

(Address delivered by the Rev. Theodore M. Hesburgh, C.S.C., President, University of Notre Dame, at the 40th anniversary dinner of The Bulletin of the Atomic Scientists, Chicago, Illinois, December 12, 1985)

There are very few groups I would rather address on the nuclear threat to humanity. Likewise, there are very few settings more propitious for such a discussion than this anniversary of <sup>40<sup>th</sup></sup> The Bulletin of the Atomic Scientists which has since the beginning of the atomic age served scientists as the bellwether for this concern.

I come to you as a one time theologian who has spent more of his life with scientists than theologians. In 1954, I began twelve years of service on the then four year old National Science Board. That period coincided with the early days of the atomic age. In 1956, I began fifteen years of service, first helping to write the Charter of the International Atomic Energy Agency and then attending fourteen consecutive General Conferences of the IAEA in Vienna, representing the Vatican. Twenty-one years on the Rockefeller Foundation Board was an education in Third World development and the Green Revolution. Locally, there was service on the Argonne Advisory Board, the Midwestern Universities Research Association (MURA) and involvement in the beginning of the Fermi Lab nearby. Most recently, during the Carter years, I was U. S. Ambassador to the U. N. Vienna meeting on Science and Technology for Development.

However, I am not here to address you on science, but rather, reverting to my earlier academic field of theology, I would rather discuss with you some thoughts and initiatives that flow from a common concern for a solution to the greatest moral problem ever to face humanity, an intersection of science and theology, the nuclear dilemma.

While this is not intended to be a sermon, I would like to begin with a few texts to put our concern in perspective.

My first text is a brief editorial, now long forgotten but then prescient, from TIME Magazine, August 20, 1945

The Bomb

"The greatest and most terrible of wars ended, this week, in the echoes of an enormous event -- and event so much more enormous that, relative to it, the war itself shrank to minor significance. The knowledge of victory was as charged with sorrow and doubt as with joy and gratitude. More fearful responsibilities, more crucial liabilities rested on the victors even than on the vanquished.

"In what they said and did, men were still, as in the aftershock of a great wound, bemused and only semi-articulate, whether they were soldiers or scientists, or great statesmen, or the simplest of men. But in the dark depths of their minds and hearts, huge forms moved and silently arrayed themselves: Titans, arranging out of the chaos an age in which victory was already only the shout of a child in the street.

"With the controlled splitting of the atom, humanity, already profoundly perplexed and disunified, was brought inescapably into a new age in which all thoughts and things were split -- and far from controlled. As most men realized, the first atomic bomb was a merely pregnant threat, a merely infinitesimal promise.

"All thoughts and things were split. The sudden achievement of victory was a mercy, to the Japanese no less than to the United Nations, but mercy born of a ruthless force beyond anything in human chronicle. The race had been won, the weapon had been used by those on whom civilization could best hope to depend; but the demonstration of power against living creatures instead of dead matter created a bottomless wound in the living conscience of the race. The rational mind had won the most Promethan of its conquests over nature, and had put into the hands of common man the fire and force of the sun itself.

"Was man equal to the challenge? In an instant, without warning, the present had become the unthinkable future. Was there hope in that future, and if so, where did hope lie?

"Even as men saluted the greatest and most grimly Pyrrhic of victories in all the gratitude and good spirit they could muster, they recognized that the discovery which had done most to end the worst of wars might also, quite conceivably, end all wars -- if only man could learn its control and use.

"The promise of good and of evil bordered alike on the infinite -- with this further, terrible split in the fact: that upon a people already so nearly

drowned in materialism even in peacetime, the good uses of this power might easily bring disaster as prodigious as the evil. The bomb rendered all decisions made so far, at Yalta and at Potsdam, mere trivial dams across tributary rivulets. When the bomb split open the universe and revealed the prospect of the infinitely extraordinary, it also revealed the oldest, simplest, commonest, most neglected and most important of facts: that each man is eternally and above all else responsible for his own soul, and, in the terrible words of the Psalmist, that no man may deliver his brother, nor make agreement unto God for him.

"Man's fate has forever been shaped between the hands of reason and spirit, now in collaboration, again in conflict. Now reason and spirit meet on final ground. If either or anything is to survive, they must find a way to create an indissoluble partnership."

What this editorial trenchantly proclaims is that human kind is facing its greatest challenge: to work on earth for its greatest good or greatest evil ever, short of eternal salvation.

It was in that same year of 1945 that Albert Einstein prophesied, more briefly but no less clearly: "The unleashed power of the atom has changed everything except our mode of thinking and we thus drift towards unparalleled disaster."

Two of the greatest generals of World War II, hardly to be classified as doves, reminded us in later years that we were not doing very well as we faced this challenge, in fact, they invoked the moral and spiritual dimensions of our Einsteinian "drift towards unparalleled disaster."

First, General Eisenhower:

"Every gun that is made, every warship launched, every rocket fired signifies, in the final sense, a theft from those who hunger and are not fed, those who are cold and are not clothed. This world in arms is not spending money alone. It is spending the sweat of its laborers, the genius of its scientists, the hopes of its children ... This is not a way of life at all in any true sense. Under the cloud of threatening war, it is humanity hanging from a cross of iron."

(From a speech before the American Society of Newspaper Editors, April 16, 1953)

Then General Omar Bradley:

"Ours is a world of nuclear giants and ethical infants. We know more about war than we know about peace, more about killing than we know about living. We have grasped the mystery of the atom and rejected the Sermon on the Mount."

The scientists had their own specific warning in 1949 from the intellectual father of many of the most prominent among them

when I. I. Rabi declared that the use of nuclear weapons cannot be justified on any ethical ground. I conclude my opening text with another admonition, again from Albert Einstein, this time to theologians in 1947:

"Those to whom the moral teaching of the human race is entrusted surely have a great duty and a great opportunity .... It is to be hoped that not only the churches, but the schools, the colleges, and the leading organs of opinion will acquit themselves well of their unique responsibility in this regard."

(Atlantic Monthly, November, 1947)

While many of us who read The Bulletin of the Atomic Scientists were kept abreast of the growing menace, in fact, it continued to grow apace, like a malignant cancer, especially here and in the Soviet Union.

The nuclear arsenal grew in numbers, megatonnage, new and more accurate systems of delivery on land, sea, and sky, and now in outer space. When most of these earlier concerns were voiced, we had few weapons, delivery systems that required ten hours or more by slow moving bombers. Now we have shortened the fuse to a few minutes and face the abysmal prospect of handing the future of our species over to mindless, amoral, and let it be said, often faulty computers. Academician Velikhov once told me that what he feared most was not us, but our computers, and then added, "and ours are worse."

In all honesty it should be added that we introduced most of these systems first, with the Soviets quickly following suit. For example, we had the atom bomb in 1945, they in 1949; we the intercontinental bomber in 1951, they in 1955; we the jet bomber in 1951, they in 1954; we the H-bomb in 1952; they in 1953; they beat us by one year to the Intercontinental Ballistic Missile in 1957.

We introduced photoreconnaissance from satellites in 1960, they in 1962. We initiated submarine launched missiles in 1960, they in 1964. We launched the solid fuel ICBM in 1962, they in 1966.

They beat us to the anti-ballistic missile, albeit a crude one in 1966, ours came in 1974. We were first to initiate M multiple re-entry vehicles in 1970, they did likewise in 1975. These are the dates for testing and/or deployment, Obviously, each escalation was quickly followed and the arms race accelerated at each new step. (Towards a New Security, V.C.S., 1985, p. 22)

There were some strong warnings while all this was happening. The Russell-Einstein manifesto in 1955 that gave birth to the Pugwash Conferences on Science and World Affairs is worth citing.

"A war with H-bombs might quite possibly put an end to the human race."

The manifesto concluded with another strong statement regarding our cosmic choice between good and evil: "There lies before us, if we choose, continual progress in happiness, knowledge, and wisdom.

Shall we, instead, choose death, because we cannot forget our quarrels? We appeal, as human beings to human beings: Remember your humanity and forget the rest."

There were also during this period many religious appeals to nuclear morality and sanity, including my own, but they went largely unheard and unheeded. About a quarter of our scientists and engineers worldwide were engaged in the macabre arms race. What caught the headlines were the war games spokesmen.

Fred Kaplan, in a recent book, The Wizards of Armageddon, portrays the efforts of the intellectuals and scientists who have elaborated American nuclear policy while rotating between the Departments of Defense and State and the national think tanks on the East and West Coasts. After almost 400 pages of record, he concludes:

"They performed their calculations and spoke their strange and esoteric tongues because to do otherwise would be to recognize all too clearly and constantly, the ghastliness of their contemplations. They contrived their options because without them, the bomb would appear too starkly as the thing that they had tried to prevent it from being, but that ultimately it would become if it ever were used -- a device of sheer mayhem, a weapon whose cataclismic powers no one had the faintest idea of how to control. The



nuclear strategists had come to impose order -- but in the end, only chaos still prevailed." (The Wizards of Armageddon, Simon and Shuster, 1983, pp. 390-1)

Somehow in the early 1980's, our moral consciousness at last began to stir, as if by spontaneous combustion, on many fronts, here and around the world. Maybe the long time efforts of Ruth Adams and The Bulletin of the Atomic Scientists at last began to bear fruit, at long last.

America's Physicians for Social Responsibility grew into the International Physicians for the Prevention of Nuclear War (IPPNW) under the leadership of Dr. Bernard Lown of Harvard and Dr. Chazov of the USSR. Their five international meetings in Washington, Cambridge (England) Amsterdam, Helsinki, and Budapest attracted a membership of about 150,000 physicians worldwide to decry "the ultimate epidemic." Hear Dr. Lown speaking as President of IPPNW in Amsterdam:

"We can and must instill a sense of moral revulsion to nuclear weaponry and the Orwellian term, 'deterrence' which is but a sanitized word for indiscriminate and colossal mass murder. Our goal should be the widest conditioning of an anti-nuclear instinct as potent as hunger. Moral arousal, I believe, will help tilt the perilously balanced scale in world affairs towards survival.

President Eisenhower predicted that there will come a day when the people will generate such a mighty popular groundswell for peace that governments will be forced to get out of their way. Such a day is no longer remote for it is beckoned by the unleashing of the deepest forces embedded in humankind when threatened by extinction." (IPPNW Report, Vol I, No. 2, p. 15)

As everyone knows, their efforts to date have won them this year's Nobel Peace Prize. Interestingly, it involves a mutual US-USSR award.

Many other professional groups mobilized at the same time, businessmen under the rubric of "Beyond War, A New Way of Thinking." A book by Henry Willens, The Trintab Factor (Wm. Morrow and Company, Inc., New York City, 1984) forcefully explains their case. The lawyers are organizing, as are many other professional groups, including Mothers Embracing Nuclear Disarmament (MEND).

The scientists also began to stir worldwide. In 1981, the International Council of Scientific Unions passed a resolution urging scientists to work for the vital necessity of preventing nuclear war. Our own National Academy of Sciences the following year (1982) passed a resolution declaring nuclear was an "unprecedented threat to humanity" and calling for a four point program in the US and USSR against nuclear war. The American Association for the Advancement of Science and other scientific bodies passed similar resolutions.

Research began here, in Canada, in the USSR, and eventually through ICSU/SCOPE - ENUWAR (International Council of Scientific Unions -- scientific committee on Problems of the Environment -- Environmental Effects of Nuclear War) -- throughout the world on the effects of nuclear war, beyond blast, heat, and radiation. The concept of Nuclear Winter was born and as it continued to be supported and verified through continuing research, it became evident that truly the species was now in risk of extinction, that even first strike is suicide for the striker, and that non-combatant countries faced equal risk with those at war.

Meanwhile, a special Committee on International Security and Arms Control was commissioned by Phil Handler of the National Academy to meet semi-annually with a similar committee of the Soviet Academy.

While all this was happening, what were the two governments doing? Posturing mainly. If you want a detailed report on what was happening here during President Reagan's first term, read Strobe Talbott's Deadly Gambits (Alfred Knopf, New York, 1984). The most important human problem of all time was not being addressed constructively by the President, not by the Secretaries of State and Defense, but by their Under Secretaries, both hawks, but even more determined to checkmate each other in a personal vendetta. Thank God, the United States managed to survive Richard Burt vs. Richard Perle. The USSR officialdom was doing no better with rapid turnover of their gerontological leadership.

Leslie Gelb put it well in a March 4, 1984, article in the New York Times:

"There seems to be a habit of mind developing among Soviet and American officials that the problem cannot be solved, that technology cannot be checked, a combination of resignation and complacency. They have gotten used to both the competition and the nuclear peace. Mankind may not survive on that alone."

Recent days, including Geneva, have brought better omens.

As all of this was going on, the religious groups, Catholic, Protestant, and Jewish, burst into new life and vital activity -- often to the consternation of the government and sometimes to the dismay of the more conservative members of the flock, the "my country right or wrong" variety.

I can best report on the activities of the American Catholic hierarchy who spent several years producing what is, in my judgment, their best pastoral letter: The Challenge of Peace, God's Promise and Our Response. (U.S.C.C., Washington, D. C., 1983) As the Chairman of the Drafting Committee, Joseph Cardinal Bernardin, observed in a talk at Notre Dame:

"Today, the stakes involved in the nuclear issue make it a moral compelling urgency. The Church must be involved in the process of protecting the world and its people from the specter of nuclear destruction. Silence in this instance would be a betrayal of its

mission .... the premise of the letter is that nuclear weapons and nuclear strategy constitute a qualitatively new moral problem." In scientific words, a quantum leap.

In drafting the letter, the bishops were confronted with another unusual challenge. Not only were the bishops facing the quintessential moral problem of our times, but in their field of reference there are practically no theological moral precedents. They used the only two possible theological precedents available, the theology of pacifism, and the theology of just war. Both were admittedly of little help. First, pacifism as a theological posture going back to pre-Constantinian times refers more to a highly idealistic, individual Christian stance than to a moral imperative of a nation committed to the effective defense of its people. Even Gandhi had his doubts about the efficacy of passive nonviolent resistance against the Nazis in the Second World War, and today the Soviet Union poses an even greater threat.

The Augustinian theology of a just war was promulgated in the days of bows and arrows and spears -- hardly comparable to ICBM's, MX's, cruise missiles, and all of their numerous Soviet counterparts. Augustine lived in a day of hand-to-hand combat, not one with the potential for the total annihilation of hundreds of millions of people in a few minutes by the pushing of a single button.

The bishops used what they possessed in the area of moral principles and came close to admitting that the key just-war

principles of discrimination (not killing innocent civilians) and proportionality (not using force of greater magnitude than the good to be achieved in justifiable defense) are practically meaningless as applied to nuclear war. When nuclear weapons are used there can be no discrimination between armies and innocent citizens, and the nuclear force employed is so great it is useless to talk of proportionality -- it is by its very nature of too great a magnitude -- a million times greater than Hiroshima and Nagasaki.

Using the just-war principles of proportionality and discrimination as starting points, the bishops' conclusions are clear, courageous, and to the point.

1. Initiation of nuclear war at any level cannot be morally justified in any conceivable situation.
2. Limited nuclear exchanges must also be questioned, since they may not be controllable. (They may escalate.)
3. No nuclear weapons may ever be used to destroy population centers or civilian targets. Even if the target is military or industrial, the principle of proportionality would rule out targeting if the civilian casualty toll would be too great.
4. Deterrence policies are morally acceptable only on a strictly conditioned basis. They must not be an end in themselves, but be a step toward realistic and progressive nuclear disarmament.
5. Immediate bilateral and verifiable agreements to halt the testing, production, and deployment of new nuclear weapons are supported, followed by deep cuts in the nuclear arsenals of both super powers.

When one considers the broad sweep of the pastoral letter, minimal requirements are asserted as binding on Catholics. Rather than declaring a final word on a perplexing and complex matter, the bishops made it clear that it was meant to be a first word. The pastoral letter calls for discussion by Christians and others, and it modestly attempts to place the resulting public discussion in a framework of reason and faith. I was particularly impressed by the bishops call for charity and civility in the discussion that will inevitably follow.

Finally, the bishops offer a vision of humanity transcending its differences to avoid nuclear holocaust.

All of this is reminiscent of where we began with the TIME editorial: the working together of reason and spirit, the ultimate challenge of good and evil to a world united in its humanity, though separated in so many other ways. The nuclear threat may indeed finally bring humanity together in ways impossible short of an invasion from outer space, and that is difficult to arrange.

As one good example of this extraordinary common effort, I have spent much time during the past four years helping scientists and religious leaders to make common cause against the nuclear threat. I believe it is perhaps the first time they have worked together since Galileo. We have had six meetings in Europe (plus one in Japan) bringing together scientists from all the nuclear states, and others, plus religious leaders from all the world religions, in Vienna several times, in London, three times in Rome,

and last November, 1984, at the Villa Serbelloni in Bellagio, Italy. There has been an extraordinary commitment to common themes and programs for action.

Time permits only a brief taste of the declarations unanimously approved by the delegates of thirty-six National Academies of Sciences in Rome (hosted by the Pontifical Academy of Sciences and greeted by the Holy Father, September 24, 1982.) Six academies were from the Soviet bloc. Here are a few disconnected sentences taken from the five page declaration.

"Science can offer the world no real defense against the consequences of nuclear war ....

"It is the duty of scientists to help prevent the perversion of their achievements and to stress that the future of mankind depends on the acceptance by all nations of moral principles transcending all other considerations. Recognizing the natural rights of human beings to survive and to live in dignity, science must be used to assist humanity towards a life of fulfillment and peace.

"All disputes that we are concerned with today, including political, economical, ideological, and religious ones, are small compared to the hazards of nuclear war.

"It is humanity as a whole which must act for its survival; it faces its greatest moral issue and there is no time to be lost."



Incidentally, more than three million copies of the total declaration were distributed through a popular science publication in the USSR; 100,000 copies here, thanks to SCIENCE Magazine on January 15, 1983.

Four months later, the main scientific framers of this declaration met with world religious leaders in Vienna. The religious leaders, after studying and discussing the scientists' declaration, unanimously declared in part:

"What faith impels us to say here in Vienna must be fortified by the hope that it is possible to build a world which will reflect the love of the Creator and respect for the life given us, a life certainly not destined to destroy itself. Because of the deterioration of the international political atmosphere and the great danger posed by the rapid developments in military technology, humanity today is in a critical period of its history. We join the scientists in their call for urgent action to achieve verifiable disarmament agreements leading to the elimination of nuclear weapons. Nothing less is at stake than the future of humanity."

In order to continue and institutionalize this dialogue of scientific and religious leaders, we have in recent months founded the Notre Dame Institute for International Peace Studies. Tomorrow morning at the University, there will be a press conference to announce a very generous endowment gift to perpetuate this endeavor. It is our hope that we can involve yearlong discussions between young U.S., USSR, and Chinese scholars and potential leaders to build a series of bridges of common concern across the chasm that currently separates us. Mutual trust does not just happen. It must be built.

I would like to conclude this somewhat negative and worrisome subject on a word of hope. Freeman Dyson thus quotes the Bishops' Pastoral on the frontispiece of his recent book, Weapons and Hope (Harper & Row, 1984). The quote:

"Hope is the capacity to live with danger without being overwhelmed by it; hope is the will to struggle against obstacles, even when they appear insuperable."

May I finally conclude by sharing with you the last paragraph of Dyson's book, a message really intended for the younger generation, not for those proteges of Teller working on X-ray lasers in the Lawrence Laboratory, of whom William Broad has just written in Star Warriors, but for the millions of young men and women who reject the destruction of all creation, God's and ours.

Thus Dyson:

"This lesson, not to give up hope, is the essential lesson for people to learn who are trying to save the world from nuclear destruction. There are no compelling technical or political reasons why we and the Russians, and even the French and the Chinese too, should not in time succeed in negotiating our nuclear weapons all the way down to zero. The obstacles are primarily institutional and psychological. Too few of us believe that negotiating down to zero is possible. To achieve this goal,

we shall need a worldwide awakening of moral indignation pushing the governments and their military establishments to get rid of these weapons which in the long run endanger everybody and protect nobody. We shall not be finished with nuclear weapons in a year or in a decade. But we might, if we are lucky, be finished with them in a half century, in about the same length of time that it took the abolitionists to rid the world of slavery. We should not worry too much about the technical details of weapons and delivery systems. The basic issue before us is simple. Are we, or are we not, ready to face the uncertainties of a world in which nuclear weapons have been negotiated all the way down to zero? If the answer to this question is yes, then there is hope for us and for our grandchildren. And here I will let Clara Park have the last word:

Hope is not the lucky gift of circumstance or disposition, but a virtue like faith and love, to be practiced whether or not we find it easy or even natural, because it is necessary to our survival as human beings."