
**BIOMEDICAL SCIENCE AT THE CROSSROADS**

*I went to the crossroad*
*Fell down on my knees*
*I went to the crossroad*
*Fell down on my knees*
*Asked the Lord above*
*“Have mercy now,*
*Save poor Bob, if you please”*

—Crossroad Blues
—Robert Johnson

According to a legend of disputable veracity, the great bluesman Robert Johnson went down to the crossroads of US 61 and US 49 in Clarksdale, Mississippi, and sold his soul to the devil in exchange for the ability to play the tasteful, haunting guitar licks for which he later became renowned. Ever since, blues fans have reaped the benefits of this deal, concluded, as such things often are, at the stroke of midnight.

If you believe Sheldon Krimsky, the author of *Science in the Public Interest: Has the Lure of Profits Corrupted Biomedical Research?*, American science is at just such a portentous crossroads; indeed, the ink on the deal with the devil may long since have dried. Gone are the halcyon days of public-spirited researchers declining to patent breakthrough polio vaccines because, in the lofty words of Jonas Salk, “There is no patent. Could you patent the sun?” The time when an FDA Advisory Committee devoid of conflict of interest could be assembled with ease has been relegated to the farthest reaches of our memories. University deans now devote more energy to cultivating multimillion dollar “academic-industry collaborations” than they do to tending the fragile pastures of academic freedom.

The quantum shift in university culture over the last couple of decades has been breathtaking. In 2000, industry funding for all research and development represented 8% of funding at colleges and universities—up from 4% in 1980—this during a period when total academic R&D funding quadrupled. The percentages in the biomedical sciences are presumed to be considerably higher. Duke University leads the pack
with 31% of its total R&D funding coming from the private sector. A cavalcade of patents awarded to universities has ensued, primarily in biomedical fields. The total number of patents awarded annually to the top 100 research institutions has skyrocketed from 177 in 1974 and 408 in 1984 to an astounding 3,200 in 2000.

None of this happened by accident—it was the product of deliberate policies set in place by Congress in the early 1980s, not as the clock struck twelve but in full view of the American public. The most prominent of these policies was the Bayh-Dole Act of 1980, which handed universities, small businesses and nonprofit organizations the right to patents developed using federal research funds. An Executive Order in 1987 extended this right to all of industry. Various tax credits and a key 1980 Supreme Court decision (Diamond v. Chakrabarty) permitting the patenting of genetically modified organisms themselves, hastened the trend. As Krimsky says, “The corporate influence on scientists is neither natural nor inevitable.”

This much is inarguable. But are these developments ultimately in the public interest? Krimsky thinks not. These arrangements have contributed to a series of what he terms “Tales of the Unholy Alliance” that collectively are an embarrassing scar on the research enterprise. Among the tales, all compellingly told, is the suppression by the drug company Knoll of a manuscript already in galleys at the Journal of the American Medical Association demonstrating that Knoll’s Synthroid held no advantage over several competitors’ generic thyroid hormone. In another, an NIH scientist, already compensated at $144,000 a year, received almost $80,000 from Warner-Lambert but nonetheless participated in the decision to include Warner-Lambert’s now-banned diabetes drug Rezulin in an NIH-sponsored clinical trial. The Rezulin arm of the study had to be stopped when a patient died of liver failure; the scientist participated in that decision too.

To mention just the third of many troubling examples in the book, Krimsky also reviews the tragic case of Jesse Gelsinger, a teenager with controlled ornithine transcarbamylase deficiency, a genetic disorder, who died in a gene therapy study at the University of Pennsylvania in 1999. Subsequent investigations revealed that the therapy’s inventor, a senior professor at Penn, held a patent on the drug and had created a company in which he held $13.5 million worth of stock options. The university itself held a comparatively paltry $1.4 million in stock options, but had accepted $5 million annually from the company in
exchange for exclusive rights over any products developed. None of this was disclosed in the study’s informed consent form. The university settled out of court for an undisclosed sum and Gelsinger’s father became an outspoken advocate of human subject protections.

These horror stories have attained almost mythical status in medicine (although they are better documented than Robert Johnson’s exploits) and will be familiar to all who have taken up residence in this all-but-neglected corner of modern science. But Krimsky has assembled many of them between the two covers of what is likely to prove a reference work in the area, and explained how they are interrelated in readable prose that will convince you that these events, however improbable, actually took place as described. The reader is persuaded that these cases represent the mere tip of the conflict-of-interest iceberg. It all makes for engrossing, if grim, reading.

Krimsky’s chief concern is the impact of the new entanglements upon the essential nature of the university, in particular the hitherto sacrosanct notion of academic freedom. “The consequences,” he says, “are that secrecy has replaced openness; privatization of knowledge has replaced communitarian values; and commodification of discovery has replaced the idea that university-generated knowledge is a free good, a part of the social commons.” He worries that the new ethos will undermine “tenure as we know it” and that this will erode the ability of faculty to engage in spirited public debate. I’ll demur at this one—the club of tenured faculty devoted to refining their nine-irons is not exactly lacking for members. A more subtle threat to academic freedom, he argues, is the desire to appease the frail sensitivities of capricious funders. Under these circumstances, academic freedom could persist in name only—an abstract right the existence of which is to be enjoyed, but whose privileges are not to be exercised.

The bitter irony of a system in which public research expenditures are converted into private wealth comes under withering attack, derided as a “perversion of the capitalist ethic.” But Krimsky also lightens the mood with a set of three moving personal vignettes of successful practitioners of public interest science—precisely the kind of research he sees as essential to the uniqueness of the university, yet endangered by contemporary trends. The integrity of the university will be fatally undermined, he argues, if this crucial function is not filled.

As is often the case in such books, the bewildering problems seem to outnumber the solutions. Krimsky points out that the professed zeal for
greater disclosure of potential conflicts of interest obscures the fact that “nothing has yet been proposed to decrease or minimize the financial conflicts of interest . . .” A cynical observer might conclude that the current fad for disclosure is simply a method of leaving the conflicts themselves unperturbed while burnishing the public image of science. Krimsky nods approvingly toward a Harvard University policy that actually precludes principal investigators from receiving more than $10,000 in honoraria or owning more than $20,000 in stock from companies whose products they are researching. That this moderate policy, which has been forced to weather a series of assaults by Harvard researchers seeking to sap it of any vitality, is considered exemplary is a testament to how far we have fallen from the altruistic ideal embodied by Salk.

Krimsky also proposes an independent national institute of drug testing, which would accept industry funding to test the companies’ products, but would leave study design, conduct, analysis and reporting securely in the hands of disinterested scientists. This is an idea whose time has long come, but, at least under the present circumstances, is unlikely to curry favor with the well-heeled lobbyists in Washington who represent the very corporations that increasingly fund biomedical science.

As for most chronic, debilitating conditions, the approach of choice to the festering conflict-of-interest problem should be prevention, not treatment. “Prevention” in this setting consists of bans on certain contacts or levels of remuneration, and the use of neutral outside parties when conflicts are unavoidable. The “treatment” of conflict of interest (AKA “conflict management” in the current euphemism of choice) should be a last resort, reserved for those conflicts of least consequence. In the current environment, the treatment approach seems to have gained the upper hand, with only erratic disclosure available to mitigate the monetary melee.

As fate would have it, Robert Johnson’s deal with the devil didn’t sustain him for long; he left a slim legacy of only 29 recorded songs, although each was a mini-masterpiece. It is said that he died after the husband of a woman who had become the target of Johnson’s affections poisoned his drink with strychnine. His death certificate even left uncertainty over his age, but on this much it was clear: the cause of death was listed as “No doctor.”

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