THE ATOMIC VICTIMS AS HUMAN GUINEA PIGS

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In connection with the Smithsonian flap, the United States Senate Resolution 257 was passed on 22 September 1994. It reads: "...The role of the Enola Gay during World War II was momentous in helping to bring World War II to a mercy end, which resulted in saving the lives of Americans and Japanese." (emphasis added) Further, on the occasion of the 50 th anniversary of the atomic bombing of Hiroshima and Nagasaki it was repeatedly contended that President Truman was right when he ordered the use of the atomic bombs because thereby numberless lives of not only American soldiers but also Japanese were saved. But such an argument has been proved groundless by some leading researchers. (Blackett, 1949; Alperovitz, 1965, 1985 and 1995; Tachibana, 1979)

What aim did the U.S. government have in carrying out the atomic bombing?

Firstly, by demonstrating the enormous destructive power of the atomic bomb, it wanted to establish U.S. hegemony over the world after World War II.

Secondly, it aimed to make mass experiments of the uranium bomb on Hiroshima and the plutonium bomb on Nagasaki to test numberless humans as guinea pigs and thereby to obtain data on its effects in order to make use of them for development of nuclear weaponry.

In this paper I am going to demonstrate my conception of the

atomic bombing as being human experimentation.

I. FROM THE STANDPOINT OF THE VICTIMS

What did U.S. Military Forces do after the Atomic Bombing?

First of all, I would like to examine the post-bombing policy of the U.S. Forces.

The first order of the U.S. Forces immediately after the occupation was to ban all publication of reports concerning the genocide and destruction caused by the atomic bombs. Thus they wanted to monopolize all information on the bombing. Until the end of the occupation on April 28, 1952, Japanese journalists, writers, cameramen, novelists and scientists were prohibited from reporting on the real situations of the atomic destruction. If they dared to do so, they were threatened with trial before the military tribunals of the Occupation Forces. Many books, including novels, poems and accounts of the events, were censored and often confiscated by American authorities. (Braw, 1986; Horiba, 1995a and 1995b) As a result, the urgent necessity to give medical and other social aid to the atomic victims (the "Hibakusha" in Japanese) was not reported even among Japanese.

Their second step was to prohibit all doctors in Japan from communicating and exchanging, even among themselves, the records of clinical experience and research on the Hibakusha. At that time they, especially in Hiroshima and Nagasaki, tried to do their best to find ways to cure the unheard-of terrible burns and internal disorders caused by atomic heat and radiation. The U.S. Forces further confiscated the samples of burnt or keloid skins, internal

organs and blood and the clinical records of the dead and living Hibakusha.

Their third step was to force the Japanese government to refuse any medical aid offered by the International Red Cross.

If a laboratory animal were cured, it would be utterly useless from the standpoint of medical scientific observers. Maybe it was by the same reasoning that the U.S. authorities did their utmost to prevent any medical treatment given to the Hibakusha. As far as medical aid is concerned, "the less the better" was their policy.

Their fourth step was to establish the Atomic Bomb Casualty Commission (ABCC) as two institutions in Hiroshima and Nagasaki for the purpose of observing, not curing, of the Hibakusha. Thus, almost all Hibakusha have been treated as if they were only human guinea pigs. Suppose that an assailant continues only to observe a wounded victim for many years after an assault. There is no doubt that such observance itself is nothing but an infringement on human rights.

What did the Japanese Government do to aid the Hibakusha?

I am ashamed to say that the Japanese government did nothing to help the Hibakusha either.

Firstly, its bureaucrats did their utmost to cooperate with the above policy of the U.S. Army toward the Hibakusha. Only two months after the atomic bombing they dissolved the governmental hospitals in charge of medical treatment of the Hibakusha in Hiroshima and Nagasaki. As a result, many Hibakusha were left on the streets of the devastated cities without any medical treatment, compounding many difficult post-war economic and social conditions

they had to contend with.

Secondly, by orders of the General Head Quarters (GHQ) of the U.S. Occupation Forces, on May 21, 1947, the Japanese National Institute of Health (JNIH, YOKEN in Japanese abbreviation) was founded with half of the staff of the Institute of Infectious Diseases (IID) attached to the University of Tokyo.

During the period of the Japanese invasion of China, the IID had fully cooperated with the notorious Unit 731, that is, the unit for bacteriological warfare. (Williams & Wallace, 1989; Harris, 1994) Most of the staff of the JNIH transferred from the University of Tokyo to the Health and Welfare Ministry were medical scientists who had intimately cooperated with the network of Unit 731 in China and Singapore as well as the Laboratory for Infectious Disease Control (LIDC) attached to the Imperial Army's Medical College. The LIDC in Toyama, Shinjuku-ku, Tokyo, was the headquarters for the network of the bacteriological warfare program and its institutions including most of the medical schools of many universities.

The officially declared aims of the JNIH were to make research on pathogens and vaccines and also to screen the safety of biological products (vaccines, blood products and antibiotics), and thereby to contribute toward preventive medicine and public health under the control of the GHQ. However, there were two hidden objectives of the JNIH. The first was to cooperate with the ABCC. The second was to continue under the guidance and control of the U.S. Army 406th Medical Laboratory some uncompleted studies of biological warfare program schemed up by Unit 731. (Shibata, 1989 and 1990)

As for the first hidden objective, only 13 days after the establishment of the JNIH the GHQ asked it to help the ABCC. Dr. Saburo Kojima, then the first Vice-Director and later the second Director of the JNIH, in his commemorative essay, "Memories on the Past Ten Years of the JNIH," looking back on its initial stage of cooperation with the ABCC, wrote, "We, the intelligent scientists had equally thought that we must not miss this golden opportunity" to record the medical effects of the A-bomb on humans. He was reportedly one of the leading medical scientists who committed vivisection on Chinese prisoners as human guinea pigs in the network of Unit 731 in China. As such a scientist, very positively appreciating the proposal of the GHQ, he never showed humanistic sentiments toward the Hibakusha, still less a counterproposal for medical treatment of them. He only betrayed such cold-blooded and calculating words as cited above.

It is clearly reported in the 1948 Annual Report of the JNIH how eagerly and positively the staff of the JNIH, following the directive of the ABCC, drafted and submitted the "Atomic Bomb Casualty Research Program" to the GHQ. At that time the JNIH branches were set up in the same rooms of the ABCC buildings in Hiroshima and Nagasaki. The directors of the Hiroshima and Nagasaki Branches of the JNIH served the vice-directors of the ABCC in Hiroshima and Nagasaki. Some of the directors of the ABCC were American high ranking military officers (e.g. colonels).

The JNIH staff intimately helped and cooperated with the staff of the ABCC as a kind of branch of the U.S. Military Forces to check up on conditions of the Hibakusha, doing follow-up research. The staff of the ABCC-JNIH went around threatening the Hibakusha

that they would be on trial before the military tribunal of the U.S. Forces if they would not cooperate. With such threats they took the Hibakusha to the ABCC buildings and took off their clothes to photograph them in the nude, took x-rays, collected blood samples, so they could record the relationship between the quantity of radiation and the after-effects of the atomic bomb. (Hiroshima City Council against A and H Bombs, 1966; Chugoku Shimbun, 1995)

They did not respect the human dignity of the Hibakusha. They treated them as human guinea pigs and recorded them as "samples." When the Hibakusha died, the ABCC-JNIH staff put pressure on the bereaved to consent to autopsies, and their inner organs, burnt skins and other parts were dissected and taken away.

In such cold and inhumane sentiments, Dr. Keizo Nakamura, the third Director of the JNIH, proudly wrote that the ABCC could not have attained their objective without the cooperation of the JNIH.

The information thus collected about the atomic mass experiment on humans was never made public in Japan. It was secretly reported to the U.S. Department of Defense, the Atomic Energy Commission (later the Department of Energy) and other military institutions to be utilized for the improvement of nuclear weapons and reactors.

The post-war Responsibilities of the Japanese Government and the JNIH in Violation of Human Rights of the Hibakusha

Some may excuse the Japanese government and the JNIH under the pretext that they were only forced by the authoritarian power of the GHQ. But this was not the case, because the positive cooperation of the JNIH with the ABCC continued for 28 years from 1947 through to 1975. In 1975 the ABCC had to reorganize itself, and the JNIH was also forced to divorce itself from the former in the face of increasing denunciation on the part of the Hibakusha and the Japanese people. The ABCC was reorganized and renamed the Radiation Effects Research Foundation (RERF), funded by both U.S. and Japanese governments. Of course, their character and tasks are almost the same. Their main operations have been and are the follow-up research on the Hibakusha and the renewed cooperation with U.S. military institutions and the nuclear industry.

Thus the physical sufferings and mental agony of the Hibakusha were and have been aggravated by the post-war policy of the U.S. and Japanese governments toward them.

Of course, the Japanese government is to blame for its aggressive wars against Asian countries and then the first-strike on Pearl Harbor. However, this doesn't justify the U.S. atomic bombing. The nuclear destruction of Hiroshima and Nagasaki should be denounced as the unheard-of cruel genocide and destruction as well as the most serious violation of international law. (NHK, 1977; Committee, 1981) The further misery of the Hibakusha has also been aggravated by the nature of the atomic bombing as a massive test on innocent men and women, young and old.

Someone may still try to justify the atomic bombing on the pretext that it saved a number of lives. Even if true, such a pretext could never justify the fact that the U.S. government, supported by the Japanese government, has done so much to leave the Hibakusha abandoned, uncared-for and uncured after the end of the war. If the above pretext had been true, why didn't it do the best to give

medical and other social aid to victims produced by an act of "mercy"? Its post-bombing and post-war policies themselves have demonstrated what so-called "mercy" of the atomic bombing was in reality.

For over fifty years since the bombing, both governments have arrogantly continued to treat and alienate the Hibakusha as human guinea pigs. It is evident that such a political attitude itself deprived them of the feeling of human dignity. If the Japanese government had resisted the U.S. government policy of neglecting the Hibakusha and had done their best to provide them with medical and other social aid immediately after the bombing, the life span of the dead Hibakusha would have been much longer. Their will to live would not have diminished.

The Japanese government and the JNIH should feel deeply responsible in this respect. Why don't the prime ministers and the directors of the JNIH apologize for their negligence toward the Hibakusha? Why don't they try, in this way, to restore the feeling of human dignity which for almost a half century they have denied these people?

As a professor of Hiroshima University, I have for many years been involved in the sociological, philosophical and ethical study of the agony of the Hibakusha. In this chapter as a result of my research, I tried to shed new light on one of the most important, but hitherto overlooked, aspects of the atomic bombing and the sufferings of the Hibakusha.

As explained, there is no doubt that the Japanese government is responsible for its post-war policy of negligence toward the Hibakusha as well as its violation of their human rights. If the government feels responsible for them, there must be no objection to legislation providing state compensation for the Hibakusha.

II. FROM THE STANDPOINT OF THE U.S. MILITARY FORCES AND THE MANHATTAN PROJECT SCIENTISTS

In the previous chapter I submitted my thesis mainly on the basis of the analysis of the post-bombing and post-war policies of the U.S. government toward Hibakusha, especially the no-treatment policy of the ABCC-JNIH.

As for the pre-bombing policy of the U.S. government, I don't think that all the principle characters at that time, including Truman, had a conscious intention to use the A-bombs as a means of experimenting on humans from the military and scientific viewpoints.

However, I am convinced there were surely some leading people who, with the cool eyes of an "experimental observer," viewed the bombing as an experiment on human beings from the military and scientific points of view.

From the Military Standpoint

- I checked the following main documents of the Manhattan Project (MP):
- Captain W.R. Parson's memorandum "Notes on Initial Meetings of Target Committee" to Rear Admiral W.R. Purnell (12/12/1944);
- Brigadier General L. Norstad's memorandum to Director, Joint Target Group (28/4/45);

- Dr. J. R. Oppenheimer's memorandum to Brigadier General T.F. Farrell (11/5/45);
- Major J.A. Derry's and Dr. N.F. Ramsey's memorandum to Major General L.R. Groves (12/5/45);
- Brigadier General L. Norstad's memorandum "Notes of the Interim Committee" to Commanding General, XXI Bomber Command (29/5/45).

Having examined these documents (Yamagiwa, Tachibana & Okada, 1993), I came to the conclusion that the U.S. Armed Forces deliberately planned not only to use the A-bombs on civilians to make the destruction most effective, but also to gain as much information as possible about the "effects" of the bombs. I think that my thesis is proved by the very quick organization of the Manhattan survey teams going to Hiroshima and Nagasaki. (Jones, 1985, pp. 543f.)

I cannot but conclude that the atomic bombings were nothing but a kind of massive experiment on human beings from the military point of view.

From the Standpoint of the Manhattan Scientists

I was shocked to learn about one terrible scheme of Oppenheimer in the Manhattan Project (MP). He had a plan to produce radioactively contaminated foods "sufficient to kill half a million men." (Oppenheimer's letter to Fermi, 25/5/43) Such a plan should surely have needed a series of human experiments.

It seems to me that it was in this atmosphere that a number of scientists, in their studies on the effects of radioactivity on the human body, deliberately injected plutonium into humans, including children, hospital patients, veterans, and other people.

According to an important source (The Albuquerque Tribune and Hirose, 1994), Dr. D. L. Hempelman, a leading scientist in the Health Department, Los Alamos Laboratory, sent a plan for human experiments to Oppenheimer on 29/8/44.

Dr. Stafford Warren, chairman of the Radiology Department at the University of Rochester School of Medicine and Dentistry, who was a consultant to the MP, also proposed a program of experiments to compare the effects of radioactivity on human beings and mice.

In March 1945, medical scientists of the MP had a meeting in Los Alamos to make a program of experiments to inject plutonium into patients hospitalized at the University of Rochester and University of Chicago. In a letter of 29/3/45 Oppenheimer assured Stafford Warren that he would help with his plan of human experiments.

As a result, on 10/4/45 Ebeneezer Cade (HP-12), who was hospitalized in the hospital attached to the MP at Oak Ridge, Tennessee, became the first victim injected with plutonium. It was the first plutonium experiment committed by the MP staff.

On 26/4/45 Arthur B. Hubbard (CHI-1) was injected with plutonium at the hospital attached to the University of Chicago. He died on 3/10/45. Two other patients were also injected with plutonium.

On 14/5/45 Albert Stevens (CAL-1) was injected with plutonium at the hospital of University of California, San Francisco.

As for plutonium experiments on Americans performed after

August 1945, I would be able to add a long list of many who were made human guinea pigs, including several hundred thousand "atomic soldiers." (Rosenberg, 1980)

It is noteworthy that the leading scientists of the MP systematically committed the crime of human experiments even during the pre-bombing period. They sacrificed many fellow Americans as human guinea pigs.

It seems therefore that it would be reasonable for us to assume that these MP scientists also observed "Japs" in atom-bombed Hiroshima and Nagasaki as human guinea pigs from their scientific point of view.

It was also interesting and not accidental that Dr. Warren, one of the pioneering scientists of human experiments in the MP, was one of two leading American scientists who later strongly recommended the establishment of the ABCC. Another person who also recommended setting up the ABCC was Dr. Shields Warren. The two Warrens were not related by family. (Lindee, 1994)

In the Light of other Facts

I submitted my conception of the atom bombings as human experiments in the light of the pre- and post-bombing policies of the United States government and the MP scientists toward Americans and Hibakusha. Their post-bombing policies toward the latter were assisted by the Japanese government as well, especially the JNIH.

I appreciate Lindee's description of the inferiority of the JNIH very much. I think that she accurately describes the no-treatment policy of the ABCC-JNIH. I have to stress the fact that the U.S. government, assisted by the Japanese government, not only applied

its no-treatment policy to Hibakusha, but also did their utmost to obstruct Hibakusha from receiving care as proved.

Why? In my opinion it can be explained only when we look at the bombings as human experiments. I would like to reinforce my argument by submitting some additional facts.

(1) In the light of the above mentioned mentality and morals of some leading American scientists in the period of the pre-bombing, it seems that it was natural for them to see the bombing as such.

In this context, the opinion of J.B. Koepfli, scientific advisor to the State Department, deserves to be cited. He wrote the following in a letter to Shield Warren, Director, Division of Biology and Medicine, AEC on 1/6/51:

"The atomic bomb casualty areas in Japan constitute an unparalleled natural laboratory and a unique opportunity particularly for pursuing certain long phases of the studies."

(emphasis added)

It seems to me that such an opinion represented a common understanding among most of the MP and ABCC-JNIH scientists.

(2) According to a 5/2/93 story from the Kyodo News Agency at Los Angeles the bombings of Hiroshima and Nagasaki were described as "experiments" or "tests" in the official records of the nuclear tests issued by the Nevada Office, Department of Energy (DOE).

Every year since the beginning of the 1980s, the revised version of these records, supplemented with the record of new tests, has been published for the mass media and researchers by this Nevada office.

Since the first version, the Hiroshima and Nagasaki bombings have been recorded as the second and third "tests," following the first one at Alamogordo, New Mexico. The bombings have been counted as the second and third as a part of the subsequent test series that included the blasts on the Bikini Atoll, the Nevada site and others from 1945 through to the 1990s.

These facts were reported on 7/2/93 in a major article in the *Chugoku Shimbun*. This is an influential local newspaper with a circulation of 700,000 in Hiroshima Prefecture.

It is important to recognize that even the Nevada Office, DOE, understood the bombings to be "tests."

III. NECESSITY OF A NEW WAY OF THINKING

Someone might disagree with me because I might have committed a mistake of confusing post-bombing curiosity about the A-bombs' effects with pre-bombing motives. But I think that I have reconsidered and proved my thesis on the basis of the analysis of not only the post-bombing but also the pre-bombing policies of the U.S. government.

In connection with the above critical comment, I would like to cite my concept of history:

"What is history? History is a process in which, when the past is looked back on, the implication of the past becomes the present, and its historic significance is revealed. History is also a process in which the implication of the past is re-examined and re-written from the standpoint of the present, thereby making clearer the truth about the past, in which process the historic conception of both past and present is changed. This can be said about the atomic bombing of Hiroshima and Nagasaki, and the 'damage' of those

events. The historic implication of this is found in the fact that its truth has been revealed in the process of history." (Shibata, 1982)

I applied this concept of history to the bombings and argued one of the motives of their being carried out was human experimentation.

In this context, it is further noteworthy that Professor S. Harris submitted an important thesis toward the critique of all kinds of human experimentation in our age. I would say the implication of my concept of the bombings might well be interpreted and understood in the light of his thesis. It is also ironical that the ABCC was assisted by the JNIH as one of the heirs of the tradition of the medical scientists who committed experiments on humans in the Japanese biological warfare program. Their crimes were covered-up by the American Forces. I fully agree with Professor Susan Lindee, when she characterizes the ABCC and the JNIH as the "colonial science." (Lindee, 1994, Chapter Two)

Not only Japanese but also Americans, including soldiers who were affected by the atomic blast, were treated as guinea pigs. (Sternglass, 1972; Rosenberg, 1980; Freeman, 1981; Saffer & Kelly, 1982; Wasserman, et al, 1982; Haruna, 1985; Lifton & Mitchell, 1995)

A pioneering American, Hermann Hagedorn had an admirable insight into the atomic bombing in his poem. (Hagedorn, 1946) He pointed out that the bombs were dropped not only on Japanese but also on Americans. Another pioneering American philosopher, John Somerville coined the word "omnicide." According to him, a nuclear war is no longer a kind of war, but an "omnicide." (Somerville, 1980) This was already proved by the destruction of

Hiroshima and Nagasaki. The victims of nuclear destruction are humanity as a whole, including the so-called enemy as well as friends and allies.

It is in this context that Albert Einstein warned us, "If mankind is to survive, then we need a completely new way of thinking." I hope that those who have tried to justify the Truman argument and supported the Senate Resolution 257 cited at the beginning of this paper will listen to Einstein and reconsider the implication of the nuclear age from the new way of thinking.

Notes:

- 1. The U.S. Army 406th Medical Laboratory was to be a research unit for preparation of biological warfare in Asia. It was set up in Yokohama and then in Tokyo immediately after the beginning of the occupation. Later it moved to Sagamihara City near Tokyo and existed there until around 1965. I have no space here to deal with the second hidden aim.
- 2. The 1956 Annual Report of the NIH, Tokyo, 1957. p. 30, emphasis added, in Japanese.
- 3. See the documentary report entitled "The Unit for Bacteriological Warfare still Exists," Monthly Shinso (Truth), No. 40, April 1950, in Japanese; Williams, P. & Wallace, D. 1989, p. 238.
- 4. The 1948 Annual Report of the NIH, Tokyo, 1949. pp. 58-61, in Japanese.
- 5. NIH and ABCC, 20 Years of the ABCC, Tokyo, 1966, p. 1, in Japanese.
- 6. When we Japanese declare, "No More Hiroshimas!", Americans very often reply, "Remember Pearl Harbor!". We completely

understand and support Americans when they do so. In fact, Americans and Japanese have to remember Pearl Harbor forever, firstly because those who committed the war crimes in the invaded Asian and Pacific countries including Pearl Harbor have not always been punished, secondly because the bombing of Pearl Harbor was nothing but the first-strike. Nevertheless, it is the U.S. government that has continued to support these Japanese war criminals including Shiro Ishii, the Commander of the infamous Unit 731 and Nobusuke Kishi who was one of the then ministers of the Tojo government. Ishii was later hired and Kishi supported by the U.S. government. It is also strange to see that the U.S. government still sticks to the first-strike policy in a possible nuclear war. Isn't it another Pearl Harbor in a nuclear war, more correctly a global nuclear omnicide?

- 7. I am grateful to Mr. Kazuo Yabui, a reporter of the *Chugoku Shimbun*, who kindly provided me with a copy of this letter.
- 8. His thesis deserves to be cited: "Most distressing is the fact that the ultimate disclosures in the mid- to late-1940s of Japanese biological warfare human experimentation did not appall those individuals who were apprised of these criminal acts. Instead, the disclosures whetted the appetites of scientists and military planners among both the victors and the vanquished. Rather than being motivated to abandon such actions, research using involuntary or uninformed subjects has proliferated over the past fifty years. Scientists in the United States alone conducted at least several hundred tests with human subjects who were not informed of the nature of the experiments, or of the danger to their health." (Harris, 1995, p.x)

Bibliography

- "Albuquerque Tribune" (ed.) and Hirose, Takashi (re-ed. and tr.).

 1994. The Plutonium Experiment. in Japanese, Tokyo: Shueisha,
 Publishers.
- Alperovitz, G. 1965 and 1985. Atomic Diplomacy. 1985, enlarged new edition, New York: Simon & Shuster.
- —. 1995. The Decision to Use the Atomic Bomb. New York: A.A. Knopf.
- Blackett, P.M.S. 1949. Fear, War, and the Bomb. New York: Whittlesey House.
- Committee for Compilation of Materials on Damage caused by Atomic Bombs in Hiroshima and Nagasaki. 1981. Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombing. New York: Basic Books.
- Braw, M. 1986. The Atomic Bomb Suppressed: American Censorship in Japan 1945-1949. Malmö: Liber International.
- Chugoku Shimbun (ed.) 1995. *The Nuke and Mankind*. in Japanese, Hiroshima: Chugoku Shimbun.
- Freeman, L.J. 1981. Nuclear Witness. New York.
- Hagedorn, H. 1946. The Bomb that fell on America. New York: Association Press.
- Harris, S.H. 1994. Factories of Death: Japanese Biological Warfare, 1932-45, and the American Cover-up. London and New York: Routledge.
- Harris, S.H. 1995. "Preface to the Paperback Edition," Factories of Death. London and New York: Routledge.
- Haruna, M. 1985. *Hibakusha in USA*. in Japanese, Tokyo: Iwanami Shoten, Publishers.

- Hiroshima City Council against A and H Bombs. (ed.) 1966. What did ABCC do toward Hibakusha?. in Japanese, Hiroshima City Council against A and H Bombs.
- Horiba, K. 1995a. Prohibited Atomic Experience. in Japanese, Tokyo: Iwanami Shoten, Publishers.
- ——. 1995b. Atomic Bomb: Expression and Censorship. in Japanese, Tokyo: Asahi Shimbun.
- Jones, V.C. 1985. Manhattan: The Army and the Atomic Bomb. Washington, DC: Center of Military History, United States Army.
- Lifton, R.J. & Mitchell G. 1995. *Hiroshima in America*. New York: G.P. Putnam's Sons.
- Lindee, M. Susan. 1994. Suffering Made Real: American Science and the Survivors at Hiroshima. Chicago: The University of Chicago Press.
- NHK (ed.). 1977. *Unforgettable Fire*. Tokyo: Nippon Hoso Shuppan Kyokai.
- Rosenberg, H.L. 1980. Atomic Soldiers. Boston: Beacon Press.
- Saffer, T.H. & Kelly, W.S. 1982. Countdown Zero. New York.
- Shibata, S. 1982. "Philosophy of History in the Nuclear Age."

 Hiroshima Peace Science, No. 5, Hiroshima: Institute for Peace Science, Hiroshima University.
- JNIH's Cooperation with it. " Economist, 14/11/1989, in Japanese, Tokyo:Mainichi Shimbun.
- International Perspectives in Public Health, Volume 6, Toronto:

 International Institute of Concern for Public Health.

- Somerville, J. 1980. Philosophy and Ethics of the Nuclear Age. ed. and tr. by Shibata, S. & Tachibana, S., in Japanese, Tokyo: Aoki Shoten, Publishers.
- Sternglass, E.J. 1972. Low-level Radiation. New York: Ballantine Books.
- Tachibana, S. 1979. At the Mercy of Nuclear Weapons: Origin of U.S. Nuclear Policy, 1939-1945. IPSHU Research Report, No. 2,
 Hiroshima: Institute for Peace Science, Hiroshima University.
- Wasserman, H. et al., 1982. Killing Our Own. New York.
- Williams, P. & Wallace, D. 1989. Unit 731: Japan's Secret Biological Warfare in World War II, New York: The Free Press.
- Yamagiwa, A., Tachibana, S. (eds.) and Okada, R. (tr.). 1993.

 Documents: Manhattan Project. in Japanese, Tokyo: Otsuki Shoten, Publishers.

Postscript and Acknowledgment

The original version of the chapter I of this paper was written • in 1994. A condensed text of it was published in Japanese in the Evening edition of the *Mainichi Shimbun*, 6/9/1994. Its condensed but longer text in English in the *Mainichi Daily News*, 11/11/1994.

On the occasion of the 50th anniversary of the atomic bombing of Hiroshima and Nagasaki, August 1995, I had an opportunity to meet Dr. Klaus Gottstein, Emeritus Professor at the Max-Planck-Institute in Munich, and gave him a copy of the paper for his comment. He kindly paid much attention to my paper and sent it to Professor Barton Bernstein at Stanford University, Stanford, California, and asked him to make a comment on it. The kind

comments of Professors Gottstein and Bernstein, scientists of international repute, meant a great deal and honor to me. It motivated me to reconsider my thesis and to write a long letter to reinforce my argument as a reply to them. This letter was rewritten and incorporated as Chapter II of this paper. This text is a new enlarged one with added references. I am grateful to both of them for their warm and sincere comments.

I am also grateful to Professor Seiitsu Tachibana, Dr. David Tharp and Mr. David Jordan for their kind and informative suggestions.

When I almost completed this paper for the Seisen Review, Dr. Rosalie Bertell, the editor of the International Perspectives in Public Health, Toronto, kindly told me that she would like to print its original text in this journal. It is a great honor to me. However, needless to say, I don't like to see the old text published in any journal. In this context I asked her to print this new text in her journal as well. I hope the readers of the Seisen Review kindly understand the present paper would soon be printed in the International Perspectives in Public Health, too.

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