

## Psychological Effects of the Atomic Bombings

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### The Experience Recalled

Since it was wartime, the people of Hiroshima expected conventional bombing, although only an occasional bomb actually had been dropped on the city. Air-raid warnings sounded regularly as planes passed overhead. At 8:15 AM on August 6, 1945, the moment the bomb fell, most people were in a particularly relaxed state. After a brief air-raid warning, the all-clear had just sounded.

Many people could not clearly recall their initial perceptions: many simply remember what they thought to be a flash—or else a sudden sensation of heat—followed by an indeterminate period of unconsciousness; others only recall being thrown across a room, or knocked down, then finding themselves pinned under the debris of buildings.

Adapted from "Psychological Effects of the Atomic Bomb in Hiroshima: The Theme of Death." Reprinted by permission of *Daedalus*, Journal of the American Academy of Arts and Sciences, 92 (3), Summer 1963, Boston, Mass. The photographs have been added.



*Wrist watch stopped at 8:15 AM, the moment of the bombing. August 6, 1945.  
(Yuichiro Sasaki, Hiroshima-Nagasaki Publishing Committee.)*

A young shopkeeper's assistant, who was 13 years old at the time the bomb fell, and 1400 meters (4500 feet) from the hypocenter:

I was a little ill . . . so I stayed at home that day . . . There had been an air-raid warning and then an all-clear. I felt relieved and lay down on the bed with my younger brother . . . Then it happened. It came very suddenly . . . it felt something like an electric short—a bluish sparkling light . . . There was a noise, and I felt great heat—even inside of the house. When I



came to, I was underneath the destroyed house . . . . I didn't know anything about the atomic bomb so I thought that some bomb had fallen directly upon me . . . and then when I felt that our house had been directly hit I became furious . . . . There were roof tiles and walls—everything black—entirely covering me. So I screamed for help . . . . And from all around I heard moans and screaming, and then I felt a kind of danger to myself . . . . I thought that I too was going to die in that way. I felt this way at that moment because I was absolutely unable to do anything at all by my own power . . . . I didn't know where I was or what I was under . . . . I couldn't hear the voices of my family. I didn't know how I could be rescued. I felt I was going to suffocate and then die, without knowing exactly what had happened to me. This was the kind of expectation I had . . . .

The most striking psychological feature of this immediate experience was the sense of a sudden and absolute shift from normal existence to an overwhelming encounter with death, an emotional theme that remains with the victim indefinitely.

This early impact enveloped the city in an aura of weirdness and unreality. Only those at some distance from the bomb's hypocenter could clearly distinguish the sequence of the great flash of light in the sky accompanied by the lacerating heat of the fireball, followed by the sound and force of the blast, and then by the multicolored "mushroom cloud" rising above the city. Two thousand meters (6500 feet) is generally considered a crucial radius for high mortality (from heat, blast, and radiation) for a Hiroshima-size blast, for susceptibility to delayed radiation effects, and for near-total destruction of buildings and other structures. But many were killed outside of this radius, and indeed the number of deaths from the bomb—variously estimated from 63,000 to 240,000 or more—is still unknown. Falling in the center of a flat city made up largely of wooden residential and commercial structures, the bomb is reported to have destroyed or badly damaged (through blast and fire) more than two-thirds of all buildings within 5000 meters (3 miles), an area roughly encompassing the city limits, so that all of Hiroshima became immediately involved in the atomic disaster.

A middle-aged teacher who was on the outskirts of the city, about 5000 meters from the hypocenter, describes his awe at the destruction he witnessed:



*Hiroshima, near a bridge 2.2 kilometers from the hypocenter, about 11:00 AM, August 6, 1945. Black smoke and raging flames shoot up from the heart of the city. Escaping the raging flames the people stand about, their seared skin hanging in strips, unable to go farther. They sit and lie by the bridge, filling every approach. The photographer, Yoshito Matsushige, said, "As I came near and raised my camera, my tears blurred the finder so that I could hardly see." (Hiroshima-Nagasaki Publishing Committee.)*

I climbed Hijiya Mountain and looked down. I saw that Hiroshima had disappeared . . . . I was shocked by the sight . . . . What I felt then and still feel now I just can't explain with words. Of course I saw many dreadful scenes after that—but that experience, looking down and finding nothing left of Hiroshima—was so shocking that I simply can't express what I felt. I could see Koi [a suburb at the opposite end of the city] and a few buildings standing . . . . But Hiroshima didn't exist—that was mainly what I saw—Hiroshima just didn't exist.



And a young university professor, 2500 meters from the hypocenter at the time, sums up these feelings of weird, awesome unreality in a frequently expressed image of hell:

Everything I saw made a deep impression—a park nearby covered with dead bodies waiting to be cremated . . . very badly injured people evacuated in my direction . . . . Perhaps the most impressive thing I saw were girls, very young girls, not only with their clothes torn off but their skin peeled off as well . . . . My immediate thought was that this was like the hell I had always read about . . . . I had never seen anything which resembled it before, but I thought that should there be a hell, this was it.

But human beings are unable to remain open to emotional experience of this intensity for any length of time, and very quickly—sometimes within minutes—people simply ceased to feel.

For instance, a male social worker in his twenties was at his home just outside the city; he rushed back into the city soon after the bomb fell. As one of the few able-bodied men left, he was put in charge of the work of disposing of corpses, which he found he could accomplish with little difficulty:

After a while they became just like objects or goods that we handled in a very businesslike way . . . . Of course I didn't regard them simply as pieces of wood—they were dead bodies—but if we had been sentimental we couldn't have done the work . . . . We had no emotions . . . . Because of the succession of experiences I had been through, I was temporarily without feeling . . . . At times I went about the work with great energy, realizing that no one but myself could do it.

He contrasted his own feelings with the terror experienced by an outsider just entering the disaster area:

Everything at the time was part of an extraordinary situation . . . . For instance, I remember that on the ninth or tenth of August, it was an extremely dark night . . . I saw blue phosphorescent flames rising from the dead bodies—and there were plenty of them. These were quite different from the orange flames coming from the burning buildings . . . . These blue phosphorescent flames are what we Japanese look upon as spirits rising from dead bodies—in former days we called



*Every day, cremations were carried out in the open air. Some were buried by their families, others by friends, many had no one to care for them. Here, a lonely, bereft family attends to the cremation of one of its members. Nagasaki, mid-September 1945. (Matsumoto Eiichi, Hiroshima-Nagasaki Publishing Committee.)*

them fireballs—and yet at that time I had no sense of fear, not a bit, but merely thought “those dead bodies are still burning.” . . . But to people who had just come from the outside, those flames looked very strange . . . . One of those nights I met a soldier who had just returned to the city, and I walked along with him . . . . He noticed these unusual fireballs and asked me what they were. I told him that they were the flames coming from dead bodies. The soldier suddenly became extremely frightened, fell down on the ground, and was unable to move . . . . Yet I at the time had a state of mind in which I feared nothing. Though if I were to see those flames now I might be quite frightened . . . .

Relatively few people were involved in the disposal of dead bodies. But virtually all the people I interviewed nonetheless experienced a similar form of psychic closing-off in response to their overall exposure to death. Many told how horrified they



were when they first encountered corpses in strange array or extremely disfigured faces, but then, after a period of time as they saw more and more of these, they felt nothing. Psychic closing-off would last sometimes for a few hours and sometimes for days or even months and merge into long-term feelings of depression and despair.

But even the deep and unconscious psychological defensive maneuvers involved in psychic closing-off were ultimately unable to afford full protection to the survivor from the painful sights and stimuli impinging upon him. It was, moreover, a defense not devoid of its own psychological cost. Thus the same social worker, in a later interview, questioned his own use of the word "businesslike" to describe his attitude toward dead bodies and emphasized the pity and sympathy he felt while handling bodies and the pains he took to console family members who came for these remains; he even recalled feeling frightened at night when passing the spot where he worked at cremation by day. He was in effect telling me that not only was his psychic closing-off imperfect, but that he was horrified—felt ashamed and guilty—at having behaved in a way that he now thought callous. For he had indulged in activities that were ordinarily, for him, strongly taboo, and had done so with an energy, perhaps even an enthusiasm, that must have mobilized within him primitive emotions of a frightening nature.

The middle-aged teacher who had expressed such awe at the disappearance of Hiroshima reveals the way in which feelings of shame and guilt toward the dead break through the defense of psychic closing-off and painfully assert themselves:

I went to look for my family. Somehow I became a pitiless person, because if I had pity I would not have been able to walk through the city, to walk over those dead bodies. The most impressive thing was the expression in peoples' eyes—bodies badly injured which had turned black—their eyes looking for someone to come and help them. They looked at me and knew I was stronger than they . . . . I was looking for my family and looking carefully at everyone I met to see if he or she was a family member—but the eyes—the emptiness—the helpless expression—were something I will never forget . . . . I often had to go to the same place more than once. I would wish that the same family would not still be there . . . .

I saw disappointment in their eyes. They looked at me with great expectation, staring right through me. It was very hard to be stared at by those eyes . . . .

He felt accused by the eyes of the anonymous dead and dying, of wrongdoing and transgression (a sense of guilt) for not helping them, for letting them die, for "selfishly" remaining alive and strong.

There were also many episodes of more focused guilt toward specific family members whom one was unable to help, and for whose death one felt responsible. For instance, the shopkeeper's assistant mentioned above was finally rescued from the debris of his destroyed house by his mother, but she was too weakened by her own injuries to be able to walk very far with him. Soon they were surrounded by fire, and he (a boy of 13) did not feel he had the strength to sustain her weight and became convinced that they would both die unless he took some other action. So he put her down and ran for help, but the neighbor he summoned could not get through to the woman because of the flames, and the boy learned shortly afterward that his mother died in precisely the place he had left her. His lasting sense of guilt was reflected in his frequent experience, from that time onward, of hearing his mother's voice ringing in his ears, calling for help.

A middle-aged businessman also related a guilt-stimulating sequence. His work had taken him briefly to the south of Japan, and he had returned to Hiroshima during the early morning hours of August 6. Having been up all night, he was not too responsive when his 12-year-old son came into his room to ask his father to remove a nail from his shoe so that he could put them on and go to school. The father, wishing to get the job quickly over with, placed a piece of leather above the tip of the nail and promised he would take the whole nail out when the boy returned in the afternoon. As in the case of many youngsters who were sent to factories to do "voluntary labor" as a substitute for their school work, the boy's body was never found—and the father, after a desperate, fruitless search for his son throughout the city, was left with the lingering self-accusation that the nail he had failed to remove might have impeded the boy's escape from the fire.

Most survivors focused upon one incident, one sight, or one particular *ultimate horror* with which they strongly identified





*This aged woman seems to have lost the use of her legs, probably due to the shock. Her position suggests a loss of all sense of reality. Nagasaki, before noon, August 10, 1945, about 1.3 kilometers south of the hypocenter. (Yosuke Yamahata, Hiroshima-Nagasaki Publishing Committee.)*

themselves, and which left them with a profound sense of pity, guilt, and shame. Thus, the social worker describes an event that he feels affected him even more than his crematory activities:

On the evening of August 6, the city was so hot from the fire that I could not easily enter it, but I finally managed to do so by taking a path along the river. As I walked along the bank near the present Yokogawa Bridge, I saw the bodies of a mother and her child . . . . That is, I thought I saw dead bodies, but the child was still alive—still breathing, though with difficulty . . . . I filled the cover of my lunch box with water

and gave it to the child but it was so weak it could not drink. I knew that people were frequently passing that spot . . . and I hoped that one of these people would take the child—as I had to go back to my own unit. Of course I helped many people all through that day . . . but the image of this child stayed on my mind and remains as a strong impression even now . . . . Later when I was again in that same area I hoped that I might be able to find the child . . . and I looked for it among all the dead children collected at a place nearby . . . . Even before the war I planned to go into social work, but this experience led me to go into my present work with children—as the memory of that mother and child by Yokogawa Bridge has never left me, especially since the child was still alive when I saw it.

These expressions of ultimate horror can be related to direct personal experience of loss (for instance, the businessman who had failed to remove the nail from his son's shoe remained preoccupied with pathetic children staring imploringly at him), as well as to enduring individual emotional themes. Most of them involved women and children, universal symbols of purity and vulnerability, particularly in Japanese culture. And, inevitably, the ultimate horror was directly related to death or dying.

## Contamination and Disease

Survivors told me of three rumors that circulated widely in Hiroshima just after the bomb. The first was that for a period of 75 years Hiroshima would be uninhabitable: no one would be able to live there. This rumor was a direct expression of the *fear of deadly and protracted contamination from a mysterious poison believed to have been emitted by the frightening new weapon*. (As one survivor put it, "The ordinary people spoke of poison, the intellectuals spoke of radiation.")

Even more frequently expressed, and I believe with greater emotion, was a second rumor: trees and grass would never again grow in Hiroshima; from that day on, the city would be unable to sustain vegetation of any kind. This rumor seemed to suggest an *ultimate form of desolation even beyond that of human death*: nature was drying up altogether, the ultimate source of life was being extinguished—a form of symbolism particularly powerful in Japa-



nese culture with its focus upon natural aesthetics and its view of nature as both enveloping and energizing all of human life.

The third rumor, less frequently mentioned to me but one that also had wide currency in various versions, was that all those who had been exposed to the bomb in Hiroshima would be dead within three years. This more naked death symbolism was directly related to the appearance of frightening symptoms of toxic radiation effects. For almost immediately after the bomb and during the following days and weeks, people began to experience, and notice in others, symptoms of a strange form of illness: nausea, vomiting, and loss of appetite; diarrhea with large amounts of blood in the stools; fever and weakness; purple spots on various parts of the body from bleeding into the skin; inflammation and ulceration of the mouth, throat, and gums; bleeding from the mouth, gums, nose, throat, rectum, and urinary tract; loss of hair from the scalp and other parts of the body; extremely low white blood cell counts when these were taken; and in many cases a progressive course toward death. These symptoms and fatalities aroused in the minds of the people of Hiroshima a special terror, *an image of a weapon that not only kills and destroys on a colossal scale but also leaves behind in the bodies of those exposed to it deadly influences that may emerge at any time and strike down their victims*. This image was made particularly vivid by the delayed appearance of these radiation effects, two to four weeks after the bomb fell, sometimes in people who had previously seemed to be in perfect health.

The shopkeeper's assistant, both of whose parents were killed by the bomb, describes his reactions to the death of two additional close family members from these toxic radiation effects:

My grandmother was taking care of my younger brother on the 14th of August when I left, and when I returned on the 15th she had many spots all over her body. Two or three days later she died . . . . My younger brother, who . . . was just a [five-month-old] baby, was without breast milk—so we fed him thin rice gruel . . . . But on the 10th of October he suddenly began to look very ill, though I had not then noticed any spots on his body . . . . Then on the next day he began to look a little better, and I thought he was going to survive. I was very pleased, as he was the only family member I had left, and I took him to a doctor—but on the way to the doctor he died. And at the time we found that there were two large

spots on his bottom . . . . I heard it said that all these people would die within three years . . . so I thought, "sooner or later I too will die." . . . I felt weak and very lonely—with no hope at all . . . and since I had seen so many people's eyebrows falling out, their hair falling out, bleeding from their teeth—I found myself always nervously touching my hair like this [he demonstrated by rubbing his head] . . . . I never knew when some sign of the disease would show itself . . . . And living in the countryside then with my relatives, people who came to visit would tell us these things and then the villagers also talked about them—telling stories of this man or that man who visited us a few days ago, returned to Hiroshima, and died within a week . . . . I couldn't tell whether these stories were true or not, but I believed them then. And I also heard that when the *hibakusha* were evacuated to the village where I was, they died there one by one . . . . This loneliness, and the fear . . . the physical fear . . . has been with me always . . . . It is not something temporary, as I still have it now . . . .

Here we find a link between this early sense of ubiquitous death from radiation effects and later anxieties about death and illness. In a similar tone, a middle-aged writer describes his daughter's sudden illness and death:

My daughter was working with her classmates at a place 1000 meters from the hypocenter . . . . I was able to meet her the next day at a friend's house. She had no burns and only minor external wounds so I took her with me to my country house. She was quite all right for a while but on the 4th of September she suddenly became sick . . . . The symptoms of her disease were different from those of a normal disease . . . . She had spots all over her body . . . . Her hair began to fall out. She vomited small clumps of blood many times. Finally she began to bleed all over her mouth. And at times her fever was very high. I felt this was a very strange and horrible disease . . . . We didn't know what it was. I thought it was a kind of epidemic—something like cholera. So I told the rest

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**hibakusha** the Japanese word for those who experienced the atomic bomb, literally "explosion-affected person or persons."

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*A boy carrying his younger brother on his back. His face is covered with dried blood. Their parents probably have been killed. Nagasaki, about 7 AM, August 10, 1945, 2.3 kilometers from the hypocenter. (Yosuke Yamahata, Hiroshima-Nagasaki Publishing Committee.)*

of my family not to touch her and to disinfect all utensils and everything she used . . . . We were all afraid of it and even the doctor didn't know what it was . . . . After ten days of agony and torture she died on September 14 . . . . I thought it was very cruel that my daughter, who had nothing to do with the war, had to be killed in this way . . . .

Survivors were thus affected not only by the fact of people dying around them but by the way in which they died: a gruesome form

of rapid bodily deterioration that seemed unrelated to more usual and "decent" forms of death.

We have seen how these initial physical fears could readily turn into lifetime bodily concerns. And during the years that followed, these fears and concerns became greatly magnified by another development: the growing awareness among the people of Hiroshima that medical studies were demonstrating an abnormally high rate of leukemia among survivors of the atomic bomb. The increased incidence was first noted in 1948 and reached a peak between 1950 and 1952; it has been greatest in those exposed closest to the hypocenter so that for those within 1000 meters the increase of leukemia has been between 10 and 50 times the normal. Since 1952 the rate has diminished, but it is still higher than in unexposed populations, and fears remain strong. While symptoms of leukemia are not exactly the same as those of acute radiation effects, the two conditions share enough in common—the dreaded "purple spots" and other forms of hemorrhage, laboratory findings of abnormalities of the blood, progressive weakness and fever, and (inevitably in leukemia, and often enough in acute irradiation) ultimate death—that these tend to merge, psychologically speaking, into a diffuse fear of bodily annihilation and death.

Moreover, Hiroshima survivors are aware of the general concern and controversy about genetic effects of the atomic bomb, and most express fear about possible harmful effects upon subsequent generations—a very serious emotional concern anywhere, but particularly so in an East Asian culture that stresses family lineage and the continuity of generations as man's central purpose in life and (at least symbolically) his means of achieving immortality. The Hiroshima people know that radiation *can* produce congenital abnormalities (as has been widely demonstrated in laboratory animals), and abnormalities have frequently been reported among the offspring of survivors.

Fears about general health and genetic effects have affected marriage arrangements (which are usually made in Japan by families with the help of a go-between). Survivors encounter discrimination, particularly when involved in arrangements with families outside of Hiroshima.

A company employee in his thirties, who was 2000 meters from the bomb's hypocenter when it fell, described to me virtually all these bodily and genetic concerns in a voice that betrayed considerable anxiety:



Even when I have an illness which is not at all serious—as for instance when I had very mild liver trouble—I have fears about its cause. Of course if it is just an ordinary condition there is nothing to worry about, but if it has a direct connection to radioactivity, then I might not be able to expect to recover. At such times I feel myself very delicate . . . . But in general, there is a great concern that people who were exposed to the bomb might become ill five or ten years later or at any time in the future . . . . Also when my children were born, I found myself worrying about things that ordinary people don't worry about, such as the possibility that they might have inherited some terrible disease from me . . . . I heard that the likelihood of our giving birth to deformed children is greater than in the case of ordinary people . . . and at that time my white blood cell count was rather low . . . . I felt fatigue in the summertime and had a blood count done three or four times . . . . I was afraid it could be related to the bomb, and was greatly worried . . . . Then after the child was born, even though he wasn't a deformed child, I still worried that something might happen to him afterward . . . . With the second child too I was not entirely free of such worries . . . . I am still not sure what might happen, and I worry that the effects of radioactivity might be lingering in some way . . . .

Here we see a young man carrying on effectively in his life, essentially healthy, with normal children, and yet continually plagued by underlying anxieties about his general health and about the birth and health of his children. Each hurdle is passed, but there is little relief; like many survivors, he experiences an inner sense of being doomed.

And a young clerk, also exposed about 2000 meters from the hypocenter, but having the additional disadvantage of a keloid scar resulting from facial burns, expresses similar emotions in still stronger fashion:

Frankly speaking, even now I have fear . . . . Even today people die in the hospitals from A-bomb disease, and when I hear about this I worry that I too might sooner or later have the same thing happen to me . . . . I have a special feeling that I am different from ordinary people . . . that I have the mark of wounds—as if I were a cripple . . . . I imagine a person who has an arm or a leg missing might feel the same way . . . . It is not a matter of lacking something externally, but rather something like a handicap—something mental that does not

show—the feeling that I am mentally different from ordinary people . . . so when I hear about people who die from A-bomb disease or who have operations because of this illness, then I feel that I am the same kind of person as they . . . .

The survivor's identification with the dead and the maimed initiates a vicious circle on the psychosomatic plane of existence: he is likely to associate the mildest everyday injury or sickness with possible radiation effects, and anything he relates to radiation effects becomes associated with death. The process is accentuated by the strong Japanese cultural focus upon bodily symptoms as expressions of anxiety and conflict. Thus the all-encompassing term "atomic bomb sickness" or "atomic bomb disease" (*genbaku-shō*) has evolved, referring on the one hand to such fatal conditions as the early acute radiation effects and later cases of leukemia and on the other hand to the vague, borderline area of fatigue, general weakness, sensitivity to hot weather, suspected anemia, susceptibility to colds or stomach trouble, and general nervousness—all of which are frequent complaints of survivors, and which many associate with radiation effects.

Doctors are caught in a conflict between humanitarian provision for medical need and the danger of encouraging the development in survivors of hypochondria, general weakness, and dependency—or what is sometimes called "atomic bomb neurosis." Since *genbakushō* is at this historical juncture as much a spiritual as a physical condition (as the young clerk made so clear)—and one that touches at every point upon the problem of death—it is difficult for any law or medical program to provide a cure.

## Unwanted Identity

It is clear by now that exposure to the atomic bomb changed the survivor's status as a human being, in his own eyes as well as those of others. Both through his immediate experience and its consequences over the years, he became a member of a new group; he assumed the identity of the *hibakusha*, of one who has undergone the atomic bomb. When I asked survivors to associate freely to the word *hibakusha* and to explain their feelings about it, they invariably conveyed to me the sense of having been compelled to take on this special category of existence, by which they



felt permanently bound, however they might wish to free themselves from it. The shopkeeper's assistant expresses this in simple terms characteristic for many:

Well . . . because I am a *hibakusha* . . . how shall I say it—I wish others would not look at me with special eyes . . . perhaps *hibakusha* are mentally—or both physically and mentally—different from others . . . but I myself do not want to be treated in any special way because I am a *hibakusha* . . .

To be a *hibakusha* thus separates one from the rest of humankind. It means, as expressed by a young female clerical worker left with a keloid from her atomic-bomb exposure at 1600 meters, a sense of having been forsaken.

I don't like people to use that word [*hibakusha*] . . . Of course there are some who, through being considered *hibakusha*, want to receive special coddling [*amaeru*] . . . But I like to stand up as an individual. When I was younger they used to call us "atomic bomb maidens." . . . More recently they call us *hibakusha* . . . I don't like this special view of us . . . Usually when people refer to young girls, they will say girls or daughters, or some person's daughter . . . but to refer to us as atomic bomb maidens is a way of discrimination . . . It is a way of abandoning us . . .

What she is saying, and what many said to me in different ways, is that the experience, with all its consequences, is so profound that it can virtually become the person. Others then see the person *only* as a *hibakusha* bearing the taint of death and therefore, in the deepest sense, turn away. And even the special attentions, the various forms of emotional succor that the survivor may be tempted to seek, cannot be satisfying because such succor is ultimately perceived as inauthentic.

A European priest, one of the relatively few non-Japanese *hibakusha*, expresses these sentiments gently but sardonically:

I always say—if everyone looks at me because I received the Nobel Prize, that's OK, but if my only virtue is that I was 1000 meters from the atomic bomb center and I'm still alive—I don't want to be famous for that.

However well or poorly a survivor is functioning in his life, the word *hibakusha* evokes an image of the dead and the dying. The young clerk, for instance, when he hears the word, thinks either



*Hibakusha* couple—injured and homeless. Note the numerous flies on their shirts. Hiroshima, 1945. (Jay Eyerman, Life Magazine. © Time, Inc.)

of the experience itself ("Although I wasn't myself too badly injured I saw many people who were . . . and I think . . . of the look on their faces . . . camps full of these people, their breasts burned and red") or, as we have already heard him describe, of the after-effects ("When I hear about people who die from *genbakushō* or who have operations because of this illness, then I feel that I am the same kind of person as they").

We are again confronted with the survivor's intimate identification with the dead; we find, in fact, that it tends to pervade the entire *hibakusha* identity. For survivors seem not only to have experienced the atomic disaster, but to have imbibed it and incorporated it into their beings, including all of its elements of horror, evil, and particularly



energy in comprehending their full significance. And beyond Hiroshima, these same impediments tragically block and distort our perceptions of the general consequences of nuclear weapons.

This volume, detailing the human tragedy at Hiroshima and Nagasaki and warning of the devastation that would result from a modern nuclear war, has been designed to help the reader overcome this resistance. Only those who permit themselves to confront the reality of nuclear weapons effects, past or future, can begin to grasp the danger we now face. Human survival may well depend on this ability.

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### Acute Medical Effects at Hiroshima and Nagasaki

Takeshi Ohkita, M.D.

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Modern science and technology have brought us many hopes and dreams. At the same time, they have caused much anxiety. From their sufferings since the atomic bombings in August 1945, the Japanese people recognize that the day has come when nuclear energy could be the weapon of ultimate destruction. Human intelligence has discovered something that is a cause for grave concern.

The clear marks left on the somatic cells of human bodies have not disappeared after more than 35 years. They are still causing various disturbances, which you will read about in the following pages.

I believe that we, as doctors and scientists, once again must realize the importance of our responsibilities. Together we must gather our wisdom and intelligence to abolish nuclear weapons from the face of the earth.

The acute effects of the Hiroshima and Nagasaki atomic bombs are summarized here, based on documentary records. Acute injuries caused by the atomic bombs are classified as thermal, mechan-

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Adapted from "Review of Thirty Years' Study of Hiroshima and Nagasaki Atomic Bomb Survivors," *Journal of Radiation Research*, Supplement, 49-66, 1975. The photographs have been added.