gold, 47.
[52] Grunden, 165.
[53] Bernd Martin. "Japanese-German Collaboration in the Development of Bacteriological and Chemical Weapons and the War in China". *Japanese-German Relations, 1895-1945: War, diplomacy and public opinion*. Ed. Christian W Spang and Rolf-Harald Wippich (London: Routledge, 2006), 207.
[54] Martin, 207.
[55] Martin, 208.
[56] Martin, 208.
[57] Virginia Law, Affidavit Statements and Summary.
[58] Li, 291.
[59] Li, 291.
[60] Harris, 161.
[61] Harris, 73.
[62] Barenblatt, 184-187.
[63] Harris, 73-4.
[64] Harris, 192.
[65] Williams and Wallace, 51-52.
[66] National Archives. Report on War Criminals. Takeshi Nishimura to CI&C, GHQ, and SCAP. 23 Aug 1946. *Select Documents on Japanese War Crimes and Japanese Biological Weapons, 1934-2006.* Comp. William H. Cunliffe. Web. http://www.archives.gov/iwg/japanese-war-crimes/select-documents.pdf (accessed February 3, 2013): 35.
[67] Harris, 170.
[68] Martin 209.
[69] Martin, 209; Gold, 92; Tsuneishi, ." *Dark Medicine* 77.
[70] Martin, 209; Gold, 92; Tsuneishi, ." *Dark Medicine* 77.
[71] Williams and Wallace, 86.
[72] Williams and Wallace, 85; Mangold and Goldberg, 24.
[73] Gold, 92.
[74] Williams and Wallace, 121.
[75] Gold, 94.
[76] Barenblatt, 205.
[77] Barenblatt, 205.
[78] Barenblatt, 206-7.
[79] Grunden, 196; Barenblatt, 207.
[80] Barenblatt, 207.
[81] Suzy Wang. "Medicine-related war crimes trials and post-war politic and ethics: the unresolved case of Unit 731, Japan's bio-warfare program." *Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics.* Eds. Jing-Bao Nie, Nanyan Guo, Mark Selden, and Arthur Kleinman (London: Routledge, 2010), 33.
[82] Williams and Wallace, 185.

[83] Barenblatt, 207.
[84] Barenblatt, 207.
[85] Wang, 33.
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