futilely to attach a price to centuries of value added by primitive agriculturalists and peasant farmers. The irony, of course, is that the principle of "common heritage" was anathema to U.S. companies before the development of hybrid seeds.

Having argued that a change in plant breeding technique made possible significant shifts in the structure of agriculture and the status of the seed, Kloppenburg then proceeds to employ the same analytic framework to assess the latest developments in plant breeding—biotechnology and plant engineering. In three provocative chapters, he suggests that biotechnology is precipitating another redefinition of boundaries between public and private ownership and control over plant breeding. Once again, it is a struggle between publicly funded laboratories and private corporate interests. "Seed" money from the latter, Kloppenburg suggests, levers hundreds of millions of dollars of faculty time, capital equipment, and infrastructure in universities in the direction of what will ultimately become products sold for profit. Moreover, control over both the conduct and the goals of biotechnology research is slipping from the public sector as research scientists in land-grant universities are lured away from the fictional "republic of science" to management and equity positions in budding biotechnology firms. Property rights are once again up for grabs as companies and individuals are lured by the possibility of establishing ownership of plant varieties manufactured in vitro.

Kloppenburg concludes with a strong plea for public oversight and control of research and regulation of property rights for laboratory inventions. He calls for generation of internal debate and critique, akin to that which he suggests developed in physics and later in molecular biology, to chart alternative uses for the technology. Rather than assume that all the changes that issue forth from public and private labs are unequivocally good, he encourages scientists and policymakers to reconsider the broader political and economic effects of hybridization and other "miracles" before unleashing a new generation.

All told, this is an important book. It takes a topic long neglected by even the most avid students of technology and agriculture and renders it open for discussion. Kloppenburg's obvious and passionate concern for informed debate is evidenced throughout the book but especially in his efforts to present the central arguments with sufficient supportive detail. The one major exception to this otherwise consistent practice resides in his treatment of the "choice" between hybridization and open-pollination techniques. In analyzing the impacts of the former, Kloppenburg suggests but never really demonstrates that open pollination constituted a viable alternative. Given the pivotal role assigned to that choice, some readers may question whether the absence of empirical support does not weaken the main argument. Despite this, readers should find much in the way of thoughtful and persuasive challenge to the implicit technological determinism and historicism that have tended to characterize contemporary debates over the opportunities and the dangers of biotechnology.

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The Nuclear Freeze Campaign

From Protest to Policy. Beyond the Freeze to Common Security. PAM SOLO. Ballinger, Cambridge, MA, 1988. xviii, 215 pp. $19.95.

What lessons are to be learned from the Nuclear Weapons Freeze Campaign with its complex mesh of success and failure? Solo provides a thoughtful and fair-minded insider's history with a point of view. She was a founder of the campaign and a major participant throughout, witnessing the struggles over direction and strategy that such campaigns inevitably encounter.

Solo succeeds quite well in avoiding the pitfalls of this kind of insider's history. The issues come through as ones about which intelligent people can disagree in good faith; the book has a generous spirit and is free of back-biting and ad hominem attacks. But Solo has a critical case to make, and she is forthright and open in arguing that the Freeze Campaign took a wrong direction.

Success breeds its own dilemmas. The Freeze Campaign caught on so rapidly that it inevitably attracted mainstream political figures eager to embrace it. In Solo's view, the Freeze was too quick to accept the embrace and insufficiently aware of the opportunity costs. The price for breadth of support was narrowness of vision.

There were many advantages for the Freeze in its alliance with key congressmen, especially through the staff of two members of the Massachusetts delegation, Edward Markey and Edward Kennedy. Although it drew its energy and its ability to be taken seriously from the ability to mobilize grassroots support, it increasingly shifted to an insider's legislative game that left little or no role for collective action. The demobilization that took place from 1984 onward was complex, as Solo recognizes, but part of it, she argues, was a result of the strategic choices made by the Freeze.

The insider game precluded linking the movement to other mobilizing groups, because this would disrupt its mainstream coalition. The issue of preventing nuclear war was not framed in ways that would connect the Freeze with other popular movements—the environmental movement or the movements against nuclear power, apartheid, or intervention in Central America, for example. Supporters of these movements frequently framed their own issues in ways that made such connections.

Calls for modest unilateral initiatives such as a temporary "negotiations" freeze were rejected because mainstream allies feared their vulnerability to charges of "unilateralism." The Freeze provided license to its supporters to vote for new U.S. weapon systems until that glorious day when the two superpowers would mutually agree to adopt the Freeze proposal. There was a want of boldness here in the Freeze that Solo shows us.

Solo's account includes some dramatic reminders of the success the Freeze achieved in helping to shift the direction of U.S.–Soviet relations. Compared to Gorbachev's contribution, the Freeze was a minor factor, but Solo seems justified in claiming that it "changed the issues and the language used by politicians to discuss them." As late as 1983, President Reagan was urging reporters "not to ignore the facts of history and the aggressive impulses of an evil empire." Within a few short years, he was toasting Soviet-American friendship in the capital city of the empire, his admonition buried and forgotten.

I was aware, as an interested observer, that the Freeze had been subjected to Red-baiting, but Solo does an especially impressive job of documenting the extensive, well-orchestrated campaign mounted to discredit it. Private groups such as the American Security Council, the American Conservative Union, and the Moral Majority teamed with administration and congressional opponents in a coordinated effort to present the Freeze as disloyal, or, in the President's words, inspired by those "who want the weakening of America and so are manipulating honest and sincere people."

In the end, Solo argues, the strategy that the Freeze failed to follow is still relevant for the peace movement of the 1990s. Unless the peace movement can alter the terms of the debate "to challenge the deep structures of militarism," it will inevitably be fighting (and mostly losing) defensive battles. Her alternative vision of "Common Security" has its roots in the Palme Commission Report and reflects a developing consensus among

contemporary peace activists. Its core assumption is that the security of one nation cannot be rooted in the insecurity of another. Collective action requires more than a vision, but, as an alternative to "Peace through Strength" and the continuing arms race it has brought us, "Common Security" offers a challenging new beginning.

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Ideals of Psychologists

The Rise of Experimentation in American Psychology. JILL G. MORAWSKI, Ed. Yale University Press, New Haven, CT, 1988. xx, 220 pp. $24.50.

The persistent tendency of psychologists to equate genuinely scientific work with experimental research is examined in this collection of essays dealing with episodes from the late 19th century to the very recent past. In addition to this common theme there is agreement among the contributors that experimentalists' research designs and findings have always been somehow shaped by social circumstances. The essays are diverse in focus and argument, however: some of them analyze the fabricated social situations of the laboratory, whereas others describe the social characteristics of those involved in research as either members of the professional community of psychologists or subjects of experimentation; the "experiments" discussed range from laboratory projects to a longitudinal study of a selected population (but are nearly all experiments involving human subjects—a skewed sample of experimentalist research).

If psychologists intended their research to have practical implications, historians easily identify the social values sustained by their work. Henry Minton shows that Lewis Terman's study of gifted children, charted in 1921 and still continuing, was designed to persuade the public that an aristocracy of the talented should lead them. Others might have viewed Terman's data as documentation of the workings of the American class system, but to Terman they indicated that intelligence was inherited and was linked to successful performance in all spheres of life; naturally his subjects came from relatively prosperous families, were physically fit and psychologically well adjusted, and enjoyed (if they were male) notable careers. Richard Gillespie's account of the experiments conducted at the Hawthorne plant of the Western Electric Company between 1924 and 1933 reveals them to have rationalized the shift of control over production from workers to a psychologically oriented managerial sector new to American industry. Initiated by plant managers and subsequently elaborated by Elton Mayo and his colleagues from the Harvard Business School, the experiments were heralded as demonstrations that workers' productivity was determined by their psychological attitudes. Contrary to social science myth, however, Mayo's conclusions were consistent with the plant managers' expectations. And Jill Morawski analyzes the efforts of prominent—male—psychologists to prove that conventional sex roles were "natural." From the early years of this century, feminists argued that natural sex differences were inaccessible to psychological inquiry: human nature was thoroughly masked by the training both males and females received from birth. But men such as Robert Yerkes postulated that (unsocialized) primates exhibited nearly human nature and contrived primate experiments that supposedly revealed the inevitability of male dominance.

Minton, Gillespie, and Morawski all treat psychologists' efforts to appeal to the potential markets for their services and thus to establish professional roles for themselves, as sages or practical consultants. The other contributors to this collection are also concerned with psychologists' creation of a distinct professional identity, but they focus on changes psychologists effected in their research styles and rhetoric that enabled them to present a collective front to outsiders. Gail Hornstein relates how in the late 19th and early 20th centuries psychologists were persuaded that their findings would not be genuinely scientific unless they were expressed in quantitative form and how they managed to suspend consideration of questions about the significance of those research projects that were susceptible to quantification. In no small part, the quantitative ideal was the cause of the experimentalists, and their professional dominance was consolidated by an elite (and all male) network of psychologists joined in the society of experimentalists, described here by Laurel Furumoto, founded by E. B. Titchener in 1904.

All the other contributors analyze psychologists' management of the experimental situation itself. Kurt Danziger traces changes in the modes of identifying experimental subjects—represented in the 19th century as virtual collaborators in research and subsequently increasingly described as passive subjects—and argues that this shift in the language of research reports is an index to psychologists' delusion that their experimental subjects were incapable of conscious calculation and, in the laboratory at least, unaffected by the experiences they had had as social beings. By the 1950s, as Jerry Suls and Ralph Rosnow report, researchers had begun to recognize the negative consequences of the authority they had established in the laboratory, observing that the established social relationship between subjects and researchers made the former likely to respond as the latter expected (not least because subjects were neither naïve nor unconscious). Initially, this observed pattern was seen to mandate reform of experimental procedure, but, as Benjamin Harris shows, by the 1960s psychologists had also become concerned about its ethical implications and instituted post-experimental "debriefing"—sessions in which subjects' potential resentment at being experimentally manipulated could be allayed. To Harris, "debriefing" procedures denote psychologists' persistent determination to render their experimental subjects thoroughly passive, but Karl Scheibe construes recent research developments differently. To Scheibe, both concerns about the accuracy of experimental results and debates about the ethics of research procedures are manifestations of fundamental disciplinary change, indications that many psychologists now question the scientistic ideal embraced in the 19th century.

Obviously, it is the triumph of this scientific ideal, predicated on postivist, mechanistic, and operationalist assumptions, that this collection variously chronicles. The authors, all but one of them psychologists, have evidently turned to historical inquiry in order to determine how an ideal they find untenable was embraced. Because their work exposes the premises underlying conventional practices, their colleagues should find it useful in resolving their discipline's present dilemmas. For readers who are not psychologists, this book has value—perhaps unanticipated—as a primer on some current debates in the field.

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Social Science in Law

Reforming the Law. Impact of Child Development Research. GARY B. MELTON, Ed. Guilford, New York, 1987. xii, 307 pp. $30. Guilford Law and Behavior Series.

Reforming the law is a complex enterprise. Legislators make and remake law in response to various mixes of political and policy considerations. Judges embellish legislated rules and legislate rules of their own,