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Book Reviews

International Conflict and Conservation of Natural Resources

Cultural Norms, War and the Environment. Westing, A. H., editor. 1988. Oxford University Press, Oxford and New York. 177 pp. $39.95.

Environmental Warfare: A Technical, Legal and Policy Appraisal. Westing, A. H., editor. 1984. Taylor and Francis, Philadelphia. 107 pp. $45.00.

Herbicides in War: The Long-term Ecological and Human Consequences. Westing, A. H., editor. 1984. Taylor and Francis, Philadelphia. 210 pp. $63.00.

Explosive Remnants of War: Mitigating the Environmental Effects. Westing, A. H., editor. 1985. Taylor and Francis, Philadelphia. 141 pp. $33.00.

Global Resources and International Conflict: Environmental Factors in Strategic Policy and Action. Westing, A. H., editor. 1986. Oxford University Press, Oxford and New York. 280 pp. $49.95.

Nature shall be secured against degradation caused by warfare or other hostile activities" (*Cultural Norms, War and the Environment* [*CNWE*], p. 169; *Environmental Warfare* [*EW*], p. 10). Natural resources "shall not be utilized in excess of their natural capacity for regeneration" (*Global Resources and International Conflict* [*GRIC*], p. 193). So enjoins the *World Charter for Nature,* a document promulgated by the United Nations, signed by 112 states. Here are five remarkable and sobering volumes, edited by Arthur H. Westing and with dozens of contributors, that explore in detail the extent to which biological conservation can succeed in the face of war and international competition for resources. These studies are the work of the Stockholm International Peace Research Institute, which is financed by the Swedish Parliament and has an international staff, governing board, and scientific council. The articles grow out of symposia held in recent years.

Westing fears that something about increasingly developed civilization exacerbates bellicosity. The tendency to make war is not determined by genetics nor is it common to all humans; rather, it is a social force arising from an expanding and increasingly consumptive population in which desires escalate faster than resources can be developed to satisfy them. So the mismatch grows worse, and wars result (*CNWE,* pp. 4–5). "Human beings fight not because they are biologically impelled, but because they are culturally induced and because their ecological equilibrium is disturbed seriously enough to make substantial change necessary" (*GRIC,* p. 166).

This claim is extensively explored in *Cultural Norms, War, and the Environment.* Geoffrey Best (International Relations, London School of Economics and Political Science) fears that the impact of war on the environment is such a novel threat that the cultural norms of the past are inadequate to address the problem. "From the first syllable of recorded time until 1945, the making of war — even the most total and deadly of wars — included no serious capability of permanently damaging the natural environment" (*CNWE,* p. 19). Still, he finds in the norms of the past some principles of restraint that may help in the future.

Grigori S. Khozin (Scientific Council for Philosophical and Social Problems of Science and Technology, Moscow) explains the Soviet policy. With the coming of the socialist revolution and the Decree of Land, "All of the land — including its underground riches, water resources, forests and other endowments of nature — were to be declared national property and taken under control of the state on behalf of all the people" (*CNWE,* p. 35). The Soviets plan for "continuous optimization of nature utilization" to solve "the problem of the *reconstruction of the biosphere in the interests of freely thinking humanity as a single totality*" (*CNWE,* p. 36, p. 42, emphasis in text). Such a perspective is thoroughly humanistic and idealistic, oblivious to concerns such as those expressed in the *World Charter for Nature,* which states that "every form of life is unique, warranting respect regardless of its worth to man" (*CNWE,* p. 78). Even on his anthropocentric terms, Khozin says little about either the serious domestic Soviet environmental problems or those posed by international militarism.

Christopher Stone (Law Center, University of Southern California) analyzes the interplay between cultural norms and international law. A cultural norm operates inside a culture, within a nation, and restrains individual persons from theft, murder, adultery, and so on. Cultural norms may differ from culture to culture. International law relates cultures to each other; it is between nations. It does not regulate the actions of persons but of nation-states. Persons do not make or break treaties; nations do. Nations are not really moral agents like persons are. Intracultural norms extrapolate poorly to produce intercultural norms. Nations break treaties in times of desperation, and they keep them only in a climate of rationality where they perceive certain mutual benefits to all parties, even during hostilities. Moral standards operate within cultures, but wars are times of moral as well as rational breakdown. International law will be weak at best; it must work at a level above cultural norms, and in different ways (*CNWE,* p. 72).

Virginia Held (Philosophy, City University of New York) thinks that the root of the problem is male society, which dominates both nature and women, though this maleness is more a cultural norm than a genetic tendency. Mothering is pacific, but violence is manly (*CNWE,* p. 46). Birgit Brock-Utne (Institute for Educational Research, University of Oslo) worries that those with the most education pose the greatest threat of causing war. Something in the educational system promotes war. History books teach that violence succeeds; they render invisible the work of the peacemakers. Natural science is taught as the conquest of nature, and even the educational system itself is competitive more often than cooperative. Students compete for the highest grades, rather than assisting each other in shared learning. Power in politics and in technology is interpreted as power *over* another and not power *to* an appropriate, respectful end (*CNWE,* p. 84). These are the masculine themes lamented by Held, but Brock-Utne develops them without the gender emphasis.

David M. Rubin (Center for War, Peace, and the News Media at New York University) asks whether the mass media can monitor government despite the secrecy inevitable in war and preparation for war, especially since the advent of high technology. Further, even in societies with a supposedly free press, the government has considerable power to persuade and control the press. Another seriously biasing factor is that the media are themselves deeply embedded in the capitalist system that drives the war-making tendency and that needs so steadily to be criticized.

Rosalind J. Marsh (Russian Studies, University of Exeter) notes how the arts glorified war, at least until the second half of the twentieth century. Sometimes artists needed to please the aristocratic patrons who supported them. More recently, however, art has been more effective than journalism in protesting against social tendencies to make war, although neither art nor journalism can claim seriously to be a determinant of national policies on war.

Herbicides in War (*HW*) is a summary report of the International Symposium on Herbicides and Defoliants in War: The Long-term Effects on Man and Nature, held in Vietnam in 1983. This symposium was attended by over 150 scientists, about one-third from Vietnam and the rest from nearly two dozen other countries. The book consists of the brief, compact reports of working groups in various areas of concern. The eight reports are written by over thirty Vietnamese and Western scientists, who sum up the conclusions of the dozen or so persons in each group. The reports are also based on field trips made during the symposium and on much laboratory and earlier fieldwork. The first half of the book examines effects on terrestrial plant ecology and forestry, on terrestrial animal ecology, on soils, and on coastal, aquatic, and marine ecology. The second half turns to effects on humans, considering links between herbicides, cancer, and birth defects.

Although chemicals have been used occasionally against human populations and natural systems since ancient times, when fields were plowed and sown with salt, the Vietnam War is the only war in which there has been a profligate use of herbicides, in this case by a technologically advanced nation to subdue a peasant army. Three herbicides, codenamed Agents Blue, Orange, and White, were sprayed over large areas, sometimes to destroy crops but primarily to defoliate trees and deprive the enemy of cover. About 1.7 million hectares were sprayed, often more than once (*HW,* pp. 3–23).

Most of these herbicides break down within a few months, but it does not follow that the ecological effects are short-term. Dioxins are notorious impurities in Agent Orange, can be quite toxic, and persist in appreciable quantities for a decade or more. Even when the herbicides themselves break down quickly there are long-term effects, since ecosystem processes, once disrupted, cannot reestablish themselves. The needed seeds are not available, soils become eroded, weedy species invade, the natives cannot compete with weeds, and degradation results. In general the effects of the herbicides on the forests, especially the coastal mangrove forests, has proven to be indisputable and tragic, even a decade later. The regenerated forests are depauperate, diminished not only in their botanical richness, but in their wildlife. As a result of habitat destruction, the birds and small and large animals are gone, and some of these forests may not be reestablished in less than a century, if ever.

If the forests are not restored naturally, perhaps they can be reestablished by human intervention. This is more likely than natural regeneration, but the necessary resources are not available in Vietnam, where life is already marginal. The ruined forest land may since have been converted to agricultural use, which is usually a bad tradeoff overall, but difficult now to reverse socially or biologically. Even had the Vietnamese the wealth to do so, assisted perhaps by other nations, rebuilding a destroyed ecosystem takes more knowledge than we now have. The richest forests were often affected most severely. Marine ecosystems were also affected, with a reduction in the diversity of fish species, lower fish biomass and productivity, and the invasion of undesirable fish species.

Information on the effects of these herbicides on humans is less conclusive, but ample evidence indicates that here, too, the consequences were tragic. One problem is that scientifically controlled studies are harder to make on humans; humans are mobile, and there are ethical restraints. The causal links are present, but they are long-term and statistical, and, as we remember from studies of smoking and lung cancer in the West, this kind of connection, showing up over decades and expressed in terms of probability, is more evasive and disputable than the evidence of a ruined forest that all can see.

One is struck by how technology, in this case the technology of war, escalates ignorance faster than it escalates knowledge (to say nothing of the fact that wisdom seems to atrophy proportionately). The power to produce changes escalates faster than our knowledge of the results of our changes. We are still trying to figure out all the consequences of our actions, but at the time we thought we were just defoliating to rob the enemy of cover. We produced changes we were then quite ignorant of, and in many cases we remain ignorant. And we are even more ignorant of how to repair the undesirable effects. It is easy to break something that you do not have the money or know-how to fix.

A lesson to learn is that we cannot know what we are doing until we know what we are undoing. In the end, one is shocked by the arrogance and tragedy of these masters of war (though they failed in the war as well), who were so callous and ignorant about the long-term effects of what they were doing to the fauna, the flora, and human health and civilization. The Vietnam War was nearly two decades ago, but is there any reason to think that the contemporary masters of war, with their fingers on the nuclear trigger, are any wiser?

Explosive Remnants of War (*ERW*) assesses the environmental effects of high-explosive munitions that remain after wars — for example, mines, booby traps, dud shells, bombs, and grenades. These are scattered across the countryside in incredible numbers — an estimated 2 million bombs, 23 million artillery shells, and tens of millions of other explosives in Vietnam, including thousands of mines in harbors and navigable waters (*ERW,* p. 3). In large regions of Indochina scarcely a family has escaped a death or maiming caused by previously unexploded munitions (*ERW,* p. 7). About 80 percent of Poland was mined in World War II, and from 1945 to 1988 over 88 million explosive remnants were neutralized (*ERW,* p. 20).

Khairi Sgaier (University of Alfateh, Tripoli) examines the effect of such munitions on agricultural development in Libya, which was heavily mined by the Germans and British from 1940–1943. Earl S. Martin and Murray Hiebert (Mennonite Central Committee, Akron, Pennsylvania) look at the effects in Vietnam. Others examine demolition on land and at sea in detail, including, interestingly, the use of dogs whose keen scent can detect buried munitions.

Environmental Warfare turns to the future — with a shudder. What possible environmental modifications should we fear, and how can we avoid them? The first part of the book examines modifications now technologically possible or that seem likely to become so in the decades ahead. Ernö Mészáros (Institute for Atmospheric Physics, Budapest) and Hallan C. Noltimier (Geology and Mineralogy, Ohio State University) explore possible techniques for manipulating the atmosphere and geosphere (landscapes, ecosystems, drainage patterns). The most plausible involve steering storms, creating snow avalanches and landslides, modifying permafrost areas, diverting and polluting rivers, destroying dams, and making rain or snow (*EW,* p. 69).

A historical instance of environmental warfare took place on June, 1938, when the Chinese Nationalists (Kuomintang) dynamited the Huayuankow dike of the Yellow River (Huang He) near Chengchow to curtail the Japanese advance. This killed more people than any other single act in human history, to say nothing of the effect on the landscape. Four or five times as many persons died as when the atomic bomb was dropped on Hiroshima. In the resulting flooding, several hundred thousand Chinese died, along with several thousand Japanese soldiers. The masters of war failed again (*EW,* p. 6).

There are about seventy huge dams in twenty countries, and the potential for disaster should these dams be destroyed is almost unimaginable. Another devastating possibility is deliberate radioactive contamination by destruction of any of the 300 or so nuclear power generating stations. This could make landscapes uninhabitable for centuries.

The second part of *Environmental Warfare* deals with political efforts to prevent such environmental devastation. Jozef Goldblat (Stockholm International Peace Research Institute) and Allan S. Krass (School

of Natural Science, Hampshire College) examine the Environmental Modification (Enmod) Convention of 1977 and also devote some attention to the Geneva Protocol I of 1977. Their general verdict is that the Enmod Convention is "an ambiguous and cumbersome instrument of modest value" (*EW,* p. 87); the nations involved, especially the great powers, only agreed not to do what was technologically impossible or what they have no intention of doing anyway, such as employing types of environmental modification that are hardly rational because they are about as likely to harm one side as the other.

One major flaw is that the Convention only prohibits environmental modification directly targeted at the environment. Thus, use of missiles that would result in nuclear winter is not even prohibited, since the target of weapons is enemy military or industrial capabilities, and the destruction of nature is only a side effect (*EW,* p. 38). The authors offer some constructive suggestions about how the Enmod Convention might be amended and extended to be more effective.

The record of the United States is not especially to be admired. The one negative vote cast against the *World Charter for Nature* (118 nations in favor) was by the United States, the only nation that has relied on large-scale systematic environmental warfare in a recent conflict (*EW,* p. 38). During the negotiations preceding the Enmod Convention, the Soviets proposed (and other nations desired) a more comprehensive prohibition of environmental modification than the United States would accept (*EW,* pp. 56–57). The United States agreed to refrain only from environmental modifications considered to be "widespread, long-lasting, or severe." Whether violations have in fact occurred at this level is a decision reserved for the United Nations Security Council, on which the United States carries the power of veto (*EW,* pp. 60–61, p. 72). The United States claims that it has only agreed not to *use* environmental modification techniques, but that it can nonetheless *research* and develop them, on the grounds that these techniques also have peaceful uses. The United States has not become a party to the Geneva Protocol I of 1977, which contains several articles protecting the natural environment, nor has it signed the Law of the Sea Convention of 1982 (*GRIC,* 185).

Global Resources and International Conflict shows how the geographical distribution, availability, and degradation of the world's natural resources influence the international security perceptions that govern strategic policies and the use of military force. Global deficiencies, coupled with uneven distribution of resources, can lead to insecurity, unstable alliances, national rivalries, and eventually to war. The natural resources of the earth, both living and nonliving, are quite unevenly distributed, partly due to natural processes, but partly for a variety of other reasons: what counts as a resource shifts with available technology; political boundaries are seldom drawn with any intelligent relation to geography, much less to ecosystems; nations are of diverse sizes, have different kinds of governments, and are in different stages of development; there is no international governmental authority, only loose coalitions of nations each acting in its own national interest.

Of the world's resources, oil and natural gas are examined by Alexander A. Arbatov (Institute for Systems Studies, Moscow), Erik Solem (Canadian Department of External Affairs), and Antony F. G. Scanlan (British Institute of Energy Economics). Helge Hveem (University of Oslo) examines minerals. Malin Falkenmark (Natural Sciences Research Council, Stockholm) examines fresh waters, Susan B. Peterson (Institute for Employment Policy, Boston University) and John M. Teal (Woods Hole Oceanographic Institution) assess ocean fisheries. Peter Wallensteen (Peace and Conflict Research, Uppsala University) assesses food crops, and Marcel Leroy (Social Sciences, University College of Cape Breton) examines population growth.

No nation is fully self-sufficient in all of the natural resources that it desires or needs, and some have very few resources. Most national boundaries predate any interest in oil, for instance; known global reserves of oil are highly concentrated; one-quarter are in Saudi Arabia alone and more than half are in the Middle East as a whole (*GRIC,* pp. 11–12). Over 400 million people in various nations of the world are seriously undernourished, yet "it is a recurrent pattern that, in the midst of starvation, there is food available either in the area hit, in neighbouring territories, or in the global community at large" (*GRIC,* pp. 143–45).

With the growth of populations, the land base in effect shrinks. "At the turn of the century there were nine hectares per person, at the end of World War II six, and today (1986) three; by the year 2000 there will be but two" (*GRIC,* p. 7). The biomass of humans plus that of their livestock has displaced more than 20 percent of all the terrestrial animal biomass, and this will grow to 40 percent in four decades. Given the already inequitable distribution of resources, there is great pressure to exploit not only all suitable arable land but marginal and fragile lands as well. That does not bode well for those who love wildlife and who wish to preserve a place for wildness in the next millennium.

The human activity that consumes most water is agriculture, which currently accounts for some 75 percent of global water use. It is not uncommon for 70 percent or more of the water withdrawn from rivers or aquifers for irrrigation to not

reach the crop (*GRIC,* p. 87). This does not bode well for those who love riparian zones and endangered fishes. Though many marine fishes occur in continental waters, many exist in deep sea waters under no national jurisdiction, and it is doubtful in such circumstances that humans can be prudent enough to take a harvest in renewable proportions. A tragedy of the commons seems more likely, and this bodes ill for those who love the sea and its life.

None of this promotes intelligent biological conservation on regional and global scales; to the contrary, everywhere culture must be superimposed on nature, but when cultures are unjust and irrational, natural systems suffer in result.

Throughout the series, the articles are on the whole perceptive, reasonably tight, and short, and they appear to be reliable surveys of the fields they investigate. All are adequately referenced, and there are useful appendices and bibliographies. There are some stuffy places, as when Richard Falk (Politics, Princeton University) writes of "the delegitimation of nuclear weaponry" as an "important shift . . . occurring in the tectonic plates of civilizational orientation" (*CNWE,* pp. 53, p. 61). He means that more and more people think that using nuclear arms is neither sane nor right.

This is an important series and demonstrates beyond doubt that anyone committed to biological conservation must also take serious interest in the political and social issues related to international conflict.

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