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DEDICATION

To the victims of Hiroshima and Nagasaki.

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PREFACE

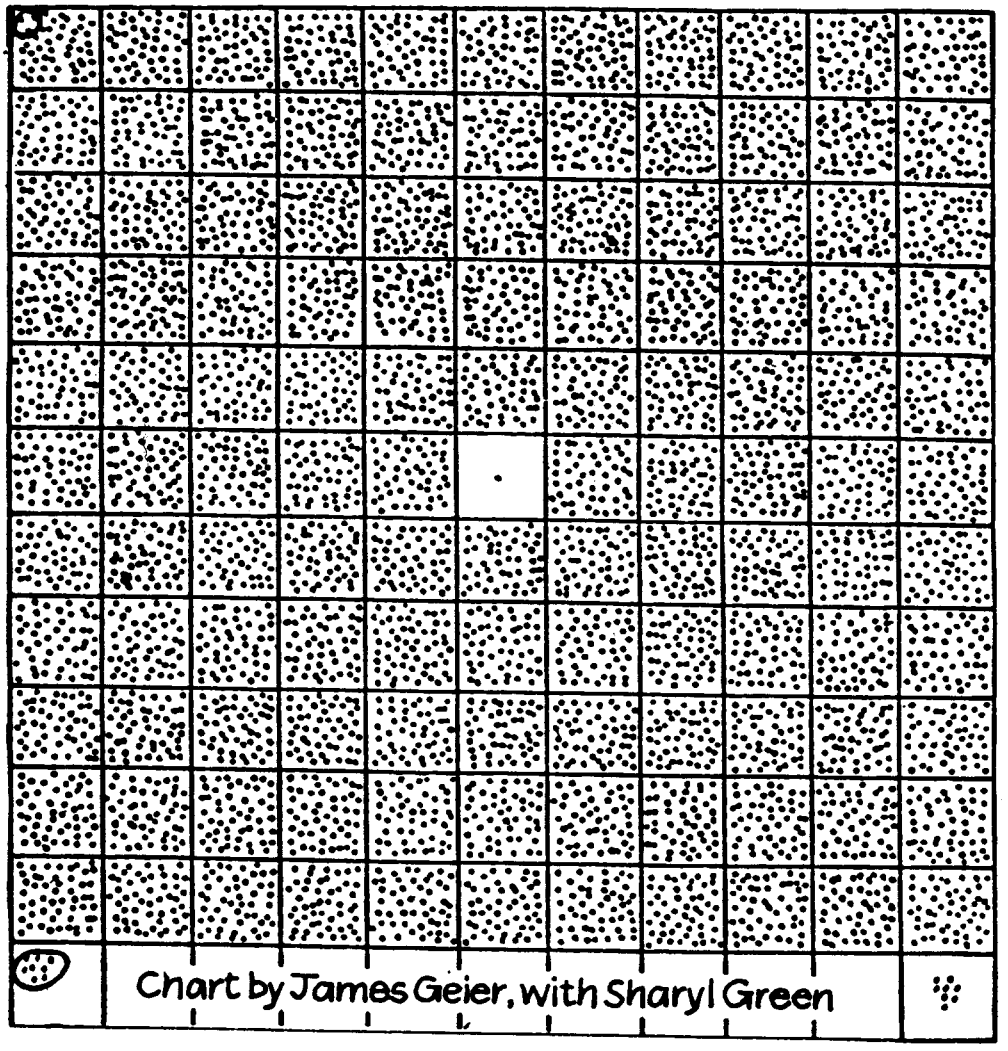
The purpose of this Working Paper is to provide some general information on, and to stimulate dicussion about, a subject of great topical interest. The subject is too big and complex to permit its being treated in full in a paper as short as this Working Paper. The reader may wish to consult the bibliography at the end of the paper, which covers a small part of all the literature available on the subject and which refers to only a portion of the sources the Editors have consulted. Sources used specifically for some paragraphs are briefly referred to at the end of those paragraphs, with complete references being given in the bibliography at the end. Because disarmament involves the security of nations a discussion of disarmament touches on various political sensitivities. Some sensitive elements may have found their way into this paper and the Editors wish to stress that they assume full responsibility therefor. The entire paper is meant to be read as a subjective analysis by the authors composed of their own perceptions and conceptions of what is without a doubt the most important problem of the present day.

If this paper stimulates us, whatever our nationality or political view, to think constructively what we might do to help solve a problem that affects us all, it would have served its purpose.

In expressing their gratitude to all those who have advised and helped them, the Editors reiterate that they themselves are fully responsible for the opinions expressed in this paper.

The Editors.

INTRODUCTION



Source: Nuclear War In Vermont

The dot in the center square represents all the firepower of The Second World War. Three megatons were expended. The other dots represent the number of Second World War equivalents that now exist in nuclear weapons. This is 18,000 megatons or the firepower of 6,000 First World Wars. About half belong to the Soviet Union and the other half belong to the United States.

The top left hand circle represents the weapons on just one Poseidon submarine, equal to the firepower of three Second World Wars or nine megatons, enough to destroy over 200 of the Soviet's largest cities. The United States has 31 such subs and 10 similar Polaris subs.

The circle in the lower left hand square represents one new Trident sub with the firepower of eight Second World Wars or 24 megatons, enough to destroy every major city in the Northern hemisphere.

The Soviet Union's ability to inflict destruction is similar to the examples cited above.

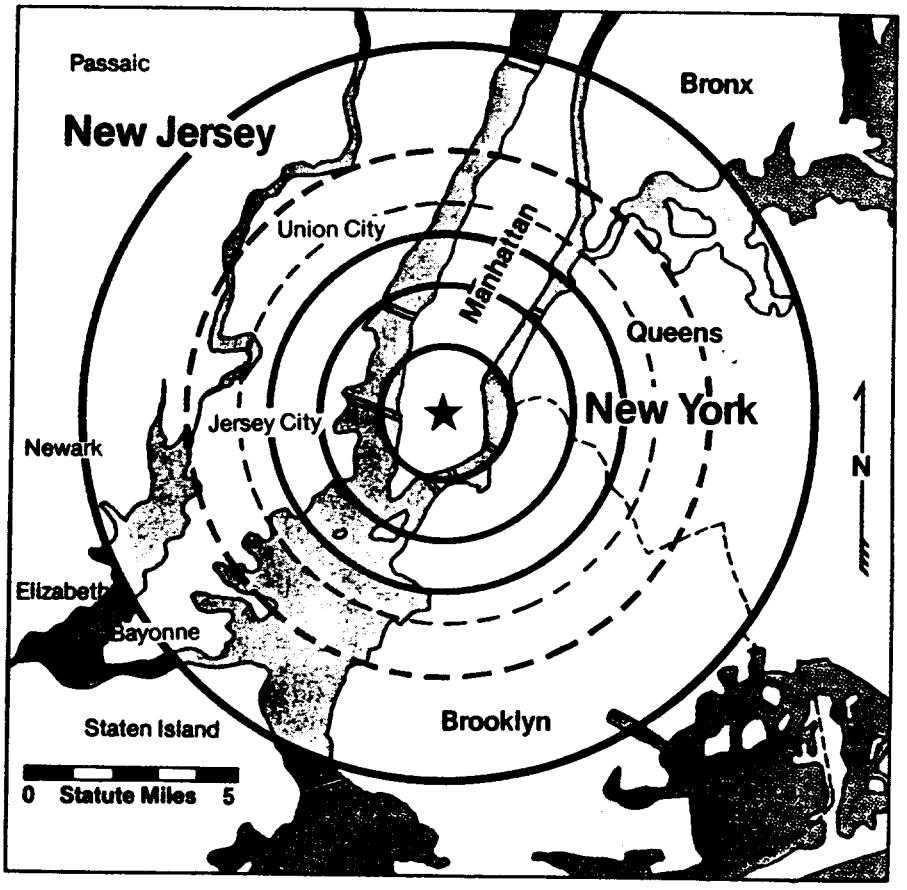
If you place a dime on this chart, those dots covered by the dime represent enough firepower to destroy all the large and medium size cities in the entire world...

Source: Nuclear War in Vermont

THE HORRORS OF NUCLEAR WAR

When discussing nuclear weapons and their potentially devastating effects on the entirety of the earth's life, we encounter many reiterated facts and statistics, the importance of which we often fail to comprehend. In trying to paint a picture of the destruction that such weapons can cause, we are faced with a unique problem: we are dealing with a future event, a catastrophe with no precedent in the history of mankind. We must rely on the experiences of Hiroshima and Nagasaki and on later tests conducted by various governments, both in the atmosphere and underground, to provide us with the information we need to piece together a hypothetical scenario of what life, if any, would be like in the event of a nuclear war.

A nuclear bomb produces destructive effects thousands of times greater than any previous conventional weapon. The primary destructive effects fall under four main categories. The first, called the "initial nuclear radiation", occurs at the moment the bomb explodes. During this instant, the temperature at ground zero reaches billions of degrees, a temperature hotter than any in the universe, except that prevailing in a supernova. The pressure rises to millions of atmospheres, and the combined effect of this pressure, the heat, and the immense force unleashed by the bomb's detonation produces radiation, consisting mainly of gamma rays, which are released into the surrounding environment. People living within an area of six square miles of an explosion of a one megaton bomb would be killed by this initial radiation.



★ marks ground zero, where the bomb would hit. In circle one, reinforced concrete buildings would be destroyed. In circle two, masonry buildings would be destroyed. In circle three, houses would be destroyed. In circle four, there would be spontaneous fires. In circle five, survivors would suffer third degree burns.

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In addition, the gamma radiation released by the initial explosion would act on the atmosphere to create an electromagnetic pulse. In theory, if the bomb were detonated at a high enough altitude, the blast would produce surges of voltage in electrical systems over a large area, rendering them nonfunctional. "A single multi-kiloton nuclear weapon detonated one hundred and twenty five miles over Omaha, Nebraska, could generate an electromagnetic pulse strong enough to damage solid-state circuits throughout the entire continental United States and in parts of Canada and Mexico, and thus threaten to bring the economies of these countries to a halt." (Schell)

After the initial detonation, the second major cause of destruction, a fireball, begins to form; its temperature reaches millions of degrees. Great amounts of

heat, or thermal radiation, are emitted and accompanied by an intense, blinding flash of light. A glance at the fireball would produce severe retinal burns. Approximately 35 percent of the energy created by a nuclear explosion is in the form of thermal radiation, which may inflict damage in two ways: by causing skin burns directly, and indirectly by starting fires. A one-megaton bomb produces fatal burns within a five-mile radius of ground zero, for exposed skin becomes extremely hot almost immediately and is completely destroyed. Thousands more outside this circle would be injured, often severely. Burns caused by nuclear explosions are unlike conventional ones; indeed they are far worse, because the skin is subjected to sudden and instantaneous heat and light. Clothing provides no protection, as the heat filters through fabric. Such burns, resulting from thermal radiation, heal slowly and with difficulty, and often lead to fatal skin cancer.

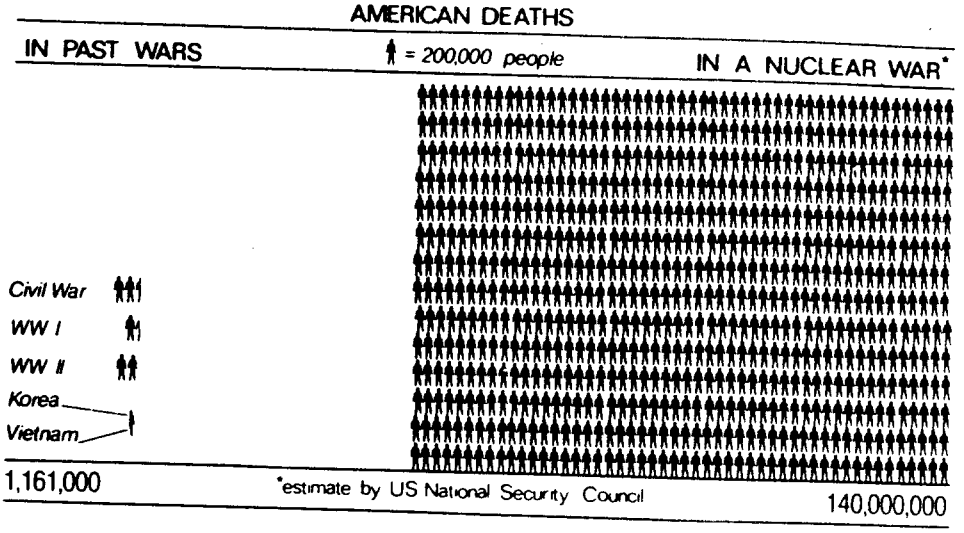
The fires, the other result of thermal radiation, are created by blast damages to furnaces and electrical systems, as well as by spontaneous combustion caused by the intense heat. The fires create intense winds, and consume oxygen so quickly that they are capable of literally "sucking out" the air in a shelter, suffocating and burning those hiding inside. The brief moments of life experienced in the middle of such a firestorm would indeed resemble an existence in the worst corner of hell.

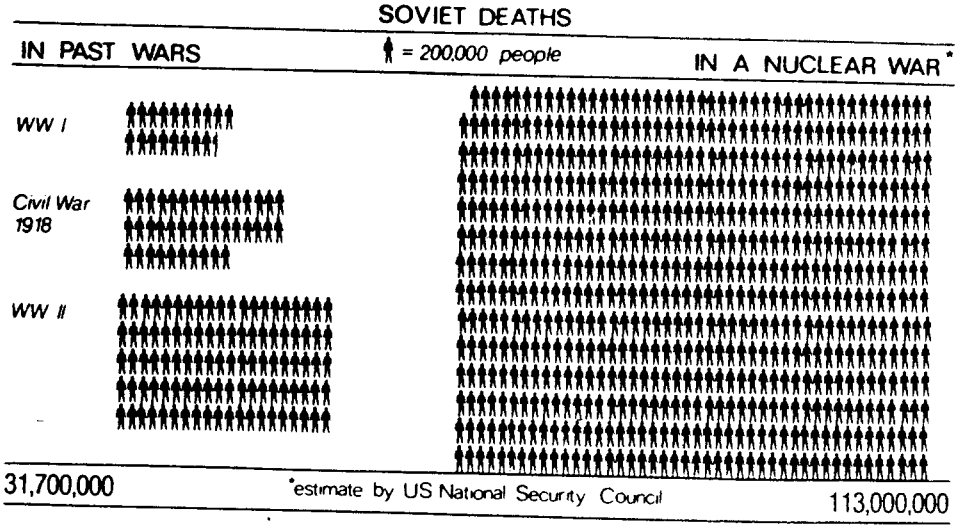
The third source of damage is from the blast wave accompanying the fireball. This is a powerful shock effect which creates a wall of compressed air in a fraction of a second. The wave radiates outward from ground zero at a speed of approximately 15 kilometers per minute, or 1200 kilometers per hour, which is faster than the speed of sound. The physical damage caused by this wave is extensive; human casualties result from falling structures and airborne debris, and from bodies being picked up and hurled, missile-like, by the intensity of the blast.

Radioactive fallout is the fourth danger caused by a nuclear explosion. The fireball gradually rises into the atmosphere as it burns and gathers water from the air to form the characteristic mushroom cloud. If the weapon has been detonated at or near ground level, the fireball as it grows blasts the ground, forming a crater, and then sucks up tons of soil, rock, and other debris into the cloud. It thus creates highly radioactive material which will eventually return to earth in the form of radioactive fallout. This fallout may return within the first 24 hours, or it may be caught up by winds and dispersed over hundreds of miles, returning to earth months and years later.

An individual surviving the initial effects of the explosion may then be exposed to either short- or long-term fallout. The initial radioactive fallout decays quickly, and within two weeks has reaches 1/500 of its level one hour after the explosion. Eighty-six percent of the total dose is emitted within the first 72 hours after the blast. This is of course the most intense dose given off. In areas of such intense radiation, fallout exposes an individual to lethal doses of radiation regardless of any form of shelter. Fatal doses of radiation start at about 100 REMs(Roentgen Equivalents in Man: a measure of the level of radiation in the human body). The radiation from a nuclear explosion could be

500 REMs or greater. Survivors affected by smaller doses of radioactive fallout are likely to face a bleak existence, one filled with sickness, pain, disease (caused by the loss of immunological systems in the body), and genetic aberrations in future generations. Often it is said that those who died would be better off.





Source: Nuclear War in Vermont

Life after a nuclear holocaust, if it still existed, would be changed indeed. The structure of society would have been permanently destroyed. The survivors would have to build a new world and a new way of life for themselves from the steaming remnants of the old one. The post-holocaust world would be characterized by the dismal, eerie silence of death, broken only by cries of pain from the wounded. No help would come to these people, for indeed all help would have been destroyed, and with it all hope of relief. Food and water would

be contaminated and people would starve. If a society could be formed out of such a group of people, one might see the familiar, conventional laws that governed social conduct laid aside under pressure from an older, more basic rule: the instinct for survival. Or we might see the exact opposite: a wandering, aimless society which, having lost everything has no reason to live. Although such scenarios are hideous beyond belief, military specialists in the governments of both nuclear superpowers are thinking of strategies that might make this horror real. How can anybody plan for a war that could be the end of humanity?

Source: Nuclear war: What's In It For You; The Fate Of The Earth; General And Complete Disarmament.

HISTORY

The Cold War

The world is dominated by two superpowers, each with the ability to annihilate the human race several times over. This is a threat that began when, at the close of the Second World War, the alliance that had existed between the United States and the Soviet Union collapsed with the elimination of their common enemy. "Two great powers, differentiated by divergent centuries-long experience and separated by sharply differing ideological perspectives, yet thrust into political proximity as a consequence of the shattering of the earlier international system, could hardly avoid being plunged into a competitive relationship." (Brzezinski)

There was more than ideology that separated the two superpowers. Tensions mounted throughout the 1950s and 1960s. One crisis after another, from Berlin to Cuba threatend to push the Cold War over the edge and turn it into a shooting war. A perilous game of brinkmanship ensued, in which each side probed for weaknesses in the other.

There was some hope that tensions could ease during the era of detente in the 1970s, when the SALT I and II agreements were signed between the Soviet Union and the United States (see chronology). The Soviet invasion of Afghanistan and the hardening of United States policies have caused tension to escalate again. The Cold War, during its 37 year history, was often on the brink of a hot one. Only this time, the nuclear arsenals of the world are more destructive than they have ever been, and a third world war could truly be the last war.

The Arms Race

The present arms race can be thought of as beginning with the explosion of the atom bomb over Hiroshima on 6 August 1945, which ushered in a new era in warfare. The United States offered to share the new technology for peaceful uses through the Baruch Plan presented to the United Nations in 1946. The Soviet Union rejected this plan because its terms favored the United States, and discussions about the internationalization of the atom came to nothing. In 1949 the Soviet Union exploded its own bomb.

A fierce debate followed in the scientific community in the United States--should research into the production of an even more powerful bomb--the "super" or hydrogen bomb-- proceed? Robert Oppenheimer, the father of the atom bomb, had quoted the Baghavad Gita when he saw the explosion of the first bomb on the test site in New Mexico: "I am become death, the shatterer of worlds," and he now bitterly opposed the government's plan to go on to the next greater form of destruction. In 1951, the United States exploded its first hydrogen bomb. In 1953, the Soviet Union followed suit.

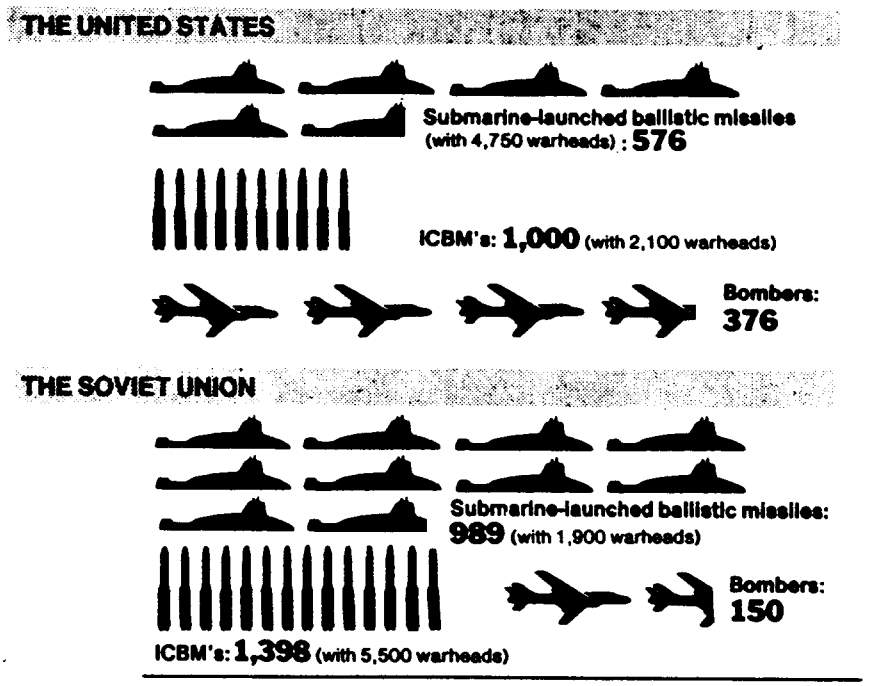
Inventions and counter-inventions followed each other in a deadly game of leapfrog. Improved bombers, nuclear submarines, missiles of intermediate and intercontinental range, missiles that traveled on solid fuel, missiles launched from submarines, missiles with multiple warheads, missiles that are computer-guided, missiles that escape radar detection, missiles that attack other missiles, missiles that are faster, more accurate, more destructive. Each time one side learned that the other had developed a new weapon, it tended to exaggerate its size and effectiveness, thus giving a "justification" to proceed with "improvements" of its own. Each side is thus caught in an ever-expanding spiral of fear and need to frighten. This is best expressed in a quotation from George F. Kennan:

> "We have gone on piling weapon upon weapon, missile upon missile, new levels of destructiveness upon old ones. We have done this helplessly, almost involuntarily; like men in a dream, like lemmings heading for the sea, like the children of Hamlin marching blindly behind their Pied Piper. And the result is that today we have achieved, we and the Russians together, in the creation of these devices and their means of delivery, levels of redundancy of such grotesque dimensions as to defy rational understanding."
>
> Quoted in: Stop Nuclear War

In light of a superpower arms race, there is little incentive for some countries that do not have the bomb to refrain from developing one.

The Nuclear Arsenals of the United States and the Soviet Union

Nations organize their weapons systems on land, sea and air. Today, these defenses, in terms of nuclear weapons, are translated into land-based missles, bombers and submarines. This three-legged structure of defense is called a Triad.



Glancing through recent figures comparing the military strength of the United States and the Soviet Union in strategic weapons, one might believe that the Soviet Union is superior in SLBMs and ICBMs (see p.13) with the United States holding an edge in bombers. The fact is, even though the United States has 576 SLBMs to the U.S.S.R.'s 989, the United States has 4750 warheads while the U.S.S.R. possesses "only" 1900. The Soviet Union still has a clear superiority over the United States in ICBMs with 5500 warheads on 1398 missiles compared to 2100 warheads on 1000 missiles. With bombers, the United States has 376 while the U.S.S.R. has 150.

The United States has chosen to balance each leg of its triad while the Soviet Union has chosen to place an emphasis on its land based ICBMs. As land based missiles are basically stationary, they are vulnerable, whereas SLBMs are well

hidden in the ocean, mobile, and difficult to track, making them less vulnerable to a nuclear attack. Thus the Soviet Union has 5500 vulnerable and 1900 less vulnerable warheads compared to the United States' 2100 vulnerable and 4750 less vulnerable warheads.

It is obvious from the preceding chart that, contrary to what each claims, neither side holds a clear nuclear advantage.

A Disarmament Chronology

1925: The Geneva Protocol bans the use in war of chemical and bacteriological weapons.

1946: One year after the end of the Second World War the first resolution adopted by the General Assembly of the United Nations establishes the Atomic Energy Commission. Its purposes are to determine how atomic energy can be used peacefully, to devise a plan to eliminate atomic and other weapons of mass destruction, and to set up safeguards to prevent violations of such a plan.

1957: The International Atomic Energy Agency (IAEA) is established to encourage the peaceful uses of atomic power and to inspect installations to verify their peaceful use.

1959: The Antarctic Treaty is signed, prohibiting the placement of nuclear weapons or other weapons in Antarctica. Also "general and complete disarmament" is inscribed on the agenda of the General Assembly and remains there until the present.

1961: The United States and the Soviet Union submit a statement in the United Nations saying that their goals in negotiations are to ensure that war is no longer an instrument for settling international disputes. Also an Eighteen-Nation Disarmament Committee (ENDC) is formed, and later expanded, finally becoming the Committee on Disarmament with a membership now of 40 countries that meet regularly in Geneva.

1962: A "Draft Treaty" on general and complete disarmament is submitted to the ENDC by the Soviet Union. The United States submits the "Outline of Basic Provisions" for the same purpose. The two suggestions differ significantly on two points: measures for verification and peace keeping. The discussions that follow show how difficult it is to reach agreement on these measures, and as a result discussions shift to other aspects of disarmament, such as nuclear weapons testing and proliferation.

1963: As a reaction to radioactive fallout in the atmosphere from nuclear bomb tests in the 1950s, the Partial Test Ban Treaty is opened for signature in Moscow and is eventually agreed to by 111 States, including the Soviet Union, the United

Kingdom, and the United States. It bans tests in the atmosphere, underwater, and in outer space. China and France are not signatories.

1967: The Treaty of Tlatelolco, banning nuclear weapons in Latin America, is ratified. However, it does not prevent nuclear tests for peaceful purposes. Talks on declaring other regions "nuclear-free", have not so far been successful.

1967: A treaty prohibiting the placement of nuclear weapons or other weapons of mass destruction in outer space, including the moon and other celestial bodies, is opened for signature.

1968: The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) is drawn up; it forbids the transfer of nuclear weapons from nuclear weapons states to non-nuclear weapon states, and the latter undertake not to manufacture such weapons. One-hundred and seventeen nations have agreed to it, but there are still a number of states that would be capable of producing nuclear weapons that have not become parties to the Treaty.

1971: A treaty is concluded prohibiting the emplacement of nuclear weapons and other weapons of mass destruction on the seabed and the ocean floor.

1972: The Treaty on the Limitation of Anti-Ballistic Missile Systems between the Soviet Union and the United States limits the anti-ballistic missile systems of these two nations (ABM Treaty).

1972: The Interim Agreement on Certain Measures with respect to the Limitations of Strategic Offensive Arms (SALT I) between the Soviet Union and the United States freezes at existing levels the number of strategic missile launchers on each side, for a limited period of time.

1972: The Biological Weapons Convention bans the development, production, and stockpiling of biological and toxin weapons.

1974: The Threshhold Test Ban Treaty between the United States and the Soviet Union, limits underground testing to weapons of not more than 150 kilotons explosive power. This treaty has not yet been formally ratified but it has thus far been observed.

1975: The Helsinki Conference on Security and Co-operation in Europe (Helsinki Accords) opens and is followed by conferences in Belgrade and Madrid. The Madrid conference will re-convene in March 1983.

1977: A Convention prohibits the use of environmental modification techniques having widespread, long-lasting, or severe effects.

1978: The Tenth Special Session of the United Nations General Assembly is the first to be devoted to disarmament. It is sometimes referred to as SSOD I.

1979: The second phase of the Strategic Arms Limitation Talks (SALT II) leads to an agreement between the United States and the Soviet Union to limit strategic nuclear delivery vehicles and the construction and deployment of new strategic offensive arms systems. It has not been ratified by either side, but its terms are being adhered to by both nations.

1982: The Twelfth Special Session of the United Nations General Assembly is the second to be held on disarmament (SSOD II).

NUCLEAR WEAPONS

From the smoke and rubble of the Second World War, two 'superpowers' emerged. For more than three decades the United States and the Soviet Union have channeled much of their resources into weapons research and production. Of the world's military budget, half is spent by 11 percent of the world population that make up these two superpowers. Ninety-six percent of the total reserve of nuclear weapons are controlled by the United States and the Soviet Union. The costs of the arms race now exceeds 600 billion dollars per year, or more than one million dollars per minute. At present, spending on nuclear weapons has created the equivalent explosive force of 3.5 tons of TNT (Trinitro Toluene) for every person on the earth.

Nuclear Bombs

Nuclear weapons are fueled by the conversion of matter into energy. In fission bombs (the kind used in the Hiroshima and Nagasaki bombings) atoms of heavy elements are split into lighter atoms with the loss of some matter and the release of energy. In hydrogen or fusion bombs, atoms of light elements are made to move at great speeds, collide, and fuse to produce heavier atoms with again a concommitant loss of mass and release of energy. In a fusion process a greater heat is required to trigger the reaction. A fission reaction, therefore is easier to accomplish in the production of bombs; it can also act as a "matchstick" for fusion weapons, which are more powerful than fission weapons.

Missiles

In addition to advances in production of fusion, or hydrogen bombs, the 1950s saw another major advance in the development of ballistic missiles: self-propelled projectiles carrying nuclear warheads as payload. Factors such as maximum weight and types of payloads, maximum distance possible to reach, and type of guidance system employed are important when determining usefulness. In

little over 30 minutes, a missile can travel a distance of 8,000 to 9,600 kilometers to reach target. Most of the 30 minutes is spent in inner space where it is virtually impossible to take effective measures against it.

There are basically three types of missiles: ground, sea, and air-based missiles, each corresponding to one leg of the Triad defense system. In the earlier years of ground-based Inter Continental Ballistic Missile (ICBM) deployment, missiles were stored above ground, in what were known as "soft sites." During that time, the accuracy of missiles was not all that good, and therefore the vulnerabilty of missiles such as the United States' Atlas and the Soviet Union's SS-6 (surface-to-surface) and SS-7, was not too high. However, as new guidance systems were used, the accuracy of ICBMs increased, and so did their vulnerability. Technology therefore brought about the need for "hard sites," or silos, which are steel and concrete structures designed to withstand overpressures of several thousand pounds per square inch (psi). In the early 1960s, ICBMs such as the Titan and SS-7 were placed in silos.

With the appearance of photo-reconnaissance satellites, pure "inertial guidance" systems, and MIRVed missiles (Multiple Independently targeted Reentry Vehicles), the silos became vulnerable. In inertial guidance, gyroscopes and accelerometers measure the forces other than gravity in order for the on-board computer to determine the missile's exact position. To counter this vulnerability, the United States created the Missile Experimental (MX). The MX is a three-stage solid-propellant missile of great accuracy designed to carry 10 MIRVs.

How can the MX be based so it can survive a Soviet attack and come out fighting? Over the past several years more than 30 possibilities have been suggested; most were dismissed out of hand. The dense pack plan was temporarily selected as most viable. The theory behind it is that by bunching 100 MX missiles close together, incoming missiles would blow each other up in an attempt to destroy the MXs. This defense has been given the name of "fratricide." As many experts disagree on whether the plan is valid, so the United States Congress has been reluctant to finance it. The future of the MX is under discussion at the time.

Fuel

Improved fuels have kept pace with improved navigational systems. The earlier ICBMs used liquid fuels and highly corrosive and volatile chemicals, rather than storable propellants. Before the Titan II, missiles had to be fueled as part of launching procedures. This made attack response very slow. However, with solid-fueled missiles, the fuel and oxidizer can be kept aboard for long periods without evaporation or undue corrosion.

Submarines

Because submarines have more mobility, they are less vulnerable launching platforms for missiles than are the land-based ICBMs, and can remain submerged for extended periods.

Until recently, Sea-Launched Ballistic Missiles (SLBMs) have had a range of under 4,800 kilometers. For example, the Soviet SS-N-5 and SS-N-6 SLBMs, have a range of 1,120 and 2,400 kilometers respectively, and the United States Polaris and Poseidon missiles 2,400 and 4,000 kilometers. However, now ranges of between 6,400 and 8,000 kilometers, make possible much broader ocean patrols. SLBMs are much smaller in size and in warhead yields than are ICBMs. Furthermore, unlike the launching method of silo-based missiles, they are "cold launched" and cannot be "warm launched." That is, they are first ejected out of the submarine by compressed gas, and only once in the air can they begin to use their solid fuel. Earlier submarines had to surface to launch their missiles but the more modern boats all launch submerged.

Missiles ejected from submarines are not as accurate as those launched from land. SLBMs are considered second strike weapons, targeted on cities, industrial or military installations. However, a new generation of missiles may prove more accurate and turn the submarine into a potential first strike weapons system.

Aircraft

Although the range and payload of ground-attack aircraft have been improved over the years, the main problem of delivering their payload accurately still remains. The inaccuracy results from windage and margins of error in aiming and in computing the location and velocity of the aircraft with respect to the target. The use of heat sensing devices on Air-to-Ground Missiles (AGMs) and Air-to-Surface Missiles (ASMs) has somewhat improved the precision of delivery. However, airborne Precision-Guided Missiles (PGMs), laser, and electro-optic guidance systems have increased the level of accuracy tremendously.

Cruise Missiles

The Cruise missile, a small pilotless jet aircraft, traveling at tree-top level and at a very slow 880 kph, is pinpoint accurate. This high accuracy is the result of a guidance device known as Terrain Contour Matching (TERCOM), which is fed the locations of the target before launching. The TERCOM, while in flight, compares the stored data of the terrain with the altitude characteristics of its route and then adjusts its course accordingly. In addition to their accuracy, Cruise missiles are virtually undetectable by enemy radar due to their low altitudes and very small radar images. Ground-, air- and sea-launched versions of the Cruise missile for varying ranges are being developed.

Since the "Little Boy" and "Fat Man" 12.5 kiloton fission bombs were dropped on Hiroshima and Nagasaki respectively, accuracy, range and explosive yield have been tremendously increased. A third World War could literally destroy the world.

NEW TECHNOLOGIES

The probability of even more accurate, faster and almost invulnerable weapons has made people wonder whether these improvements can only lead to their use. They increase fear and paranoia, and speed up the leap-frog game of the arms race.

ABM , (Anti-Ballistic Missile)

One of the few defenses against a nuclear attack is the antiballistic missile (ABM). These weapons are built to intercept enemy ballistic missiles and to destroy them in the atmosphere. The Soviet Union possesses a small ABM system which is deployed around Moscow; the United States does not possess any. Because ABMs are not reliable when attacking incoming warheads moving at 16,000 kmph and are expensive compared to attacking warheads, they are considered impractical. However, the concept of protecting stationary ICBM systems by something comparable to the ABM has not yet been renounced.

Enhanced Radiation Weapon ("Neutron Bomb")

The United States is developing the Enhanced Radiation Weapon (erw) or "neutron bomb" for tactical use. The blast effect of a one-kiloton enhanced radiation bomb causes radiation casualities over an area of only 10 square kilometers. Instead of the heat and blast following a thermonuclear bomb, penetrating radiation would do the most damage. This results in lower structural damage. The erw is mainly intended as an anti-tank weapon for tactical use; destroying the crew without destroying the tank. The theory notwithstanding, is it realistic to believe that if a neutron bomb is actually used by one side that the other would not respond with a standard nuclear warhead? And in the final analysis, does it matter if humanity is wiped out with a "big bang" or quiet and penetrating radiation?

Stealth Technology

Stealth technology is one of the newest developments in aviation technology. It minimizes the sharp edges and heat produced by bombers and cruise missiles in order to reduce radar and infrared detection. Materials found to absorb radar signals instead of bouncing them back, new airplane designs which minimize radar detection and ways to cool jet exhausts are all results of stealth technology. This technology could make bombers and cruise missiles invisible to radar, allowing them to strike without warning. These developments are not yet beyond the testing stage, but the possible existence of such technology has frightening implications for defense strategy.

Killer Submarines

The Soviet Union has spent billions of dollars on developing killer submarines to counter the greater sophistication of United States submarine technology.

But such anti-submarine warfare (ASW) has been made extremely difficult because the American submarines are too quiet for normal detection. Using devices to measure the radiation from subs is also useless because nuclear-powered subs emit very little radiation. Sonar only works within a one mile radius, and the United States sub can detect the killer sub sending the signal. However, as with ABM technology, research has not been abandoned, and a Soviet breakthrough could change the present situation. The United States, aware of this, also engages in such research.

Trident-D5

Advancements in technology have led to the creation of the D5 missile for the new generation of Trident submarines. This missile can deliver its payload so accurately that it could be used in a first strike, thus calling into question the traditional concept of using submarines only in a second strike. Its development, moreover, could serve as another spur to the Soviets to intensify their research on killer submarines.

Source: General and Complete Disarmament; World Military and Social Expenditures, 1982; Weapons of World War III; Disarmament Fact Sheet No. 17; Nuclear War: What's In It For You .

SPACE WARFARE

Lasers

Space may well become a nuclear battleground for the superpowers before the turn of the century. High-energy lasers and particle-beam weapons are now being designed to deliver destructive energy quickly and accurately. A laser could hit a target 36,000 km away in a tenth of a second with this technology. At present the superpowers spend more than 12 billion dollars annually on their military space programs.

Electromagnetic pulse

One of the most important weapons being developed is the electromagnetic pulse (EMP) bomb. By exploding the EMP bomb 40 km above the Earth's surface, for example, the entire communications network of a nation could be destroyed, immobilizing the nation. It is very hard to counter the effect of a magnetic pulse because of its short duration and large area of affect. No EMP bombs have ever been tested and the phenomenon of an EMP has never been proven, so all work on EMPs is purely theoretical.

Killer Satellites

The Soviet Union and, to a lesser extent, the United States, are developing

antisatellite systems (ASAT) because of the potential threat satellites pose. An operational testing of a United States ASAT system is planned this year. It involves an F-15 aircraft at an altitude of 20 km which launches a miniature homing vehicle into space which is guided to its target by an infrared detector. Once it gets close enough, it simply explodes and destroys both the homing vehicle and the satellite.

The effect of these new technologies is not to increase security, but to increase the possibility of a pre-emptive first strike. If one power sees the other making its system invulnerable, it would appear logical to knock it out before it is in place. The new research is provocative, not protective, and should be halted with a freeze.

Source: Outer Space -- A New Dimension of the Arms Race

CHEMICAL AND BIOLOGICAL WARFARE

SCENARIO: A newly, created, highly infectious, highly epidemic plague is released on a small African nation. It spreads irresistibly across the continent and into Europe. Immune to all vaccines, it spreads...

SCENARIO: A strange, yellow rain falls over the countryside. In its wake follow mysterious, seemingly cause-less deaths. The effects follow for months, and years. And then the children start to die...

SCENARIO: Bombs fall releasing poisonous gases. Within 12 hours, the gases have decomposed, and within 24 hours, two thirds of the population is dying as enemy troops invade...

These scenarios of chemical and biological weaponry (CBW) are plausible, with today's technology. The Geneva Protocol of 1925 forbids the use of such weapons by the signatories against their co-signatories. The signatories include Great Britain, the Soviet Union and the United States. This document, however, would not prevent the use of lethal gases by any nation on a non-signatory nation.

Some categories of chemical weapons are:

a) harassing agents, with effects such as skin blisters, retching, blurred vision, and difficulty in breathing;

b) lethal agents, causing drooling, frothing at the mouth, vomiting, involuntary urination, coma, convulsions, unconsciousness, and finally death;

c) psychedelics causing hallucinations, diarrhea, paralysis, or even death

Although the use of biological weapons was outlawed by the 1972 Convention, they can be devastatingly effective in many situations. It has been shown that a single ship spraying the United States' coastline could effectively infect 240 kilometers inland, or a total of over 88000 square kilometers. One kilogram of salmonella, introduced into ten million liters of drinking water produces one hundred million dangerous portions of the liquid, each only half a glass.

In the next few years, the United States may open a factory for the building of new "binary" nerve gas munitions. This new advancement in chemical warfare eliminates the dangerous chemical factories and the special chemical corps needed to carry them. This simplification is made possible by filling two separated chambers in the shells, bombs, or rocket warheads each with a different chemical. These chambers combine only when the munition is launched to form a super-toxic chemical.

CBW is a technology that cannot be ignored. The "evil" and "inhumane" consequences of the use of these weapons have not always deterred their use in the past. If the ideal of a nuclear-free world should come about, CBW will not simply disappear. Total dismantling of all weapons, nuclear, conventional, chemical and biological, is clearly the only course of action which can lead to a safe world.

Source: World Armament and Disarmament, press release, SIPRI Yearbook; Armament, Arms Control and Disarmament.

CONVENTIONAL WEAPONS

Although most nuclear weapons possess far more destructive capability than conventional weapons, the latter are still of great significance. Not all countries possess nuclear weapons, and those which do, dare not use them for fear of starting a full-scale nuclear war. It is probable, therefore, that if a war started between two nuclear powers, only conventional weapons would be used until the losing nation became desperate enough to risk all in a nuclear strike. It is because of this danger that great emphasis is being placed on developing and deploying more advanced non-nuclear weapons.

It is impossible to describe more than a few of these weapons in this short paper. One of the most effective is the British Harrier jet, which is capable of vertical lift-off. The Soviets have a new generation of MIG-23 and MIG-25 planes which have a 1100 kilometer radius and can travel at Mach 3 (i.e. three times the speed of sound). The United States is developing new conventional weapons to compensate for what it considers to be its inferiority in the European theater. They are considered to have great potential even though they cost twice as much as the Theater Nuclear Weapons. The best of these weapons is a radar system called Pavemover. Put on a balloon or on a reconaissance plane such as the TR-1 or Stealth, this radar can look sideways over enemy lines. This system can locate enemy concentrations 320 kilometers away and call for air strikes or a barrage of Assault Breaker missiles. These missile can be launched from one-hundred kilometers away. Eighty bombs contained in one missile will seek their own targets.

As fire raids on Tokyo and Dresden showed in the Second World War, the results were almost as terrible as the bombings of Hiroshima and Nagasaki. The potential for destruction by conventional weapons is far greater now than it was then, and so it, too, must be controlled by the only effective means possible--disarmament.

STRATEGY

A nuclear war could be fought in several ways. It could start with a war limited to tactical, battlefield nuclear weapons, go on to a theater war with weapons of intermediate range, and then to a strategic war using ICBMs and inflicting damage on such a scale that nothing would be left to fight for--truly a war to end all wars.

First Strike/Second Strike/MAD

Can a superpower survive a nuclear attack and launch a retaliatory strike? No one really knows. A first strike, or pre-emptive strike, would be aimed at destroying an adversary's military capability, particularly its missile systems. But a country that launches a first strike, would itself be vulnerable to a second strike by the country attacked, no matter how badly it has been hurt. This second strike, admittedly with less accurate weapons, would be directed at

cities and centers of industry. No government, even if its first strike succeeded, could seriously consider such a degree of civilian damage, in which one quarter to one third of its population could be killed. This realization of Mutual Assured Destruction (MAD) has kept the balance so far, and has been the key to deterring either side from starting a nuclear war.

New Strategies

New technologies in missile guidance systems have made it possible to think in terms of continuing a strategic nuclear war even beyond a second-strike. The new strategies are called "flexible response" and "counterforce". The "game" is to keep on hitting the other side's missile systems and military installations, leaving the civilian population relatively untouched . Presumably, those civilians will not mind supporting such a war, and will not object to preparations for it. The catch is that no one will give "a money back guarantee" that these strategies will not have the precise effect they were supposed to avoid.

Theater Nuclear War

A theater nuclear war is one which would be fought in a certain "theater", such as the European and Pacific theaters. This war would use tactical nuclear weapons for battlefield purposes, and short or intermediate range weapons to inflict damage behind the lines. The forces that would be used in such a war are known as Theater Nuclear Forces (TNF). By employing TNF and not long-range nuclear forces, the superpowers hope to contain a nuclear war in one isolated theater. The fallacy of a limited nuclear war lies in the options still open to the side that is losing. Does it accept defeat, or does it turn to the unlimited use of its strategic weapons?

Source: Armaments, Arms Control and Disarmament

VERIFICATION

Verification is the crux of the disarmament problem. Indeed, if nations could trust each other to begin with, verification would not be necessary. Trust is a political matter, but inasmuch as there is as yet no fool-proof method of verification acceptable to all sides, a degree of trust must exist for the process to begin.

Verification is needed to assure compliance with the terms of treaties, such as the Test Ban Treaty. The International Atomic Energy Agency inspects for compliance with the Non-Proliferation Treaty. In most contemporary disarmament negotiations, the question of verification plays a very important role. There are various methods of detection that could be carried out without the presence of a monitoring team in the country such as satellites and computers for fast and accurate processing of information. But computers make errors and aerial surveillance is not complete.

There is much that can be done before sending in a team of experts for on-site inspections. Trust can be built up by the voluntary exchange of data. Deliberate concealment does not benefit either side, for mistrust helps to destroy treaties and, therefore, the security of both sides.

On-site inpections may,in the final analysis, be the only confidence-building measure that will work, and the Committee on Disarmament is considering various possible verification means to check compliance with, for instance, a ban on chemical weapons productions and a comprehensive (nuclear) test ban. Whether it is through the United Nations, or through some bilateral agreements, resolution of this problem remains a key to disarmament.

PERCEPTIONS

The Superpowers

Even though much of the problem of disarmament and arms control is technical, the solution to the question of world security is political. It is possible to be quite factual on technological data; it is much more difficult to be objective in political perceptions. Many people feel that one of the major causes of the present danger lies with the United States and the Soviet Union, who possess the largest nuclear arsenals in the world, yet are unable to reach a common agreement on arms limitations. There are other factors that contribute to world tensions: the failure of some non-nuclear countries to sign the Non-Proliferation Treaty, and the sale of nuclear technology by some countries to others that do not have it. However, the greater responsibility for maintaining world peace still remains with the superpowers, as they and they alone have the ability to destroy the world.

When it comes to the question of attributing blame as to which of these two countries bears greater responsibility for creating fears of a possible nuclear war, one is drawn into a political vortex that is counterproductive.

> "What, then, are the obstacles that the solution of the pressing problems of disarmament has encountered? Why is it that the arms race continues to escalate and has become critically dangerous? It is the fault of the United States and the North Atlantic Treaty Organisation (NATO) bloc that the demands of the peoples, proposed programmes in the field of disarmament, and the decisions previously adopted by the United Nations on the subject are being blocked and remain unimplemented."
> (Mr. Troyanovsky, USSR, Speech in General Assembly, 10 July 1982.)

> "One State, the Union of Soviet Socialist Republics, continued along its course of massively strengthening its nuclear and conventional military forces far beyond any reasonable need for self-defense. The net result of these actions has been a profound deterioration in the international security situation. This is the principal reason for slow progress in arms control and disarmament efforts."
> (Reply of the United States of America to the Secretary General, SSOD II: Relationship of disarmament and international security, 23 June 1982.)

Each side clearly has radically different views, and we hope that these views will be discussed by students during the conference. Much can be achieved through dialogue, understanding and compromise, and we urge that the United States and the Soviet Union recognise the unity of their interests in preventing a war that would destroy the world and make their differences irrelevant.

Europe

Today in Europe, East and West face each other in two armed camps: the North Atlantic Treaty Organization (NATO) and the Warsaw Pact. They have not changed much in their perceptions of each other since the late 1940's, but the military hardware that they have available to deter each other has become infinitely more dangerous.

The question of achieving and maintaining equal strength has always been present. The latest crisis centers on the deployment of Soviet SS-20 and United States Pershing II missiles. The SS-20s have largely replaced the older SS-4 and SS-5s. Each SS-20 has three independently targeted warheads and a range of 4000 to 4800 kilometers. They can hit every city in Western Europe, right to the Atlantic coast. Since 1977, they have been deployed at the furious rate of one a week, and by now there are approximately 300. The question is - why? To the Soviet Union they are defensive, as part of a build-up in the 1970s to achieve parity with the United States. To the West, they are offensive, and so must be matched. In December 1979, the NATO powers, meeting in Brussels, decided that by December 1983 they would deploy 572 Pershing II and ground-launched cruise missiles (GLCMs) in Europe if the Soviet Union did not remove its SS-20s. The Pershing II and GLCM are faster and more accurate than the older United States missles in Europe. The Pershing II, for example, can strike Moscow, giving the Russians only six minutes warning. This does not give the Soviet defenses much time to check for computer error and so leads to a policy of a retaliatory "launch on warning." Accuracy and speed make these "defensive" weapons capable of a first strike, where the purpose is to knock out as many of the enemy missles as possible to prevent retaliation.

The idea of basing a new generation of United States missiles in Europe came from the West Germans, who would be the first to suffer in an invasion by the Warsaw Pact forces. Not only would these missiles be a strong deterrent to war, they thought, but the United States could not abandon Europe in such a war if its

missiles were there. It is an old fear of Europeans that America would cut its losses and retreat into "splendid isolation" across the Atlantic.

Much of this thinking has changed in the last three years, however. The peace movements in Europe have grown, with the existence of these missiles seen as a cause for war rather than a deterrent. Because they are judged to be weapons that are capable of a first strike, and so, the thinking goes, the Soviet Union cannot allow them to be placed so close to its heartland. It is the Cuban Missile Crisis of 1962 in reverse. President Kennedy was prepared to threaten nuclear war at that time, but Nikita Krushchev withdrew the missiles. Is it time for the West to have similar sensitivity to Soviet concerns?

Each side claims they need these new missiles for "security." Negotiations have been going on in Geneva for some time to find alternate methods of security in Europe. President Reagan made an offer not to deploy the 572 US missiles next December if the Soviet Union removed all the SS-20s-- the "zero option". The Soviets accused him of cynical propaganda, though many Europeans feel it would be the best alternative. Mr. Andropov countered with another proposal: no deployment of Pershing IIs and GLCMs, and cutting the Soviet SS-20 missiles down to 162, a number that parallels the British and French nuclear forces.

The French and British governments have rejected these proposals, as has the United States. Many people in Europe and in America are urging President Reagan to explore Mr. Andropov's offer seriously. According to those views, there is adequate parity between the harm each side could do to the other in Europe if one considers other weapons such as the F-111 and Mirage bombers, the 40 Poseidon missiles with 10 megaton warheads each that are allocated to NATO, and the United States aircraft carriers with the Sixth Fleet in the Mediterranean. There are also conventional weapons, in which the United States claims that Western Europe is inferior. There are 300,000 American troops stationed in West Germany, and a new generation of radar and anti-tank missiles will make those troops more effective.

The Americans (and Chinese) are concerned as to what will happen to the SS-20s that might be moved out of the European theater of operations. Would they join the others that are already in place on the Chinese border? They are mobile and could be moved back to Europe if needed. Negotiations continue, for the de-escalation of the military hardware can give the two sides the opportunity of working towards a more lasting political peace based on mutual assurance of security and peaceful relations between the two halves of Europe.

Source: Much of the information for the above article is taken from various New York Times articles not cited in the bibliography.

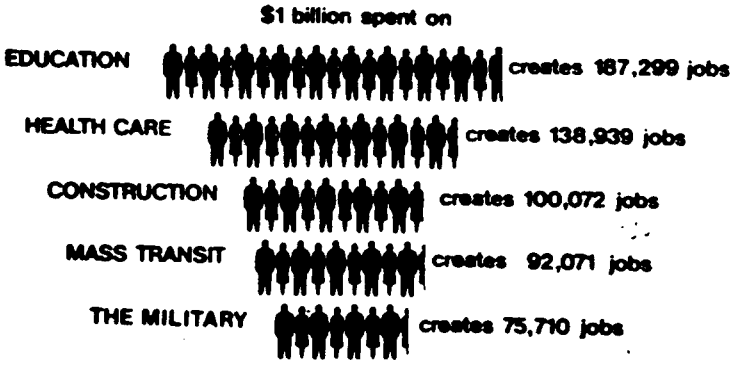
The Third World

The Third World is affected by the superpower impasse on disarmament. Some countries place more of the blame on Western "imperialism", others on Soviet "hegemonism", but all deplore the possibility of dying in a war not of their own making, particularily where the quarrel has little consideration for their right to exist as independent nations.

But much of the Third World is far from neutral, nor is it united in its opposition to nuclear arms. Some countries have the industrial and technological base for producing their own bombs. China is a nuclear power and India has exploded a nuclear device. Some have signed the Non-Proliferation Treaty, while others see this treaty as a way for the present members of the "nuclear club" to thwart them from achieving a position of national defense. These countries feel that the attempts made by the developed countries to keep them from acquiring nuclear capability is discriminatory. There is a growing feeling that the pressure being brought upon the developing world by the developed nations to sign the Non-Proliferation Treaty, which binds them not to acquire nuclear technology, will condemnm them to permanent technological backwardness. It would deny them the economic benefits in the application of nuclear technology for economic and peaceful purposes. India and other developing countries which have not signed the Non-Proliferation Treaty, therefore, feel that it is wrong to prevent them from acquiring nuclear technology on the grounds that they might use it to make nuclear weapons. This restriction is even more criticised when it is seen that the developed world itself is not abiding by the spirit and letter of the treaty, but that it is increasing its weapons both in technological sophistication and in quantity.

The developing countries with nuclear capacity do not wish to halt their projects until the de-escalation of the superpowers' arms race brings them closer to their level. But most Third World countries are anxious to bring about disarmament of all kinds to divert the 600 billion dollars now being spent annually on arms to the development of their economies. For them the most important issue is the question of providing the basic necessities of life for their people.

The Economics of the Arms Race



Figures from the U.S. Bureau of Labor Statistics,
Structure of the U.S. Economy in 1980 and 1985.

Source: Jobs with Peace: NY Mobilization for Survival.

In light of all the evidence that has been cited in this paper, it is quite clear that the question of disarmament goes well beyond that of mere idealism. It has serious ramifications for a world economy increasingly threatened by soaring military expenditures that have reached astronomical heights. The question the superpowers and other nations of the world must now confront, therefore, is: can they realistically hope to sustain the staggering expense of the arms race?

Next year the United States military budget will be increased by 30 billion dollars, leading to an expenditure of 1.6 trillion dollars by 1985. Many experts believe that this will further drain the U.S. economy, diverting badly needed funds from other areas. A considerably larger proportion of United States tax revenue is devoted to military related expenditures than to human resources. In additon, the same amount of money has the potential to create more jobs in other sectors of the economy than the arms industry. For example, one billion dollars invested in education results in 187,299 jobs, whereas it would only create 75,710 jobs in the military.

Similar stresses are being placed upon the Soviet economy by the continued escalation of the arms race. A recent C.I.A. report estimates the Soviet Union spends between 11 and 13 percent of its G.N.P. on arms; twice that of the United States. Its economy, moreover, is resilient and has been growing at a steady pace for the last 30 years. Nonetheless, the agricultural industry of the Soviet Union would benefit immensely should it receive funds re-routed from the arms sector.

Some may argue that the arms race has beneficial effects, that private companies flourish because of defense contracts which, in turn, mean jobs. And it is true

that without careful planning, a halt in weapons production would create unemployment--not only in dependent industries, but also in related enterprises (such as the steel industry). Furthermore, some of the new technologies that have resulted from arms research can, and are, often utilized in other areas. But all this is ephemeral, important for the moment but not a solid foundation upon which any country can build a truly stable economy.

In the final analysis, therefore, disarmament and the opportunity it would present to improve the quality of life everywhere would have a truly beneficial effect upon the economies of the world. With this in mind, the superpowers, and indeed all countries, should welcome the opportunity to disarm.

Source: Armaments, Arms Control and Disarmament; World Military and Social Expenditures, 1982 .

The Arms Trade

One aspect of the arms race all too often overlooked is that of the arms trade. Those who produce arms for their own use also sell them in great quantity to others, especially to countries of the Third World.

The major arms producers, the United States and the Soviet Union, have many reasons to trade in arms. Firstly, the arms trade is a major means of strengthening their political influence. Although the United States and the Soviet Union have refrained from direct conflict since the Second World War, they have frequently competed for extension of their respective spheres of influence, and supplying arms to the countries they support is a key part of their strategy.

But weapons manufacturers also benefit economically from the arms trade. The sales involved not only lower the unit costs of the weapons, they reduce the overall balance of a country's trade deficits. Another by-product for the manufacturing countries, therefore, is the "on field" testing of new weapons by the countries that buy them.

For the Third World, however, the effect of the arms trade is detrimental to their economies. Because they usually lack the technology to produce sophisticated weapons, they must import them, which wastes surplus capital that could have been used for development. (see next article). Maintenance, particularly of obsolete weapons, is costly, and must be borne by the importing country. In turn, the importer must add this cost to all its other debts, making worse an already serious balance of trade deficit.

Unfortunately, too many Third World countries are receptive to arms trade deals - without this receptivity, the arms manufacturers would have no world wide markets. So this is another reason why the plight of the Third World peoples

tends to grow worse. Although the trade in arms accounts for only two percent of all world trade, it adds up to more than five percent of Third World imports. Inasmuch as seventy-five percent of the arms trade is with the Third World, these figures may well increase over the next four years.

EXPORTER OF ARMS	PERCENT
United States	45
Soviet Union	27.5
France	10
United Kingdom	5
Third World countries	3
Italy	3
Federal Republic of Germany	2.3
Others	4.2

Figures from chart on p. 27, Armaments, Arms Control and Disarmament.

Disarmament and Development

The world spends 600 billion dollars annually on arms (World Military and Social Expenditures, 1982). That is approximately one million dollars a minute, or over 100 dollars per person per year. There are one billion people in the world who are undernourished, and there is up to 50 percent unemployment in the developing nations, especially among young people.

What do these statistics mean to the quality of life of the one billion people who are always hungry, and to another one billion who are only a little better off? They need food, clean water, better health care, education, and jobs. In order to bring these necessities to them, to enable them to become independent and contributing members of society, governments must build wells, roads, clinics and schools. Capital must be available for rural development, credit for farmers, and the encouragement of labor-intensive industry. This is what the United Nations calls development: the building of an infrastructure that will enable people to go on by themselves -- healthy, literate, and earning an income.

The United Nations devoted two Special Sessions of the General Assembly in the 1970's to the problem of development, calling for a New International Economic Order to transfer some of the wealth from the developed countries which are getting richer, to the developing countries, which are becoming poorer. But the gap between rich and poor countries continues to widen, as has the gap between the rich and poor within the developing countries. Yet the governments of the Third World are spending large sums on the importation of arms, and in the maintenance of large armies. And the official aid that governments in developed

countries give to development projects is only a small percentage of what they spend on arms. The figure is eight percent for the group of developing countries (the OECD), six percent for the United States, and only one percent for the Soviet Union.

One million dollars a minute! That would pay for a lot of wells, schools and projects to create jobs in towns and villages! Money spent on arms is unproductive. The purpose of arms is to destroy or be destroyed. Even a small proportion of the money spent on arms, if transferred to development, would bring the people of the developing world a form of peace and security more meaningful than that offered by the military.

> On grounds of morality, on grounds of equal human justice, on grounds of enlightened self-interest, the vast expenditures on armaments ought to be directed to ending poverty and building for human and material development. The arms race and underdevelopment are not two problems: they are one. They must be solved together, or neither will ever be solved. The world can either continue to indulge in an arms race with characteristic vigour, or make deliberate attempts to establish a more sustainable international economic and political order. It cannot do both.
>
> Study on the Relationship between Disarmament and Development. - United Nations

THE MORALITY OF WAR

The Pastoral Letter

The moral issue of war and the problems raised in this nuclear age are treated and examined in the second draft of the Pastoral Letter of Catholic bishops. It is intended to help us come to terms with these problems and to invite us to examine them personally and in the context of the guidelines of the Catholic Church. The letter is addressed to non-Catholics as well as Catholic readers because the bishops hope to influence the important decisions of peace and war that are being made today. It is also intended to encourage and to give new hope to all people.

The Pastoral Letter raises several issues on the nature of war: are some wars just and therefore the destruction and death they cause excusable?

Nuclear weapons have changed the nature of war in the modern world, from the battlefield to the globe. Everything possible must be done to prevent such a calamity from occurring. The bishops make several proposals for reducing the danger of war, and creating a peaceful world. Certain steps are viewed as necessary to attain this goal. These include negotiated reductions, active avoidance of nuclear war potential, termination of proliferation, and the

foundation(and use) of a non-violent world security system. We all must make decisions on these issues and act according to our conscience, rather than with blind obedience to governments. Finally, the bishops issue a challenge to the Catholic community to seek peace and oppose the immorality of war through personal effort.

The Catholic bishops are not the only ones examining the immorality of nuclear weapons and their use. Clergy of many other denominations have also been saying these things. Writers like Jonathan Schell warn that should the globe be destroyed, not only would present lives be extinguished, but also all hope for future generations. This would be the ultimate immorality, and must be prevented.

The Second Death

Jonathan Schell is not certain that we will survive. In fact, he argues that a nuclear war will most likely mean extinction for our species. In his book, The Fate of the Earth, he says that although individual human deaths are natural, the death of the species is not natural, but rather an evil, of a sort never before envisaged. Extinction is not just the death of every human now alive, it is also the death of future generations before they have the opportunity to live. This death of our species, as well as the earth we inhabit, he calls the "Second Death". Schell stresses the difference between the death of the individual and that of the species. The individual may choose to die for a principle, but it is immoral to force a war in which the species can die. A retaliatory strike becomes immoral after a first strike because the purpose of the second strike capability was to prevent the first one; so it is wrong to kill more people for something that has already failed. Our responsibility to the future, and our love for our children must lead us to prevent a nuclear war by preventing all sorts of war that could escalate into a nuclear one.

> "We need to remember that neither as individuals nor as a species have we created ourselves. And we need to remember that our swollen power is not a power to create, but only a power to destroy. We can kill all human beings and close down the source of all future human beings, but we cannot create even one human being, much less create those terrestrial conditions which now permit us and other forms of life to live."
>
> "Our modest role is not to create but only to preserve ourselves. The alternative is to surrender ourselves to absolute and eternal darkness: a darkness in which no nation, no society, no ideology, no civilization will remain; in which never again will a child be born; in which never again will human beings appear on earth, and there will be no one to remember what they ever did."
>
> Jonathan Schell, The Fate of the Earth

THE FEAR OF NUCLEAR HOLOCAUST

The fear of death is something everyone and all generations must come to terms with. However, the fear of dying in a nuclear war is different and its effect on society is different, too. The destruction is more vivid and complete than anything previously envisaged, reaching back to mythological and biblical holocausts. Even the lingering death of the Nazi concentration camps or the instant annihilation rained on Hiroshima and Nagasaki do not compare to the horror of that final war.

The fear is difficult to live with. Five and six year old children have nightmares, shattered by the realization that their parents cannot protect them. Adults find this realization so agonizing that many decide not to have children. Personal relations are more shallow, as people are afraid to make long-term commitments.

Many people turn to religion, though many of the survivors of Hiroshima and Nagasaki who did so did not find the comfort they sought. There is a rise in Fundamentalism in all religions, a return to simple, basic and authoritarian precepts. The millenarian movement that considers the end of every thousand years an apocalyptic event is drawing many supporters.

People deal with fears in different ways. Some seek release of tension in hedonism, and enjoyment of what they have while they have it. It is difficult to live with a sense of doom, of the purposelessness of all we were taught to value -- love, responsibility, commitment. Many people feel it is more necessary than ever to assert one's humanity through reaching out to others. Whatever way one chooses to deal with these fears, they cannot be escaped, for they are shaping our lives and our civilization. The whole question of disarmament, therefore, is not just a practical one, but a personal one, that deeply touches every one of us. Like it or not, we are all involved.

PEACE MOVEMENTS

"There is no way to peace. Peace is the way." (A.J. Muste)

All reasonable people of good will see the necessity for disarmament today. As the nuclear clock moves inexorably towards midnight, fear and paranoia will take control of our lives. Democracies will begin to accept restrictions of freedom in the name of security, and the very society that we seek to protect with our nuclear arsenal may be destroyed from within. Fear of the "other", of the "enemy", is a powerful force to keep people separated, but the world is increasinly interdependent and such separation is a strain that affects the economies, the policies and the way of life in all nations.

The past two years have seen a growing number of people rally to the support of peace movements as the call for disarmament has spread throughout the world. It is a phenomenon that has resulted from the failure of the superpowers to resolve their differences and the escalation of an arms race for which they are directly responsible.

In Europe, this movement was greatly aided by churches, especially the Dutch Interchurch Peace Council. The movement grew throughout Europe, and in 1981, 400,000 people demonstrated in Amsterdam, 300,000 in Bonn, and over 200,000 in London, Paris, and Madrid.

In the United States, well established organizations such as the American Friends Service Committee and the Fellowship of Reconciliation have been joined by many new organizations, such as Physicians for Social Responsibility, Center for Defense Information which is run by military and ex-military personnel, Clergy and Laity Concerned, Federation of American Scientists. Some groups represent special interests: women, artists, parents, and educators, but all have one goal--disarmament and peace. What is interesting and important is that never before have so many diverse groups--some traditionally opposed to each other--found common ground on which all could stand. It was one of the reasons why an unprecedented number of people--700,000--came together in New York City from all parts of the United States and many other parts of the world to join forces in a huge rally that demonstrated the concerns and fears felt by all of us.

What do massive peace movements such as the June 12 rally achieve? It is true, there is some scepticism concerning them--most are more vocally anti-American than critical of the Soviet Union. But it is important that people try to tell their governments what they believe should be done about the international tensions that now threaten the future. As Adlai Stevenson once said, we don't love our country any less because we also love the world. The problem is too urgent to be left only to the specialists.

ALTERNATIVES

Disarmament

> "The attainment of the objective of security, which is an inseparable element of peace, has always been one of the most profound aspirations of humanity. States have for a long time sought to maintain their security through the possession of arms. Admittedly, their survival has, in certain cases, effectively depended on whether they could count on appropriate means of defense. Yet the accumulation of weapons, particularly nuclear weapons, today constitutes much more a threat than a protection for the future of mankind. The time has therefore come to put an end to this situation, to abandon the use of force in international relations and to seek security in disarmament, that is to say, through a gradual but effective process beginning with a reduction in the present level of armaments."
>
> Final Document: SSOD I.

Unilateral Disarmament

How can one nation be sure that the others will keep their side of the bargain? How can a nation maintain security while disarming? There are those who say that there is no need for such certainty; that a gesture of good will to other nations will inspire confidence; and that the best way to start negotiation is to begin to disarm unilaterally. Many feel that the responsibility of initiating a policy of unilateral disarmament falls on the West.

It has been pointed out that such a gesture might leave the United States open to attack, but the arms reduction need not be complete. Hans Bethe, on the telecast of the program, "Atomic High School", said that the United States could conceivably dismantle and destroy five percent of its nuclear arsenal without leaving itself vulnerable to an attack by the Soviets.

There are already movements for unilateral disarmament in Europe. In fact, it is now the policy of the British Labor Party. A beginning must be made, and in the absence of trust, one side must have the courage to create this trust.

Bilateral Disarmament

The bilateral position follows from the belief that absolute trust is dangerous in the real world, that it is unrealistic to assume that either superpower will disarm without an immediate reciprocal action by the other. Each is convinced that its freedom of action and that of its allies will be restricted by the threat of a nuclear attack against which they would have no defense.

The pressure to disarm comes from all sides. The superpowers must initiate the process with a freeze on research and production of nuclear weapons, and then a mutual reduction of existing arsenals. When these arsenals have come down to considerably lower levels, other countries must join the process on a multilateral basis. From the disarmament of nuclear weapons, the world must move to the disarmament of conventional weapons, and eventually to a denial of war as the "continuation of policy by other means". Disarmament must eventually be complete, for the genie is out of the bottle; nuclear weapons exist and if the temptation is not removed, someone somewhere might be tempted to use them.

Because disarmament is so important, it must be achieved in a manner that will win the greatest support and trust. The superpowers have achieved parity in their ability to destroy the world. They must now achieve parity in their effort to save it through disarmament.

The Freeze

The freeze is a proposal to halt the arms race at its present level. The continued research in arms technology threatens to increase the capability of missiles and launching systems to the level where it is conceivable for a nation such as the United States or the Soviet Union to launch a pre-emptive first strike. In other words, a nuclear war could be initiated on the mistaken premise that it is possible to win. This eventuality must be avoided at all costs, and the freeze can be the first step to general and complete disarmament. However, not all nations wish to subscribe to this proposal until the superpowers have first reduced their own nuclear capabilities. It is, therefore, up to the United States and the Soviet Union to start the freeze process. This measure calls for the two side to agree to halt testing, production and deployment of all nuclear weapons, including all aircraft which deliver these weapons.

Right now would be the best time to freeze. Each side has advantages in certain areas, but the overall parity that now exist between the two superpowers is the closest it has been since before the Second World War. No one has absolute superiority, and a freeze would maintain this parity.

The weakness in the freeze proposal is that there is difficulty in verifying that each side has discontinued the production, testing and deployment of weaponry. Methods of verification require that a third, impartial party review the arsenals of each superpower. This inspection can be unannounced, to insure continuous compliance. Inspection can also be maintained, in part, by sensor-equipped secure devices installed in shut-down and controlled factories. Even if new deployments were somehow arrived at in secret, there is little chance that new weapons-systems could be developed and made ready for use without attracting attention.

The freeze, if implemented immediately, would be able to avert the deployment of new weapons of first strike capability, as well as non-verifiable weapons, like the cruise missile. The build-up of weaponry would cease, and the fear that the other superpower was involved in the production of a new weapon would lessen considerably. It would also allow each nation to concentrate more fully on pressing domestic problems, such as unemployment and welfare. Finally, the freeze is the best point from which to discuss a reduction in arms, and ultimately resolve the entire disarmament question.

Systems of World Security

The reason for the failure of the previously outlined proposals for disarmament lies not in the solutions themselves, but in that they are unable to deal with the situation under the rules that govern current international relations. We operate in this world with the idea that a balance of power must be maintained in order to ensure security for all. We must be afraid of each other; in that way, no one will have the courage to attack. There are, however, ways in which this situation can be dealt with, but these entail changing the very conditions that now encourage the arms race . The best way to stop this race -- someone once called it "a dance of death" -- would be to remove the alternative of war from world diplomacy.

People all over the world are making serious suggestions for governments and the United Nations to consider. The four that are included here have been selected not necessarily because they are the best, but because they are examples of the kind of constructive thinking that is so important if we are not to throw up our hands and say there is nothing we can do. There is a great deal that we can do as individuals as these ideas will show.

1) One solution (envisaged by Harry Hollins at the World Policy Institute) is a defense weapons system. It provides that all nations be required to dismantle their respective nuclear arsenals, but not do away with weapons entirely. What it proposes is a new kind of deterrence, one in which all nations will have their arsenals limited to the possession of defensive non-mobile weapons, such as minefields, anti aircraft and permanently stationed guns on their border. None of these arms are offensive, but merely serve as a deterrent to any who would try to attack. The underlying psychology of the plan is to instill a mentality of "Defense is good, offense is bad," and if all nations--not only the superpowers, but the developing nations as well--adhered to it, all would be assured of a good sense of national security.

2) But even under this system, there would be no way of being sure that a country, even after having disposed of all offensive weapons, was not producing them again. A proposal set forth by Grenville Clark and Louis B. Sohn, in their book World Peace Through World Law, outlines the formation of a world peace

force, composed of about 200,000 to 400,000 regulars, with a reserve of 300,000 to 600,000, armed with conventional weapons. This would be the only military force in the world, charged with keeping the peace. The members of this army would be drawn from the developing nations, as would those who were in command of the forces. The ultimate control would lie in the United Nations. This way, disarmament could be imposed on all nations, by offering them a world policing system.

3) There is yet another solution, one that does not rely on weapons at all. It is the notion of defense through civil resistance. The premise for this proposal is that the power of non-violent action is underestimated, and the power of military power is overestimated. Gene Sharp, a United States advocate of the proposal, says that actions like boycotts, strikes and general non cooperation can defeat an aggressor more effeciently than violent conflict.

4) The Binding Triad is a proposal presented by Richard Hudson from the Center for War/Peace Studies that would change the voting system of the General Assembly. Approval of a resolution would require a simultaneous majority in each of three separate legs: the first leg would be a voting system of one vote per nation, the second would be based on the population percentage of world population of each nation, and the third would be based on percentage contributions to the United Nations budget. Once a resolution is passed, it would be binding.

To incorporate the Binding Triad in the United Nations Charter would require an amendment of articles 13 and 18, and this would require acceptance by two thirds of the member states, including all five permanent members of the Security Council, and would probably meet with considerable resistance. However, once the Binding Triad is instituted, it will be able to keep a balance between its various blocks in the United Nations. The United States and the Soviet Union would each have their power in the third leg, the United States with a 25 percent vote and the Soviet Union with a 17 percent vote (this would be amended to 22 percent each) and therefore neither one could individually veto a vote. China and India would have power in the second leg, and other nations would have power in the first. Test runs were made in informal workshops with representatives from many different countries, and results were satisfactory for all involved.

What all this leads to is a change in conventional thinking. If these steps could be implemented, the result would be a world of nation-states which do not use war or the threat of war to settle disputes. No one would think, as they do now, that the arms race is a natural occurance. The arms race was the invention of people: people can stop it. The end result will be a global security system, where that which is protected is not the interests of the people of any one nation, but peace for all the people of the world.

The United Nations and Disarmament

"We thepeoples of the United Nations determined to save succeeding generations from the scourge of war..."(United Nations Charter)

It is an irony of history that the United Nations came into being just as the nuclear age burst into the world. The Charter was signed in June 1945 and the first atom bomb fell on Hiroshima in August 1945. So from the first, disarmament has always been a major objective of the United Nations. The General Assembly, in 1959, declared it to be the most important one facing the world today, and the question has come up, in one way or another, in virtually every area of the United Nations activities.

As a result of United Nations efforts, some twenty multi- and bilateral arms regulations and disarmament agreements have been reached. But the development and production of new weapons continues with little abatement, and meaningful disarmament negotiations in the United Nations framework have all too often been a victim of superpower politics and rivalries.

In an attempt to give impulse to its disarmament efforts, the United Nations declared the 1970's to be the first "disarmament decade", and as a highlight of this decade, the General Assembly held its first Special Session on disarmament (SSOD I) in 1978.

The session adopted, by consensus, a text known as the the "Final Document", which was designed to "lay the foundations of an international disarmament strategy", with the ultimate goal of general and complete disarmament. Since SSOD I, the General Assembly has discussed an increasingly large number of resolutions concerning disarmament. In 1981 alone, more than fifty such resolutions were adopted.

The 1980's was declared the second Disarmament Decade, and last year (1982) the General Assembly held its second Special Session on disarmament (SSOD II). One of the first things noted at SSOD II was the deterioration of the international situation, and that the Final Document ofthe previous sessions had not been generally observed. Sixty-five proposals and statements of position or viewpoints were put forward by member states as documents of the session. These included four draft resolutions concerning the prevention of war. However, the General Assembly was not able to adopt a document on a comprehensive program at SSOD II.

The United Nations, after all, is only a reflection of the world itself, and it can only be as strong as its member states wish it to be. If there is no agreement among them, how can we expect the United Nations to bring it about? What is needed is the political will to make the United Nations work. Power politics and narrow nationlism create distrust, a lesson we should have learned in two world wars.

Nuclear war is in no one's interest. If all humanity cried out with one voice, and people in their countries persuaded their governments to work more co-operatively within the United Nations, perhaps that organization could be what it was designed to be -- a system of world security and an alternative to war.

The United Nations is all we have, and those who criticize it ignore both what it has achieved in the past 37 years and its enormous potential. It is a forum where bargaining can take the place of conflict, where realism can guide the acceptance of compromises that safeguard the interests of all. The United Nations has its flaws, it is true, but it also gives us the only place in the world in which we can realize "a civilized and constructive approach to the great problems we must face if we are to master the future."

CONCLUSION

These two Chinese characters form the word "crisis". But the right hand one, in combination with another character, makes the word "opportunity". This is not coincidence, nor is it empty philosophizing. Within every crisis there exists an opportunity, a germ of hope, a solution waiting to be realized. The crisis we face today has at least that one element in common with all other crises: that which the Chinese see as such an integral part of any crisis that it cannot be separated from the concept--opportunity. What opportunity exists in this atmosphere of bleak resignation to eventual holocaust? The opportunity to see this nuclear madness for what it is; the cynicism and paranoia of a race that has been divided by a greedy few into arbitrary squabbling nation-states resembling nothing more than children fighting over candy. Unfortunately, these children can destroy each other on a whim.

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