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The nuclear club and affirmative action

On October 17, 1980, brief news reports tucked away in the inside pages of major American newspapers announced that China had set off another nuclear explosion in the atmosphere. American officials put the size of the explosion at about a million tons of TNT, more than 10 times larger than the 1945 Hiroshima bomb.

These news reports also stated that the most recent blast was only one-fourth the size of the four million ton explosion set off by China in November 1976. The 1976 blast, incidentally, was followed by three more of lesser intensity during the next two years.

Ever since China exploded its first atomic bomb in 1964, such explosions in the atmosphere have attracted little attention in the United States, especially after President Nixon initiated the Sino-American *entente cordiale* in 1971. That these Chinese nuclear tests in the atmosphere are in defiance of the 1963 Limited Test Ban Treaty (which China has steadfastly refused to sign) and are unabashedly being conducted for military purposes, seems to generate no excitement in Congress or among the American press or public.

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Contrast this attitude with the American reaction to India's underground atomic test in May 1974. The reverberations of that single Indian test, conducted within the terms of the Limited Test Ban Treaty—which India has signed—have not yet ceased. In the Indian case, the most recent commotion arose over President Carter's request to supply 38 tons of uranium fuel for the Tarapur nuclear power station in Bombay. The debate over this sale stimulated the most vituperative rhetoric by Congressional opponents, despite the existence of international contractual obligations entered into by the United States in 1963 to supply such fuel for 30 years from that date.

What makes repeated Chinese *atmospheric* nuclear tests less disturbing to the United States than the mere probability that India may conduct a second *underground* test in the 1980s? The answer appears to be that Washington has determined and defined the potential nuclear proliferation chain to commence with India's atomic test in May 1974. It did not begin with the first American atomic test in Alamagordo in July 1945, nor with the Soviet test in November 1949, nor with those of the British and French in the 1950s, nor even with the Chinese test in 1964.

This attitude may make some sense if the actual or potential nuclear chain is perceived not to include the five so-called "great powers" with permanent seats and veto privileges in the Security Council of the United Nations. These five states—all nuclear powers at present—were originally conceived by the authors of the U. N. Charter to play the role of security policemen after World War II. That role was predicated on their earlier Allied effort during the war to stop the rise and dominance of fascist states in Europe and Asia, and was based on the assumption that such cooperation would continue after the war. No further "great powers" with special privileges were envisioned under the framework of the U. N Charter.

If these indeed are the circumstances which entitle five states to continue the production and testing of increasingly sophisticated nuclear weapons of mass destruction, they hardly make much sense today. In fact, the current situation has made little sense since the Soviets conducted their first atomic test in 1949, which was not in the interests of world security but to offset the perceived nuclear threat from the United States. Similarly, the eventual expansion of the nuclear club to Britain, France and China, had nothing to do with the notion of five permanent members of the Security Council policing the world. Their decisions to deploy nuclear weapons were essentially military responses to threats perceived within the club. Meanwhile, apart from some mild restrictions placed upon each other in various treaties, of which the notable ones are the Limited

Test Ban Treaty in 1963 and SALT I in 1972, virtually a "no holds barred" nuclear arms race continues apace.

The question then arises as to why other nations should not be entitled to engage in similar nuclear arms races in response to similar perceived threats. If the Soviet Union became a nuclear power in response to American nuclear capability, Britain and France in response to Soviet capability, and China in response to Soviet and American capability, why should not India become a nuclear power in response to Chinese nuclear capability? And if India, then Pakistan. Similarly, Israel, Egypt, Libya, Syria, Iraq, Saudi Arabia, Iran, South Africa, Taiwan, the two Koreas, Brazil, Argentina and all other nations who perceive nuclear threats to themselves and have the capability of initiating a counter nuclear response should have the right to imitate the example of the five great powers. Or is "five" a magic number?

American strategists believe that "five" is about as far as it should go. For this, there are two major arguments:

- First, as one increases the number of nuclear powers, deterrence theories based on retaliatory strikes and assured destruction of the attacker become far more complex and subjective. In a theoretical world of multiple deterrence, assured destruction capabilities must exist among every member of the nuclear club relative to every other member.

While statistically it may be possible to calculate these various permutations, in practice the probability of accomplishing this would be zero. It is hard enough for the United States and the Soviet Union to maintain such mutual assured destruction capabilities given the dynamics of the arms race, the hypothetical and subjective nature of the assessments on either side, and the continuous proliferation of newer forms of nuclear weapons systems. It would be utterly disastrous if membership in the nuclear club were increased to require such relationships among them all. "Pre-emption" would be the inclination everywhere.

- Second, the greater the number of nuclear powers, the greater the chances of irresponsible state leaders wielding these weapons of mass destruction. Such a leader, willing to risk national suicide, could blackmail the world.

In combination, the two arguments are purported to demonstrate that the growth of nuclear weapons capability among the existing "haves"—vertical proliferation—tends to be less dangerous than the spread of nuclear weapons capability among the present "have-nots"—horizontal proliferation.

Yet this demonstration, however convincing, does not solve the problem of nuclear threats faced by threshold nuclear powers along the potential nuclear proliferation chain. If the only response to nuclear threats is more nuclear weapons among the present "haves," then why should not this be the only response of those on the brink of nuclear weapons capability? The rationale of the "haves" must apply equally to the "have-nots."

The fact that some of these countries are "poor" does not mean that they are less entitled to security. This observation tends to be reinforced by the fact that nuclear guarantees carry little credibility. If one assumes that the existing nuclear powers carry assured destruction capabilities relative to each other, then they could threaten non-nuclear states with impunity.

In the Indian case, for instance, if China were overtly or implicitly to threaten India, what would be the credibility of a Soviet threat to strike China with nuclear weapons? Would not the United States at this point deter the Soviets from doing this to their newfound Chinese friends by disputing the Chinese threat to India? If today an implicit American guarantee exists on behalf of China, then an implicit Soviet guarantee on behalf of India is not very credible.

As it stands, the Chinese are obviously not interested in either implicit or explicit external nuclear guarantees but insist on building up their own independent nuclear deterrent—even if this does not appear to be a feasible objective because of accelerating Soviet nuclear power. However, if the reason that the Chinese are engaged in this competition in futility is understandable, should it not be equally understandable that the Indians would want to do the same? And if India, then Pakistan, and so on. Thus the world would be moving toward an increasingly dangerous situation.

Is there a way out of this labyrinth? Perhaps. First, the solution to reducing and eventually eliminating this increasing danger must be recognized as not lying with India. India can only be persuaded not to become a nuclear power, if the Chinese can be persuaded to get rid of their nuclear stockpiles and stop further nuclear weapons development. Clearly, this is not likely to happen unless the Soviets can be persuaded to do the same. And the Soviets will do this only if the Americans follow suit.

Strategies to prevent vertical proliferation such as the SALT negotiations cannot be separated from strategies to prevent horizontal proliferation as in the Non-Proliferation Treaty. If SALT II is dead, then so is the NPT. Consequently, negotiations on nuclear disarmament must include all the nuclear powers and those on the brink of such capability. The objective cannot be merely some convenient and cosmetic arms control between a couple of the "haves"; it must be total nuclear disarmament.

If the idea of nuclear weapons in the hands of India, Pakistan, Israel, Iraq, Libya or South Africa is horrifying, then we must feel equally horrified with decisions to develop and deploy the MX or SS-20 missile systems, and with the continuation of Chinese nuclear tests, whether in the atmosphere or underground. Anything less than a comprehensive and integrated approach—no matter now idealistic this may seem—has little chance of success. □

Excerpts From Rostow's Statement to Senate Panel on Arms Talks

Special to The New York Times

WASHINGTON, June 22 — Following are excerpts from the statement of Eugene V. Rostow before the Senate Foreign Relations Committee on his nomination to be director of the Arms Control and Disarmament Agency:

Many look to arms control agreements as magical guarantees of peace. The history of the subject should persuade us to accept more modest expectations. Fair, balanced and verifiable arms control agreements can play a significant role both in achieving and in maintaining peace. They cannot do so of themselves.

But despite the disappointments and the setbacks, our foreign policy since President Truman's time has never stopped trying for effective international controls to minimize the risk of nuclear war and encourage the peaceful use of nuclear energy. Under President Reagan, this will emphatically remain the case.

If the United States and its allies should fail to carry through the programs of rearmament on which they are now embarked, the Soviet Union would soon reinforce its widespread conventional force superiority with a position of ominous strategic strength. The Soviet Union is now close to acquiring a posture from which it could gain an important strategic advantage by striking first or threatening to strike first in a crisis. Even if we allow our strategic forces to remain vulnerable to that threat, the paralyzing specter of Soviet military superiority could prevent us from defending our national interests with force if diplomacy and deterrence fail. In short, we could be exposed to nuclear blackmail.

Stability and Order

Thus wherever one starts, analysis returns to the fundamental problem of stability and order. Secretary of State Haig addressed the issue in his important speech of April 24, 1981. The lesson we should draw from the experience of the last 10 years is that the United States, its Allies, and all the other nations which cherish peace should return to the containment policy pursued between Truman's time and the American withdrawal from Vietnam.

Unless effective containment is restored, we cannot expect to pursue détente and arms control fruitfully. The restoration of containment should be the predicate for useful arms control agreements with the Soviet Union, which could then reinforce the policy and help to sustain it during periods of stress. Even competing nations have common interests in peace, if they can be brought to accept them. It should be possible, whatever the difficulties, to translate those interests into agreements to limit and control armaments. And such agreements, in turn, could reduce the risk of war by inadvertence, moderate arms competition and promote political cooperation.

What's to Be Done?

I come now to the final question: What's to be done, and, more particularly, what's to be done about arms control?

The first step has been taken. With its historic votes on the future of the military budget, the Congress has joined President Reagan in launching a program to rebuild America's defenses. Without that decision, nothing else could be accomplished.

I believe it is now possible and desirable for us to resume the search for balanced and verifiable arms control agreements.

The first item on the agenda, obviously, is the SALT II treaty still technically before the Senate. Should it be renegotiated or should we proceed on what is loosely called the agenda for SALT III? Before we act, all aspects of this important subject should be studied with care by all concerned in the Executive Branch and the Senate and discussed with our allies.

The Administration has reached no conclusions on this subject, beyond the conviction that the SALT II Treaty is deeply flawed and should not be ratified. We should make a fresh start in seeking both arms control and arms reduction; and we should choose the course that will contribute most positively to the goals I have identified in the earlier parts of this statement: Allied solidarity behind regional programs of containment in the Atlantic area, the Middle East, the Far East or elsewhere, as circumstances may require. From now on, I suggest, we should have a new acronym — not SALT but START, or Strategic Arms Reduction Talks.

Issue of Verification

Secondly, I shall recommend a fundamental review of the whole problem of verification, monitoring and Soviet compliance with arms control agreements and of our policies concerning them, perhaps including talks on the subject with the Soviet Union when our internal review has been completed. But the discussion of the issue during the active debate on SALT II during the last three years has left me, for one, deeply concerned about our capacity to verify Sovit compliance and to monitor developments in Soviet nuclear capabilities. Obviously, if nuclear arms limitation agreements do not reduce uncertainty about each side's arsenal, they can do little to improve security.

Similarly, I believe that we must examine once again the perennial problem of the data used in arms control negotiations with the Soviet Union. Until now, the data have been supplied almost entirely by the United States.

Fourth, we must consider the nature of the arms control agreement we want. Should we seek a comprehensive agreement or a relatively simple one? One for a period of years or one of indefinite duration, like the ABM treaty? What should we be trying to limit or reduce? The number of deployed launchers? There is now serious concern that this approach is no longer adequate. Should we try to limit or reduce the number and types of missiles? The number and power of warheads on missiles? Their throw weight?

Will it be possible to negotiate and verify a dramatic and equitable cut in each side's arsenal — to achieve a real breakthrough in the mad spiral of arms accumulation? Such proposals have been made from time to time — notably by Paul H. Nitze in 1971 and by George Kennan a few weeks ago. Under present circumstances, such an approach might be feasible, perhaps by starting with the largest missiles. No American Administration could reject such a possibility out of hand, despite the fact that President Carter's arms reduction proposals in 1977 were abruptly dismissed by the Soviet Union.

Remarks from a symposium organized by the Council for a Livable World Education Fund and the Physicians for Social Responsibility on 'The medical consequences of nuclear weapons and nuclear war.'

JOHN D. CONSTABLE

Surgical problems among survivors

The crash of a partially filled 30-passenger airplane on Nantucket Island required the mobilization of all the emergency medical facilities of Greater Boston, a major surgical center. Yet we are seriously asked to contemplate and to discuss the possibility of ten thousand or a hundred thousand or even a million severely traumatized victims of a military nuclear explosion.

These numbers could be so matter-of-factly proclaimed only by those who are in complete ignorance as to the possibility of any adequate or even partially adequate medical treatment being made available to such survivors. As medical facilities are now set up, we can talk about how such injuries *should* be treated, but to transfer this knowledge to the practical possibilities of the treatment of the numbers of victims that have been predicted is categorically out of the question.

The injuries caused by a massive nuclear detonation would come from the various effects of such an explosion. Although I will briefly consider a number of different injuries, I would like to point out at once that burns or thermal injuries would be by far the most crushing burden on the available medical resources. In the case of very large explosions, radiation levels sufficient to cause immediate—or only very shortly delayed—death or massive radiation damage can be expected to extend not very far beyond the zone of lethal damage due to heat or blast. With relatively smaller explosions, such as those used in Japan, this is not strictly true. But it still means that among the survivors of an explosion of the size currently contemplated there would not be very many patients who might die soon from the immediate radiation effects.

The direct blast of a nuclear bomb will, of course, result in a number of injured survivors, but we must keep in mind that the explosion is relatively much more destructive to buildings than it is to persons. Whereas most ordinary houses are destroyed by an increase of perhaps five pounds per square inch in atmospheric pressure, the human body, as long as it is protected from injury by other objects, can stand a temporary increase of 30 to 50 pounds per square inch.

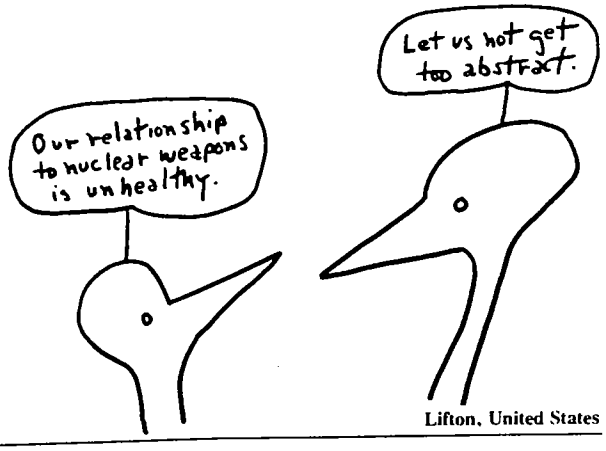
There will, however, be very extensive traumatic injury to people within and around buildings, as a result of being blown out of them and by being damaged by debris from the destruction around them. Also, the initial blast effect of the explosion is characteristically followed by very powerful local winds rising to as much as 100 or 180 miles per hour and these, of course, will cause a number of severe traumatic injuries.

Most of those injured, whether they have been crushed, cut, or blasted, but who have survived initial injury and have reached adequate medical facilities would, in most cases, be expected to require only one major surgical procedure. Although this might be very expensive in terms of time and material, including a great deal of blood and other support, the victims could then in most cases be expected to enjoy a relatively uncomplicated convalescence. The non-nuclear war experience in Vietnam has taught us that, at least among younger patients, even the most severe intra-abdominal or thoracic injuries, whether resulting from bombs, shellfire, or other causes, can be restored fairly quickly provided that the patient can survive until a medical facility has been reached and that major restorative procedures could then be carried out.

Of all the trauma resulting from a nuclear explosion, thermal injuries, even though heat and light contain only some 35 percent of the total energy of such an explosion, are first and foremost in terms of the extent of medical treatment needed in the first few weeks of injury. But, somewhat paradoxically, even though burn victims end up by consuming vastly more of the medical facilities than other injuries, most of those surviving burns can, in fact, be transported with minimal treatment for the first eight to 24 hours after the injury.

Some special aspects of the burn problem need to be considered. How important is carbon monoxide poisoning? In an outdoor fire significant poisoning from this source is usually rare. Even when it occurs in a patient exposed to carbon monoxide in a confined space, either the levels of blood saturation have become so high that there is irreversible anoxic brain destruction, in which case there will be no recovery; or by the time the patient reaches a medical facility spontaneous recovery will be sufficiently advanced that the residual carbon monoxide absorbed will not be a major problem in treatment.

Patient anoxia resulting from most of the atmospheric oxygen having been used up by a fire—theoretically important in a so-called fire storm—is clinically rare. If the degree of thermal activity is sufficient to cause anoxic



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damage, then there will usually be concomitant fatal incineration. But if there is only a relative degree of anoxia, spontaneous recovery will occur by the time the patient has reached a medical facility.

Both carbon monoxide poisoning and fire induced anoxia must be distinguished from so-called pulmonary burns, which remain one of the major largely unsolved therapeutic problems of thermal damage. This is a form of lung injury which usually takes from 24 to 72 hours to develop and is not, in fact, the result of direct thermal damage to the lung. If the heat around the patient's face is sufficient to result in actual destruction of the trachea, bronchae, or lungs, there will almost invariably be such devastating destruction of the face and other parts of the skin as well that the patient will not survive.

It is now generally accepted that the damage to the lungs is a result of the chemical activity of noxious products of incomplete combustion. Consequently, this type of burn is characteristic of fires in closed spaces rather than the open spaces which would be more common with a major bomb. Among people confined to buildings, pulmonary burns will be a major lethal factor. In the Coconut Grove fire in Boston some 40 years ago, over 400 people died, almost all without visible signs of burns. These deaths, which occurred mostly two, three and four days after the fire, resulted from pulmonary damage now believed to have been from the fumes from the plastic in the artificial palm trees and furniture coverings.

Although pulmonary damage may be a major cause of death in burns, it must also be recognized that this aspect of thermal damage does not really pose an immense burden on triage or on the medical system. This is because, even with the best possible facilities, it remains essentially untreatable. In general, these patients either have so major a lung injury that they will die, or with a relatively lesser degree of injury they will spontaneously recover quite quickly.

Aside from these secondary aspects, there will be two kinds of direct thermal injury from a nuclear explosion: one will result directly from the detonation; the other from the secondary fires following the ignition of available combustible material. These secondary fires are of at least two sorts. One is the possibility of a fire storm, and with the lower concentration of combustible materials in American towns and cities this is a little less likely than in many other parts of the world. Much more certain is the development of a major conflagration which would be essentially the sort of fire with which we are all too familiar, but enormously increased in scale. This fire would, of course, be associated with multiple smaller ones, starting from the breaking of gas mains, the failure of electrical pumps, the lack of water to put them out, and so on. The fires would presumably be spasmodic over a very large area.

Patients would thus be exposed to the risks of thermal damage from the bomb itself and from its secondary fires. I believe that there is no essential difference in the nature of burns resulting from these two etiologies. Burn damage to the skin results from a combination of the amount of heat and the time of exposure, these factors being very much modified by the presence or absence of clothing, the moisture content of the atmosphere, and other factors. An explosion results in an almost instantaneous exposure to a very high heat level with damage occurring over an incredible distance; but the nature of the injury is not, I think, different from other forms of thermal burns. It simply means that there can be much more severe damage in a very short time if the heat to which one is exposed is very great.

I must at least mention the problem of thermal injuries combined with the effects of radiation. All patients seriously injured by nuclear explosion who have also had a significant amount of radiation injury will be more difficult to treat. My assumption here is that relatively few surviving patients will have received sufficient radiation to result in death within a matter of weeks or months from the radiation alone. But even with those who have received smaller doses of radiation, the damage to the immune system and to blood element regeneration results in the patient being more prone to invasive sepsis, in less satisfactory healing, and in an increased risk of death from a thermal injury which might otherwise not have been fatal.

Experimental studies have shown that a burn from which a normal animal can be expected to recover becomes lethal if the animals have been previously or concomitantly exposed to non-lethal radiation. (A medically interesting note: in dealing with a very small number of victims, as in a nu-

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clear reactor explosion, the immunosuppressive aspects of radiation might not be totally disadvantageous. In current practice, severely burned patients are treated by immunosuppression in order to allow for the extensive use of allografts.)

First degree burns are at their very worst equivalent to a severe sunburn. They may result in some transient dehydration, certainly considerable pain, but under any emergency conditions, these require essentially no treatment and must be considered of no particular medical consequence.

Second degree or partial thickness burns (the latter term is much to be preferred) are, from the point of view of the immediate surgical problems, almost as severe an injury as are full thickness burns. A deep partial thickness burn requires essentially the same amount of resuscitative effort, the same difficult nursing, the same elaborate dressings, and the same extensive care during the first three to four weeks. Although these injuries heal from the base and therefore no skin grafting is required, and the eventual problems of resurfacing the patient are a great deal simpler, the immediate problem of care is almost as great as with a full thickness burn. The two groups should be combined from the point of view of trying to evaluate the early load on the medical system.

It is very difficult to estimate accurately the extent and number of burn survivors in a population exposed to a nuclear explosion. The figure might vary by as much as a thousandfold, depending upon specific factors prevailing at the time of the explosion. These include not only the size of the bomb and the above ground level of the explosion, but also the atmosphere. Even a moderate degree of opacity in the air strikingly reduces the range of thermal damage. Other factors include the season, the time of the day, and the extent to which the population has been pre-warned. These conditions partly determine the amount of clothing being worn and whether people are outdoors or not, since at the periphery of an explosion protection from, or at least reduction of, the extent of thermal injuries can be fairly easily obtained.

Even with these caveats and modifiers, it has been estimated that for a one-megaton nuclear explosion, with ten-mile visibility, only first degree burns might be expected within a seven-mile radius; second degree or partial thickness burns within a six-mile radius; full thickness destruction within five miles. If the atmosphere were sufficiently opaque to reduce visibility to two miles, then the second degree zone would be reduced from six miles to something under three and the others changed proportionately.

The two-and-a-half mile radius from the center of the explosion—the limit of second degree burns if the atmosphere restricts visibility to two miles—is approximately the same limit as that of five pounds per square inch of blast. This is generally considered to be the lethal average for humans, due to secondary effects of blast and wind, so it becomes clear that unless the atmosphere is even more opaque, the greatest number of severely damaged survivors will be within two-and-a-half to six miles from the center and their trauma will be the result of thermal injury rather than other causes.

Unfortunately, this is the form of trauma which demands the largest amount of medical assistance if it is properly managed. There is, indeed, no injury that can be counted on to use up more hospital facilities than can a severe burn. Triage—judging which burn patients will survive—would be very difficult and it may be necessary to treat a great many patients for extended periods who will eventually die from their injuries.

The burn literature has been filled over the last ten years with reports of progress in salvaging the severely burned. Many new methods of infection control have come into use, including various surface antiseptic agents and topical antibiotics. The surface control of infection has prevented the conversion of partial thickness to full thickness burns by sepsis and has strikingly improved overall results in burn salvage. There has also been much effort to control systemic infection, both by the use of antibiotics and by elaborate isolation techniques. There are life islands in which patients are more or less isolated in a plastic enclosure, and more recently laminar flow units. These latter are devices in which the air is regularly replenished and replaced so that bacteria are swept away and the air is kept essentially sterile. All of these methods have helped reduce death from infection.

Another recent development is the early surgical excision of burns. This is now often done, and although it is usually not safe to excise more than one-fifth of the patient's body surface at one sitting, surgery may be carried out on the first or second day after burn, and with maximum support again on the fourth, and so on, ending with as much as 80 to 90 percent of the skin being excised. Massive excision has been combined with immunosuppression so as to allow for the use of typed allografts taken from living donors or cadavers. It is possible with these methods to obtain some dramatic results although they are still cosmetically or aesthetically relatively grotesque. These are certainly very satisfying to the burn surgeons involved, and reasonably so, perhaps, to the patients and their families.

It is absolutely essential to recognize, however, that any really severe burn that is salvaged may require as many as 30 to 50 operative procedures, both immediate and delayed, and months and months of hospitalization. This imposes immense strains on the medical facilities available. With the newer and more dramatic methods,

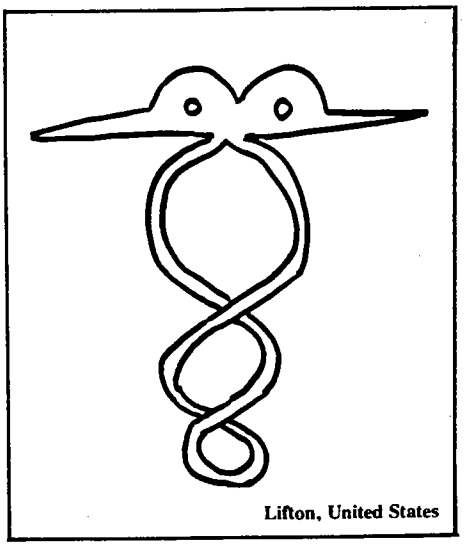
The Physicians for Social Responsibility and the Council for a Livable World Education Fund have collaborated in the organization of the Conferences on the Medical Consequences of Nuclear Weapons and Nuclear War. These conferences have been held in Cambridge, Mass., New York City, San Francisco, Calif., and Seattle, Wash. The next conference is to take place in Chicago on June 19 and 20. For information, call the Council at 617-742-9395.

there is at least the possibility, if sufficient material and personnel are poured in, of salvaging burns in the 85 to 90 percent range.

This, of course, makes triage much more difficult. We would be faced with an enormous group of patients sustaining 20 to 90 percent burns who might survive if treated. Except for localized burns of the hands and face, I exclude burns affecting under 20 percent of surface, because most of these can be relatively easily treated. What is, in fact, involved, in the possibility of treating large numbers of severe burns?

Some years ago the Shriners of North America, who had for years donated large sums to look after orthopedically crippled children, began to have less orthopedic demand because of diminishing polio, tuberculosis, and chronic osteomyelitis. They therefore became interested in building specialized burn hospitals for children. Their plan was to start with three burn units and then expand, possibly adding another 15 or so to match the number of orthopedic hospitals they were already maintaining. These initial three units were built in Boston, Galveston, and Cincinnati. In the 15 years since these three 30-bed hospitals were built, it has not been practicable to build even one other unit, because the three burn units, with a total of 90 beds, use up a budget similar to that of nineteen orthopedic hospitals, most of which are of comparable size.

The cost of running a single 30-bed hospital, in which half of the beds are reconstructive and where there would rarely be more than ten acute burn cases at one time is in the neighborhood of $4 million per year. There are, all over the United States, something like one thousand so-called burn beds. These are in specialized institutions willing to look after severe burns, but to do this appropriately each burn patient requires specialized individual nursing for quite a long time.



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At most, one nurse can look after two patients.

Severe burn cases require not just one major operation, but may need general anesthesia every other day and regular trips to the operating room for weeks or even months. There are elaborate dressings and the application of appropriate antibiotics or at least antiseptic agents. The patients require large amounts of blood, albumin, and other human blood derivatives. They may need enormous areas of allografts, and even in wartime it may be difficult to obtain sufficient quantities of these from cadavers.

Whereas most traumatic lesions are more or less definitively treated immediately, and the victims either recover or die, burns are peculiar. The burn patient is not so ill during the first 12 to 24 hours. I have seen a number of older patients with 40 to 50 percent full thickness, clearly fatal, burns who, for the first 12 to 24 hours after their injury, appeared in reasonably good condition. They were capable of consulting their lawyers and doing whatever needed to be done. It is after this initial period that the patient becomes sicker and sicker, and this critical hovering between survival and death may go on for weeks or months. Then, once a burn has been initially resurfaced, it may need months or years of reconstruction. And even with all of this, anyone who is discriminating or humane would recognize that the end results are indeed pathetically poor.

It is very difficult to estimate the cost of such cases in dollars because, to the best of my knowledge, no health program or insurance pays adequately for burn care. Blue Cross/Blue Shield and similar programs admit that they cannot afford to pay the true cost. Nonetheless, it is reasonable to put the cost at anywhere from $200 to $400 thousand for the average severe surviving burn case.

Even though there are 30-bed burn units, such as the Shriners' or those at large general hospitals, they can, in fact, handle only two or three fresh severe burns at once. If there is a large group of such burns in a major accident, they will have to be distributed for any effective treatment.

Even the most famous burn disasters of recent years—the Coconut Grove, plane crashes, or the Hartford Circus—have resulted in very few initially surviving major burns, but the expectation of any holocaust, such as a nuclear bombing, is that there will be at least thousands of severely burned people immediately surviving. The most conservative calculation of the thermal injuries resulting from an isolated one-megaton or "minimal nuclear explosion," with preservation of all U.S. medical facilities and the availability of immediate and perfect triage and transportation, will completely overwhelm what we consider to be one of the most lavish and well-developed medical facilities in the world. It is impossible to imagine the chaos that would result from a larger explosion in which the hospitals themselves were partially destroyed and there was no ability for significant triage or intercenter transportation. The medical facilities of the nation would choke totally on even a fraction of the burn casualties alone. □

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Of several minds: *John Garvey*

KING OF PRUSSIA EIGHT

EXTREMISM IN THE DEFENSE OF SANITY

WHEN THE ARMS race is mentioned most of us know what it means, or think we do, and we also believe that there is something inevitable about it. It has a momentum all its own, it is part of our landscape, and like the facts of weather or natural death it is out of our hands. Even the term "arms race" is ear-numbing, like "spiraling inflation" or any of the other verbal tokens which make us think we know what we are hearing and talking about. With a phrase like "arms race" we make horror a part of ordinary conversation, which is one way of burying fear and hopélessness.

Our hopelessness is based on a reasonable perception which is as dark as anything human beings have ever had to face. The fact is that we have never developed a technology which we have not used, unless it was supplanted by something more effective; and there is only one way to test a technology's efficacy: its use in a real situation.

For a while the arms build-up was defended on the grounds that the horrible nature of the weapons which would be called into use during a nuclear conflict made the idea of nuclear conflict unthinkable. This is certainly a naive hope, if hope is what it can be called, in the century of death camps and Hiroshima. But naiveté has been replaced recently by weapons designed for accurate targeting and by serious talk of a winnable nuclear war. There are many scientists who argue, against a prevailing wind, that any nuclear war, no matter how limited, will have permanent and disastrous genetic and environmental effects. Unfortunately, there is only one way to find out if they are right.

The belief that war is suicidal madness in a nuclear age is not confined to radicals: the conservative Cardinal Ottaviani, among others, accepted it as fact. The world really does face horrors we are not yet capable of imagining, and our

leaders are taking us to the place where we will meet them.

Political leaders are concerned with political strength and political survival, not wisdom. Where they make any movement at all towards arms control they are not interested in the total abolition of the world-destroying threat modern weaponry has made real (because this, after all, has some political value), but rather with its "reasonable" limitation, seen as a monitored growth and refinement. For this reason several peace groups have refused to endorse SALT—not because they want to see it defeated by hawks, but because they know that the people who have brought us to this pass are not at all likely to get us out of it. In a nuclear era, arms limitation is not enough to keep us from self-destruction.

It is in this context of unwise and self-interested leadership, and widespread numbed hopelessness, that we must understand the actions of eight people last September in King of Prussia, Pennsylvania. They were arrested for doing what damage they could do with hammers to parts of the missiles General Electric manufactures for the U.S. government. Because they did not at that time succeed in turning some of our most lethal missiles into plowshares this was seen by many as a futile gesture. A couple of the participants were well-known: the presence of Daniel and Philip Berrigan led to some comments about nostalgia for the days of the anti-war movement (as if this were no more than a fad, something like a panty-raid); the crazies were at it again, seeking publicity.

Publicity for what? We hurry by that one, and ignore the daily boredom that jail means, and the fact that these people face jail, knowing its crushing routine better than most of us do. Publicity of a sort is involved; bringing a buried dread to public consciousness is a form of publicity. What they did does indeed seem futile, since at this point in human history it is certainly easier to manufacture a missile than it is to stop the manufacture of one. Mark Hatfield was the only U.S. senator to vote against a recent defense appropriations bill—the only person in the Senate who saw our direction as

dangerous, and so he did the one thing he could do: he voted against the grease which makes it all move. We are surrounded by people who think the GE protesters crazy, Hatfield unrealistic, and those who oppose the arms race naive.

But remembering Thomas Merton's point that it is not madmen, but sane men, who will push the button which will begin the end for the world, we should look at what the sanity of our leaders has brought us. The leaders who believe that you can develop nuclear weapons to finer and finer degrees of sophistication without ever using them, or who believe that the technology of germ warfare is acceptable, are sane, no doubt, and I'm sure they could pass all sorts of tests proving the point.

The problem here is not one of sanity. It involves categories more profound than our clinical ones, and more ancient. To accept inevitable death is wisdom. To court self-destruction, to dance with its possibility, to assume that you are too clever to get tangled up with death, is *hubris*. It is the arrogance that built the tower of Babel. We assume that we are wise enough to control our destiny. This wisdom in our time has given us death camps. We are in control; we know what we are doing; and when we end buried neck deep in corpses and gagging on the blood of innocents, then it was all a mistake, a matter of miscalculation—nothing basically wrong, of course, just a wrong turn, a blur on the road map.

If GE and the government are sane, if in fact we will be protected by building our way toward the possibility of nuclear war, if nuclear war is an acceptable risk (which means that we are willing to trust the people who rule us to bequeath to our children a world fashioned by nuclear war, because that will become the ruling reality when it happens), then the resisters are crazy. But if things are as bad as they say they are, if we really must not do what we are doing because it is—such an ancient couple of words!—absolutely evil, then the resisters are right to try to call attention, any way they can, to our peril. If they are crazy, they have been driven crazy by a truth.

Himmler once told a group of SS leaders, "Most of you know what it means to have one hundred corpses lying side by side, or five hundred or one thousand. To have endured this and to have remained decent men in the process—except for exceptions caused by human weakness—this has made us hard as nails."

We are preparing for many more than a thousand corpses. We build up our weapons supply to counter the potential of the other side, matching them in destructive power where we cannot overtake them, as they go through precisely the same process. We do this because we believe there is no real alternative to holding the whole human race hostage. Is there nothing that is not permitted in the effort to hold on to power? What about the possibility of making all their children sterile, or aborting them in the womb to prevent future armies? We are being moved, leaders and followers alike, sleepwalking, sure of a strange dream, confident that—like Himmler—we can remain decent as we make the way smooth for a final fire. Our passive acceptance of this situation and our willingness to allow the world's leaders to proceed as they are, with no sign of outrage from us, is more dangerous than any weapon.

The gestures of the GE demonstrators are futile, like the gestures of the early abolitionists, considered crazy by more realistic citizens who knew that slavery was inevitable, or the futility of Gandhi's disciples, who raked in salt from the sea—a wonderful sign: because it showed that salt comes from the sea, and not from Caesar. There is hope in any gesture which is made in the belief that evil is not necessarily inevitable, and that there is still some sense in trying to wake us up.

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