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Review: Corporate Academia

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Corporate Academia

Roger L. Geiger

SCIENCE FOR SALE: The Perils, Rewards, and Delusions of Campus Capitalism. Daniel S. Greenberg. viii + 324 pp. University of Chicago Press, 2007. \$25.

In an age when careers tend to take tortuous paths, journalist Daniel Greenberg has been doggedly following one beat for more than 45 years: the federal government's funding of scientific research. His 1967 book, *The Politics of Pure Science*, skewered the pretensions of the post-Sputnik science establishment and may be the funniest contribution ever to the solemn subject of science policy. He then published independently the *Science and Government Report* for some 27 years, providing essential behind-the-scenes accounts of the machinations and interactions of science advisers, congressional committees, federal science agencies and their supplicants. More recently, in *Science, Money, and Politics: Political Triumph and Ethical Erosion* (2001), he examined how science sustained and ultimately enhanced its privileged standing on Capitol Hill. Greenberg invariably brings a critical perspective to the scientific enterprise and is deeply cynical about the flow of money that sustains it. But his strongly worded judgments are always built on a bedrock of integrity.

These characteristics are also present in his latest effort, *Science for Sale*, in which he ventures outside the Beltway to scrutinize the state of academic science and its supposed burgeoning ties with the corporate world. Although the somewhat fraught title would seem to place this work with an abundance of books condemning university ties with industry, Greenberg has provided a more nuanced analysis and offers some different conclusions.

Greenberg gathered the material for this book with his tried and true methods—conducting extensive taped interviews, buttressing his arguments with statistics, and reporting accurately rather than for partisan effect. He visited 20 research universities and interviewed some 200 academics and nonacademics engaged in different aspects of commercializing the results of university research. Acknowledging the immensity of the academic research system and the impossibility of

comprehending it all, he offers his findings as an “explorer’s report.”

He begins with an iconoclastic portrayal of corporate-sponsored research. Far from dominating or corrupting universities, it has been a marginal and (since 2000) shrinking portion of the research they conduct. Academic research has great value for industry, but companies prefer to let the government pay for it. “Not many corporations are besieging universities to take their money,” Greenberg says. “Eagerness for even more business is strongest on the university side of the relationship.” Moreover, he sees little scope for industry to take advantage of this hunger: “In the current era of heightened sensitivity to abuse of academic integrity, the risk of public opprobrium for offending accepted values is substantial.” Given the predominance Greenberg ascribes to self-interested behavior, it is not surprising that he frequently alludes to the fear of institutional embarrassment or individual ruin as the force driving ethical behavior. However, when he returns to this theme in his conclusion, he emphasizes the growing effectiveness of the systems now in place to police and punish scientific misconduct.

Greenberg casts a skeptical gaze on the Bayh-Dole Act and the potential economic payoffs from patenting discoveries that grow out of university research. The current popularity of these activities is fanned by publicity from the Association of University Technology Managers, he says, and the data the association provides are “favorably echoed” in the national press. He sympathizes with the argument that excessive patenting has restricted the “scientific commons,” although this elegant theory can muster little empirical support. But neither limited returns nor economic theory can gainsay the fact that “tech transfer and other money-making opportunities are now woven into the social system of science, and scientists who once frowned on business ties now acknowledge a change of mind.”

These new attitudes are encouraged by universities themselves, which now tout entre-

preneurship or economic relevance as their fourth mission, after teaching, research and service. Greenberg places this development in context by noting that “the penetration of entrepreneurial goals and values . . . is markedly uneven across academe.” But not for want of trying: “Vows to increase connections with business and industry, to serve as an economic engine for the community and nation, are boilerplate passages in the addresses of university chieftains.”

When Greenberg addresses the “perils of campus capitalism” alluded to in the subtitle, his focus shifts from universities *per se* to the borderlands of biomedical science, where pharmaceutical corporations, medical schools, clinical trials, the National Institutes of Health (NIH) and medical journals intersect. Here commercialization transcends the realm of scientific discoveries and involves the fate in the marketplace of commercial products of potentially staggering worth. The cooptation of some academic scientists by Big Pharma, and their apparent willingness to allow these ties to affect their professional judgments, is an inherent problem for biomedical science. It has particularly imperiled human experimentation, clinical trials and the manner in which results are reported in medical journals. In depicting these issues, Greenberg reverts to focusing on the Beltway and especially the actions of the NIH.

He reports grudging progress on these fronts and notes that the battle is far from over. The NIH finally shocked the medical schools into action by briefly shutting down federally sponsored research at Duke University Medical Center in 1999, and then at Johns Hopkins School of Medicine in 2001 after a healthy volunteer died there in a study of a chemical inhalant. As a result, institutional review boards were enlarged and strengthened at all universities, enabling them at last to perform their intended function. The previous lax standards, and their consequences, should probably be borne in mind the next time one has to fill out the annoying forms for approval to do research involving human subjects. However, stiffening the standards for universities may have had a limited effect on the integrity of clinical research. Big Pharma can still exert considerable control over clinical trials by moving them to international sites or engaging accommodative commercial firms known as contract research organizations, whose rise has been accompanied by the emergence of private, profit-seeking institutional review boards.

Medical journals occupy a crucial post as gatekeepers of accepted science, yet they have been vulnerable to biased submissions by scientists with corporate ties. The two biggest pitfalls would seem to be authors who fail to disclose their corporate connections and articles

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that make available only those results from clinical trials that are favorable to a company's product. For the former, it is easy to identify cases of obvious malfeasance; but in a field dedicated to translating research findings into medical therapies, connections between scientists and producers are ubiquitous and natural. Greenberg describes the frustration of attempts by NIH Director Elias Zerhouni to expunge commercial ties within his own organization. For medical journals, the elusive solution has been transparency through author disclosures, but this goal seems impossible to achieve before publication, given the reluctance of many authors to cooperate. More commonly, such conflicts are exposed after publication, by scientists who dispute the reported findings.

To address the problem of the suppression of disappointing results, an approach that has been gaining momentum is the establishment of a registry of all clinical trials. Unfortunately, some trials—it is not known how many—are still not being tracked in this way. Required registration would prevent authors, disinterested or not, from cherry-picking favorable results. The International Committee of Medical Journal Editors has adopted a policy of requiring prospective registration as a condition of publication. However,

the decentralized and competitive nature of academic publishing makes it difficult for single journals to uphold policies that enforce ethical behavior.

Greenberg courageously titles his concluding chapter "What's Right and Wrong, and How to Make It Better." Given the developments summarized above, he cautiously judges that "the possibility has improved for an ethical upgrade in clinical testing." Possibly countering this tendency is the implacable building-out of biomedical research facilities and the pressure to keep them filled with funded investigators. Also obstructing the way is the research community's inherent resistance to regulation.

The challenge of "promiscuous patenting" is perhaps the least documented of Greenberg's perils. Here the most hopeful sign is that "the patent system is so out of whack" that it has even caught the attention of Congress. But universities are unlikely to be weaned from their tech-transfer offices, no matter how uneconomical their operations.

Greenberg's least practical recommendation is for transparency in university-industry research contracts through open publication. Contracts in general are not public documents, and research contracts in particular often contain detailed information that could

have value for competitors. Greenberg's suspicions that nefarious activities lie behind this cloak of secrecy are not justified by the evidence he offers. His prescription seems to be an over-extension of his congenital distrust of universities and corporations.

Overall, however, Greenberg has provided an important assessment of the state of academic science. He finds that public doubts about the integrity of the research enterprise are probably overdone: "Science is in good shape, productive and socially beneficial," he says. "The negative elements," he believes, "pose a more complicated, less measurable story." But Greenberg's account makes it clear that those negative elements are concentrated in the biomedical borderlands, where vigilance in the enforcement of ethical standards is indeed called for.

Roger L. Geiger is Distinguished Professor of Higher Education at the Pennsylvania State University and editor of Perspectives on the History of Higher Education. He is the author of Knowledge and Money: Research Universities and the Paradox of the Marketplace (Stanford University Press, 2004) and is a coeditor (with Carol Colbeck, Roger Williams and Christian Anderson) of Future of the American Public Research University (Sense Publishers, 2007). His current study (with Creso Sá), tentatively titled Innovation and Economic Relevance: The University's Fourth Mission, is expected to appear in 2008.

POLICY

Racing Toward Armageddon

Jeremi Suri

ARSENALS OF FOLLY: The Making of the Nuclear Arms Race. Richard Rhodes. xii + 386 pp. Alfred A. Knopf, 2007. \$28.95.

By early 1985, one year before the Chernobyl nuclear disaster in Ukraine, the United States, the Soviet Union and a few other states had together amassed 50,000 nuclear bombs and warheads. These devices threatened destruction 1.5 million times greater than the atomic bombing of Hiroshima 40 years earlier. Future generations of historians will struggle to explain why the leading Cold War states devoted so much treasure to so many of these horrible weapons.

In *Arsenals of Folly*, a passionate and sometimes eloquent new book analyzing the nuclear arms race, Richard

Rhodes focuses on politics, particularly the politics of Soviet-American relations. He begins and ends by blaming American secrecy, aggression and insensitivity. "That arms race," Rhodes writes, "began with the Anglo-American program itself—the Manhattan Project—because the United States and Britain had chosen not to share knowledge of the secret program . . . with the Soviet Union even though it was an ally in the fight against Nazi Germany." Rhodes approvingly quotes Soviet leader Mikhail Gorbachev, who, after discussing the possible elimination of nuclear weap-

ons with President Ronald Reagan in 1986, concluded that the Americans

have not abandoned the quest for superiority. That is why they did not have enough character, responsibility or political decisiveness to step over that threshold.

It seems to me that America has yet to make up its mind.

Devoting much of his text to Gorbachev's biography, Rhodes makes a convincing case for the last Soviet General Secretary's seriousness about replacing the nuclear arms race with a commitment to "common security." Gorbachev recognized that the construction of larger and more destructive nuclear arsenals only contributed to the bankruptcy and sclerosis of the Soviet Union. To reform the system—to create a more open, vibrant and effective socialist society—he needed to redistribute resources and talent to address civilian needs. Gorbachev also wanted to draw on scientific and eco-