

CHAPTER V.

Protection and Rescue Problems Against the Atomic Bomb

1. Protective Measures.

We would like to discuss now the measure for protection against the effects upon human beings by the atomic bomb. The protection measures against the effects of ordinary bombs can not be applied at all, because the injurious effects of the atomic bomb, as well known by the description in the former chapters, are very powerful and they will act with unimaginable strength at the first instant.

It is obvious that the injurious power of the atomic bomb reduces its intensity by the distances and by the shelters. Consequently we may say, the grade of damages will be slighter according to the separation by the distances from the ground center, and the rate of escape from the effects will be higher according to the protection by the shelters. From these considerations the protective measures will be demonstrated.

The rate of casualties of 898 persons, who were in the area within a radius of 2 km from the ground center at Hiroshima, were as follows. These persons were selected at random and investigated. Out of 134 persons who were in the area within a radius of 0.5 km, deaths 132 (98.4%), wounded 2 (1.6%), and none with no effects. Out of 219 persons in the area between radii of 0.6 - 1.0 km, deaths 197 (90.0%), wounded 17 (7.8%), and not affected 5 (2.3%). Out of 240 persons in the area between radii of 1.1 - 1.5 km, deaths 109 (45.5%) wounded 100 (41.6%), and not affected 31 (12.9%). Out of 305 persons who were in the area between radii of 1.6 - 2.0 km, deaths 69 (22.6%) wounded 151 (49.5%), and not affected 85 (27.9%). It can be noticed that according to the distances from the ground center, the death rate becomes lower, and on the contrary, the rates of wounded and non affected persons are higher.

A direct outdoors action by the primary injurious energies will cause the severest effect in the central area within a radius of 1 km. The mortality is practically 100%, and the grade of damages becomes slighter according to the distance from the ground center. Only slight flash burns will occur in the area outside a radius of 2 km. It is almost safe outside a radius of 4 km from the ground center.

As the mechanical power is very strong in the area within a radius of 1 km from the ground center, it is almost hopeless to escape from a common house, except unusually lucky persons. If a person could escape from crushing injury under a falling house, he would probably not be free from a radiation injury. It is not always safe, even in a concrete building. In the central area, on the upper stories with windows, over one half of the occupants will die and all others will be wounded and affected by radiation. Only in a lower floor in a well covered part in a concrete building, can one escape from the effects.

The persons who are in a wooden house outside a radius of 2 km from the ground center will have no danger to their lives, except those who are unlucky. However they will have slight wounds, probably due to the broken debris of their houses. The persons who are in a concrete building

at a distance of over 1 km from the ground center, will have slighter effects, but they will have wounds by broken glass, when they are on the upper floor with windows. It is fairly safe in a lower covered part of the concrete building.

To prevent burns, one must avoid direct irradiation, that is be covered by some shadow. Among the persons who were outdoors under the same circumstances, a difference of the burn effects was sometimes observed. It may be because the person was covered accidentally by a leafy tree, etc. Accordingly the condition of clothing has a close relationship to the burns. In the central area one or two pieces of thin clothing will not be a shelter, but at a distance of over 1 km only a piece of shirt will help a great deal. At a distance of 1.5 km black clothes will be charred and cause scorch burns, white clothes will protect from burns. Clothing such as an army summer uniform protects against burn outside 1.5 km, but uncovered parts of the body are, of course, burned until a distance of 4 km.

Theoretically thinking, at the instant a flash light is recognized the light and heat waves, which will cause burns, have already reached the person. As these radiant rays last a certain time, and as it is necessary for them to act continuously a certain length of time to cause one of the biological reactions - burn, the burns can be avoided or will be slighter in the area outside a radius of 2 km from the ground center, if one takes a protected position as soon as he has noticed a flash light. This avoids some of the effect of the following blast power.

Roughly speaking, the rate of casualties in a concrete building corresponds to that of an open place at a further distance of 900 meters. In other words, the rate of casualties in a concrete building at a distance of 500 meters from the ground center is almost equivalent to that of an open place at 1,400 meters from the ground center.

The surveys on the epilation, a symptom of radiation injury, revealed that there was a difference in distance of 700 meters between the rates of epilation in a concrete building and in an open place; that is, the persons who were in a concrete building at a distance of 800 meters and who were in an open place at a distance of 1,500 meters showed a similar rate of epilation.

In short, the central area within a radius of 1 km from the ground center is a fatal place at the explosion of an atomic bomb for we cannot escape from the effects unless we are sheltered in a perfect underground-type cave-trench. In the area between radii of 1 - 2 km, we can be protected in a concrete building, but not protected in a wooden building. In a circle of a radius of 2 km, a protected position, even taken soon after the recognition of an explosion, cannot help, but outside a radius of 2 km, we will be able to be protected somewhat by taking promptly a protected position. Outside a radius of 2 km there is almost no danger to life, even though some wounds or burns occur. Outside a radius of 4 km we can escape even from the mechanical wounds or burns.

As above mentioned, the safest factor in protection from the atomic bomb explosion is "distance". Accordingly, we should consider at first, the most important protection against the atomic bomb is a provision for the dispersion and evacuation. However these measures are of no use for

personnel protection.

To avoid the atomic bomb effects, we should furnish underground cave-type residential districts, which are well covered by thick concrete walls and live in them. We would like to confess, hereby, frankly that we had no reliable measures when we were considering the protection problem for the whole nation. The most perfect protective measures are no more explosions of the atomic bomb.

2. Rescue Measures.

It should not be forgotten in considering the rescue measures that the injurious power of the atomic bomb explosion is absolutely intensive at the first instant. As already written, about 75% of the cases of dead victims in the central area within a radius of 2 km from the ground center died on the first day and the majority of them were affected first of all by mechanical power. Therefore, there is no way, but to teach the public, how to protect themselves in perfectly sheltered places.

The burned or wounded persons who escaped from immediate death, shall be treated in the same manner as for ordinary burns or wounds. But the symptoms of the atomic bomb injuries are very serious and their prognosis are very unfavorable, compared with the simple burned or wounded cases, because the effects by the atomic bomb are so intense and most persons suffer also from radioactivity. Both at Hiroshima and Nagasaki the majority of the sufferers were treated just symptomatically by simple first-aid measures, because there were swarms of injured cases under very confused condition. We might say that all treatments, which would be good for ordinary severe burned or wounded patients, were also effective for the atomic bomb patients, when they were applied. General treatments especially help the patients a great deal. Among the general treatments, to keep the patients quiet and warm are surely the most simple and also important ones. But these simple measures were almost impossible to apply under such confused conditions, as the fires were catching the whole city and the destructive powerful winds were blowing all over. Personal experience of the medical personnel who worked at rescue measures told us that all victims were treated just by simple first-aid measures for several days after the bombing. Even in the second week, when the confusion became somewhat less, the range of rescue treatments could not extend beyond symptomatic emergency procedures.

At the end of August, that is after 3 weeks, the condition of the rescue treatments in the city of Hiroshima was still in a state of confusion. As all facilities for rescue measures were destroyed in an instant, and so temporary rescue places were prepared for the patients in the remaining buildings, though they were burned and their frames scarcely escaped destruction. Though it was late summer, the patients were lying with one sheet of straw mat on the devastated concrete floor, scarcely keeping from being wet on the rainy days. To give meals was sometimes the only help possible.

Complete treatment could not be, therefore, possible. Moreover, after 3 - 4 weeks, many persons who escaped from early death, suffered from the symptoms of radiation injuries and were dying one after another. All citizens were thrown down in a depth of complete desperation, while

they were seeing many patients passing away near them.

At that time we were staying at the UJINA Branch Hospital (Capt SATO in charge) of the Hiroshima Army Hospital, to treat and to study the atomic bomb patients. There were special parties for the investigation sent by the Army Medical School and by the Tokyo Imp Univ. After hard efforts at careful studies for several days, we got temporary conclusions as to the treatment of atomic bomb injuries. On September 1st we had a special conference at the UJINA Hospital, and all staff members of the UJINA Hospital, of the Army Medical School party and of the Tokyo Imp Univ party attended. We discussed and decided the principles of treatment for the atomic bomb injuries. At the time, all citizens of the City of Hiroshima were feeling hopeless desperation, because the damages by the atomic bomb were so severe. Even the medical personnel was going to give up their work, losing all hope. We presented, therefore, our notes on the treatment of patients, even though they were in an uncompleted form, in order to help the suffering people, psychologically at least.

Then, at Hiroshima, I myself presented a hand written copy of my vivid personal experiences in an explanation of the principles of treatments to the medical circle and the public through a local news paper. The following is a part of the original hand writing of mine.

The Principles of the Medical Care of the Atomic Bomb Radiation Injuries.

Almost all the persons who were in the area within a radius of 500 meters suffered from the severest injuries and died immediately or afterward, to our great sorrow. These victims had received a fatal effect at the moment of the explosion. It is almost hopeless to help these persons by medical care, except in a miraculous case.

The persons who were in the area between radii of 500 - 1,000 meters, had severe burns and at the same time they were also effected by radioactivity. The majority of the cases have died already. The persons who were in the houses, were pressed and died under the falling houses or were injured and burned to death in their burning houses. Some persons escaped fortunately without any burn or wound, but most of them suffer in 2 - 4 weeks from the so-called radiation injuries, complaining of epilation, fever, bleeding etc., and are dying one after another. We cannot watch this miserable condition without tears.

Among the persons who were in the area between radii of 1 - 2 km from the ground center, we have found already some radiation injuries and dead victims at a considerable rate.

One month has already passed since the affair occurred. The clinical course of the atomic bomb radiation injuries might be considered to have passed over the peak and is going into the descending phase of the disease, judged by the clinical as well as the path-anatomical studies on the patients. Hereafter new patients will be reduced in number and after one month more, i.e. in the beginning of October, no severe case will be seen any more. It may be understood that the damages of the blood and the

internal organs are proceeding already into a recovering stage. It has been well known that a single damage by radioactivity can recover, if it is tolerated.

Therefore, we would like to propose that we must do our best in the medical care and help. We are to throw away, of course, such a fatalistic attitude as prevails in a limited circle.

Now the principles of medical care for radiation injuries will be discussed in the following. The measures, which will be presented here, are limited at first to such ones as we can easily apply now in and around the City of Hiroshima, in spite of the difficult conditions on all sides. If it is possible, it goes without saying, perfectly complete measures of medical care are to be taken up further.

1. To the patients, with symptoms of epilation, stomatitis, bleeding, fever, etc.
 - (1) Severe cases (unfavorable general condition, the white blood count under 1,000, poor prognosis expected):
 - a. Symptomatic treatment (special care by sedation, cardiants, and hemostasis etc.)
 - b. Apply the following measures for the moderate cases, if it is possible.
 - (2) Moderate cases (epilation, stomatitis, diarrhoea etc. A general feature is not so severe, the white blood count is over 1,000).
 - a. General care, especially to keep quiet and to give fresh and nutritious foods.
 - b. Protein therapy: for example, an intramuscular injection of auto blood (20 - 30 cc of auto-blood, taken from an arm vein and injected immediately intramuscularly in the upper thigh. It is surely better to transfuse fresh blood of the same type, 100 cc a day, if it can be done. Blood transfusions must be performed under the most careful manipulations and infused very slowly; if not, you will have a severe undesirable reaction.
 - c. Large dose of vitamins B and C. Fresh vegetables and fruits.
 - d. Calcium preparation; for instance, calcium chloride, Iodinen-calcium (calcium in glucose): 20 cc 1 - 2 times a day intravenously.
 - e. Liver preparation: raw liver, roast liver, or liver powder, etc.
 - f. Saline solution, Ringer's solution, 5% glucose solution: 500 cc a day subcutaneously. Avoid infusions of these solutions directly into the veins.
 - (3) Slight cases (slight epilation; epilated once, but already stopped, slight gingivitis or diarrhoea, or recovering stage of these symptoms, the white blood count 3,000 - 1,000).

Apply the above mentioned care of the moderate cases. Special attention must be taken to keep quiet. The symptoms may become suddenly worse in the recovering stage, even though the cause be slight.

2. To the patients, without any clinical symptoms.

(1) The persons who were in the circle of a radius of 2 km from the ground center at the explosion (in a circle, passing through the Hiroshima Station, HIJIRYAMA-mountain, MIYUKI-bridge, TEMMA-bridge, the YOKOGAWA-Station), must have immediately a medical consultation, if they have had some of the following symptoms since they were bombed, even though they had neither burn nor mechanical wounds. These persons are said now to be latent patients, for they can easily become ill in the coming 1 to 2 months by very slight causes. So they must take care of themselves under the advice of a doctor for it is necessary to recover condition of health as soon as possible.

- a. Vomiting or anorexia in several days after the bombing.
- b. To feel a remarkable general fatigue or to have felt it.
- c. Diarrhoea, like dysenteric, even slight.
- d. Sore throat.
- e. Slight epilation after 10 - 14 days, but it has ceased already.

(2) Among the persons who were in the area outside a radius of 2 km and inside of a radius of 4 km from the ground center, some were burned slightly, some were injured slightly by broken glass, etc., and others were not apparently injured at all. Even those uninjured persons may be really effected by the radioactivity. All these persons are, therefore, to be consulted by doctor at an early occasion and to be under the doctor's control. They must also take care of themselves, in avoiding over work, taking sufficient rest, having fresh vegetables, especially fresh fruits. The most important is, not to take cold and not to have digestive troubles in the coming 1 - 2 months.

3. Suggestions to the doctors, who are on duty:

As far as symptoms and treatment of the atomic bomb radiation injuries are concerned, it is clear by the former descriptions. Finally I would like to say something about the principles of medical care for the so-called latent patients. The severity of the radioactive effects is determined by the distance from the ground center. The persons who were in the circle of a radius of 500 meters from the ground center, have died for the most part already. The persons who were in the area between radii of 500 - 1,000 meters, are suffering now and the majority of them are showing very severe symptoms, many of them have died already. From the stand point of medical care, the persons who were in the area within a radius of 2 km from the ground center, must be under the same control as the slightly affected patients, even though they have no manifest symptoms. Especially great care must be taken to avoid working too hard, taking cold, or having digestive troubles, etc., which may be one of the direct causes for an outbreak of the sickness.

The persons who were in the area between radii of 2 - 4 km from the ground center, are affected also slightly. Their white blood counts may be around 4,000. These persons must take care of themselves in the coming 1 - 2 months and recover their health as soon as possible. These persons

will have weak resistance to muscular labor or an acute inflammatory disease. To these aspects we must pay special attention.

To diagnose the grade of the radiation damage, a count of the number of the white blood corpuscles in the peripheral blood is the most exact method. But in and around the City of Hiroshima at the present time, the white blood count is very difficult to be practiced sometimes it is almost impossible. The next best measure instead of a white blood count is a measurement of the sedimentation of the red blood corpuscles. Over 30 mm in one hour value will indicate a suspected patient, over 50 mm in one hour value a slight affected patient.

The treatment of radiation injuries in the second period has been described adequately in the foregoing part. In fact, by our personal experiences at the UJINA Branch Hospital of the Hiroshima Army Hospital of about 500 patients (mostly severe or moderate radiation injuries, without any remarkable burns or wounds, a few had slight burns or mechanical wounds), a relatively easier practical and effective method of treatment is an intramuscular injection of auto-blood. It is a help in stopping progressive change and stimulating regeneration of the blood.

The most important measure for the treatment of the atomic bomb radiation injuries is careful protection. All patients are effected more or less by the radioactivity, these must recover by their own vital power. In the cases in which the vital organs were damaged beyond their ability to recover, medical care at the present time cannot help. We may have some hope for recovery as long as any reserve power is remaining because the radiation exposure has occurred only once. We must, therefore, avoid such treatment as whipping a tired horse hastily. In other words we should not be over-confident in the ability of our medical care. Our aim shall always be a promotion of the natural healing powers.

ADDENDUM

List of the Reports on the Medical Studies, Presented
by February 28, 1946

- I. National Research Council, the Special Committee for the Investigation of the Effects of the Atomic Bomb.
 1. Preliminary outlines of the results of the investigations.
 2. Report (shorthand) of the first general meeting (11 Nov., 1945).
 3. Report (shorthand) of the second general meeting (28 Feb., 1946).
- II. Japanese Army.
 1. Army Medical School and the Tokyo First Army Hospital: Medical report of atomic bombing in Hiroshima.
- III. Japanese Navy.
 1. KURE Naval Station: Surveys of the atomic bomb at Hiroshima (general aspects).
 2. KURE Naval Station: Surveys of the atomic bomb at Hiroshima (medical aspects).
 3. KURE Naval Station, Medical Department: Studies on the biological action of the atomic bomb (the second report).
 4. KURE Naval Station, Medical Department: Studies on the biological action of the atomic bomb (the third report).
 5. KURE Naval Station, Medical Department: Studies on the biological action of the atomic bomb (the fourth report).
 6. National Research Council, Special Committee, Medical Section, Naval Team: A preliminary report.
- IV. Tokyo Imperial University, the Faculty of Medicine.
 1. MIYAKE: Preliminary report on the path-anatomical studies of the atomic bomb cases in the City of Hiroshima.
 2. NAKAO & others: Clinical observations of the atomic bomb patients at Hiroshima.
 3. MURATI & MURAI: Survey on the human damages in the typical strong constructed buildings at Hiroshima.
 4. MURATI & MURAI: Relations between the human damages and substances of the shelters at Hiroshima (1).
 5. KITAMOTO & ISHIKAWA: The human damages by the atomic bomb in a building at 200 meters from the ground center.
 6. URABE, OHASHI, UYEDA, HAKAMADA & NIKAIDO: Reports of the inspections of the cave-trenches around the hill of prison in the City of Nagasaki.
 7. URABE, OHASHI, UYEDA, HAKAMADA & NIKAIDO: Reports of the inspection of the casualties in the buildings of SHIROYAMA Public School at Nagasaki.
 8. URABE, OHASHI, UYEDA, HAKAMADA & NIKAIDO: Reports of the inspection of the casualties in the buildings of CHINZEI Middle School at Nagasaki.
 9. URABE, OHASHI, UYEDA, HAKAMADA & NIKAIDO: Reports of the inspection of the casualties in the buildings of FUCHI Public School at Nagasaki.

10. MASUYAMA: Stochastic studies on the atomic bomb casualties at Hiroshima. I. Death rate distance curve.
11. MASUYAMA: Stochastic studies on the atomic bomb casualties at Hiroshima. II. Death rate date curve.
12. MASUYAMA: Stochastic studies on the atomic bomb casualties at Hiroshima. III. Comparison of the death rate of male with that of female.
13. MASUYAMA: Stochastic studies on the atomic bomb casualties at Nagasaki. II. Death rate date curve.
14. KASHIMADO: Contribution to the problem of the causes of deaths of the atomic bomb victims.
15. The Medical Parties of the Tokyo Imp Univ: Reports of the surveys on the atomic bomb cases at Hiroshima.
16. OHASHI, URABE, UYEDA, HAKAMADA & NIKAIDO: Distribution of the symptoms of the atomic bomb patients at Nagasaki.
17. UYEDA & NIKAIDO: Timely distribution of the symptoms of radiation sickness at Nagasaki and the blood pictures after the second month.
18. NAKAO, KOBAYASHI & others: Hematological study on the atomic bomb disease.
19. NAKAO, OKOSHI, KAKEHI, TSUKADA, KATO & KAWAMURA: Statistical observation of the peripheral blood pictures of the atomic bomb patients in the 3rd and 4th months.
20. UYEDA & NIKAIDO: The attitude of the eosinophile cells in blood and bone marrow of the atomic bomb patients at Nagasaki, in the 3rd and 4th months.
21. AYUKAWA & others: Resistance of skin capillaries and their micrograms of the atomic bomb patients at Hiroshima.
22. KOBAYASHI & others: Disturbances of the function of liver and capillary of the atomic bomb patients.
23. FUKUDA & MATSUNABE: Disturbances of the function of liver of the atomic bomb patients.
24. KUBO & KITAMOTO: On the fever of the atomic bomb patients at Hiroshima.
25. KITAMOTO & others: Some statistics of fevers, fatigue feelings and complications of the radiation sickness.
26. KUBO: Surveys on malnutrition of the atomic bomb patients at Hiroshima.
27. URABE & MENJO: On cachetic condition of the atomic bomb patients at Nagasaki.
28. URABE & ENJO: Contribution to the cachetic condition of the atomic bomb patients.
29. KITAMOTO & AYUKAWA: Atomic bomb effects and tuberculosis of the chest.
30. KISHIMOTO: Gastro-intestinal tract, the TAKATA tests and urine examination of the atomic bomb patients at Nagasaki.
31. HINO: Chloride content of blood of the atomic bomb patients in the OMURA Naval Hospital.
32. YAMAMURA: Some clinical studies upon the atomic bomb patients at Nagasaki, in the OMURA Naval Hospital.
33. KAJITANI & ISHIBASHI: Clinical and path-anatomical studies on the scar tissues after the atomic bomb burns.
34. KUMABARA: Remarkable facts of the atomized patients at Hiroshima.
35. ASAKURA: Report of the atomic bomb patients at Hiroshima. (Protein of blood and sperm).

36. SIMIZ: Atomic bomb influence upon human sperm.
37. OKOSHI, ASAKURA & KASEKI: On the sperm of the atomic bomb patients at Hiroshima.
38. MITANI, ITO & others: Influence of the atomic bomb upon the sexual function of the females (an intermediate report).
39. KASHIMADO: Atomic bomb effects in the oto-rhino-laryngologic field.
40. SHOJI & FUKUOKA: Clinical researches of ocular affections caused by atomic bomb explosion at Hiroshima.
41. OKADA, SHIMAZOHO & HAKAMADA: On the brains of the atomic bomb victims.
42. AKIYAMA: The investigation of oral diseases of the atomic bomb patients at Hiroshima and ZAMBRINI-WATANABE's salivary reaction.
43. MIYAKE: Path-anatomical studies of 34 atomic bomb cases at Hiroshima and Nagasaki (the first report).
44. KAJITANI, HATANO, YASUDA, ISHIKAWA & GOTO: Statistical observation of the atomic bomb burn patients at Hiroshima.

V. Kyoto Imperial University, the Faculty of Medicine.

1. National Research Council, Special Committee, Medical Section, Kyoto Imp Univ Team: A preliminary report.
2. Research Commission of the Imperial University Kyoto: A preliminary report on the disaster in Hiroshima City caused by the atomic bomb.
3. KIMURA & others: Bacteriological researches on the serum of patients who were injured by the atomic bomb at Nagasaki.
4. INOUE & others: Clinical research for the atomic bomb injury, with special reference to the functional disturbance of the adrenal glands, the liver and the cause of the blister formation on the skin (primary report).
5. TSUDA & ADACHI: Hematological observations on 3 patients injured by the atomic bomb (about the regenerative blood pictures and the influence of the blood transfusion upon them).
6. Pathological Institute: Report on the atomic bomb effect at Nagasaki (the first report).
7. KIKUCHI & others: Clinic of the so-called radiation sickness (survey at Hiroshima).
8. KIKUCHI & others: Clinic of the so-called radiation sickness (survey at Nagasaki).
9. FUNAOKA & others: On the biochemical and physicochemical changes of the blood of the atomic bomb patients.
10. SHIMIZU & others: Electrocardiograms of the atomic bomb patients.
11. TOMITA & others: Studies on the skin capillaries of the atomic bomb patients.
12. NAITO: On the cerebrospinal fluid of the atomic bomb patients.
13. MINOGUCHI: Oral findings of the atomic bomb patients.

VI. Kyushu Imperial University, the Faculty of Medicine.

1. National Research Council, Special Committee, Medical Section, Kyoto Imp Univ Team: A preliminary report.
2. NAKAJIMA & ISHIKAWA: Investigation of injuring effect upon the human body by the explosion of atomic bomb at Nagasaki City.

3. KATSUKI & others: Survey of the radioactive influence by the atomic bomb which was used at Nagasaki, upon the inhabitants in the districts of CHIJIWA-town.
4. ONO, IMAI & others: On the pathologic anatomic changes in the atomic bomb disease.
5. ONO, IMAI & others: A supplementary report of the pathologic anatomic changes in the atomic bomb disease.
6. HIPOHATA & others: On some chemical constituents of the blood of the atomic bomb patients.
7. OTSUBO & ISHIZAWA: The report of hygienic investigation with regard to the continuous actions of damage in consequence of the atomic bombing at Nagasaki.
8. MISAO & others: Clinical observation of the atomic bomb disease.
9. MISAO & others: On a case of monocytes leukemia, occurring after the atomic disease.
10. KUSUNOKI & others: The research on atomic bomb victims.
11. SAWADA, KAIDA & others: The clinical investigation of the atomic bomb disease.
12. HIRAO: On the atomic bomb injury and the function of liver.
13. KOGA: Change of the gastric intestinal organs by the atomic bomb injury.
14. ENJOHJI & others: Atomic bomb disease in childhood.
15. ENJOHJI & others: The bacteriological and serological researches for diarrhea of atomic bomb disease.
16. TAMURA & others: The injuries of the eyes by the atomic bomb.
17. SASAKI & others: On the lesions of the rharynx and the larynx by the atomic bomb.
18. MINAMI: Dermatological view of the lesions caused by the atomic bomb.

II. Osaka Imperial University, the Faculty of Medicine.

1. FUKU SHIMA & others: The pictures of blood and bone marrow of the patients injured by the atomic bomb.
2. FUSE & others: Medical effect of the atomic bomb.
3. YASUOKA: The relation between flash burn and radiation sickness by the atomic bomb.

III. Nagoya Imperial University, the Faculty of Medicine.

1. SAITO: On the injured patients by the atomic bomb.

IX. Kyoto Medical College (Kyoto Prefectural).

1. NAKAGAWA: Case reports on patients caused by atomic bomb.
2. KURUSU: Report on the atomic bomb patients.
3. Pediatrics clinic: Case reports on the atomic bomb patients at Hiroshima and Nagasaki.

X. Okayama Medical College.

1. HAYAMOTO & YAMANOUCHI: Active SH-base of serum protein of the atomic bomb patients.

XI. Nagasaki Medical College.

1. Nagasaki Medical College (KOYANO, dean): The situation of the people in Nagasaki Medical College on August 9th, 1945.

2. Nagasaki Medical College (SHIRAI, prof.): Data of the statistical surveys of the casualties by the atomic bomb at Nagasaki.
 3. KOYANO & others: Memoranda on the self-experience of the atomic bomb as a medical man (Handwritings).
 4. CSUJIMA & others: Survey of the radioactive influence, caused by the atomic bomb which was used at Nagasaki, upon the inhabitants in the City of SHIMBARA.
 5. OKUDA: Santonin test on the liver function of the atomic bomb patients at Nagasaki.
 6. ICHINOSE & others: Shortening of the resorption time of a pomphus of the skin of the atomic bomb patients.
- XII. Kumamoto Medical College.
1. National Research Council, Special Committee, Medical Section, Kumamoto Med College Team: A preliminary report.
 2. KAMEDA: Report on the atomic bomb patients at Nagasaki.
- XIII. Osaka Medical School.
1. YAMAZAKI: On the late radiation sickness by the atomic bomb.
- XIV. Osaka Womens' Medical School.
1. Takahara: Oto-rhino-laryngological findings by the atomic bomb effect.
- XV. Yamaguchi Medical School.
1. OZAWA: Reports of the atomic bomb cases.
 2. YAMORI: Report of pathological research of the subacute atomic bomb cases at Nagasaki.
 3. MONDEN: My experience of the atomic bomb disease.
- XVI. Hiroshima Sanatorium, SAIJO-Town.
1. FUJII: The effects of the atomic bomb on the human beings at Hiroshima.
- XVII. Jikei Service Cooperation, Tokyo, and Shohara-machi Red Cross Hospital, Hiroshima Prefecture.
1. NISHIMARU & others: Atomic bomb effect and white blood corpuscles.
- XVIII. Kawakita Hospital, Tokyo.
1. HOSHI: Case reports of the atomic bomb disease.
- XIX. Railroad Hospital, etc.
1. MATSUFUJII: (Laboratory for the scientific research of physical and labor affairs): Survey of the members of the railroad service at Hiroshima.
 2. OKUTANI (MOJI Railroad Hospital): Case reports of the atomic bomb patients.
 3. HATANAKA (MOJI Railroad Hospital): Relation between the atomic bomb effects and menstruation.
 4. YOSHIMUR. & others (Nagasaki Administration Bureau): Report of the physical examination of the members of the railroad service at Nagasaki.

XX. Tokyo Imperial University, Institute for Infectious Diseases.
1. National Research Council, Special Committee, Medical Section,
Institute for Infectious Diseases Team: A preliminary report.

XXI. Institute of the Welfare Ministry.
1. National Research Council, Special Committee, Medical Section,
Institute of the Welfare Ministry Team: A preliminary report.