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MARITZBURG PEACE COMMITTEE

SPEAKERS NOTES

A T O M I C W A R F A R E

THE ATOM BOMB AS A WEAPON: Its effects on NAGASAKI, HIROSHIMA and TOKYO.

The attacks were launched from the Island of Tinian by B 29 aircraft carrying the bombs, accompanied in each case by one or two observation planes. The first bomb exploded at 8.15 a.m. on August 6th 1945, over Hiroshima.

Most of the workers had already reported to work and many workers were en route andnearly all school children and some industrial employees were at work in the open. The attack came 45 minutes after the "all clear" had been sounded from a previous alert. Because of the lack of sufficient warning the explosion came as an almost complete surprise and the people had not taken shelter. (USS. BS., 5, p. 3).

About 4.4 sq miles of the city was completely burnt out. Seventy to eighty thousand people were killed, or missing and presumed dead and nearly an equal number injured.

The bombing of Nagasaki was carried out three days later; when the bomb was dropped no raid warning was given and only some 400 people were in the city's tunnel shelters, Eye witnesses in Hiroshima were agreed that they saw a blinding white flash in the sky, felt a rush of air and heard a loud rumble of noise, followed by the sound of rending and the falling of buildings. All spoke of the settling darkness as they found themselves enveloped by a universal cloud of dust. Shortly afterwards they became aware of fires in many parts of the cit, (British report).

The following table gives some numerical details of the effects of the two atomic bombs, together with the effects of the great fire raid on Tokyo in March 1945, and the average effects of a large number of other attacks on Japanese cities

	EFFORTS AND RESULTS.			
	Hiroshima.	Nagasaki.	Tokyo.	Average of 93 Urban attacks.
Planes	1	1	279	
Bomb Load	Atom bomb	Atom bomb	1667 tons of bombs	1129 tons of bombs.
Population density per sq. mile.	35,000	65,000	130,000	-
Square miles destroyed.	4.7	1.8	15.8	1.8
Killed and missing	70 to 80 thousand.	35 to 40 thousand.	83,000	1,850.
Mortality rate per sq. mile destroyed	15,000	20,000.	5,300.	1,000.
Casualty rate per sq. mile	32,000.	43,000.	11,800.	2,000.

(USS. BS. 5)

The Plutonium bomb used at Nagasaki had a 15% greater radius of destruction than the Uranium 235 bomb used at Hiroshima. The figures in the table show that the population density at Tokyo was much greater than at the two other cities; so, if an Atomic bomb had been dropped on the former city, the casualties would have been two to three times as heavy as they actually were at Hiroshima.

The effects of the explosion are described in the following passage :-

At the time of the explosion, energy was given off in the form of light, heat, radiation, and pressure. The complete band of radiations, from X-ray and gamma rays, through ultra-violet and light rays to the radiant heat of infra-red rays, travelled with the speed of light. The shock wave, created by the enormous pressure, built up almost instantaneously at the point of the explosion. The superheated gases constituting the original fire ball expanded outwards and upwards.

The duration of the flash was only a fraction of a second, but it was sufficiently intense to cause third degree burns to exposed human skin up to a distance of a mile. In the immediate area of ground zero (the point on the ground immediately below the explosion) the heat charred corpses beyond recognition.

The blast wave which followed the flash was of sufficient force to press in the roofs of reinforced concrete structures and to flatten all less sturdy structures. The blast wave, however, was of far greater extent and duration than that of a high explosive bomb and most reinforced concrete structures suffered structural damage or collapsed up to distances of 700' at Hiroshima and 2,000' at Nagasaki. Brick buildings were flattened up to 7,300' at Hiroshima and 8,500' at Nagasaki.

EFFECTS OF THE TWO BOMBS ON LIFE IN THE TWO CITIES:

Both at Hiroshima and Nagasaki the scale of the disaster brought city life and industry virtually to a standstill. Even the most destructive conventional attacks, the incendiary raids on Hamburg in the summer of 1943, and on Tokyo in the spring of 1945, had no comparable effect in paralysing the communal organisation.

At Hiroshima the effects were as follows:

Of approximately 90,000 buildings in the city, 65,000 were rendered unusable, and almost all the remainder received at least superficial damage. All the small factories in the centre of the city were destroyed. These factories accounted for 74% of the industrial production of the city.

At Nagasaki the effects were as follows:

Of approximately 57,000 houses, some 20,000 houses were rendered damaged and unsuitable. Industrial production would have taken at least on the average of 9 - 10 months for full restoration.

REPORTS ON H. BOMB EXPLOSION.

The explosion took place in the Pacific on March 1st 1954. The explosion surprised even American scientists; with an intensity three or four times greater than they calculated. They described it as a "warm up" explosion.

The Hydrogen Device exploded with a force equivalent to between 12,000,000 and 14,000,000 tons of T.N.T. It sent out a shock wave felt 176 miles away. The blast was 600 times as violent as the Hiroshima Atom blast which caused 60,000 deaths, and five times as powerful as the explosion of November 1st 1952, which was believed to be the first American H. Bomb.

The March 1st blast was said to have been set off from a 150 foot tower, and to have shot a nuclear cloud more than 17 miles high into the air.

Atomic dust fell on an island 330 miles away, and the shock was felt at Kwajalein Islands 176 miles from Marshall Islands where the test was conducted.

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The four major and immediate characteristics that a nuclear detonation produces is: blast, heat, immediate nuclear radiation and residual radioactivity. The United States of America has announced recently that she has developed fission bombs many times as powerful as the first Atom bomb and Hydrogen weapons in the ranges of millions of tons [megatons] of T.N.T. equivalent.

FUTURE TECHNICAL DEVELOPMENT : BACTERIOLOGICAL WARFARE.

An official report on Biological Warfare by G.W. Merck, Chairman of the United States Biological Warfare Committee has been published, in which some general principles have been elaborated, but without giving much specific information.

Biological Warfare may be defined as the use of bacteria, fungi, viruses, rickettsios and toxic agents from living organisms [as distinguished from synthetic chemicals used as gases or poisons] to produce death or disease to man, animals, or plants. Unlike the development of the Atomic bomb, and other secret weapons during the war, the development of agents for biological warfare is possible in many countries, large and small, without vast expenditure of money or the construction of huge production facilities. The development of biological warfare could very well proceed in many countries, perhaps under the guise of medical or bacteriological research. In whatever deliberations take place concerning the implementation of a lasting peace in the world, the potentialities of biological warfare cannot safely be ignored.

In an article, Prof. K.V. Kinmann says, "Pathogenic bacteria could be sprayed on the enemy in various ways, in missiles or from the air. Cholera, dysentry and bubonic plague would be obvious choices for such a campaign". Prof. Kinmann also discusses the possibility of attack on growing crops by means of new types of chemical compounds and by the spreading of natural diseases such as wheat rust. A routine unpurified preparation of 'Psittacosis Virus' a representative member of the group of highly infective disease agents characteristic of bacterial warfare, has been reported to contain per cubic centimetre approximately 20,000,000 respiratory doses for man. Such preparations of 'Psittacosis' virus could easily be produced in litre amounts in a single small laboratory, with only such equipment and materials as are common to virus laboratories throughout the world. The "payload" in a Psittacosis "bomb" and probably the whole munition, could be small, cheap and easily turned out in quantities.

The following appeared in the "Finletter Report" :
'Atomic weapons will not long remain our monopoly, and there are other weapons of comparable destructiveness. Mankind has not indulged in Biological Warfare on a large scale so far, but the biological sciences are evolving so rapidly that it is impossible to predict the future. The preplacement of Atomic and Biological weapons may soon become a major military problem.

A recent statement by Dr. Oppenheimer suggests that the efficacy of radio-active poisons may be rated very high in America. Under the title of "The Fallacy of Preventive Wars" Dr. Oppenheimer suggests that U.S. Air Squadrons could eradicate more than 40,000,000 people by an attack on the U.S.S.R. with Plutonium bombs. Taking the average expected casualties as equal to those at Nagasaki, that is 40,000 per bomb, one would need 1,000 bombs. Dr. Oppenheimer is, however, discussing an imaginary preventive war, so it seems he must be assuming some other atomic weapon, than actual plutonium bombs.

This in short is the actual consequences of Biological and Bacteriological Warfare.