

Later that summer, Roosevelt and Churchill met for a shipboard conference off Argentia, Newfoundland, and forged a closer alignment with their joint statement of war aims known as the Atlantic Charter.

Source: U.S. Department of State, *Peace and War: United States Foreign Policy, 1931–1941*, Publication 1983 (Washington, DC: Government Printing Office, 1943), pp. 718–19.

FOCUS QUESTIONS:

1. Why would the influential Japanese newspaper Asahi regard the Atlantic Charter, particularly its fourth article, as a de facto declaration of war by the United States and Great Britain?
2. Would Woodrow Wilson approve of this charter? Why? Why not?

Joint declaration of the President of the United States of America and the Prime Minister, Mr. Churchill, representing His Majesty's Government in the United Kingdom, being met together, deem it right to make known certain common principles in the national policies of their respective countries on which they base their hopes for a better future for the world.

First, their countries seek no aggrandizement, territorial or other;

Second, they desire to see no territorial changes that do not accord with the freely expressed wishes of the peoples concerned;

Third, they respect the right of all peoples to choose the form of government under which they will live; and they wish to see sovereign rights and self-government restored to those who have been forcibly deprived of them;

Fourth, they will endeavor, with due respect for their existing obligations, to further the enjoyment by all states, great or small, victor or vanquished, of access, on equal terms, to the trade and to the raw materials of the world which are needed for their economic prosperity;

Fifth, they desire to bring about the fullest collaboration between all nations in the economic field with the object of securing, for all, improved labor standards, economic advancement, and social security;

Sixth, after the final destruction of the Nazi tyranny, they hope to see established a peace which will afford to all nations the means of dwelling in safety within their own boundaries, and which will afford assurance that all the men in all the lands may live out their lives in freedom from fear and want;

Seventh, such a peace should enable all men to traverse the high seas and oceans without hindrance;

Eighth, they believe that all the nations of the world, for realistic as well as spiritual reasons, must come to the abandonment of the use of force. Since no future peace can be maintained if land, sea, or air armaments continue to be employed by nations which threaten, or may threaten, aggression outside of their frontiers, they believe, pending the establishment of a wider and permanent system of general security, that the disarmament of such nations is essential. They will likewise aid and encourage all other practicable measures which will lighten for peace-loving peoples the crushing burden of armaments.

Franklin D. Roosevelt

Winston S. Churchill

American Investigators, from *The Effects of Atomic Bombs on Hiroshima and Nagasaki*

Although heavy fighting had been waged on the mainland of Asia since the Japanese invasion of Manchuria in 1931, the beginning of the Second World War is usually dated from September 1, 1939, when Nazi Germany launched its surprise attack on Poland. Unlike the First World War, in which hostilities were generally confined to relatively small areas of Europe, the Second World War was virtually global in extent. Land, sea, and aerial combat spread throughout most of Europe, large areas of Asia and Africa, along the coastlines of both North and South America, and on innumerable islands scattered across the Pacific Ocean. The United States entered the war following the Japanese surprise attack on the Pacific Fleet at Pearl Harbor, Hawaii, on December 7, 1941. The war finally came to an end, first with the German collapse in May 1945, and then the Japanese surrender three months later, following the American atomic bomb attacks on Hiroshima and Nagasaki. One of the unanswerable questions of history is that of how long the war would have continued and how many lives would have been lost had the United States not dropped the two atomic bombs.

The bomb had been developed over several years by American scientists and engineers working in great secrecy under the code name "Manhattan Project." It had been tested only once—in the desert of New Mexico—before being released over Hiroshima. The decision to drop the bomb in Japan, probably the most awesome decision ever to face a human being, was made by President Harry S. Truman.

It is difficult to describe in words the effects of the atomic explosions over the two Japanese cities. Nevertheless, the following selection, although written largely in factual, unemotional terms, succeeds in capturing something of the essence not only of the material destruction wreaked but also of the human suffering, both physical and

psychological, of the victims of the attacks. It is taken from a report prepared shortly after the war by a team of American investigators who visited both cities, examined the effects of the bombing, and questioned many survivors of the attacks.

Source: *The Effects of Atomic Bombs on Hiroshima and Nagasaki* (Washington, D.C.: U.S. Government Printing Office, 1946).

FOCUS QUESTIONS:

1. What is the purpose of this report?
2. What unexpected effects of the bombings did the investigators find?

I. INTRODUCTION

The available facts about the power of the atomic bomb as a military weapon lie in the story of what it did at Hiroshima and Nagasaki. Many of these facts have been published, in official and unofficial form, but mingled with distortions or errors. The United States Strategic Bombing Survey, therefore, in partial fulfillment of the mission for which it was established, has put together in these pages a fairly full account of just what the atomic bombs did at Hiroshima and Nagasaki. Together with an explanation of how the bomb achieved these effects, this report states the extent and nature of the damage, the casualties, and the political repercussions from the two attacks. The basis is the observation, measurement, and analysis of the Survey's investigators. The conjecture that is necessary for understanding of the complex phenomena and for applying the findings to the problems of defense of the United States is clearly labelled.

When the atomic bombs fell, the United States Strategic Bombing Survey was completing a study of the effects of strategic bombing on Germany's ability and will to resist. A similar study of the effects of strategic bombing on Japan was being planned. The news of the dropping of the atomic bomb gave a new urgency to this project, for a study of the air war against Japan clearly involved new weapons and new possibilities of concentration of attack that might qualify or even change the conclusions and recommendations of the Survey as to the effectiveness of air power. The directors of the Survey, therefore, decided to examine exhaustively the effects of the atomic bombs, in order that the full impact on Japan and the implications of their results could be

confidently analyzed. Teams of experts were selected to study the scenes of the bombings from the special points of emphasis of physical damage, civilian defense, morale, casualties, community life, utilities and transportation, various industries, and the general economic and political repercussions. In all, more than 110 men—engineers, architects, fire experts, economists, doctors, photographers, draftsmen—participated in the field study at each city, over a period of 10

weeks from October to December, 1945. Their detailed studies are now being published.

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II. THE EFFECTS OF THE ATOMIC BOMBINGS

A. The Attacks and Damage

1. The attacks.

A single atomic bomb, the first weapon of its type ever used against a target, exploded over the city of Hiroshima at 0815 on the morning of 6 August 1945. Most of the industrial workers had already reported to work, but many workers were enroute and nearly all the school children and some industrial employees were at work in the open on the program of building removal to provide fire-breaks and disperse valuables to the country. The attack came 45 minutes after the "all clear" had been sounded from a previous alert. Because of the lack of warning and the populace's indifference to small groups of planes, the explosion came as an almost complete surprise, and the people had not taken shelter. Many were caught in the open, and most of the rest in flimsily constructed homes or commercial establishments.

The bomb exploded slightly northwest of the center of the city. Because of this accuracy and the flat terrain and circular shape of the city, Hiroshima was uniformly and extensively devastated. Practically the entire densely or moderately built-up portion of the city was leveled by blast and swept by fire. A "fire-storm," a phenomenon which has occurred infrequently in other conflagrations, developed in Hiroshima: fires springing up almost simultaneously over the wide flat area around the center of the city drew in air from all directions. The inrush of air easily overcame the natural ground wind, which had a velocity of only about 5 miles per hour. The "firewind" attained a maximum velocity of 30 to 40 miles per hour 2 to 3 hours after the explosion. The "fire-wind" and the symmetry of the built-up center of the city gave a roughly circular shape to the 4.4 square miles which were almost completely burned out. The surprise, the collapse of many buildings, and the conflagration contributed to an unprecedented casualty rate. Seventy to eighty thousand people were killed, or missing and presumed dead, and an equal number were injured.

At Nagasaki, 3 days later, the city was scarcely more prepared, though vague references to the Hiroshima disaster had appeared in the newspaper of 8 August. From the Nagasaki Prefectural Report on the bombing, something of the shock of the explosion can be inferred:

The day was clear with not very much wind—an ordinary midsummer's day. The strain of continuous air attack on the city's population and the severity of the

summer had vitiated enthusiastic air raid precautions. Previously, a general alert had been sounded at 0748, with a raid alert at 0750; this was canceled at 0830, and the alertness of the people was dissipated by a great feeling of relief.

The city remained on the warning alert, but when two B-29s were again sighted coming in the raid signal was not given immediately; the bomb was dropped at 1102 and the raid signal was given a few minutes later, at 1109. Thus only about 400 people were in the city's tunnel shelters, which were adequate for about 30 percent of the population.

When the atomic bomb exploded, an intense flash was observed first, as though a large amount of magnesium had been ignited, and the scene grew hazy with white smoke. At the same time at the center of the explosion, and a short while later in other areas, a tremendous roaring sound was heard and a crushing blast wave and intense heat were felt. The people of Nagasaki, even those who lived on the outer edge of the blast, all felt as though they had sustained a direct hit, and the whole city suffered damage such as would have resulted from direct hits everywhere by ordinary bombs.

The zero area, where the damage was most severe, was almost completely wiped out and for a short while after the explosion no reports came out of that area. People who were in comparatively damaged areas reported their condition under the impression that they had received a direct hit. If such a great amount of damage could be wreaked by a near miss, then the power of the atomic bomb is unbelievably great.

In Nagasaki, no fire-storm arose, and the uneven terrain of the city confined the maximum intensity of damage to the valley over which the bomb exploded. The area of nearly complete devastation was thus much smaller; only about 1.8 square miles. Casualties were lower also; between 35,000 and 40,000 were killed, and about the same number injured. People in the tunnel shelters escaped injury, unless exposed in the entrance shaft.

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Hiroshima before the war was the seventh largest city in Japan, with a population of over 340,000, and was the principal administrative and commercial center of the southwestern part of the country. As the headquarters of the Second Army and of the Chugoku Regional Army, it was one of the most important military command stations in Japan, the site of one of the largest military supply depots, and the foremost military shipping point for both troops and supplies. Its shipping activities had virtually ceased by the time of the attack, however, because of sinkings and the mining of the Inland Sea. It had been relatively unimportant industrially before the war, ranking only twelfth, but during the war new plants were built that increased its significance. These factories were not

concentrated, but spread over the outskirts of the city; this location, we shall see, accounts for the slight industrial damage.

The impact of the atomic bomb shattered the normal fabric of community life and disrupted the organizations for handling the disaster. In the 30 percent of the population killed and the additional 30 per-cent seriously injured were included corresponding proportions of the civic authorities and rescue groups. A mass flight from the city took place, as persons sought safety from the conflagration and a place for shelter and food. Within 24 hours, however, people were streaming back by the thousands in search of relatives and friends and to determine the extent of their property loss. Road blocks had to be set up along all routes leading into the city, to keep curious and unauthorized people out. The bulk of the dehousing population found refuge in the surrounding countryside; within the city the food supply was short and shelter virtually nonexistent.

On 7 August, the commander of the Second Army assumed general command of the counter-measures, and all military units and facilities in the area were mobilized for relief purposes. Army buildings on the periphery of the city provided shelter and emergency hospital space, and dispersed Army supplies supplemented the slight amounts of food and clothing that had escaped destruction. The need far exceeded what could be made available. Surviving civilians assisted; although casualties in both groups had been heavy, 190 policemen and over 2,000 members of the Civilian Defense Corps reported for duty on 7 August.

The status of medical facilities and personnel dramatically illustrates the difficulties facing authorities. Of more than 200 doctors in Hiroshima before the attack, over 90 percent were casualties and only about 30 physicians were able to perform their normal duties a month after the raid. Out of 1,780 nurses, 1,654 were killed or injured. Though some stocks of supplies had been dispersed, many were destroyed. Only three out of 45 civilian hospitals could be used, and two large Army hospitals were rendered unusable. Those within 3,000 feet of ground zero were totally destroyed, and the mortality rate of the occupants was practically 100 percent. Two large hospitals of reinforced concrete construction were located 4,900 feet from ground zero. The basic structures remained erect but there was such severe interior damage that neither was able to resume operation as a hospital for some time and the casualty rate was approximately 90 percent, due primarily to falling plaster, flying glass, and fire. Hospitals and clinics beyond 7,000 feet, though often remaining standing, were badly damaged and contained many casualties from flying glass or other missiles.

With such elimination of facilities and personnel, the lack of care and rescue activities at the time of the disaster is understandable; still, the eyewitness account of Father Siemes⁸ shows how this lack of first-aid contributed to the seriousness of casualties. At the improvised first-aid stations, he reports:

...Iodine is applied to the wounds but they are left uncleansed. Neither ointment nor other therapeutic agents are available. Those that have been brought in are laid on the floor and no one can give them any further care. What could one do when all means are lacking? Among the passersby, there are many who are uninjured. In a purposeless, insensate manner, distraught by the magnitude of the disaster, most of them rush by and none conceives the thought of organizing help on his own initiative. They are concerned only with the welfare of their own families—in the official aid stations and hospitals, a good third or half of those that had been brought in died. They lay about there almost without care, and a very high percentage succumbed. Everything was lacking, doctors, assistants, dressings, drugs, etc...

Effective medical help had to be sent in from the outside, and arrived only after a considerable delay.

Fire-fighting and rescue units were equally stripped of men and equipment. Father Siemes reports that 30 hours elapsed before any organized rescue parties were observed. In Hiroshima, only 16 pieces of fire-fighting equipment were available for fighting the conflagration, three of them borrowed. However, it is unlikely that any public fire department in the world, even without damage to equipment or casualties to personnel, could have prevented development of a conflagration in Hiroshima, or combatted it with success at more than a few locations along its perimeter. The total fire damage would not have been much different.

When the atomic bomb fell, Nagasaki was comparatively intact. Because the most intense destruction was confined to the Urukami Valley, the impact of the bomb on the city as a whole was less shattering than at Hiroshima. In addition, no fire-storm occurred; indeed, a shift in wind direction helped control the fires. Medical personnel and facilities were hard-hit, however. Over 80 percent of the city's hospital beds and the Medical College were located within 3,000 feet of the center of the explosion, and were completely gutted by fire; buildings of wooden construction were destroyed by fire and blast. The mortality rate in this group of buildings was between 75 and 80 percent. Exact casualty figures for medical personnel are unknown, but the city seems to have fared better than Hiroshima: 120 doctors were at work on 1 November, about one-half of the pre-raid roster. Casualties were undoubtedly high: 600 out of 850 medical students at the Nagasaki Medical College were killed and most of the others injured; and of the 20 faculty members, 12 were killed and 4 others injured.

The city's repair facilities were completely disorganized by the atomic bomb, so that with the single exception of shutting off water to the affected areas no repairs were made to roads, bridges, water mains, or transportation installations by city forces. The prefecture took full responsibility for such restoration as was accomplished, delegating to the scattered city help the task of assisting in relief

of victims. There were only 3 survivors of 115 employees of the street car company, and as late as the middle of November 1945 no cars were running. A week after the explosion, the water works officials made an effort to supply water to persons attempting to live in the bombed-out areas, but the leakage was so great that the effort was abandoned. It fell to the prefecture, therefore, to institute recovery measures even in those streets normally the responsibility of the city. Of the entire public works construction group covering the Nagasaki city area, only three members appeared for work and a week was required to locate and notify other survivors. On the morning of 10 August, police rescue units and workers from the Kawaminami shipbuilding works began the imperative task of clearing the Omura-Nagasaki pike, which was impassable for 8,000 feet. A path 6-1/2 feet wide was cleared despite the intense heat from smouldering fires, and by 15 August had been widened to permit two-way traffic. No trucks, only rakes and shovels, were available for clearing the streets, which were filled with tile, bricks, stone, corrugated iron, machinery, plaster, and stucco. Street areas affected by blast and not by fire were littered with wood. Throughout the devastated area, all wounded had to be carried by stretcher, since no motor vehicles were able to proceed through the cluttered streets for several days. The plan for debris removal required clearance of a few streets leading to the main highway; but there were frequent delays caused by the heat of smouldering fires and by calls for relief work. The debris was simply raked and shoveled off the streets. By 20 August the job was considered complete. The streets were not materially damaged by the bomb nor were the surface or the abutments of the concrete bridges, but many of the wooden bridges were totally or partially destroyed by fire.

Under the circumstances—fire, flight of entire families, destruction of official records, mass cremation—identification of dead and the accurate count of casualties was impossible. As at Hiroshima, the season of the year made rapid disposal of bodies imperative, and mass cremation and mass burial were resorted to in the days immediately after the attack. Despite the absence of sanitary measures, no epidemics broke out here. The dysentery rate rose from 25 per 100,000 to 125 per 100,000. A census taken on 1 November 1945 found a population of 142,700 in the city.

At Nagasaki, the scale of destruction was greater than at Hiroshima, though the actual area destroyed was smaller because of the terrain and the point of fall of the bomb. The Nagasaki Prefectural Report described vividly the impress of the bomb on the city and its inhabitants:

Within a radius of 1 kilometer from ground zero, men and animals died almost instantaneously from the tremendous blast pressure and heat; houses and other structures were smashed, crushed and scattered; and fires broke out. The strong complex steel members of the structures of the Mitsubishi Steel Works were bent and twisted like jelly and the roofs of the reinforced concrete National Schools were crumpled and collapsed, indicating a force beyond imagination.

Trees of all sizes lost their branches or were uprooted or broken off at the trunk.

Outside a radius of 1 kilometer and within a radius of 2 kilometers from ground zero, some men and animals died instantly from the great blast and heat, but the great majority were seriously or superficially injured. Houses and other structures were completely destroyed while fires broke out everywhere. Trees were uprooted and withered by the heat.

Outside a radius of 2 kilometers and within a radius of 4 kilometers from ground zero, men and animals suffered various degrees of injury from window glass and other fragments scattered about by the blast and many were burned by the intense heat. Dwelling and other structures were half damaged by blast.

Outside a radius of 4 kilometers and within a radius of 8 kilometers from ground zero, living creatures were injured by materials blown about by the blast; the majority were only superficially wounded. Houses were half or only partially damaged.

While the conflagration with its uniformly burnt-out area caught the attention at Hiroshima, the blast effects, with their resemblance to the aftermath of a hurricane, were most striking at Nagasaki. Concrete buildings had their sides facing the blast stove in like boxes. Long lines of steel-framed factory sheds, over a mile from ground zero, leaned their skeletons away from the explosion. Blast resistant objects such as telephone poles leaned away from the center of the explosion; on the surrounding hills trees were blown down within considerable areas. Although there was no general conflagration, fires contributed to the total damage in nearly all concrete structures. Evidence of primary fire is more frequent than at Hiroshima.

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B. General Effects

1. Casualties.

The most striking result of the atomic bombs was the great number of casualties. The exact number of dead and injured will never be known because of the confusion after the explosions. Persons unaccounted for might have been burned beyond recognition in the falling buildings, disposed of in one of the mass cremations of the first week of recovery, or driven out of the city to die or recover without any record remaining. No sure count of even the pre-raid population existed. Because of the decline in activity in the two port cities, the constant threat of incendiary raids, and the formal evacuation programs of the Government, an unknown number of the inhabitants had either drifted away from the cities or been removed according to plan. In this uncertain situation, estimates of casualties have generally ranged between 100,000 and 180,000 for Hiroshima, and between 50,000 and 100,000 for Nagasaki. The Survey believes

the dead at Hiroshima to have been between 70,000 and 80,000 with an equal number injured; at Nagasaki over 35,000 dead and somewhat more than that injured seems the most plausible estimate.

Most of the immediate casualties did not differ from those caused by incendiary or high-explosive raids. The outstanding difference was the presence of radiation effects, which became unmistakable about a week after the bombing. At the time of impact, however, the causes of death and injury were flash burns, secondary effects of blast and falling debris, and burns from blazing buildings. No records are available that give the relative importance of the various types of injury, especially for those who died immediately after the explosion. Indeed, many of these people undoubtedly died several times over, theoretically, since each was subjected to several injuries, any one of which would have been fatal.

Radiation disease. The radiation effects upon survivors resulted from the gamma rays liberated by the fission process rather than from induced radioactivity or the lingering radio-activity of deposits of primary fission products. Both at Nagasaki and at Hiroshima, pockets of radioactivity have been detected where fission products were directly deposited, but the degree of activity in these areas was insufficient to produce casualties. Similarly, induced radio-activity from the interaction of neutrons with matter caused no authenticated fatalities. But the effects of gamma rays—here used in a general sense to include all penetrating high-frequency radiations and neutrons that caused injury—are well established, even though the Allies had no observers in the affected areas for several weeks after the explosions.

Our understanding of radiation casualties is not complete. In part the deficiency is in our basic knowledge of how radiation effects animal tissue.

According to the Japanese, those individuals very near the center of the explosion but not affected by flash burns or secondary injuries became ill within 2 or 3 days. Bloody diarrhea followed, and the victims expired, some within 2 to 3 days after the onset and the majority within a week. Autopsies showed remarkable changes in the blood picture—almost complete absence of white blood cells, and deterioration of bone marrow. Mucous membranes of the throat, lungs, stomach, and the intestines showed acute inflammation.

The majority of the radiation cases, who were at greater distances, did not show severe symptoms until 1 to 4 weeks after the explosion, though many felt weak and listless on the following day. After a day or two of mild nausea and vomiting, the appetite improved and the person felt quite well until symptoms reappeared at a later date. In the opinion of some Japanese physicians, those who rested or subjected themselves to less physical exertion showed a longer delay before the onset of subsequent symptoms. The first signs of recurrence were loss of appetite, lassitude, and general discomfort. Inflammation of the gums, mouth, and pharynx appeared next. Within 12 to 48 hours, fever became evident. In

many instances it reached only 100° Fahrenheit and remained for only a few days. In other cases, the temperature went as high as 104° or 106° Fahrenheit. The degree of fever apparently had a direct relation to the degree of exposure to radiation. Once developed, the fever was usually well sustained, and in those cases terminating fatally it continued high until the end. If the fever subsided, the patient usually showed a rapid disappearance of other symptoms and soon regained his feeling of good health. The other symptoms commonly seen were shortage of white corpuscles, loss of hair, inflammation and gangrene of the gums, inflammation of the mouth and pharynx, ulceration of the lower gastrointestinal tract, small livid spots (petechiae) resulting from escape of blood into the tissues of the skin or mucous membrane, and larger hemorrhages of gums, nose and skin.

Loss of hair usually began about 2 weeks after the bomb explosion, though in a few instances it is reported to have begun as early as 4 to 5 days afterward. The areas were involved in the following order of frequency with variations depending on the degree of exposure: scalp, armpits, beard, pubic region, and eyebrows. Complete baldness was rare. Microscopic study of the body areas involved has shown atrophy of the hair follicles. In those patients who survived after 2 months, however, the hair has commenced to re-grow. An interesting but unconfirmed report has it that loss of the hair was less marked in persons with grey hair than in those with dark hair...

The effects of the bomb on pregnant women are marked, however. Of women in various stages of pregnancy who were within 3,000 feet of ground zero, all known cases have had miscarriages. Even up to 6,500 feet they have had miscarriages or premature infants who died shortly after birth. In the group between 6,500 and 10,000 feet, about one-third have given birth to apparently normal children. Two months after the explosion, the city's total incidence of miscarriages, abortions, and premature births was 27 percent as compared with a normal rate of 6 percent. Since other factors than radiation contributed to this increased rate, a period of years will be required to learn the ultimate effects of mass radiation upon reproduction.

Treatment of victims by the Japanese was limited by the lack of medical supplies and facilities. Their therapy consisted of small amounts of vitamins, liver extract, and an occasional blood transfusion. Allied doctors used penicillin and plasma with beneficial effects. Liver extract seemed to benefit the few patients on whom it was used: It was given in small frequent doses when available. A large percentage of the cases died of secondary disease, such as septic bronchopneumonia or tuberculosis, as a result of lowered resistance. Deaths from radiation began about a week after exposure and reached a peak in 3 to 4 weeks. They had practically ceased to occur after 7 to 8 weeks.

Unfortunately, no exact definition of the killing power of radiation can yet be given, nor a satisfactory account of the sort and thickness of concrete or earth that will shield people. From the definitive report of the Joint Commission will come more nearly accurate statements on these matters. In the meanwhile the awesome lethal effects of the atomic bomb and the insidious additional peril of the gamma rays speak for themselves.

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2. MORALE.

As might be expected, the primary reaction to the bomb was fear—uncontrolled terror, strengthened by the sheer horror of the destruction and suffering witnessed and experienced by the survivors. Between one-half and two-thirds of those interviewed in the Hiroshima and Nagasaki areas confessed having such reactions, not just for the moment but for some time. As two survivors put it:

Whenever a plane was seen after that, people would rush into their shelters; they went in and out so much that they did not have time to eat. They were so nervous they could not work.

After the atomic bomb fell, I just couldn't stay home. I would cook, but while cooking I would always be watching out and worrying whether an atomic bomb would fall near me.

The behavior of the living immediately after the bombings, as described earlier, clearly shows the state of shock that hindered rescue efforts. A Nagasaki survivor illustrates succinctly the mood of survivors: All I saw was the flash and I felt my body get warm and then I saw everything flying around. My grandmother was hit on the head by a flying piece of roof and she was bleeding...I became hysterical seeing my grandmother bleeding and we just ran around without knowing what to do.

I was working at the office. I was talking to a friend at the window. I saw the whole city in a red flame, then I ducked. The pieces of the glass hit my back and face. My dress was torn off by the glass. Then I got up and ran to the mountain where the good shelter was.

The two typical impulses were these: Aimless, even hysterical activity or flight from the city to shelter and food.