Persistent Specter

The Dread Disease. Cancer and Modern American Culture. JAMES T. PATTERSON. Harvard University Press, Cambridge, MA, 1987. xvi, 380 pp., illus. $25.95.

Americans in the late-19th century had a terrible phobia about cancer. They worried that it might be hereditary or contagious; they thought of it as an alien invader, eating away at its victim; they described it as voracious, insidious, savage, and relentless, like the crab from which it took its name; and they knew it was a virtual sentence of death. Their fears have persisted almost without change for a hundred years. At the turn of the century, a physician described the disease as "a loathsome beast, which seized upon the breast, drove its long claws into the surrounding tissues, derived its sustenance by sucking out the juices of its victims, and never even relaxed its hold in death" (p. vii). Even after World War II, when science was clearing away some of the mystery and when heart disease was killing twice as many people, cancer remained *the* dread disease. As an expert explained in 1960, the nation had dealt successfully with the pale riders of pestilence and hunger, but "we must now face different riders, one in the shape of a mushroom cloud, and one in the shape of a crab" (p. 311).

In this superb study, based upon a wealth of contemporary accounts and archival resources, Patterson uses cancer and the phobia that surrounds it to examine patterns of thought and behavior during the past century of American life. He is not concerned with the scientific history of the disease; he writes sparingly about outstanding scientists and medical discoveries, and only about their hopes of conquest. Indeed, the overwhelming reality of the book is that "the mystery of cancer was infuriatingly to refute the more grandiose claims of modern medicine and to confirm the inevitability of human suffering" (p. 30). Its focus is on reactions to the disease. Cancer, more than any other malady, Patterson believes, mirrors a range of social concerns about illness, medical practices, death, and dying and reveals a long-standing cultural and ideological division about causation, therapy, and the role of government. His portrayal of this dramatic and enduring conflict between an "anti-cancer alliance," hawking new, scientific approaches, and a "cancer counterculture," adhering to traditional beliefs, constitutes the major portion of the book and makes for a compelling narrative.

Better than any scholar to date, Patterson describes the formation and perpetuation of the anti-cancer alliance, an elite composed primarily of the medical profession, scientists, and government officials, that has been able to dominate virtually all deliberations about the disease. The alliance began to form early in the 20th century when doctors, reflecting a revolutionary rise in their status, proclaimed themselves the cultural arbiters of the disease. They espoused the theory that local "irritations" cause cancer; proposed that early detection and surgery were its chief combatants; organized the American Society for the Control of Cancer (later the American Cancer Society) to educate the public; and predicted imminent breakthroughs. In 1938 the federal government, ever more responsive to the health needs of its people, established the National Cancer Institute; and after World War II research scientists, buoyed by such wonders as sulfa drugs, penicillin, and the atomic bomb, fostered hopes and promised a cure. Suddenly there was a crusade. Politicians and such civilian allies as Mary Lasker, eager to share in the victory, provided lavish sums for research; and President Nixon, certain that the government must play a larger role, officially declared a "War on Cancer." But the anti-cancer coalition failed to deliver a cure, and a stubborn cancer counterculture ignored their Message of Hope.

Patterson's portrayal of this amorphous group, for which he draws upon a unique National Cancer Institute collection of materials about popular attitudes regarding treatments and cures, provides the richest sections and the major contribution of his book. The counterculture was always a minority within American society, and although it occasionally reached into the middle class, it was made up primarily of the poor and ill-educated—the masses of recent immigrants, the blue collar workers, the impoverished families who rarely saw a physician, and the fundamentalist religious sects. These skeptics challenged orthodoxy's experts, their science and their exaggerated claims; sought out the purveyors of quick and inexpensive cures; and found solace in a vast array of folk remedies, patent medicines, faith healers, quacks, and charlatans. Their panaceas changed over time, from an early attachment to such remedies as cathartic pills, leeches, and the broth of a crayfish, to a 20th-century faith in diet cures, the Hoxide treatment, "orgone therapy," Krebiozen, and the *cause célèbre* of the 1960s, laetrile. Counterculture enthusiasts questioned the "irritation theory" with its associated gospel of early detection and rapid surgery and, responding to popular notions about diet and stress, gave their allegiance to careful living and self-help. They expressed an ambivalence toward modern industrial civilization with its laboratory science, secular thought, and paternalistic government, and, as late as the 1970s, their fears found an outlet in the environmentalist movement. By then, more and more middle-class Americans had come to appreciate the ditty "Everything, everything causes cancer, There's no cure, there's no answer, Everything causes cancer" and called for a greater commitment to prevention. Patterson is obviously more at home with the elite, but he takes the counterculture seriously; indeed, he devotes an entire chapter to the debate over cigarettes.

The book is sometimes repetitive, as the author traces the conflict through various chronological periods, and necessarily imprecise, which prompts the question whether the counterculture is as sizable in the real world as it appears in the documents. But it is continuously interesting and provocative and should appeal beyond an academic audience to health professionals and the general public.

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Arms Control in Space

Space and National Security. PAUL B. STARES. Brookings Institution, Washington, DC, 1987. xx, 219 pp., illus. $28.95; paper, $10.95.

The debate over the Strategic Defense Initiative (SDI) has focused world attention on space-based weapons of the future. In danger of being upstaged by that debate, according to this book, is a much more immediate and no less important decision regarding the military use of space: whether the United States should proceed with deployment of antisatellite (ASAT) weapons. Whereas the operation of even rudimentary strategic defenses is at least a decade away, a U.S. antisatellite system is scheduled to become operational by 1990. Therefore, the antisatellite issue "deserves immediate attention before the United States commits itself to a new avenue of the arms race

without fully considering whether there is an alternative, more prudent strategy" (p. 2).

Stares describes in detail the military uses of space systems, the potential ways to attack or otherwise interfere with such systems, and the possible countermeasures to protect them. His description and analysis are fully documented and up-to-date. He demonstrates that the United States and the Soviet Union use space systems extensively and for similar purposes but accomplish their purposes in different ways: the United States uses a small number of highly sophisticated, multifunction, long-lived satellites, whereas the Soviets use a larger number of simpler, single-mission satellites that require much more frequent replacement.

Stares goes on to trace out a number of scenarios in which ASAT weapons might be used. In most such cases he finds that attack by ASATs would have only limited utility and would pose a strong possibility of escalation. "Even in the conflict scenarios in which ASAT attacks seem to offer some tangible benefits, the presence of alternative, nonsatellite systems and the adversary's ability to reconstitute space assets rapidly could significantly reduce the desired effect" (p. 141). Moreover, any benefits of U.S. use of ASAT weapons against Soviet satellites would have to be balanced against the potential loss of U.S. satellites in an ensuing ASAT duel. Since nondestructive methods exist for neutralizing the most worrisome Soviet space systems, Stares finds that the advantages of an arms control agreement limiting ASAT development, testing, deployment, or all three outweigh the drawbacks.

Even under such an agreement, the risk of covertly developed ASATs will remain, as will the possibility that non-ASAT systems (such as ballistic missiles) could be used to destroy satellites. However, the existence of such "residual" ASAT systems "is not a valid case against arms control. Rather, it is an argument against placing too much reliance on a small number of satellites, since they will become even more vulnerable in the absence of arms control" (p. 179). Stares argues that under an arms control regime, the threat from residual Soviet ASAT attack can be reduced to acceptable levels through increased system redundancy and enhanced satellite survival measures.

Stares suggests that U.S. policy makers "steer a middle course between outright prohibition and no constraint whatsoever" (p. 183). Since the balance of costs and benefits of ASAT development may change in the future, he calls for the United States to retain the option to deploy an ASAT at a later date. He sets out a number of unilateral measures that he believes the United States should conduct, such as improving the survival capability of U.S. space systems, maintaining a minimum ASAT research and development effort, and refraining from ASAT weapons tests as long as the Soviets hold to their previously announced ASAT test moratorium. He also argues that the United States and the Soviet Union should consider negotiating agreements such as a formal, limited-term, renewable ASAT test moratorium, a ban on space weapons, and guidelines for permissible antimissile research that would not result in the development of de facto ASATs.

In the final chapter, Stares brings the discussion back to ballistic missile defense, recognizing that ASAT limitations will inherently constrain SDI testing because the technologies are so similar. Indeed, "SDI promises to become a breeding ground for new generations of ASAT weapons if nothing else" (p. 181). However, in attempting to formulate an ASAT limitation that would still leave room for long-term research on strategic defense, Stares relegates SDI to a role that most of its critics would be comfortable with—a laboratory program that remains years away from developing deployable hardware and that refrains from running afoul of any conceivable Antiballistic Missile Treaty interpretation.

Resolving the ASAT issue requires that implicit or explicit decisions be made concerning SDI. Although it is likely that SDI policy will determine ASAT policy, rather than the other way around, this book makes a strong case for the urgency of addressing space arms control before it is too late.

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Avian Sociobiology

Population Ecology of the Cooperatively Breeding Acorn Woodpecker. WALTER D. KOENIG and RONALD L. MUMME. Princeton University Press, Princeton, NJ, 1987. xvi, 435 pp., illus. $55; paper, $16.95. Monographs in Population Biology, 24.

Cooperative breeding, in which an individual forgoes reproducing and instead helps another individual to reproduce, poses a potential problem to the theory of natural selection. The concept of inclusive fitness has provided the key to understanding the apparently altruistic nature of cooperative breeding in animals, at least on a theoretical level. At the empirical level attempts to understand cooperative breeding have often centered on birds. A number of long-term studies of the ecological and behavioral patterns associated with cooperative breeding are now coming to fruition, most notably those of Glen Woolfenden and John Fitzpatrick on Florida scrub jays, Jerram Brown on Mexican jays, and Koenig and Mumme on acorn woodpeckers.

The acorn woodpecker (*Melanerpes formicivorus*) exhibits perhaps the most complex social organization of any cooperative breeder so far studied. Acorn woodpeckers often live in family groups of up to 15 individuals. In California where Koenig and Mumme studied them, groups consist of one to four breeding males, usually one or two breeding females, and zero to ten nonbreeding offspring from prior nests. Each group defends an all-purpose territory including one or more granaries—trees riddled with holes for storing acorns—and produces only one nest at a time. Up to three females may lay in a single nest, and all breeding males presumably contribute to paternity of offspring. Breeders of a given sex are almost invariably closely related to each other, but breeding males are generally unrelated to breeding females. Offspring born into a group remain there into adulthood as nonbreeders until they either disperse and become breeders elsewhere or inherit and breed in their natal territory. Territorial inheritance occurs following the death of all breeders of the *opposite* sex in a group, an event that creates a reproductive vacancy.

There are two basic questions that must be answered before cooperative breeding can be understood: Why do offspring remain as nonbreeders in their natal groups for up to several years? and, once groups are formed, why do group members cooperatively care for young that are not their own? In this book Koenig and Mumme focus almost exclusively on the former. What results is perhaps the best single study of cooperative breeding in a vertebrate yet published. This book illustrates repeatedly how good information on demography can lead to an understanding of the evolution of social organization.

Koenig and Mumme's study of acorn woodpeckers began in 1971 (when the project was initiated by Michael and Barbara MacRoberts) and has continued to the present, often in collaboration with other people. This book uses mainly data gathered through 1982. It is not simply a compilation of the authors' earlier papers but contains extensive new information. The authors' primary approach was to band birds, census the population, and record nesting success. The results and analyses will be of wide interest to population biologists, and this book is a