



EDITORIALS

The Power of Many

As we enter the next (to the last year of this century, and of this millennium, it would be wise to acknowledge the beneficial as well as the deleterious effects of human beings acting in groups. We are destined now to occupy a crowded planet, no matter which of the several UN projections of population one adopts, particularly because a great share of this population increase over the next fifty years will take place in what are already massively concentrated settlements. Whether we like it or not, our life will exist in relationship to others, a political existence in the Roman sense, where "to live" was defined as "to be among men" [1].

Much of what is written about human patterns of group behavior relates to mob action, or pressures of conformity, or descent to the least common denominator, or constricted cognition.

Judging by events in our recent past and trends arising from our present, we have much to be concerned about. In this issue we note and discuss a number of these: the impact of exposure to radioactive fallout arising from U.S. nuclear weapons testing in the atmosphere; the suffering and loss inflicted by landmines; and the global threat to the environment caused by the cumulative effects of our many unrestrained activities.

Among their myriad different features are common ones we must not ignore:

1) These are trends created by human activity, by groupings large or small, under formal direction or not, gathered for one moment in time and place or participating in actions that cumulate through time.

2) They were hard to discern as damaging until their ramifying effects began to lace through subsequent generations.

3) People of good will helped sow the ground that gave rise to them. It would be tedious to explicate that point for all of you, since once noted it is relatively obvious.

4) For many years they escaped much detailed factual attention. Some were cloaked in secrecy, such as the weapons testing, some have not yet been looked at thoroughly (the long term effects of landmines). Some are just now entering a stage of public recognition (the environmental effects of human industrialization and population growth).

5) They progressed in the space we gave them. A commonality inhering in us and not in the instance itself is that human beings resist bad news if it requires that they pay attention to their relationship to it. Resistance builds further if they are asked to consider a change in their own life styles, or are forced to reexamine their own attitudes.

So faced with these trends as they unfold, uncomfortable in the certainty that others unrecognized are now ongoing, we might ask, what is the source of right action? The barriers are evident: good intentions at some phase in the chain of causation; little or inadequate information about what really takes place; and public tendencies towards inertia that can proceed to denial in the face of disturbing information.

In the features common to these issues we now collectively deplore and regret are the keys to their untangling. Most people do not go through life intending to cause harm. Most things take place without much public knowledge or understanding. The public can be roused to concern but must be approached

carefully, given a sweet sniff of success to prevent backlash.

We return to the political, the life among others. In this terrible and terribly complicated world, it is more than ever the neutral case that the main reason trends continue unchecked is that a political process, based on more information than anyone else has gathered, has not yet taken on sufficient momentum to counter the easy course of continuity. This point is exemplified in a most positive direction by several of the essays in this issue: the successes around the chemical weapons convention; the move towards abolition of nuclear weapons; the splendid victory of the ban on landmines, marred principally by the U.S. failure to see the future in the present.

These major milestones have been achieved only after years of careful research, analytic and dramatic presentation of sound, comprehensive, and accurate information, and sustained political action on the part of people organized in groups. We have spoken many times in this journal of the power of information. Here, after casting an eye down the table of contents of this issue, it must be apparent to all of you that we should say something about the power of many.

JPPNW and its national affiliates, including PSR, can write the book on what it has taken to snatch us from the brink of nuclear war and bring us this close to a kiloton-tight CTRT, a sharp reduction in nuclear weapons worldwide, a slow dismantling of our nuclear weapons production facilities, and a global movement to abolish nuclear weapons altogether. Many organizations have participated in the successes of the CWC. And through a magnificently rapid command of political momentum, the beginning of a long end to the scourge of landmines has now been reached.

Those of us who have labored in the back rooms, the meeting halls, and the conference calls during the years of group process that kept the organizations viable, the message accurate, and the public alerted, should not out of weariness or euphoria miss the point made by Bobby Muller, one of the pivotal figures in the Landmines Campaign. "There is so much romanticized gobbledygook going on out there today about people clattering away on e-mail and moving the world on this issue. Nonsense. This is basic politics 101. It's political strength. It's money"[2]. He is right, of course, and we should emphasize the leadership roles that he and Jody Williams played in contributing strength and focus to that political movement.

Yet we should not lose sight of the fact that the Internet did play a big role in enabling the coalition without much money to activate, educate, and direct a far-flung network of activists worldwide. Whether group process in general is supported in its quest towards right action by the global communication possibilities of the Internet remains uncertain, since this technology now permits all the venal and harmful aspects of our culture, as well as all constructions of good intent, to find wide audiences. There is no question, however, that since the Landmines Campaign has swept to victory, all groups who have learned to work through the power of many have grasped the potential in e-mail to speak to the many as one.

The Landmines Campaign has been duly and deservedly honored with the Nobel Peace Prize. Will there be another on the near side of this horizon before the world stumbles into war or catastrophe, through nuclear terrorism, accidental missile strikes, assaults from biological weapons, or by crossing the threshold in global warming? We have many people to reach, many people to organize. Politics moves through symbol. We are fortunate to live in a time when the Nobel Prize beats bread and circuses.

*Jennifer Leaning, M.D.
Cambridge, MA*

References

1. **Arendt H.** The human condition. University of Chicago Press. Chicago, 1958:7.
2. **Muller B.** As quoted in *Chines FX*. 28-year quest to abolish land mines pays off for a veteran, who lights on. The New York Times. December 3, 1997:A-10.

An Attempt to Come Clean? Or Continuing Obfuscation?

In 1982 the U.S. Congress passed Public Law 97-414, obliging the National Cancer Institute (NCI) to assess the iodine-131 (I-131) exposure of the American people as a result of atmospheric nuclear weapons testing during the first two decades of the nuclear era. The responsibility for overseeing this task was given to Dr. Bruce Wacholz, a health physicist whose prior work experience was in the secretive world of the Department of Energy.

Fifteen years later, and only after pressure from such groups as Physicians for Social Responsibility and the Military Production Network, the results of this NCI dose recon-

struction study are being made available to the public [1] [see "NCI Study Raises New Concerns about Fallout-Related Thyroid Cancer," page 8]. This extraordinary delay was disquieting and even more so were many of the preliminary results.

To assess the implications of the results of the study, Senators Tom Harkin and Arlen Specter held hearings in the Senate Appropriations Subcommittee on Labor, Health, and Human Services on 1 October, 1997. An implicit concern was whether the delay in releasing the results of the NCI study was caused by unavoidable technical difficulties, or was a continuation of an historical pattern of distortion and minimization by the U.S. government of the health effects of nuclear testing.

Dr. Richard Klausner, director of the NCI, defended the study and minimized the confidence with which past studies linked radioactive fallout to thyroid cancer [2].

Dr. Joseph L. Lyon, a distinguished professor of epidemiology at the University of Utah, gave a very different story. He said,

"Between 1951-1958 the U.S. Atomic Energy Commission detonated over 100 nuclear weapons at its test site in the Nevada desert (NTS)...The U.S. Public Health Service investigated leukemia deaths between 1950-1964 in the two Utah counties closest to the NTS and found a 3.29-fold excess among those under 19, and a 1.5 increased risk of leukemia for citizens of all ages...[3]. There was some division of opinion among the public health officials who wanted the findings published and atomic energy officials who did not. This was resolved at a 1965 meeting at the White House presided over by the President's Scientific Advisor. The decision was made not to publish the paper...The written reasons given for blocking publication of (the) leukemia study were problems in study design and interpretation of results. Rather than trying to correct these problems... nothing more was done. (This) meant that every government official thereafter who offered reassurances to the people of Utah that there had been no cancers caused by radiation was knowingly or unknowingly lying to the public" [4].

Official Disingenuousness

The U.S. Public Health Service had done a second study of the impact of exposure to radioactive iodine from weapons testing at the NTS on the rate of thyroid cancer [5,6,7,8]. According to Lyon:

"...despite suggestions by internal and outside consultants, no information about the source and amounts of fresh cow's milk that each child had drunk during aboveground testing at the NTS, the principal route of exposure to the thyroid gland, was obtained [which] made it impossible to assign a radiation dose to any of the children. An error of this magnitude...is simply impossible by chance...Given this astonishing error, the study found no excess cancers of the thyroid gland. Thereafter the negative findings from the study were often cited to reassure the public that no cancers had resulted from aboveground nuclear testing.... The basic pattern of how to deal with any scientific study that might suggest that NTS fallout had caused cancer was determined for future generations by Federal bureaucrats through their handling of these two studies. The principles were as follows: suppress any data that suggests a positive association between exposure and subsequent cancer and mask your motives by stating that you do not want to unduly alarm the people who were exposed. Cite only studies that found no associations to reassure people that their health concerns are groundless. And finally, do everything possible to make sure that no further scientific studies will be done that might contradict your position" [4].

Lyon and his colleagues, unaware of the previously suppressed federal study on leukemia, restudied this issue and found a nearly 8-fold risk of leukemia deaths among those under age 19 who lived in southwestern Utah during the era of atmospheric testing [9,10].

Lyon testified that "reassurances were offered to the public in the press release put out by the NCI that the Utah thyroid study findings were 'inconclusive.' The use of the term 'inconclusive' to describe our thyroid study is disingenuous" in the face of a 3-fold increased risk with exposure to radioactive iodine and a

clear dose response relationship [4].

Lyon's application to continue these studies received a fundable priority score, but the studies were not funded by the NCI¹.

Lyon and his colleagues went on to study the relationship of thyroid cancer to exposure to radiation from atmospheric testing [11].

Disturbing Summaries, Unconscionable Delays

This, then, represents some crucial background needed to interpret the execution of the NCI study, the delay in releasing its findings, and the nature of those findings. The excerpts and summaries of the study that were released in the summer of 1997 were disturbing. The NCI did not explain how it estimated 10,000 to 75,000 excess cases of thyroid cancer caused by aboveground U.S. tests, nor whether it took into account the rates of thyroid cancer after the Chernobyl disaster, which are running ten times higher than those predicted from the followup studies of victims of the explosions at Hiroshima and Nagasaki. NCI has now released a 1,000 page "summary" on its website (<http://www.nci.nih.gov>), as well as a full report that runs to approximately 100,000 pages. Such size is nearly certain to hide what is important and salient.

The unconscionable delay by the NCI in releasing these data illustrates the weaknesses of the Memorandum of Understanding on research on the effects of radiation on health signed by Admiral James Watkins, Secretary of the Department of Energy (DOE) during the Bush administration, the stated aim of which was to promote openness and accountability. The DOE divested itself of some, but not all, of its research into the health effects of ionizing radiation, and became much more open during the years of Watkins's successor, Hazel O'Leary. The research that did move to the Centers for Disease Control (CDC) and the National Institute of Occupational Safety and Health (NIOSH) is more accessible to scrutiny by both the scientific community (through a competent advisory committee that provides rigorous oversight) and to the public than had been true of earlier DOE research.

But the work assigned to the unit at NCI responsible for the I-131 studies has been an exception to this otherwise largely positive trend. The findings have come to light very

1. Lyon stated: "We were told informally that our project officer for the 1982 NCI study, Dr. Bruce Wacholz, had requested that the board [of scientific counselors at NIEHS] take this action [to decline to fund the application]..."

slowly and, even now, the NCI downplays their seriousness. NCI estimates that the average cumulative exposure of every U.S. resident from fallout from U.S. tests to be two rads². Instead of comparing this dose with the dose average Americans would have received had there been no atmospheric nuclear explosions—0.1 rad per year from cosmic radiation and naturally occurring background radiation—the NCI repeatedly compares the two-rad dose to the 200 to 300 rads produced by a medical I-131 diagnostic scan in the 1950s, or to dosage of 0.4 to four rads from such a scan today. Those scan exposures were experienced by a relative handful of people, not by the average U.S. citizen and, in any case, it is entirely inappropriate to compare a diagnostic medical procedure, performed to help sick patients, with atmospheric nuclear tests that were indiscriminate in their effects and designed to help no one. The comparison can only be meant to hide the fact that the radiation exposures due to fallout from atmospheric testing were greater than the background radiation to which all of us are normally exposed.

Nor is this the only distortion by NCI: exposures in the summaries are presented as "average" doses among all residents in a given county. Buried in the text, however, is the fact that adults experienced essentially no exposure and that this "average" exposure was in fact almost all borne by children under age five. Since almost all exposure was from ingested milk (cows eat contaminated feed and concentrate the I-131 in milk), the NCI report estimated that preschool children received about three to seven times the "average" dose. Some children drank much more milk than others, so could have gotten far more than the average exposure³.

2. A rad is defined as 100 ergs of energy deposited in one g of tissue; 100 rads = one Gray.

3. In six (or five; the report gives both numbers) counties in Montana and Idaho the "average" doses were from 12 to 16 rads; in 18 (or 20) more counties in the above two states plus Utah, S. Dakota, and Colorado, "average" doses were estimated to be above nine rads; and in 245 counties all over the upper midwest, doses were above six rads. Children in these counties thus got not three to seven times the average exposure, but from nine to 56 times the average. Further, some farm children drank unprocessed, fresher milk, so could have ingested far more of the short-lived isotope (the half-life is eight days) than those getting milk processed commercially. Finally, a few may have drunk goat's milk, with much higher concentrations of I-131 than cow's milk. In other words, the use of "average" exposure is both meaningless and misleading [2].

It behooves us to pay close attention to this situation. The conclusion appears unavoidable that this NCI study continues a long history within the U.S. government of obfuscating and denying the health consequences to the people of this country of preparations for nuclear war.

David Rush, MD
Cambridge, MA USA

References

1. National Cancer Institute. Study estimating thyroid doses of I-131 received by Americans from Nevada atmospheric nuclear bomb tests. Washington, DC: NCI, 1997.
2. Klausner RD. Estimated exposures and thyroid doses received by the American people from iodine-131 in fallout following the Nevada atmospheric nuclear bomb tests. (Testimony before U.S. Senate Appropriations subcommittee on labor, health, and human services. Washington, DC, October 1, 1997.
3. Weiss ES. Leukemia mortality in southwestern Utah, 1950-1964. Washington, DC: U.S. Public Health Service, 1965 (unpublished manuscript).
4. Lyon JL. Testimony before U.S. senate appropriations subcommittee on labor, health, and human services. October 1, 1997.
5. Weiss ES, Rallison ML, London WT, Thompson GDC. Thyroid nodularity in southwestern Utah children exposed to fallout radiation. *Am J Public Health* 1971;61:241-249.
6. Rallison ML, Dohyans BM, Keating FR, Rall JE, Tyler FH. Thyroid disease in children: A survey of subjects potentially exposed to fallout radiation. *Am J Med* 1974;56:457-463.
7. Rallison ML, Dohyans BM, Keating FR, Rall JE, Tyler FH. Thyroid nodularity in children. *JAMA* 1975;233:1069-1072.
8. Rallison ML, Dohyans BM, Keating FR, Rall JE, Tyler FH. Occurrence and natural history of chronic lymphocytic thyroiditis in childhood. *J Pediatr* 1975;86:675-682.
9. Stevens W, Thomas DC, Lyon JT, Till JE, et al. Leukemia in Utah and radioactive fallout from the Nevada test site. *JAMA* 1990;264:585-591.
10. Lyon JL, Klanber M, Gardner JW, et al. Childhood leukemias associated with fallout from nuclear tests. *N Engl J Med* 1979;300:431-432.
11. Kerber RA, Till JE, Simon SI, Lyon JL, et al. A cohort study of thyroid disease in relation to fallout from nuclear weapons testing. *JAMA* 1993;270:2076-2082.

M&GS and IPPNW: A New Collaboration

With this issue, *M&GS* reappears as an officially designated journal of International Physicians for the Prevention of Nuclear War (IPPNW), following a two-year period in which the journal has been alive and well—thriving, in fact—as an electronic publication on the Internet, but has been unavailable in print. This recognition by the 1985 Nobel laureate that *M&GS* is an essential resource for physicians concerned with issues of war and peace, with weapons of mass destruction, with the global environment, and with their social responsibilities as members of the health profession is gratifying. It is also an evolutionary step for a publication that now starts its eighth year of reaching out to this constituency.

The full story predates the 1991 launch of *M&GS* (originally titled *The PSR Quarterly* and published by Physicians for Social Responsibility) by a few decades, and has been recounted in various ways in the pages of this journal. Still, a brief recap may be in order at this moment in our history.

A 1962 series of articles by a working group of physicians who would become the founders of PSR appeared in the *New*

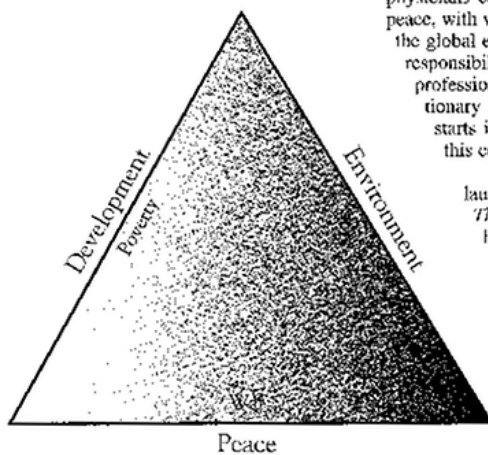


Figure 1. Pyramid representing the expanded mission of IPPNW is also at the core of the editorial mission of *Medicine & Global Survival*.

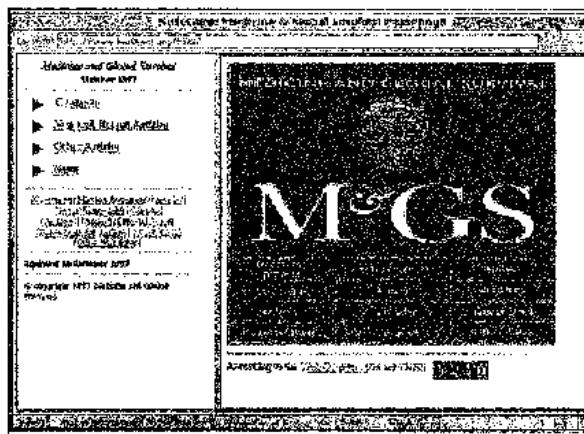
England Journal of Medicine [1,2]. These articles made it clear that the use of nuclear weapons would be so destructive that attempts at response by health workers after the bombs had fallen would be almost entirely futile.

After its initial success in helping to ban atmospheric nuclear testing, PSR was revitalized at the end of the 1970s and played a prominent role throughout the 1980s in educating the public about the consequences of nuclear war and in lobbying members of Congress to support nuclear disarmament initiatives. As the Cold War drew to a close, PSR expanded its mission to include other issues, including the health consequences of a deteriorating environment.

At the international level, in 1980 Dr. Bernard Lawn, together with Soviet cardiologist Evgenii Chazov, founded IPPNW, which only five short years later was recognized for its work with the 1985 Nobel Peace Prize. Since then, IPPNW and its affiliated organizations have begun to broaden their agenda as well. IPPNW now seeks to prevent all wars, to promote nonviolent conflict resolution, and to minimize the effects of war and preparations for war on health, development, and the environment. This expanded mission, symbolized by a pyramid (Figure 1) with "development" and "environment" built upon a base of "peace," has substantial overlap with the editorial goals of *M&GS*, and has made the present collaboration all the more fitting. (A British publication, *Medicine, Conflict and Survival*, formerly *Medicine and War*, has been designated an IPPNW journal in Europe, providing additional opportunities for the understanding of war and all its consequences.)

The association of both of these journals with IPPNW represents an important step in attempts by doctors and other health professionals to help in efforts to bring peace, justice and health to the nations and to the peoples of the world.

—Jennifer Leaning, M.D.
Cambridge, MA
—Victor W. Sidel, M.D.
New York, NY
—John Loretz,
Cambridge, MA



M&GS got its start in 1991 as *The PSR Quarterly*. In 1994, *Medicine and Global Survival* took on a more international scope under the auspices of the British Medical Journal. *M&GS* went onto the Internet in June 1995 and by January 1996 *M&GS* was being published entirely on the World Wide Web, where it remains today, even with the return to print as an officially designated journal of IPPNW in January 1998.

References

1. Physicians for Social Responsibility. The medical consequences of thermonuclear war. *New England Journal of Medicine* 1962; 266:1126-1155.
2. Sidel VW, Geiger HJ, Lawn B. The medical consequences of thermonuclear war. II. The physician's role in the postattack period. *New England Journal of Medicine* 1962; 266:1137-45.



EDITORIAL

The End of the Transition

The events of this summer have catapulted us into the next century. Having squandered the chance offered by a hiatus of almost 10 years in the nuclear arms race, by historic levels of great postwar prosperity, and by the unchallenged dominance of the US, we now see what our inattention to deep currents has permitted.

A nuclear arms race in South Asia is virtually inevitable. Explosive political antagonisms between the West and Islamic fundamentalism dooms all ordinary citizens of the world to terror as a way of life or death. Profligate deforestation and cultivation of mountain slopes on a transcontinental scale turns heavy rainfall into floods of epic proportions. The debacle in Kosovo exposes as fraudulently inadequate the arrangements the international community has built to maintain world peace and security. The latest AIDS estimates released this June by WHO describe generations in Africa who will die before their time, a burgeoning mortality crisis whose magnitude rivals the worst in recorded history. The August contraction in world markets has settled into a recessionary trend that has seriously undermined economies referred to just three months ago as "emerging."

Failed Opportunities

How should we weigh these events against the few bright spots on the horizon, which include the conclusion of the ratification process for the landmines convention, the eight-nation pact to work for the abolition of nuclear weapons, and data suggesting a possible slowdown in world population growth?

There are two main currents we have failed to recognize and grapple with during the years when time and political leverage were on the side of vision and strategic action. The first is the one that Nelson Mandela identified in his austere remarks delivered on the occasion of his receiving an

honorary degree from Harvard University at a special convocation on September 23.

"The greatest single challenge facing our globalized world," Mandela said, "is to combat and eradicate its disparities. While in all parts of the world progress is being made in entrenching democratic forms of governance, we constantly need to remind ourselves that the freedoms which democracy brings will remain empty shells if they are not accompanied by real and tangible improvements in the material lives of the millions of ordinary citizens of those countries" [1].

Disparities and Interdependencies

According to the latest data from the UNDP, the wealthiest 20% of the world's people consume 86% of all goods and services produced, while the poorest fifth consume a bare 1.3 percent. The richest 225 people in the world (60 are American) claim total assets of U.S. \$311 billion, equal to the annual income of almost half the world's peoples. The trends separating the rich from the poor are continuing, so that by the middle of the next century it is estimated that 8 billion of the world's projected 9.5 billion people will live in developing countries [2]. These income and production figures represent marked national and regional discrepancies in access to food, water, shelter, health care, employment, and education.

The second major current is the global interdependence of ecosystems, including our human communities. Our behavior and actions on all levels—economic, political, social, and moral—invite an intensifying reciprocity of linkages and consequences. Unless we devote far more attention to trying to understand the connections among people and between people and the environment, and unless we pay far more respect to those relationships we have already begun to apprehend, we will continue to experience the ferocity of unintended consequences. The requisite attention includes examining how our international institutions can adapt to the fact that famine and atrocity no longer go

unremarked, the fact that disease not dealt with may destroy entire nation states, the fact that unchecked and unmodulated population consumption patterns will, in a few short centuries, devastate our earth, and the fact that the post-war political hierarchy of the mid 20th century appears increasingly irrelevant and deeply irritating to the majority of the countries in the world.

Globalization, this decade's pale attempt at a positive slogan for its activities, exemplifies both of these trends, in that it accentuates disparities by ignoring interdependence. Removing national barriers to the free flow of capital, information, and human talent without addressing the huge disadvantages the majority of the world's people bring to the table merely perpetuates the severe inequalities that threaten world stability.

The Burdens of Poverty

Television programming brought by satellite dish now allows very poor homes in many parts of the world to see how the very rich live, and consume, and remain oblivious to the very context that makes their wealthy existence possible. Societies burdened by corruption, hollow institutions, rudimentary infrastructure, grinding poverty, widespread illiteracy, and epidemic disease cannot suddenly spring to vibrancy when international business enters their world. Instead, they will continue to do what we are now witnessing: scramble for some piece of the pie at the expense of their land and water and near neighbors; feel forced to dismiss civil niceties like human rights in the Hobbesian struggle for survival; and turn their very understandable hostility to encroachment from the North into xenophobic and messianic movements.

In this issue of *M&GS* we examine nuclear proliferation, terrorism, ecological disruption, population trends, and questions of war and human rights. The perspective we take as physicians, scientists, and public health practitioners is to search for the antecedents of the problems we consider and to elucidate the policy implications of choices we are making as a global society. We view these dark facets of our life as epiphenomena, reflecting the deeper currents that, unless taken up soon, will make these problems,

and others, virtually intractable.

A Choice of Futures

Analysts of the nuclear threat now rising in South Asia are retracing the anguished arguments that opponents of the superpower arms race developed in the 1970s and 1980s. The distance between India and Pakistan is much less, however, and the time to become familiar with the other's technology and modus operandi is much shorter than what history afforded to the US and the USSR. The reverberations of the South Asian bomb are discussed in the context of how they affect the current path toward disarmament: should the hard won milestones be abandoned and a new course defined, or is there still sense and stability in moving forward on the ground that has been staked out? The import of biological terrorism and the defenses or lack thereof available to populations are the topic of the article on the anthrax vaccine, underscoring the more general point that it is easier to destroy than to defend against destruction. The pivotal place of Russia in our past and in our future is the theme of an analysis of the current state of science in the Siberian nuclear weapons zone. And we present a sweeping assessment of the new data relating to global population trends.

In 1998 we see the features of our future and must take grim resolve from the recognition that we are not prepared. We have wasted time and now the pace accelerates. Whether the 21st century will be long or short (to borrow from Hobsbawm's magisterial perspective on the bloody 20th [3]) it has started early.

*Jennifer Leaning, M.D.
Cambridge, MA USA*

References

1. **Mandela N.** Address to special convocation at Harvard University, Cambridge, Massachusetts, September 23, 1998.
2. **United Nations Development Programme.** Human Development Report 1998. Geneva: UNDP, 1998.
3. **Hobsbawm E.** *The Age of Extremes: A History of the World, 1914-1991.* New York: Vintage, 1996.