CHAPTER III

ATOMIC BOMBING OF JAPAN

The American Air Forces had entered the war in the Pacific with a Douhetian strategy of destruction. By the end of May 1945, the AAF bombers were burning the cities of Japan indiscriminately. The leaders of the other military arms, civilian scientists, technical specialists, consultants on strategic and economic issues, and above all, the American President, and his highest civil advisers, had been playing a leading part in the air-war against Japan. But even then Japan was unyielding, despite the worst hardships.

The Americans had encountered mounting difficulties in their island-to-island-hops, as they were getting closer to Japanese home-islands. Despite massive bombings by B-29 Superfortresses, whose flights operated virtually unopposed but for occasional flak, still there was no tangible sign of Japan's submission. Many of the Americans must have pondered as to what was there in the Japanese, that made them still carry on, while suffering 'silently' and patiently in the
incinerating fires. The Japanese continued to subsist on progressively reducing rations, and sustained themselves remarkably, amidst burning houses, huts and habitats. Though the Americans had managed to eliminate most of the targets of military and economic significance in Japan yet their one-sided offensive was carrying on. The Japanese, while fighting defensive battles, had been probing the means and ways to seek an honourable armistice and "about February 1944 the Emperor had begun to grapple with the problem of peace as the most urgent issue confronting the Empire." ¹

On the other hand the Americans, who had desired a Japanese capitulation at the lowest possible expenditure of their man-power because of their superior fire-power, had to suffer more and more at the hands of the Japanese in their efforts to run them over. In Okinawa alone, their army lost 7,000 killed and 32,000 wounded and the navy suffered about 10,000 casualties as against 110,000 of the Japanese killed. Unmindful of the higher death figures of the Japanese, the American's increasing battle deaths initiated a whispering protest and an unease in American political quarters. The

casualties caused by the fanatical Japanese resistance on Iwo Jima and Okinawa had given the Allies grave forebodings as to what would happen when the Japanese would be finally fighting for the defence of their home islands. It was feared that the forced subjugation of Japan could exact a heavy toll. Plans, however, were made for a two-phase invasion of Japan beginning with an assault on Kyushu in November 1945. Everyone was in search of some easy alternative.

During the Potsdam Summit Conference which commenced on 16 July 1945, Joseph Stalin of Soviet Russia had mentioned, in the course of his separate conversations with Winston Churchill of Great Britain and President Harry S. Truman of USA, about the overtures made by the Japanese and added that the Soviet Government had deliberately taken no action upon them. But the Americans had already intercepted and deciphered the Japanese's messages to Moscow; so the information given by the Soviet leader did not really come as a surprise to the American President. After consulting Churchill, the American President disclosed to Stalin that the Western Allies were in the possession of a new weapon of
extraordinary power, but did not clarify that it was an atom bomb. 2

Almost a year before the successful Atomic test at Alamogordo in the desert of New Mexico on 16 July 1945, a special unit had been formed in September 1944 to drop one or more atomic bombs over enemy lands. The nomenclature of this unit was 509 Composite Group. This unit moved to Tinian in the Marianas group of islands in May 1945. However, a great secrecy continued to surround the development, existence and purpose of Atom Bomb. Even, "the Group's Commander Colonel Paul Tibbetts, was until two days before the nuclear attack, the only member of the unit who knew what its mission was to be." 3

And, there could have been no discussions in open forums as to whether the atomic bomb was to be used against Japan. Even in the closed governmental circles the opinions were extremely mixed. Some thought it as an American obligation to use this power with the best possible wisdom


they could command. One of the scientific panel members, Dr. J. Robert Oppenheimer, the physicist responsible for the design and testing of the bomb, estimated that a single atomic explosion would probably kill twenty thousand people. The mention of this figure appalled Secretary of War Henry L. Stimson. "The objective", Stimson had interjected, "should be military destruction, not the lives of civilians". 4

The US President, earlier in one of his meetings with the Joint Chiefs of Staff, on 18 June 1945, to determine whether to blockade and bomb Japan into submission or whether to go ahead with the Kyushu landings involving 766,700 Allied troops, had asked for everyone's personal opinion. In response thereof General George C. Marshall, the Chief of Army Staff, insisted that there was no choice but to carry out the invasion scheduled for 1 November 1945. He brought out that air power alone was simply not enough to conquer Japan. Speaking on behalf of the Air Force, Lieutenant General Ira C. Eaker, confirmed Marshall's judgment and added that earlier too the air-arm had not been able to subdue the Germans. Admiral Earnest J. King, Chief of

---

the Naval Staff, also supported Marshall's opinion. However, the President's Chief of Staff, Admiral William O. Leahy, was of the opinion that he did not agree with those who said that unless they obtained the unconditional surrender of the Japanese, the Americans would have lost the war. Admiral Leahy remarked:

I fear no menace from Japan in the foreseeable future, even if we are unsuccessful in forcing unconditional surrender. What I do fear is that our insistence on unconditional surrender will only result in making the Japanese more desperate and thereby increase our casualty lists. 5

The Assistant Secretary of War, John J. McCloy, who after having had many private discussions with the former Ambassador to Japan, Joseph C. Grew, had come to personally believe that there ought to be a political solution of the problem; when asked by the President in the aforesaid meeting to express his opinion, emphasised that Japan be allowed a continuation of the Imperial regime, and asked to surrender. He further suggested that Japan should be threatened with the use of atomic bomb if it refused to accept the surrender terms. McCloy's words were conveniently

5. Quoted in Toland, ibid., p.764.
taken as a pointer in the fuddled atmosphere and the use of Bomb became a "good possibility".

The success of Atomic bomb test at Alamagordo had aggravated the distress of scores of scientists who had made it possible. They now urged the American President that the Japanese be given suitable warning and the opportunity to surrender. But the President, while at Potsdam, was immensely pepped up with the news of the successful test. He was now of the opinion that Japanese had no honour left after Pearl Harbour and at any rate according to him, they should be ready to face certain death in very large numbers, and this may not be so important to the Americans as to them. Even Churchill had got exhilarated with the test news. After going through the report describing the awesome spectacle at Alamagordo, he is reported to have told Stimson: "Stimson, what was gun powder? Trivial. What was electricity? Meaningless. This atomic bomb is the Second Coming in wrath".  

6. Ibid., p.768.
7. Ibid. p.770.
From such revelations, it is clear that as far as Churchill and Truman were concerned, the decision to drop the bomb had already been made, but there were three military men in America who continued to debate this issue in their own way. General H.H. Arnold, Chief of the American Air Forces, claimed that conventional bombing could alone end the war in the face of General Marshall's contention that it was either the bomb or a costly invasion. Admiral Leahy had suspected that the scientists and others involved in the Bomb's programme wanted to use the bomb because of the vast sums that had been spent on the project. The group of scientists who had been involved in its development proposed that it first be used in a harmless demonstration after having been given the widest publicity. General Dwight Eisenhower was of the opinion that dropping the bomb was completely unnecessary and that Americans should avoid rousing world condemnation by using a weapon which was no longer mandatory, in order to save American lives.

In the highest levels of the United States Government there were, however, discussions on two closely related issues. First, should the American call for "unconditional
surrender be accompanied by some assurance to Japan about the retention of their imperial system; and, second, should there be some public call for Japan to surrender now rather than face total destruction and defeat later, possibly including reference to the new weapon." 

Truman and Churchill were agreeing on the point that the Japanese should be given an opportunity of surrendering in the light of "an assurance that Allies had no intention of enslaving them, destroying their nationhood or permanently occupying their country. They were also to be told that the Allies were willing to grant them access to raw materials and eventually the world markets." 

The Potsdam Declaration, issued on 26 July 1945, though designed to appeal to the peace faction in the Japanese Government, was not conveyed to the Japanese Government through a neutral intermediary, or in accordance with orthodox diplomatic practice. It was merely broadcast by radio. "The Japanese authorities learnt of it from their monitoring service. They decided to await the results of the approach they had asked the Soviet

Government to convey to the Allies, on their behalf, before replying to it."¹⁰ Japanese, however, had known that "they faced the combined views and power of the United States, British, and Chinese Government at a time when these were in conference with the Soviet Union."¹¹

However, while reacting to the Potsdam Ultimatum, Prime Minister Admiral Kantaro Suzuki employed a Japanese word mokusatsu in his statement to the Press. What he meant to say did not become as important as what the Americans understood by this differently interpretable word. The American comprehension took the meaning "ignore by rejection" or "to kill with contempt". What Suzuki wanted to say as we know now was "No comments" and had used mokusatsu as its Japanese equivalent to the best of his knowledge. The Americans applied the undiplomatic and plain dictionary meaning and understood by it "ignore" or "treat with silent contempt". So, on 30 July 1945 The New York Times headline read: 'Japan Officially Turns Down Allied Surrender Ultimatum'. According to Gerhard W. Weinberg, "the Americans waited a few days to

¹⁰. Ibid.
¹¹. Weinberg, n.8, p.888.
see whether there were second thoughts in Tokyo"\textsuperscript{12} and if there was any response to their broadcast and also any follow up of Suzuki's mokusatu. But the Japanese on their part were earnestly awaiting a Russian reply. The mokusatu and a negation of Japanese direct approach to the Allies was taken to mean that they did not wish to surrender on the terms proposed. The American President, Harry S. Truman on his way home from Potsdam, in the cruiser Augusta, authorised on 2 August 1945, the atom bomb attack upon Japan. The operational order to drop the first atomic bomb had, however, already been issued. It read:

The 509 Composite Group, 20th Air Force, will deliver its first special bomb as soon as weather will permit visual bombing after about 3 August 1945, on one of the targets: Hiroshima, Kokura, Nigata and Nagasaki. To carry military and civilian scientific personnel from the war department to observe and record the effects of the explosion of the bomb, additional aircraft will accompany the airplane carrying the bomb. The observing planes will stay several miles distant from the point of impact of the bomb.\textsuperscript{13}

The bomb was 710 mm (28 inches) in diameter and 3.6 meters (12 feet) long. It weighed 4080 kg (9000 lbs.) At the heart of this first practical atomic bomb lay a metal

\textsuperscript{12}. Ibid.

\textsuperscript{13}. Quoted in Toland, n.4, p.772.
cylinder about eighteen inches in diameter and two feet high, weighing several hundred pounds and containing U-235, a derivative of uranium metal shielded by lead. It had already been transported to the Tinian island by heavy cruiser Indianapolis.

**Hiroshima Bombing**

As mentioned above the components of the uranium bomb, which was nicknamed as "Little Boy", were already in an air-base in Tinian, an island in the Marianas group, about 600 miles from Japan. It was the largest air-base in the Pacific. There were 150,000 Air Force personnel and 2000 B-29 Superfortresses to mount continuous air operations against Japan. Since the end of May 1945 the American scientists had been arriving at Tinian to prepare the final assembly of the two atomic bombs intended for Japan. The Target Committee had already chosen six Japanese cities, two of which would be bombed depending upon the weather. A young physicist, Luis Alvarez, was sent to Tinian to supervise the design work. He had finished the design for the bomb's release mechanism and also designed the telemetry devices that were to be dropped with the bomb. These devices were
designed to measure and transmit to one of the aeroplanes the intensity of "Little Boy's" shock waves. The scientists had arduously begun the work on the bombs because they were dedicated to the defeat of fascism. Although Germany had surrendered, some scientists believed that by bombing Japan they were speeding the end of war, preventing an imminent land invasion of Japan and saving many American lives. At Tinian, the scientists were the most eager lot to see that the bomb convinced the Japanese General Staff of the terrible consequence which will be suffered by their people. Inwardly, they did deplore the use to which a beautiful discovery was being put, but by and large, all Americans wanted Japanese unconditional surrender, now that enormous cost had been incurred in preparing the necessary material.

On 5 August 1945, a 'funeral like cortege', made up of a command car full of military police, a truck carrying the "Little Boy", a navy staff car and a jeep, carrying the


15. Ibid.
officials, started its short journey from an air-conditioned spot where the bomb had been stored. The B-29 bomber fated to drop "Little Boy" was nicknamed "Enola Gay" - named after the mother of the Commanding Officer of 509 Composite Group, Colonel Paul W. Tibbets. Scientists worked feverishly at the final bomb assembly. "Little Boy" was hung deftly in the "Enola Gay's" bomb-bay. Colonel Tibbets addressed his 509 Group men to say that upon their efforts it was possible that history would be made.

The first target had already been selected: Hiroshima. The briefing was over after a Lutheran priest offered a prayer for the success of the "mission". The airmen then partook of the traditional pre-flight supper. Later, three B-29s took off at 2.45 a.m. on 5-6 August 1945, followed by Enola Gay. According to Browne and Munroe:

The flight was uneventful. Robert Lewis the co-pilot was keeping the log. Lewis, writing dutifully on the back of the war department forms, observed that the plane was drawing close to the target city, everyone on board had a big hopeful look on his face. Then he made a short entry. There will be a short intermission while we bomb the target.16

Hiroshima, the first atomic bomb target, had so far been spared along with Kyoto from the American fire bombings that had almost devastated all major Japanese cities. No one had understood as to why Hiroshima was being spared. In case of Kyoto, it was perceivable, because it was the spiritual centre of the country. The denizens of Hiroshima were regularly getting air raid warnings, were making repeated trips to air raid shelters and back home as warranted by the off and on air raid warnings.

Hiroshima, a provincial city, was well known for its beauty, having seven rivers and an excellent harbour. There was a special gentleness to this fan shaped city.17 On 6 August 1945 the first atomic bomb - "Little Boy" - was dropped over Hiroshima. The pilot and his crew observed a gigantic mushroom-cloud rising above the city of Hiroshima. On returning to their base they were feted as heroes; the pilot subsequently got the highest decoration within the jurisdiction of the American Air Forces. It was years before he, and the stunned world, had to learn as to what had actually happened at ground zero.18

17. Ibid.
18. Lane, n.14, p.141.
official and political levels, ran the gruntled exultation. But, at a Press conference in the White House to announce the use of the bomb against the Japanese, President Harry S. Truman spoke cautiously:

British and the American scientists, working together, have harnessed the basic power of the universe... and...further examination is necessary of the possible methods of protecting us and the rest of the world from the danger of sudden destruction.19

When the US President was speaking these words, thousands of the Japanese lay dying and many others were wreathing in agonies amidst the rubble of Hiroshima. In America, as well as in the rest of the world, there were conflicting emotional currents. Some were jubilant and some remorseful, whereas some thoughtfully remarked it was not necessary to hit the Japanese with that awful thing. In Hiroshima, according to estimates, there were 245,000 people, about 100,000 died that day and about 100,000 subsequently.20 The Japanese Government sent out a protest


to the World through the Swiss Embassy. They did summon their own nuclear physicist, Dr. Yoshio Nishina, Head of the Japanese Atomic programme to Tokyo, in order to ascertain whether the Hiroshima bomb was a genuine nuclear weapon and if so, whether he could also produce it within six months. This does suggest that the Japanese could withstand the massive raids which were being launched on their cities for that much more period and also that the atomic bombing of Hiroshima could not have been as decisive as the Americans had hoped.

Effects Upon Hiroshima

Hiroshima had a total city-area of twenty-six square miles, out of which seven square miles at the centre were densely populated. The city was situated on a broad river delta and was flat and slightly above sea-level. The principal industries were located on the periphery of the city. As a result of the civilian defence evacuation programme, its population had been reduced to 245,000 from total of approximately 340,000.

The atomic explosion had caught the city of Hiroshima by surprise. An air-raid warning had of course been sounded
at 7.09 a.m. on 6 August 1945 but in view of the small number of aircraft and their direction of flight which appeared to be leading them away from the city of Hiroshima, an 'all clear' signal was sounded at 7.31 a.m. Most of the people who had come out of their houses and buildings for taking shelter had not yet returned when the bomb exploded north-west of the centre of the built up areas. Most of the people, thus, were in the open and got exposed to the initial flash of blue-white light appearing like a giant magnesium flare. The flash was of extremely short duration and was accompanied by intense glare and heat. After the flash there followed a tremendous pressure wave and the rumbling sound of the explosion. According to Paul Johnson:

This sound is not clearly recollected by those who survived near the centre of the explosion, although it was clearly-heard by others as much as fifteen miles away. A huge snow-white cloud shot rapidly into the sky and the scene on the ground was obscured first by a bluish haze and then by a purple brown cloud of dust and smoke.21

In this explosion, most of the buildings in the arc of four square miles in the centre of the city were flattened

21. Ibid.
to the ground. However, about 50 buildings remained aloft because they had been reinforced with steel and concrete. They, however, suffered extensive structural damage and were internally gutted. "Most of the people who got trapped in the flattened buildings got crushed or pinned down by the collapsing building of flying debris". The eye-witness accounts have revealed that shortly after the flash and explosion, numerous fires started, a few due to the heat of the flash and many others attributable to secondary causes. These fires grew in size, merging into a general conflagration, fanned by a wind sucked into the centre of the city by the rising heat.

The United States Strategic Bombing Survey estimates that approximately 60,000 to 70,000 people were killed, and 50,000 were injured. Out of approximately 90,000 buildings in the city, 65,000 were rendered unusable. The underground structures, however, remained undamaged except those which were higher than the ground level such as the bridges over the rivers cutting through the city. Whatever factories, were there in the area of the hypocentre, all of these were

22. Ibid., p.23.
23. Ibid.
completely destroyed. There was hardly any damage to the factories which were at the periphery of the city and 94 per cent of their workers remained unhurt. It is estimated that these factories accounted for 74 per cent of the industrial production of the city and could have resumed normal production after getting over the initial shock of the blast. According to the Survey:

The surprise, the collapse of many buildings, and the conflagration contributed to an unprecedented casualty rate...the magnitude of casualties is set in relief by a comparison with the Tokyo fire raid of 9-10 March 1945, in which though nearly 16 square miles were destroyed, the number killed was no larger and fewer people were injured.  

The damage caused by the bomb was exceedingly great for most of the buildings. However, the main building of Hiroshima University stood intact amidst devastation. "The hands of its huge clock, which faced the campus, had stopped at 8.15." Clocks all over Hiroshima were fixed forever at 8.15 due to the split second blast. "But the bomb, which had


25. Toland, n.4, p.784.
stilled so many other clocks and watches at that time, had nothing to do with it; several days previously it had stopped prophetically at that catastrophic moment."

In the gigantic explosion of the atomic bomb its epicentre instantaneously reached a maximum temperature of several million degrees centigrade and the atmospheric pressure of several 100,000 bars. In the nuclear fire-ball, powerful heat rays and radiation were emitted in all directions within a short interval. Radiation extended not only directly from the burst point but also from the surface of the ground - from fission fragments and residue of neutron induced radio active material. The shock waves produced by the explosion and the tremendous blast that followed almost instantaneously demolished buildings and killed many people. Michael Wright records:

People standing by concrete walls near the epicenter of the explosion left no trace except their silhouettes, fused into the concrete by the heat blast, which was blocked for an instant by their bodies before they were vapourised. Others were horribly burnt and lacerated by storms of flying glass, wood and metal fragments.27

26. Ibid.

Besides those who were in the epicentre many others died and have had varying untoward influences. "New cases of radiation sickness occurred long after the blast, and leukemia and other cancers attributed to radiation are still arising." 28

The novelist John Hersey, who was sent to Hiroshima by the New Yorker Magazine in May 1946, to interview the survivors wrote:

the eyebrows of some were burned off and skin hung from their faces and hands. Others, because of pain, held their arms up as if carrying something in both hands. Some were vomiting as they walked. Many were naked or in shreds of clothing. On some undressed bodies the burns had made patterns - of undershirt straps and suspenders [or of] the shapes of flowers they had had their Kimonos. 29

The 'Little Boy' had left large areas, "almost 10 km² (4 sq miles) of Hiroshima's busy industrial, commercial and residential centre, a flattened wasteland. The blast was later estimated as equivalent to 12700 tons of TNT". 30 The Japanese Broadcasting Corporation announced in 1968, that between 240,000 and 270,000 citizens of Hiroshima had either

28. Ibid.
29. Ibid.
30. Ibid., pp.438-42.
been killed outright or had died of radiation sickness within five years.

Enola Gay's crew members reported that they had initially seen a pin point of purplish red light, miles below them which quickly expanded into a ball of purple fire exploding into a chaotic mass of flames. The co-pilot, Lewis, after having seen the immense mushroom seething turbulently over Hiroshima, exclaimed: "My God, what have we done?" Many of the crews were similarly aghast, upset, and stunned at first but were quickly filled with pride. Whateoer, in order to report the success of his mission, Colonel Tibbets relayed the following message:

RESULTS CLEAR CUT. SUCCESSFUL IN ALL RESPECTS. VISIBLE EFFECTS GREATER THAN TRINITY [THE TEST AT ALAMAGORDO]. CONDITIONS NORMAL IN AIRPLANE FOLLOWING DELIVERY PROCEEDING TO PAPACY [TINIAN].

The news of the bombing of Hiroshima was announced by Japanese Broadcasting Corporation at 6.00 p.m. on 6 August 1945, as follows:

August the 6th Hiroshima was attacked by B-29s this morning at 8.20. The planes have turned back after

31. Toland, n.4, p.784.
32. Ibid., p.786.
dropping incendiary bombs. Damage is now being investigated. 33

Records on the time of the explosion vary from 8:14 a.m. to 8:18 a.m. but the official time according to Hiroshima City is 8:15 a.m. 34

The US President Harry S. Truman on 6 August 1945 (7 August 1945 in Japan), stated clearly that the bomb used on Hiroshima was an atomic bomb. The Japanese Imperial Headquarters' announcement was also made at 3:30 p.m. on 7 August 1945 in Japan:

Yesterday Hiroshima was considerably damaged by the attack of B-29s. Our enemies have apparently used a new type of bomb, but details are now being investigated. 35

Hiroshima had suffered an unprecedented disaster. When Emperor Hirohito was informed that Hiroshima had been laid waste by some secret weapon by the Americans he, keeping in view the security and well being of his civilian subjects, 

33. The Committee For the Compilation of Materials on Damage Caused by the Atomic Bombs in Hiroshima and Nagasaki, Hiroshima and Nagasaki - The Physcial Medical and Social Effects of the Atomic Bombings (Trans) (Tokyo: Iwanami Shoten Publishers, 1979), p.22. (Hereinafter referred to as The Committee for Hiroshima and Nagasaki)

34. Ibid.

35. Ibid.
is reported to have remarked:

Under these circumstances we must bow to the inevitable... No matter what happens to me, we must put an end to this war as soon as possible. This tragedy must not be repeated!36

Some scholars are of the view that the unprecedented destruction of Hiroshima was caused only because of Japan's 'unrealistic' hope for a negotiated peace through the good offices of the Soviet Union. Whatevsoever, it undoubtedly inspired the Russians to advance their time-table to enter the war. The official declaration of the Soviets on 8 August 1945 stated that -

The Soviet Union declares that from tomorrow, that is from August 9, the Soviet Union will consider herself in a state of war against Japan.37

Nagasaki Bombing

On 9 August 1945 the second bomb, plutonium type, christened as "Fat Man" was dropped on Nagasaki. By a cruel irony of fate Nagasaki was a Christian dominated city - the centre of resistance to Shinto. It was a port city having a population of 200,000, spread over precipitous hills. Its

36. Toland, n.4, p.789.
37. Ibid., p.796.
bay faced the East China Sea. It was a fabled port of spectacular beauty. This city had been initially developed by the Portuguese in 1571 AD from a minor fishing village to Japan's chief port for foreign trade. Consequently, Christianity was widespread here and the Japanese authorities are reported to have taken a number of brutal steps to repress it from time to time but this faith survived all cruelties of the Japanese authorities against Christian missionaries and the converts. On 9 August 1945 at 11:02 a.m. "a spherical plutonium missile, ten feet eight inches long and five feet in diameter, called 'Fat Man' after Churchill,"38 was dropped here.

At the Tinian air-base, from where Enola Gay had earlier taken off to drop world's first atomic bomb over Hiroshima, now, on the morning of 9 August 1945 a pre-flight briefing for 'Fat Man' mission was conducted. It was followed by a moving prayer by the Chaplain. Major Charles W. Sweeney, twenty-five years old, was to be in the command of this mission. And this time the mother aircraft for the atom bomb - 'Fat Man' - had been named as 'The Great

38. Ibid., p.799.
Two B-29 bombers, one carrying the 'Fat Man', and the other a weather observation plane, took off in the early morning of 9 August 1945. At 9.50 a.m. they reached overhead Kokura - the primary target. For the 'Fat-Man' mission Kokura had been chosen because of its strategic importance. There was an army-base and an arsenal depot. Since Kokura could not be seen visually as it was fully covered with heavy clouds, and as per instructions, the atomic bombing had to be carried out visually only, the pilot headed for Nagasaki after having made three fruitless attempts to spot Kokura. When overhead Nagasaki, the crew once again could see only dark clouds overcast below, and it was only by means of airborne radar that Nagasaki had been identified at 11.00 a.m. The crew in desperation decided to drop the bomb by radar only but then they spotted the city of Nagasaki through a chance breach in the clouds. At 11:02 a.m. 'Fat Man' was instantly released and the B-29 made a quick turn to escape away. The time was 0:02 p.m. in Tinian (11:02 a.m.
Correspondent William Laurence who was in one of the aircraft, has described the subsequent scene as follows:

A tremendous blast wave struck our ship. This was followed by four more blasts in rapid succession... then there was a great pillar of fire shooting skyward with tremendous speed. The pillar of purple fire reached our altitude only in about 45 seconds. Awe struck, we watched it shoot upward like a meteor coming from the earth instead of from outer space, becoming ever more alive as it climbed skyward through white clouds. It was no longer smoke, or dust, or even a cloud of fire. It was a living thing... a giant mushroom that increased the height of the pillar to a total of 45,000 feet... In a few seconds the height of mushroom increased to 60,000 feet. When we were about 200 miles away we could see the boiling pillars of many colours, a giant mountain of jumbled rainbows, in travail. Much living substance had gone into those rainbows.

Major Charles Sweeney, the pilot of 'Great Artist', transmitted the following message to Tinian:

BOMBED NAGASAKI 090158Z VISUALLY WITH NO FIGHTER OPPOSITION AND NO FLAK. RESULTS "TECHNICALLY SUCCESSFUL" BUT OTHER FACTORS INVOLVED MAKE CONFERENCE NECESSARY BEFORE TAKING FURTHER STEPS. VISIBLE EFFECTS ABOUT EQUAL TO HIROSHIMA. TROUBLE IN AIRPLANE FOLLOWING DELIVERY, REQUIRES US TO PROCEED TO OKINAWA. FUEL ONLY TO GET TO OKINAWA.

39. The Committee for Hiroshima and Nagasaki, n.JJ, p.27.
41. Quoted in Toland, n.4, p.805.
Effects Upon Nagasaki

According the United States Strategic Bombing Survey the city of Nagasaki prior to the atomic bombing of 9 August 1945 had remained comparatively intact. And, merely two percent of the residential buildings, and only three of the large industrial plants had been destroyed or badly damaged in conventional bombings. According to Toland, the victims of Nagasaki were not all Japanese. Many allied prisoners of war died in the atomic bomb blast while they were at work in the POW camp and at the Nagasaki Steel and Arms Works. They had so far escaped many sporadic attacks carried out prior to 9 August 1945, by an aggregate of 136 planes which dropped 270 tons of high explosives and 53 tons of incendiary bombs.

The heat radiation and blast actions of the plutonium bomb dropped on Nagasaki were more intense compared to the uranium bomb dropped on Hiroshima. But as this bomb had exploded over the north-west portion of the city, the


43. Toland, n.4, p.805.
intervening hills protected a major portion of the city-lying in the adjoining valley. Even then the structures, despite having been reinforced with concrete, were damaged at greater distances. The heavy steel-frame industrial buildings of Mitsubishi Steel Works and the arms plants were pushed at crazy angles away from the centre of the explosion. Contrary to the situation at Hiroshima, the majority of the fires started immediately after the explosion, resulting from the direct ignition by the flash. And, approximately 40,000 persons were killed or missing and almost the same number of persons were injured. Of the 52,000 residential buildings in Nagasaki, 14,000 were totally destroyed and a further 5400 badly damaged. The casualties and the damage due to the Plutonium bomb would have been colossal but for the features of the local terrain. The Nagasaki Prefectural Report, as quoted in the Survey describes the effects of the bomb on the city as follows:

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. Dwellings and other structures were half damaged by blast.

Outside a radius of 4 kilometers and within a radius of 8 kilometers from the 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.

There were many underground tunnel shelters at Nagasaki. These were dug horizontally into the sides of the hills and had crude, mud-filled blast walls protecting the entrances. Such shelters could accommodate roughly 100,000 persons. The Survey surmised that "had the proper alarm been

sounded, and these tunnel shelters been filled to capacity, the loss to life in Nagasaki would have been substantially lower. But at the time of explosion there were only 400 persons in the tunnel shelters. With the impact of the explosion the blast walls of the tunnel were blown in "but all the occupants back from the entrances survived, even in those tunnels almost directly under the explosion. Those not in direct line with the entrance were uninjured."

The Survey estimated that because parts of the city were protected by hills, more than one half of the residential units escaped serious damage. In 558 non-residential buildings in the built-up area of Nagasaki, almost 60 per cent of the usable floor area was destroyed or structurally damaged. Only 12 per cent was undamaged. "The survival of a higher percentage of the buildings, then, distinguishes Nagasaki from Hiroshima, so also, on the other hand, does the damage to factories."

The Mitsubishi Company had many large plants in the Nagasaki town. Its arms factories and steel works were

47. Ibid.
responsible, together with dockyards, for more than 90 per cent of the industrial output of the city. The arms plants were in the main area of damage. However the dockyard, the largest industrial establishment, was located down the bay from the explosion and it suffered virtually no damage. The Mitsubishi Electric Works were on the edge of the main area of destruction and suffered a mere 10 per cent structural damage.

In totality, the damage to machinery and other paraphernalia in factories, was less than damage to the buildings. The air-burst caused due to atomic explosion acted indirectly upon machine tools and other buildings: mostly the damage was caused by debris from the falling, overturning or burning of buildings. The damage to the machinery also depended upon the type of construction of the buildings. If a building was greatly reinforced with concrete or steel frame, the machines were not seriously affected. However, if it was one of wooden frames or the like, then the machines were seriously damaged. In the timber-framed shops, the machines were literally destroyed up to a distance of 7000 feet from the ground zero. The Survey estimated that the Mitsubishi plants, which were
functioning to a fraction of their capacity due to the shortage of raw materials, could have been restored, had the war continued longer or if the raw materials could have been made available.

The steel works, according to the Survey "would have required a year to get into substantial production, the electric works could have resumed production at a reduced rate within two months, and been back at capacity within six months and the arms plant would have required 15 months to reach two-thirds of their former capacity."49

Strategy in Atomic Bombings

The eventual strategic use of atomic weapon was dependent upon certain conditions which were prevailing at the time when the first atomic weapon became available. By the middle of 1945, Japan was almost a spent force, unable to project its strength beyond homelands. It lost command of the sea as well as the air and was being starved of resources through blockade. It was being subjected to an incessant and inhuman burning by the waves of B-29 bombers.

49. Ibid., p.15.
But for the Americans, it still provided no hope of the desired Japanese surrender.

Whereas, on the other hand, the Japanese had recognized by virtue of their repeated reversals, that there was no scope for achieving victory. They were seeking means and ways to surrender, but only under favourable conditions and the most important amongst these conditions was the safety of the imperial institution and the personage of their Emperor. The Japanese were keen to continue to fight only in the hope that during the course of the invasion of their homelands, the Americans would have to pay a heavy price. It may also encourage the Americans to modify their demand for unconditional surrender. The Japanese had pinned their hopes on Soviet mediation to work out favourable terms for surrender.

The Americans had estimated that the planned invasion for occupying the Japanese homelands would cost them heavy casualties. The alternative was to inflict punishment on the enemy by blockade and aerial bombardment - both the means in which Japanese had a minimal resistance to offer. The use of nuclear weapons was also constrained by the lack of key military targets available. In the first meeting, to discuss
atom-bomb's use in May 1943, the Japanese fleet at Truk was considered a suitable target. But by mid-1945 the Japanese fleet was virtually non-existent. The use of atomic bombs, in a tactical mode, was considered for invasion of Japan. But an invasion was still the very thing the US policy makers wished to avoid. 50

Americans wanted to induce a sense of hopelessness in a people still resisting, despite immense suffering. They wanted to impress upon them their vulnerability to an unprecedented form of terror. Stimson wrote in 1947:

I felt that to extract a genuine surrender from the Emperor and his military advisers they must be administered a tremendous shock which would carry convincing proof of our power to destroy the Empire. 51

The atomic bomb was more than a weapon of terrible destruction: it was a psychological weapon. Stimson observed that General Marshall also was emphatic in his insistence on the shock value of the new weapon. 52 Marshall, indeed, was against giving the Japanese a warning. He explained: "It is

51. Quoted in Ibid., p.19.
52. Ibid.
no good warning them. If you warn them there is no surprise. And, the only way to produce shock is surprise."53 Liddell Hart had noted, while discussing the value of Air-power, that so long as the process is gradual human beings can accommodate to degradation of their standard of life. Decisive results can be achieved sooner from sudden shocks than long-drawn-out pressure. Shock throws the opponent off balance. Pressure allows him time to adjust to it.54 The incendiary bombings were gradually increasing pressure upon the Japanese whereas the atomic bombings were to administer shock and surprise.

In the case of the strategy to finally employ the atomic weapons, events moved with terrible swiftness to a climax of almost contrived melodrama. Predictably, the Americans relied on technology. The Americans had deliberately restricted direct fighting against the Japanese. But when the Americans finally moved in for the kill (to prevent Russia taking advantage of the Japanese collapse in East Asia as much as to save their own forces),

53. Ibid.
54. BH Liddell Hart, quoted in Ibid.
their scientific and technological superiority as well as brute force and naked play of power was once more demonstrated with overwhelming effect. According to Robertson, "Ninety-two years after American forces first entered Japan to force its government to open Japan's door to the West, two atom bombs obliterated Hiroshima and Nagasaki."55 Some scholars have chosen to maintain that it forced a Japanese surrender but not withstanding their contention, it is apt to say that it was an act whose moral consequences have proved catastrophic for the whole of mankind.

David E. Lilienthal has also pointed out that in the whole of history, no single force has cast a greater terror over all mankind than the atom bomb. Since Hiroshima, the image of final catastrophe has seized on the minds and hearts of men, as the explosion of the atomic bomb at Hiroshima on 6 August 1945, was heard all over the world and stunned nearly all who heard it.56 Its echoes still


reverberate in all parts of the world. According to the
Survey:

On 6 August and 9 August 1945, the first two atomic
bombs to be used for military purposes were dropped on
Hiroshima and Nagasaki respectively. One hundred
thousand people were killed, 6 square miles or over 50
per cent of the built up areas of the two cities was
destroyed. The first and crucial question about the
atomic bomb then was answered practically and
conclusively; atomic energy had been mastered for
military purposes and the overwhelming scale of its
possibilities had been demonstrated. 57

The Atomic Bombs were not singularly decisive in ending
the war. It has been mistakenly held that the atomic bombs
rendered the invasions of Japanese mainland unnecessary and
saved hundreds of thousands of lives. In fact even the
Survey has brought out that these gruesome bombs fell after
it was agreed in Japan that the war had to be ended at a
meeting of key members of the Supreme War Direction Council
with the Emperor on 20 June 1945, a full six weeks before
the devastation of Hiroshima. 58

The impact of the apocalyptic atomic bombs on the
Japanese surrender was one of the subjects of study by the

57. USSBS, Summary Report, n.42, p.22.
Based on a detailed investigation of all the facts, and supported by the testimony of the surviving Japanese leaders involved, it is the Survey's opinion that certainly prior to 31 December 1945, and in all probability prior to 1 November 1945, Japan would have surrendered even if the atomic bombs had not been dropped, even if Russia had not entered the war, and even if no invasion had been planned or contemplated. 59

Nevertheless, the controversy still rages as to the reasoning behind the dropping of two atomic bombs over Japan - how far they were necessary to hasten the end to the Pacific war, and how far they provided the United States with diplomatic leverage over the Soviet Union? A better case relating to the economics of the issue can perhaps be made out for the use of atomic bombs against Japan in the light of such phrases as 'the bombs had been devised at a great cost', and 'because Washington was determined to end the war as soon as possible'. But, given the American mood after three and a half years of war, Pearl Harbour, Baatan and Iwo Jima, one suspects that the bombs would have been

dropped irrespective of even the state of Russo-American relationship. Yet, in the context of 1945 campaigning, it (the dropping of atomic bombs) was but one of a series of military tools which the United States then could employ to compel Japan to surrender.

The mix of motives which, despite certain reservations, pushed towards the decision to drop the bomb - the wish to save allied casualties, the desire to send a warning to Stalin, the need to justify the war expenses of atomic project - are still debated today.

