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INTERNATIONAL REVIEW of the Red Cross

VOICES AND PERSPECTIVES

After the atomic bomb: *Hibakusha* tell their stories

In this issue, the Review *has chosen to feature the voices of* hibakusha*, those who survived the nuclear bombings in Japan.** *These three* hibakusha *have shared their experiences with the hope that our readers will understand the horrors of nuclear weapons use. They have each suffered and witnessed the horrific suffering of others caused by nuclear weapons, and their families may continue to suffer medical problems for generations to come. Each calls for assurances that nuclear weapons will never be used again. These are their stories.*

Dr Masao Tomonaga *was born in Nagasaki and survived the detonation of the second atomic bomb on 9 August 1945. He later graduated from Nagasaki University Medical School, where he specialized in internal medicine and haematology. He was previously the Director of the Japanese Red Cross Nagasaki Atomic Bomb Hospital, and engaged in research on the after-effects of atomic bomb radiation on human health. He is now Chairman of the Nagasaki Global Citizen's Assembly for the Elimination of Nuclear Weapons and directs a clinic attached to the Atomic Bomb Survivors Nursing Home.*

* These interviews were conducted in Tokyo, Hiroshima and Nagasaki by Vincent Bernard, Editor-in-Chief, and Hitomi Homma, Communication Officer, ICRC Tokyo, on 10, 11 and 12 February 2015.

Dr Tomonaga, you were a small child at the time the atomic bomb was dropped on Nagasaki. What was your personal experience of the atomic bombing and its immediate aftermath?

I was born on 5 June 1943. At the time of the bombing, I was two years and two months old. That morning, I was sleeping on the second floor of our Japanese-style wooden house in a Japanese-style bed, when suddenly the blast from the atomic bomb crushed our house. Fortunately I was not harmed, maybe because I was protected by the bed itself and the ceiling of the house did not hit me directly.

After the blast, my mother, who had been preparing food, searched for me in the rubble of what had been my bedroom, and found I was still sleeping in the bed. She got me out of the ruins of our house, which burned to the ground ten to fifteen minutes after the initial blast. These are the dual physical effects of an atomic bomb: first the blast and then the fire. A huge fire broke out in the area where my house was after the blast. My mother and I escaped to nearby Japanese shrine, where we spent one night. I have no memory of this experience because I was very young; my mother told me the story when I became older.

At the time, my father was serving in the Japanese Army Air Force and was stationed in Taiwan. From Taiwan, he heard that first Hiroshima and then Nagasaki had been totally destroyed by two new atomic bombs. He thought his family had perished in Nagasaki until about a month later, when he got a letter from my mother telling him that we were alive.

My father was captured in the war and held as a prisoner in Taiwan, so even after he learned we were alive, he could not come back to Nagasaki right away. Since he was a military doctor, he was allowed to practise medicine for people near the air force base where he was detained. He spent a year and a half there before he was allowed to return to Nagasaki. After his return, he became an associate professor of the medical school, his *alma mater*. When he started to practise medicine again, he found that there was a rapid increase in leukaemia among atomic bomb survivors, especially children. Over time, as a doctor treating patients in Nagasaki, my father inevitably became a specialist in treating atomic bomb survivors.

Based on this account, one might say that you continued the work of your father. Is he the one that inspired you to specialize in the effects of radiation?

Yes. When I was in high school, I began to think I should become a doctor, like my father. I decided to become a medical doctor when I learned that there was such a rapidly growing occurrence of leukaemia among children who survived the atomic bomb. I wanted to become a specialist in medical research into the health effects of the atomic bomb.

I was also interested in the effects of radiation because I wondered if I was affected by the atomic bomb. The rapid increase in leukaemia cases made me somewhat concerned about the effects of radiation on my own body when I was

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studying to enter medical school. After I began medical school, I started to learn more about the atomic bomb's effects.

Although I was worried, I never suffered from the effects of the atomic bomb, probably because my house was located just over 2.5 kilometres from ground zero. This area was estimated to have a very low dose of radiation, fortunately – only 20 millisievert.

When did you start working in the Red Cross Hospital in Nagasaki, and what type of work were you doing there?

In Hiroshima, there was already a Red Cross hospital when the atomic bomb was dropped there in 1945. In Nagasaki, there was no Red Cross hospital at the time of the bombing, but in 1958 the Nagasaki Red Cross Hospital was established especially for atomic bomb survivors because by that time survivors in Nagasaki had become very anxious about the frequent occurrence of leukaemia.

The (then rather small) hospital was established by the Japanese government, Nagasaki Prefecture and Nagasaki City, in cooperation, and was given to the Japanese Red Cross Society. Since then, the hospital has grown to twice its original size. After the initial wave of elevated rates of leukaemia, which continued for about fifteen years, a second wave of solid cancerous tumours began. Increased occurrence of these cancers still continues today and causes great suffering for atomic bomb survivors and their families.

Research shows that "short-distance survivors" – those who were located within 1.5 kilometres of the hypocentre of the blast – have an average rate of leukaemia about fifty times higher than the average rate of leukaemia occurrences among distant survivors. This was the first finding of an atomic bomb radiation-induced disease, leukaemia.

Who are the main victims of this increase in cancer rates?

Atomic bomb survivors themselves are the main victims of the increase in cancer rates. The atomic bomb's effects on the second generation, the children of survivors, are still not clear. So far studies of the genetic effects of atomic bomb radiation, meaning the second-generation effects, show no increase of leukaemia or other cancers among children born to atomic bomb survivors, but we must be very careful in drawing conclusions; these children are still rather young, mostly in their 50s. Soon they will enter the cancer-prone age, meaning their 60s and 70s, and rates of cancer may increase. We are still carrying out intensive research on whether cancer rates will increase among survivors' children. That said, there has already been animal research studying rats and mice showing a positive correlation between irradiation of parent mice and subsequent malformations in the second generation, as well as cancerous tumours.

The initial leukaemia peak disappeared after about fifteen years, but to my surprise a second leukaemia peak is now appearing, this time among the survivors

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who were children younger than ten years old at the time of the bombing. They are now approximately 85 years old. These survivors develop a special type of leukaemia, called MDS,[1] which occurs in the elderly.

It is very clear that the atomic bomb affects the human body for a lifetime, which means that the atomic bomb radiation affected survivors' DNA. Double-strand DNA is the driver of the cells that make up the human body. Radiation from the atomic bomb injured these double-strand DNA and, while still hot from the radiation, the damaged DNA erroneously re-coupled, developing malignant genes, or abnormal gene fusions that cause various cancers, including this second type of leukaemia, MDS.

Going back to the explosion of the atomic bomb, we know it caused massive damage and destruction, which you yourself survived and have learned about through your mother. What were the immediate, short- and long-term medical consequences for the survivors of the atomic bomb?

The Nagasaki medical university was left in ruins. It is located only 600 metres from the hypocentre. Nine hundred professors and medical students were killed almost instantly, and the university hospital, which was the largest hospital in Nagasaki, was completely destroyed by the bomb. Because of this, there was no meaningful medical care available for surviving *hibakusha* immediately after the atomic bomb was dropped.

To further complicate matters, for a few days no medical rescue could reach those affected. Heavily irradiated survivors of the atomic bomb all died within one to two months because there were no effective treatments, not even antibiotics or blood transfusions, and because the infrastructure was totally destroyed, including hospitals and pharmacies. Although those survivors exposed to radiation within 1.5 kilometres of the hypocentre were treated as best as they could have been under the circumstances, many, many survivors died in the immediate aftermath of the bombing.

Within 1.5 kilometres of the hypocentre there were significant short-term medical effects, such as destruction of bone marrow and mucosa, or colon surface, which causes bleeding and infections for a few months.

In addition to suffering short- and long-term illnesses caused by radiation, survivors who were hit by the blast had burns, broken limbs and similar injuries – is there a higher proportion of disabled people in Nagasaki than in other cities in Japan?

Most survivors suffered burns. One woman I personally was acquainted with, who died a few months ago in the nursing home, suffered severe burns on her

1 Myelodysplastic syndrome.

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INTERNATIONAL REVIEW of the Red Cross

whole face, and when it healed the entirety of her face was covered with scar tissue with keloid formation. Because of this she lost her chance of marriage at a very young age.[2]

Harsh medical consequences such as severe burns and fractures and other bodily injuries, for example due to broken glass, were typical effects of the atomic bomb blast. Some people were struck by so many shards of broken glass that some of the glass had to be left inside their bodies.

People near the blast itself suffered burns. People who were much further away from the hypocentre at the time of the blast suffered other injuries. A British Navy research team came to Nagasaki and observed the *hibakusha*. One officer wrote that each victim was killed three times: once by the blast, once by the heat, and once by the radiation. If an individual was closer to ground zero, her whole body became charcoal. Those terribly burned victims received a lethal dose of radioactivity as well as heat radiation, and also fractures.

Elderly survivors may not have relatives to care for them, and you mentioned the fact that one woman was unable to marry because of her injuries. What other non-medical consequences were caused by the atomic bombing?

Nagasaki University doctors performed extensive psychological research in 1995, on the occasion of 50th anniversary of the atomic bombing. We found that about 7,000 survivors showed a very high incidence of depression and post-traumatic stress disorder after fifty years, a very large-scale psychological consequence. They suffer from flashbacks to the memory of the bombing, causing their mental health to deteriorate. This was the first data about psychological research. I showed this data at the first Conference on the Humanitarian Impact of Nuclear Weapons, held in Oslo in 2013.[3]

There are also other non-medical effects. First of all, there were financial or economic problems. Most of the survivors lost their houses and belongings and became destitute. In the first five to almost ten years, no economic help was provided by the Japanese government. Because of this, survivors united to protest to the government, asking for hospital and medical care as well as economic support. That was the beginning of the survivors' movement, whose long history of protest still continues today. Survivors want the government to admit that their present condition, physically, mentally and socially, is due to the atomic bombing.

2 Dr Tomanga spoke more about this woman in his presentation "The Lifelong Health Effects of Atomic Bombs by Immediate DNA Damage", Conference on the Humanitarian Impact of Nuclear Weapons, Oslo, 4–5 March 2013, available at: www.regjeringen.no/globalassets/upload/ud/vedlegg/hum/hum_tomonaga.pdf.

3 *Ibid.*

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When the Nagasaki Atomic Bomb Hospital was established in 1958, the Japanese government initiated a medical care system for all survivors. Medical costs were compensated almost completely, even for dental treatment. Survivors are given a booklet that they can show at the hospital when admitted to get free medical care. Moreover, those survivors receive a monthly payment of about around $270 to cover additional health costs.

Those survivors who have developed cancers and those who were located less than 2 kilometres from the centre of the blast, meaning they were exposed to moderate to high doses of radiation, get additional financial support amounting to around $1,000 per month. There are still about 200,000 living survivors who can benefit from this in Nagasaki and Hiroshima combined. This number is decreasing because as time passes, the number of living survivors is dwindling. About 90% of them receive the monthly medical care payments and maybe 10% of the total survivor population receive additional monthly financial support. There are very strict conditions that must be met in order to receive the additional financial support, and there are still many survivors who sue the government and the Ministry of Health for additional financial support.

How were the survivors treated by the rest of the Japanese people? Is there any stigma to having been in Hiroshima or Nagasaki when the cities were bombed?

There was some social stigma. Some people could not get married in the very early recovery phase, in the 1950s and early 1960s. Many people who were not exposed to the atomic bomb were hesitant to allow their sons or daughters to get married to atomic bomb survivors. That was a kind of social discrimination. But gradually this segregation disappeared and many survivors could have a normal family life. It took almost ten years to reach an understanding of the effects of the atomic bomb. Some people were heavily affected – those who were located a short distance from the centre of the blast – but those who were some distance away seemed fine. Once this was widely recognized, there was no more of such discrimination in allowing marriage with survivors.

I myself never personally experienced any social stigma, but the woman I mentioned earlier who suffered severe burns on her face could not get married and could not get hired for normal jobs. Eventually she became a housekeeper at the university hospital. Her salary was very low. Every day for her whole life, she swept all the corridors at the hospital until she was 65 years old, when she moved into the nursing home. She had a very lonely life, but when she was about 50 years old, she decided to talk about her experience of the atomic bombing. She became a very famous protester against the atomic bomb. She was even invited to visit the Pope in Rome. That was an extremely happy point in her life. But it took more than forty years for her to feel comfortable talking about her experience, and she did so only because she felt that otherwise the world would never eradicate the atomic bomb.

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You spent your career treating people in Nagasaki who were affected by the atomic bomb, primarily those who survived the bombing itself. Are you still treating survivors?

I spent almost forty years as a specialist at the university hospital. After I retired from the university six years ago, I was appointed director of the Japanese Red Cross Nagasaki Atomic Bomb Hospital. I worked there five years, and retired this March. Now I am the director of a clinic attached to the Atomic Bomb Survivors Nursing Home, taking care of about 400 elderly atomic bomb survivors who have no family to care for them because so many of their family members were killed by the atomic bomb. At this clinic I am still providing medical care for these elderly survivors similar to the care I provided when I was working at the Atomic Bomb Hospital.

With more than seventy years of life experience in and around Nagasaki, what are some of the main lessons you would draw from your experience treating and interacting with survivors? Are there any lessons learned that you can pass on?

It has been seventy years since the atomic bombing, and I have become a specialist in the medical consequences caused by it. As a scientist, I have noted the lifelong effects of atomic radiation on the body, DNA and genes.

I have unique viewpoint in two ways: as a survivor myself, and as a scientist, a medical doctor who can see the effects at the DNA level. By combining these two points of view, I see that we as human beings are facing very serious questions about nuclear technology.

Human civilization developed nuclear fission technology, which became, on the one hand, nuclear weapons, and on the other hand, nuclear power stations. This innovation brought a very meaningful energy source as well as a very destructive and inhumane weapon that has horrific effects on the human body. These are the two faces of nuclear technology. The outcome of my seventy years of observation is that the Japanese population, as well as the rest of the world's citizens, need to seek a way towards world peace, without nuclear weapons.

Photograph by Jeff Cooke, © ICRC.

Mr Sadao Yamamoto *was born in 1931 and was 14 years old when the atomic bomb was dropped on Hiroshima on 6 August 1945. He was approximately 2.5 kilometres away from the hypocentre when the bomb exploded. He has since become an advocate for the abolition of nuclear weapons through sharing his story. In 1970, he conducted the first performance of* Ishibumi – Requiem for a Male Chorus, *in honour of the first-year students who were killed in the atomic bombing of Hiroshima. It has been sung every year since, and to mark the*

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70th anniversary of the atomic bomb being dropped on Hiroshima, the original choir sang the requiem in 2015.[4]

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Mr Yamamoto, you were in junior high school at the time the atomic bomb was dropped on Hiroshima. How do you remember Hiroshima before the atomic bomb was dropped? What was your daily life like? What happened in the days before the atomic bomb was dropped?

We did not have major air raids in Hiroshima prior to the atomic bomb. There had been two small air raids where a bomber flew over the city and dropped small bombs; another time, a B-29 plane flew over Hiroshima and dropped about ten bombs in the city centre. Other than that, there were no major air raids, so in those days it was oddly kind of peaceful. At night sometimes we had air-raid warnings and we would have to cover the lights with black cloth and go into the air-raid shelters. During the daytime we had ordinary, regular lives.

When the bomb was dropped, I was in the second year of junior high school. 140,000 people died because of the atomic bombing, including many students like myself. At that time, the population of the city of Hiroshima was about 350,000, including the military personnel stationed there and those who came from outside of the city; as much as 40% of the total population died in the bombing.

At that time, students from the elementary school in the third through sixth grades were evacuated to the countryside because of the air raids. First- and second-grade students were considered too young to be separated from their families. There were only three schools left in Hiroshima: one was the two-year high school, another was the boys' junior high school, and the third was the girls' junior high school. When they were not at school, the junior high school students were mobilized to work at the munitions factories and other military facilities. The third year to fifth year of the junior high students mainly worked at the munitions factories. There were many small munitions factories in the city, but the major ones were located relatively far from the hypocentre. The first-year and second-year junior high school students, like myself, were engaged in building demolition, which was carried out in the centre of the city. We would tear down buildings to make fire lanes to prevent fire spreading after air raids. It was tough work. Adults tore down the buildings, and students would clear the debris.

These building demolitions were carried out in the centre of Hiroshima, and the students were mobilized from almost all over the city. This meant that a lot of students in the first and second year of junior high were victims of the atomic bomb because they were working in the area directly surrounding the

4 Mr Yamamoto has given testimony for the Hiroshima Peace Culture Foundation, which can be read on the organization's website. Sadao Yamamoto, "1st and 2nd Year Students at Hiroshima Second Middle School – A Difference of Life or Death", *Peace Culture English Newsletter*, No. 72, January 2015, available at: www.pcf.city.hiroshima.jp/hpcf/heiwabunka/pce72/English/08E.html.

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INTERNATIONAL REVIEW of the Red Cross

hypocentre. Concretely, 8,187 students were mobilized in building demolition work with 176 teachers from thirty-five schools in the city. Out of these, 6,295 students and 132 teachers were killed by the bombing. This means that almost 77%, or three out of four, of the total mobilized students were killed. All of the older students from the schools who were mobilized to work in the demolition works near the hypocentre were killed.

Today, in the Peace Memorial Park, along Peace Boulevard, there are three monuments in memory of the student victims of the atomic bomb. One of them is for my school, the boys' school; another is for the shipbuilding technical high school, and the third is for the girls' school. The largest number of victims came from the girls' school, from which all of the first- and second-year students, 544 students in total, were killed by the bombing, along with seven teachers. At my school, 321 first-year students were killed by the bombing, along with four teachers.

At my school, the first-year students and second-year students alternated classes and work, attending classes and engaging in building demolition work every other day. The day prior to the bombing, 5 August, our second-year students went to work and the first-year students attended school. On that fateful morning we were scheduled to attend classes, but the day before a teacher told us not to go to school the following day, but instead to gather at the eastern drill grounds instead of going to school to weed the potato field there. I believe that determined our fate.

The location where the first-year students were working was on the riverbank, behind a building about 600 metres from the hypocentre of the explosion. The eastern drill grounds where the second-year students had gathered were about 2.5 kilometres from the hypocentre, near the Hiroshima station. This difference in distance from the hypocentre was the difference between life and death. All 321 of the first-year students were killed. The second-year students were burned all over our bodies, but none of us were killed.

Where were you when the atomic bomb was dropped on Hiroshima? What was your personal experience of the atomic bombing and its immediate aftermath?

On 6 August 1945, at 8:15 a.m., the time of the bombing, I was in the east drill ground, and at that time we noticed there were three B-29 bombers flying over the sky from the southeast. There had been an air-raid warning, but it had been cancelled and there were only three planes, so we thought they must be doing reconnaissance.

We looked up into the sky and noticed that suddenly, after flying over the city, those planes turned around and flew away, which was strange. At that moment, we heard a roaring explosion and all of us were blown back onto the grass by a shocking wave of heat. I was knocked unconscious. After I came to and stood up, I noticed that in the direction of the Hiroshima train station, there was a huge, pink pillar of fire. We thought the station must have been bombed.

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The left sides of our faces were burned. Those burns were treated with vegetable oil because in those days it was believed that applying vegetable oil would prevent bacteria from entering our bodies. After we received that treatment, we fled with our friends to the shrine on the nearby mountain because we were afraid that another bomb would be dropped. There were already some adults at the shrine, and they told us not to go outside because it was too dangerous, so I hid inside with some of my classmates. When there was no sign of another bomb we went outside to see the city, but all we could see was white smoke. Then gradually we could see that the houses and buildings were burning down, including the elementary school.

By around three or four in the afternoon, the fire had died down. I decided to go back to my house. It was about a kilometre from the evacuated area. Everything was burning in that area. I saw the house completely destroyed. The tatami mats covering the floor were lifted up, and it was all messy. Fortunately, my family was all right. My elder sister, who had been mobilized, also came home. My father was lucky because he was at work at the time of the explosion inside a building only about 680 metres from the hypocentre, but fortunately he was on the other side of a thick concrete wall inside the building so he was not injured. The building then caught fire and burned down. He was one of the few survivors.

What happened to the first-year students from your school? How did this inspire you to advocate for an end to nuclear weapons?

The first-year students at my school were engaged in building demolition work a little more than half a kilometre from the hypocentre. The atomic bomb exploded at a height of 600 metres above the ground, and it is said that the temperature on the surface of the ground around the hypocentre reached 3,000 to 4,000 degrees Celsius, an unimaginably high temperature, in an instant. It must have been a living hell for all of them. I had thought that everyone was killed on the spot instantly, but twenty-four years after the bombing, in the fall of 1969, a TV drama named *Ishibumi* was aired by the local TV station, based on the story of what happened to those first-year students after the bombing. In Japanese, an *ishibumi* is a stone monument bearing an inscription, like the one in Hiroshima inscribed with the names of the victims. The next year, a book of the same title was published, depicting what happened to the first-year students.[5]

I was astonished to learn that of the 321 first-year students, about a third were killed on the spot and some of them drowned in the river, but the rest of them, some of them severely burned all over their bodies, walked several kilometres to attempt to get back to their homes out of an ardent desire to see their parents. Some twenty students instead tried to go back to the school, led by

5 "Monument", *Wikipedia*, available at: https://ja.wikipedia.org/wiki/%E3%81%84%E3%81%97%E3%81%B6%E3%81%BF (in Japanese).

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INTERNATIONAL REVIEW of the Red Cross

a teacher. Some died on the way. Others jumped into the river, singing war songs together for encouragement.

After I watched that TV programme, I determined that it was necessary for me to share the tragedy of the first-year students of my school with the next generation in musical form. I asked a student from that year to write a song. The song is called *Requiem Ishibumi*. At the time, I was a conductor for a male chorus. On 2 October 1970, we presented *Requiem Ishibumi* on the spot where the Hiroshima city public hall once stood. The monument for the victims from my school stands on the riverbank, so we performed with the door open to the river and dedicated our song to the souls resting at the monument. Now this song is sung by the chorus group from the school every year. In 2015, the original members of the chorus will sing the song to mark the 70th anniversary of the atomic bombing.

You have told us about your experience and the experience of other students on 6 August 1945. What did you observe in the immediate aftermath of the atomic bomb? Were there lots of people helping each other?

Right after the A-bomb was dropped, because of the blast and the heat, I was blown off into a field. All of the second-year students were scattered; I do not remember where my friends went. The teachers did not tell us anything, and as I said, we went to the shrine on the hillside, because it was in the forest and my friends and I thought it was safer.

There was an army transportation unit near the Hiroshima port, and they were given an order to help the survivors at around 8:15, immediately after the bomb was dropped. But the central part of Hiroshima was engulfed in a big fire, making it difficult to go into the city centre to give relief. I heard that all they were able to do was take care of the people who were fleeing from the city centre. There is an island near Hiroshima called Ninoshima Island, and on Ninoshima Island there is an army quarantine facility. Many survivors were shipped to the facilities on Ninoshima. Many people came to Ninoshima from the surrounding area to look for their family members. Eventually the relief teams came into the city to give support.

What was your experience in the following days and weeks? Did you leave the city or did you stay there and try to look for your relatives?

After the bomb, all the people who were able to flee had fled. Many of those who could not escape died in the burning city. My aunt, one of my mother's younger sisters, was in the Hondori Street area, about 400 metres from the hypocentre. On the day after the bomb was dropped, my mother told me to go there to see what was happening to her family. The house was still on fire. There had been some people there, but now all that was left were charred bones. One person I saw was just a skeleton, but the bones were on fire.

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I did not find my aunt. I did eventually find her son, one of my cousins, who told me what had happened to his family. My aunt's husband was apparently not injured but was accommodated in the facility on the island of Kanawa-jima Island in Hiroshima Bay. I went there to see him. He didn't have any visible injuries, but we heard later that he was moved to another facility where he died six days later due to the intense radiation he suffered, even though he seemed OK when I saw him. My aunt was 400 metres from the hypocentre when the atomic bomb was detonated, and was also exposed to radiation. She died on 14 August 1945.

You have lived in Hiroshima for your entire life. What long-term consequences have you observed? Were you scared that you had been exposed to radiation yourself?

Already in 1945 we knew from the newspapers that the bomb had been an atomic bomb. Japanese newspapers talked about the bomb being an atomic bomb for the first time after Japan accepted the Potsdam Declaration and surrendered, probably on 15 or 16 August, but at the time I did not know anything about radiation – I only knew an atomic bomb was a big bomb. Later in life, after I learned about the health effects of radiation, I was afraid I would develop cancer from the radiation. Mostly I was afraid of leukaemia.

What lessons can be learned from the unimaginable suffering caused by the atomic bomb? What message do you have for the future?

Many people, including the many young students I have spoken about, were killed by the atomic bombing. We should never repeat the tragedy. I hope that we will have a peaceful world without wars and without nuclear weapons, and through this kind of testimony I am making every effort towards that goal.

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Mr Yoshiro Yamawaki *was just 11 years old when the atomic bomb was dropped in Nagasaki. He and his twin brother were about 2.2 kilometres from the hypocentre. He has since become an advocate for the elimination of nuclear weapons and hopes that in sharing his experience he can prevent others from having to suffer the effects of nuclear weapons. In 2010 he was appointed as a Special Communicator for a World without Nuclear Weapons by the Japanese government.*[6]

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6 Mr Yamawaki has given his testimony at the Nagasaki Atomic Bomb Museum. You can read another version of that testimony on the Nagasaki Atomic Bomb Museum website. Yoshiro Yamawaki, "The Unforgettable Experience of the Atomic Bombing", available at: http://nagasakipeace.jp/english/survivors/yoshiro_yamawaki.html.

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INTERNATIONAL REVIEW of the Red Cross

Mr Yamawaki, you grew up in Nagasaki and were there on the day the atomic bomb was dropped. Can you describe your experience? What was Nagasaki like in the days and weeks prior to the atomic explosion?

I was in the second grade of elementary school when Japan started the Pacific War. When the newspaper and the radio reported that Japan had drawn battle lines with the United States and Britain, many Japanese citizens believed that Japan would achieve victory because from the time we were young, we were instilled with the idea that Japan was the land of God. However, as the war went on, the inevitable defeat of Japan became clear. The war was still going on when I entered the sixth grade, and it was during summer vacation of that year that the atomic bomb was dropped on Nagasaki. I was exposed to the atomic bomb while at home, some 2.2 kilometres from the hypocentre of the explosion.

Let me first tell you about my family back then. My father, who was 47 years old, worked as an engineer for the Mitsubishi Electric Corporation. My mother was 37 years old and there were seven of us children, including myself. My oldest brother was 14 years old and a third-year junior high school student. My twin brother and I were 11 years old and in sixth grade at the elementary school. I had two younger sisters and two younger brothers as well. H owever, in my family, it was only my father and we three older boys who were in Nagasaki on the day the atomic bomb was dropped, and who suffered its effects.

US Air Force Lockheed fighters and Grumman fighters attacked Nagasaki three times two weeks before the atomic bombing. During the last of those attacks, bombs were dropped on Inasa International Cemetery, which was near my family's house. The blast caused some big gravestones to break through the roof and fall into my house. My mother was shocked by the incident. She took my younger brothers and sisters and went to her mother's home in Saga the day before the atomic bombing.

What happened on the day that the atomic bomb was dropped on Nagasaki? Where were you on that day, and what did you experience?

On the morning of the atomic bombing, my father, my brothers and I woke up at home. My mother had already evacuated to the countryside with my four younger siblings. After getting breakfast, our father went to work as usual. My older brother, who was in junior high school, went to the weapons factory where he was working as part of the mobilized student forces. The two of us twins stayed at home because it was summer vacation and there was no school.

Until just before 11 o'clock, we were out on the veranda. Then we got hungry and went into the sitting room in the back of the house. While we were sitting there at the table, a whitish-blue light shot across the room. Then came a roar that seemed to shake the whole house. The two of us got down on the tatami mat and covered our eyes, ears and noses with our fingers, just like we

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had been taught to do. In that position, with plaster from the walls and other debris falling down on top of us, I remember thinking that a bomb had directly hit our property and that we would probably be buried alive there.

The falling debris didn't continue falling for long, however. After a few minutes I heard the voices of people in the neighbourhood, screaming and crying. Remaining on the ground, I lifted my head up and looked around to find that everything had completely changed. Almost all the furniture had been mangled and tossed around. The walls had come crumbling down, and in every room the tatami-mat floors were covered with dirt and debris. If my twin brother and I had not moved from the veranda to go to the sitting room five minutes before, we most likely would have suffered horrible wounds from the heat rays and the blast.

The roof had been blown off, and we could see the sky. The pillars and walls were embedded with large numbers of sharp-edged fragments of broken glass. The other houses in the neighbourhood were in the same state of destruction. Across the harbour, the central part of the city was covered in clouds of dust.

My twin brother and I evacuated to the bomb shelter in our yard, where we waited for our father and our older brother to come home. About an hour had passed when our oldest brother arrived home from his factory. He told us that it was too dangerous to stay in that small bomb shelter and that we should move to a larger one nearby.

The bigger bomb shelter, which was like a tunnel carved into the cliff-side, was filled with mothers and their children. Children who were outside when the bomb detonated had been showered with heat rays and had suffered burns on any exposed skin. Other children were crying because they had been injured by shards of glass and other fragments that had been thrown by the blast. We spent that entire night waiting anxiously for our father to come back. By the next morning, however, he still hadn't returned. At that point, the three of us went to find him.

What did you see when you ventured out into the city? What were the immediate needs of the people in the aftermath of the atomic bomb?

The primary concern of survivors was to look for family members. Right after the bombing, people began to look for their relatives. In terms of medical needs, as you can imagine, the hospitals were destroyed, but a relief centre had been established in an elementary school. The medical workers were also injured and there was no medicine, so they fetched water from the ocean and boiled it to put on the injuries. It was the best that they could do. More sophisticated medical assistance was not available. There was a hospital set up by the Japanese army in the late afternoon of 9 August that had some medicine and a few medical workers, but it was not a very sophisticated hospital.

The second thing that the survivors were concerned with was a shortage of food. There was no allocated food delivered by the government, so survivors

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ate whatever they happened to have in the house or asked their relatives to send food.

Another thing that survivors suffered from was the lack of shelter. With their houses destroyed, people did not know where to go. The northern part of Nagasaki city was completely destroyed. Some people lived underground in bomb shelters. Others collected pieces of wood from the ground and built makeshift shelters.

What did you and your brothers observe when you went looking for your father? What happened when you eventually found him?

The damage we saw grew worse and worse as we continued on to look for our father. The houses near the roadside had all burned to the ground. Even those trees and electric poles that remained standing were scorched. The factories on the other side of the river now looked like masses of crushed wire, with only the largest of their columns left standing.

There were many dead bodies amongst the debris littering the roads. The faces, arms and legs of the dead had become swollen and discoloured, causing them to look like black rubber dolls. As we stepped on the bodies with our shoes, the skin would come peeling off like that of an over-ripe peach, exposing the white fat underneath.

There were many dead bodies floating in the river as well. We were drawn to one that belonged to a young woman of about 18 or 19, from which a long white belt was dragging behind. When we got closer, we saw that this white belt was really her intestines, which were protruding from the side of her abdomen. Feeling nauseous, we turned our eyes away and hurried off in the direction of our father's workplace.

When we had come within about 100 metres of the factory where our father worked, my brother suddenly screamed out and stood paralyzed with fear. I looked over his shoulder to see a boy of 6 or 7 who had died with something white hanging out of his mouth. At first glance, it seemed to me that he had been vomiting up noodles when he died. Looking closer, however, I realized that the roundworms that had been living inside his body had come shooting out when he died. We ran away, fighting back our nausea.

Our father's factory had been reduced to nothing but scorched metal framing. Through the demolished walls we saw three men working with shovels. We called out, "Our name is Yamawaki. Where is our father?" One of the men glanced over and said, "Your father is over there." He pointed in the direction of the demolished office building.

The three of us dashed off in the direction he had pointed to. What we found there was our father's corpse, swollen and scorched like all of the others. As we stood there stunned, the men with the shovels told us that if we wanted to take our father back home, it was better to cremate him there first. The crematories had also been destroyed in the bombing and could not be used. Not

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knowing what else to do, we went around the scorched ruins of the factory and gathered up smouldering pieces of wood so we could perform the cremation. We put our father's body on top of a bed of burned posts and then piled up the pieces of wood on top of him. When we lit it on fire, the flames rose high in the air. We put our hands together to say prayers for him. When we looked up again after finishing our prayers, we saw both of our father's feet were sticking out from the fire. That was an absolutely unbearable thing to see. Our feelings must have showed because the man from the factory told us we had better go home for the day and come back the next day to collect the remains.

The next morning we looked around the kitchen area of our demolished house for a pot to put our father's remains in. We found one and the three of us took it along with us as we went to collect our father's remains. It was very strange but we were not scared at all by the corpses that we saw any more. We thought of them as no more than objects that blocked our way as we walked.

When we arrived at the place where we had cremated our father's body, however, a shock awaited us. The body still remained as it had been the day before, in a half-cremated state and covered over with ash. There was no one from the company around. We three brothers only wanted to collect our father's cremated bones, but his half-burned body was lying exposed. The only parts of his body that had been cremated were the tips of his hands and feet and part of his stomach. We could only pick out a few of his bones.

This body, which was like a skeleton covered in ash, was far more gruesome than the corpse of someone just deceased. It was even more unpleasant when we thought about how this body belonged to the same father we had always talked to and eaten meals with. It got so that I could no longer bear to look at our father's body and I said to my brother, "Let's go home now and leave his body here."

Thinking back on that, I know that it was not the right thing to do. My brother looked at our father's body for a while longer and then said that there was nothing more we could do except to take his skull home. My brother had brought tongs, but when the tongs touched our father's skull it crumbled apart like a plaster model and the half-burned brains came flowing out. Letting out a scream, my brother threw down the tongs and darted away. The other two of us ran after him. There were the circumstances under which we forsook our father's body. I think that all people who lost family members and others close to them in the atomic bombing went through experiences similar to this. There were approximately 74,000 people who were killed in an instant by that one, single atomic bomb.

These are scenes from the atomic bomb that will never leave my mind. My mother, who had gone out to the country with the younger children on the day of the atomic bombing, passed away eight years ago at the age of 97. My brothers and I never told her the details of what happened when we went to retrieve our father's remains. One reason why we didn't tell her was that she was, in fact, our stepmother, who had taken care of us since our biological mother passed away when my twin brother and I were 2 years old.

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Do you still suffer from anguish because of the things that you witnessed? Does giving testimony like you did today help you to overcome that?

I still have those images and visions, and I am still suffering from them. When I see something like an image of a skull, it reminds me of my father's skull, and when I see something like a long, white cloth, it reminds me of the dead woman floating in the river. The testimony itself does not help me to overcome those emotions and the visions, but later the teachers and students send letters to me. That is my encouragement. It keeps me going.

In the years since the bombing, did you or your brothers experience any long-term health effects because of the atomic bomb? Did you receive any medical care?

It was not until many years after the atomic bomb was dropped that I learned about the effects of radiation. Before then I had no knowledge about the radiation and its effects. I believe that the majority of the people in Nagasaki did not know what radiation was.

In the aftermath of the bombing there was a special examination of the effects of the radiation by the US Atomic Bomb Casualty Commission [ABCC]. The ABCC was not there to examine the health conditions. They came to survey the conditions that were caused by the radiation and collect data rather than to make individual medical check-ups. The ABCC team came and they examined those who were severely injured, but the Japanese government health benefits came into effect only twelve years later. That is how much time it took for them to acknowledge that the atomic bomb survivors needed special health care.

When I was 35, I began to have liver and kidney problems. Because of these health problems I have been admitted to Nagasaki Atomic Bomb Hospital fifteen times. I was given interferon and other treatments, which I am still receiving.

I was granted an Atomic Bomb Survivor's Health Book Certificate, qualifying me for health-care benefits, and eventually was diagnosed with stomach cancer. I went through surgery to treat my cancer in 2008 and 2010 at Nagasaki University Hospital. After the surgeries I have continued to go to the Atomic Bomb Hospital to be treated for my disease. My oldest brother and my twin brother have also been diagnosed with cancer.

You have been appointed as a Special Communicator for a World without Nuclear Weapons to act as a spokesperson for survivors. As a spokesperson, what is the main message you want to transmit? In particular, what message do you want to transmit to young people?

The then prime minister, Naoto Kan, appointed me as a Special Communicator for a World without Nuclear Weapons in September 2010. This was something I had not

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expected. In this role, I have testified about my atomic bomb experience to high school and junior high school students in the United Kingdom and to members of the United Nations Fellowship Programme.

The most important thing that I would like to convey to people is the reality of the severe impact that the use of nuclear weapons has. The effects go on across generations to the children and grandchildren of survivors, carrying on the cruelty of using these weapons. I have four daughters, and my oldest daughter has a type of disease that is similar to leukaemia. My second daughter is suffering from breast cancer.

How do you see the detonation of the atomic bomb after the war was over? When you think about the Americans, who dropped the atomic bomb on Nagasaki, is there a sense of forgiveness or is it impossible to forgive?

In the beginning, people in Nagasaki did not know what type of bomb was dropped and wondered why such a wide area was affected. The word "atomic" was used in newspapers, but this was a new type of bomb and there was a report that the damage or suffering was limited. Some of the newspapers would say this because reporting on the atomic bomb was strictly controlled by the Allied Powers General Headquarters, who feared it would cause public security concerns and make the Japanese hostile toward Allied occupation forces.

Gradually, in the years after the bomb was dropped, I learned about how it was developed. Once I learned about how this bomb was developed and how it was used, I did not have any sense of hate towards ordinary Americans because I knew that most Americans did not know about the atomic bomb at that time. Only a few scientists and President Truman knew about the atomic bomb. I have some hard feelings towards those few people who decided to drop the bomb, but I do not hate Americans as a whole. For instance, General Eisenhower or General MacArthur, who came to Tokyo after the war ended, I know that even they were against dropping the bomb on Hiroshima and Nagasaki.

Looking forward, what do you believe the future will hold? What would you like the world to take away from your experience?

I pray that no one else will ever experience the brutal tragedy that I witnessed at the age of 11, but it is said that there are some 15,700 nuclear warheads in existence,[7] all of which are far more powerful than the atomic bombs used on Nagasaki and Hiroshima.

There are still many people in the world who do not know how fearful and cruel nuclear weapons are. In addition to this, the world has become increasingly

7 For more discussion on the current state of nuclear arsenals, see Hans Kristensen and Matthew McKinzie's article in this issue of the *Review*.

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tense in the wake of 9/11 and there are still civil wars and international conflicts being fought.

As long as they exist, nuclear weapons will inevitably lead to disaster. Please lend us your strength to eliminate nuclear weapons from the face of the earth and make sure that Nagasaki is the last place on the Earth to suffer an atomic bomb. Let us all work together, all of us, to build a peaceful world, a world free of war. The atomic bomb is not an ordinary weapon, so it should not be used in any war. As you know, even war has limits.

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