
Science-Mart

Privatizing American Science

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Viridiana Jones and the Temple of Mammon

Or, Adventures in Neoliberal Science Studies

Meet Viridiana Jones

It's not easy making a living in the knowledge biz these days. Lately our heroine, the intrepid academic researcher Viridiana Jones, feels strung out between the Scylla of Disneyfication of higher education and the Charybdis of Free EnronPride in securing a patron, any patron, to support her inquiries in an era of impending financial doom. Viridiana finds herself sometimes wistfully wondering what life might have been like if she had gone and gotten that law degree instead. She considers herself someone who keeps up with current events, but the news about her university these days just brings on a headache. Every visit to the department mailbox has turned into another occasion for heartburn. Viridiana used to enjoy reading the *Chronicle of Higher Education*, but now she just tosses it out. She sees a colleague's copy of the *Wall Street Journal* with the headline "Basic Research Loses Some Allure" (Clark and Rhoads 2009): too right, mate, she groans. The other day, she received a glossy flyer that said, "As a University of Phoenix instructor, you could be sharing your knowledge and skills with motivated adult students via the Internet. Because our web-based format is asynchronous, you can teach class at times and places that fit your schedule—without interrupting your full-time career."¹ Just prior to that, she got a missive from a publishing company threatening her with prosecution if she didn't remove one of her own journal articles from her local university Web page (Corbyn 2009). The memos from the administration at her home campus have hardly been more edifying. For instance, she cannot believe that someone would voluntarily want the Ken Lay Chair for the Study of Markets or accept Madoff grants for health research (Bernstein 2009), but in her sober moments she knows she can't revel in her own moral superiority. As for all those juvenile pipe dreams of serving mankind and speaking truth to power—well, the less said about them, the better.

Of late, Viridiana feels like a character trapped in a George Saunders short story. It's hard not to notice the theme park character of the modern

university campus: intellectual crowd control at the intake gates, carnies barking flogging customized “majors,” t-shirt and souvenir vendors, internship thrill rides promising accelerated plunges into employment, long queues for the most popular *son et lumière* entertainers, sports extravaganzas, science lite served up in postmodern special effects pavilions pitched toward crowds jaded by video games, package tours through the Tunnel of Love mislabeled as study semesters abroad, dorm/hotel package deals, binge drinking, outsourced functions to low-wage contractors, and academic convocations as choreographed as any performance in Tomorrowland. Sometimes Viridiana wonders for whom or for what her university really exists. But then a thought brings her up short: Is she beginning to sound like some creepy curmudgeon from another planet? Or maybe Marshall Sahlins (2009)? She looks at herself in the mirror and winces. So what if you have to coddle the customer a little? And anyway, who really cares about such wintertime discontents when there’s an economic crisis brewing?

It has been commonplace in certain circles to bemoan the troubled relationship of science to the state, and by this, Viridiana doesn’t mean the isolated hot-button issue of stem-cell research (not her field), but rather the demonstrated willingness by state organs to participate more directly in defining what would count as “high-quality research.”² Of course, when the time comes to gather up the fruits of the projects they have funded, the patron of research has always enjoyed the option to take it or leave it; what seems different of late is that there exists a whole parallel universe of think tanks and shadowy “experts” having little to do with the kind of academic science Viridiana had been acclimatized to expect in her youth. The state has apparently become much more willing to dispense with internal peer quality controls, hastening to intervene in the early stages of dissemination of results, purchasing their preferred party line neatly packaged from some think tank, suppress or otherwise discourage that which is inconvenient or strays off-message, while cherry-picking whatever seems expedient to tout as proven knowledge. Whenever the truth is inconvenient, science patrons now seem inclined to shoot the messenger. Viridiana recalls reading a front-page article in the *New York Times* about NASA trying to silence one of its own on global warming; there are a thousand smaller acts of overt censorship that never make it into the newspapers, including one she has witnessed herself at her home institution.³

You could blame it all on the nanny state, but Viridiana has to suppress the darker misgiving that her own peers in the world of science aren’t much better. She knows that money has always been needed to make science, but whoever anticipated that her colleagues would come to take it as axiomatic that science was just another way to make money? She picks up *American Scientist* off the

department coffee table and flips to an article that suggests that the glitzy new way to fund science and garner public support is to have scientists float their research proposals on something like a stock exchange, with the affluent public placing bets on the kinds of theories they have gut instincts will pan out in the future (Schneider 2008). At first she suspects it must be a joke, but it is not April 1; then she sees Google was one of the sponsors pushing the idea. Who else? After all, isn’t their mantra “Nobody is as smart as everybody?” (Shapin 2008b, 194).

Viridiana has always known in her bones that the pursuit of knowledge is wayward and easily deflected, potentially suffering all kinds of deformations and biases because of the way it is prosecuted, framed, generated, and conveyed. Those concerns have long been the province of academic disciplinary scrutiny, from philosophy to psychology to sociology of knowledge. Sometimes, over in the philosophy department, epistemology seems to have been discussed as if it were merely a matter of isolated solipsistic individuals hewing doggedly to the rules of deductive and inductive inference; yet a closer look always reveals that the “social” context has continually been situated at the core of many supposedly abstract epistemological disputes.⁴ Indeed, the proper relationship of science to the state was sometimes deemed to be the most significant problem in coming to understand the conditions under which science could make progress. But Viridiana is loath to admit that she doesn’t know or much care about all that, or indeed about politics in general. Of course she votes for Democrats in American elections and considers herself a liberal in the awkward American sense, calls herself a feminist, and used to ridicule George Bush the Lesser along with the rest of her colleagues, but the truth is she has never thought very long or hard about the implications of cultural, religious, or economic movements for her science, her university, or her future. She once heard a friend say that science should be more democratic, but she hasn’t a clue what that would entail. Curiously for one so intelligent, she more or less subscribes to the sound bite that a conservative is a troglodyte who grunts: government bad, market good. Yet, it must be admitted, the *New York Times* has hardly been superior in that regard, in her experience.

At a dean’s reception, Viridiana became acquainted with a couple of faculty members at her university who consider themselves representatives of a field called “science studies,” which seemed to her like it ought to have some salient things to say about the climacteric she feels she is living through. Out of curiosity, she went to hear one or two of their more famous representatives at a conference held at the university—people like Bruno Latour, Steve Woolgar, Henry Etzkowitz, and Steve Shapin—but was distressed to find that when they weren’t indulging in opaque jargon about “actants,” “performativity,”

“constructivism versus essentialism,” “triple helix,” “Mode 1/Mode 2,” and moral economies, they ended up sounding just like some of the more cynical deans she was forced to deal with in the course of her committee duties. Those savants seemed to suggest that shamelessly flogging yourself and your ideas was the pinnacle of strategic wisdom in science, and they tended to confuse “excellence” (whatever that was) with the crudest sorts of proxy measures for scientific output.⁵ In her funk, Viridiana could barely tell them apart from some of her business school colleagues at the university who kept extolling the “marketplace of ideas” to the skies. Viridiana, by now inured to disappointment, chalked it all up to the pernicious effects of postmodernism.⁶

Consequently, Viridiana suspects that contemporary scholars have had little useful to say about all these changes that nag at her. But her policy of benign neglect doesn’t stop there. She knows hardly anyone cares anymore about the trials and tribulations of college professors, disdained as a pampered and privileged bunch by *hoi polloi*. Maybe we are part of the problem, she mopes. Nonetheless, there is a needling suspicion that the changes perturbing Viridiana might also have consequences for the wider world: What happens to the average citizen when knowledge becomes reengineered, appropriated, and shrink-wrapped under the new regime? And to whom will they turn to when they want a dissenting analysis? (Okay—that possibility is pretty remote.) Another think-tank doppelganger wielding a cardboard “opposing” position in a staged faux debate? Viridiana is sick to death of pundits sneering at academic tenure as the last refuge of lazy charlatans; she notes no one ever says that about lawyers or accountants when they make partner in their firms, or about upper management with their golden parachutes, or about the bailed-out New York bankers or the occupants of sinecures at the American Enterprise Institute. But, conflicted, she simultaneously feels guilty about her own tenure. She knows her department has kept its costs down by using PhD temp labor to an ever-increasing degree; however, her colleagues tend to avoid broaching the subject, the same way they evade talking about their Salvadorian nannies.

Prophets of progress once exclaimed that we were living in a shiny new information society and that the Internet was going to democratize everything under the sun because information just wants to be free; the economic crisis of 2008 seems to have muffled a lot of that boosterism. Now Viridiana can hardly be bothered to glance at blogs she used to enjoy. How did something that once bore so much promise become so trivial and clogged with noise? Viridiana, a natural scientist, harbors a soft spot for technological determinism as a force for progress; but in her gut she feels that the “information economy” resembles yet another facet of the regime that has Disneyfied her university and made it harder to initiate and conduct serious long-term

fundamental research. After the Hwang Woo-Suk debacle (involving fabricated research results), there was a brief tendency to question the quality and motives of some of the most august science journals; Viridiana herself knows of a case of ghost authorship, but has no idea how prevalent it is.⁷ And what were those news reports concerning the American Chemical Society suppressing investigative reporting about the chemical industry and lobbying against open-source journals?⁸ Every time she has had to fill out a ten-page materials transfer agreement form just to get a reagent from a friend at MIT, her faith in progress flags a little bit more. If the Internet has been a force for liberation, Viridiana has missed out on it. To her, it seems most people have become much more vulnerable to information manipulation in the last decade—witness the run-up to the Iraq war, the bipolar swings of opinion about medical research, or the notion bandied about in the presidential election of 2008 that the United States can drill its way out of an oil crisis. Knowledge may be power, but the Enlightenment conviction that knowledge is emancipatory, so crucial to her own upbringing, has begun to leave a bad taste. The worst part of all of this is that Viridiana can’t let her students catch a glimmer of her doubts.

The Road to Microserfdom

Is Viridiana Jones to blame for her befuddlement concerning what has happened to her profession and her university over the course of her lifetime? By and large, I would be inclined to say no. Existing analyses of the commercialization of science and the transformation of the university on the part of economists, philosophers, sociologists, and science studies scholars have left much to be desired, to put it politely.⁹ It is drudgery to try and cut through the contemporary fog surrounding the question of the health of contemporary science. One of the stranger recent developments has been the performance of a small number of econometric exercises by economists to *quantify* the extent of harm done to science by certain aspects of the modern commercial regime.¹⁰ The barely concealed presumption that economists just naturally come equipped with a good feel for how science works, and that the marginal costs of the minor inconveniences of privatization could be captured by before-and-after citation analyses of patent-publication pairs, is a symptom of just how far the ability to think clearly about the issues has atrophied. The capacity to conceptualize solid bases of comparison between the two qualitatively different historical science regimes has been even rarer than a clear explanation of a collateralized debt obligation.

Various luminaries have pointed to this problem, including the current president of Harvard:

As the world indulged in a bubble of false prosperity and excessive materialism, should universities have made greater efforts to expose the patterns of risk and denial? Should universities have presented a firmer counterweight to economic irresponsibility? Have universities become captive to the immediate and worldly purposes they serve? Has the market model become the fundamental and defining identity of higher education? (Faust 2009)

What is striking is that wherever such questions are broached, pointers toward the answers to these questions have been notable in their absence.

It is not as though there were some short pithy syllabus one could assign to Viridiana, which would force her to rethink her malaise from first principles. But beyond skewering scapegoats, there are some serious *conceptual* reasons why responses to the current crisis of knowledge production and dissemination have been so disappointing. Since 1980, we have lived through a period of profound transformation in the social practices, institutions, rules, and formats of the generation and conveyance of information, one that has slowly but inexorably transformed the very meaning of knowledge and the place it occupies in the modern polity. Viridiana's gut instinct that she is stranded in an alien landscape compared to that of the one she inhabited in her youth is basically correct; nonetheless, she needs a systematic survey of the new commercialized university landscape, not just a pat on the head and a couple of Valium.

Viridiana would undoubtedly wish to be told the *theory* of what is going on, but, indeed, there's the rub. In all likelihood, anyone poised conveniently ready and willing to supply an abstract theory (like the ones provided by some economists and legal theorists who are later cited) would almost certainly be misrepresenting the situation, because he or she would omit whole swaths of key recent events that, taken together, have brought us to the present impasse. The problem with providing a short précis of the modern predicament as a prelude to understanding the modern politics of knowledge is that the trends do not all uniformly point in the same direction. Depending on your standpoint, some developments might herald a new dawn of self-organized cooperative inquiry, the invisible college finally made manifest; others may portend a grim, brave new world of knowledge haves and have-nots, a road to microserfdom where every trope and concept comes indelibly attached with an electronic price tag, and every infobit is monitored from server to eyeball. Of course, there is the more immediate problem that most analysts can't or won't see beyond their own parochial concerns: Technogeeks only see the nifty technology, scientists only see the status of their own science, lawyers only see the law, economists only see market signals, philosophers only see epistemology, sociologists only see networks, NGOs only see

globalization, technology transfer officers only see the color of money, and humanists only see the creeping demise of their own disciplines (Newfield 2003, 2008; Sahlins 2009). The Big Picture inevitably fades into the babel.

While the "correct" interpretation of events won't be settled in our lifetime, the service we might offer Viridiana is (1) to briefly enumerate the relevant range of economic and social phenomena that should factor into any assessment of the modern politics of knowledge and (2) to begin to describe the ways in which a particular modern theory of political economy—that is, the widely misunderstood doctrine of neoliberalism—has colored almost every discussion of the fate of the university and the "efficient organization of science" over the last three decades. This will serve to usher us into a series of empirical meditations on the state of contemporary science in the rest of this volume. Given the nature of the problems and their urgency, we can only hope that at the end of our survey Viridiana will be in a better position to make up her mind on the sources and implications of her disquiet.

One major lesson I hope to convey is the extent to which social and economic events turn out to be inseparable from the history of ideas put to use in order to make sense of them. In this book, I argue that much of the modern commercialization of science and commodification of the university has followed a script promulgated by neoliberal thinkers.¹¹ This was not due to omnipotent puppetmasters pulling the strings behind the proscenium, but rather because of a more subtle convergence of circumstances. The disdain of philosophers for the concrete, of the economist for the polysemous, the scientist for history, and the science policy maven for political theory will turn out to be a big part of the reason for the modern success of the neoliberal worldview. Neoliberalism, we shall discover, has managed to provide a grand integrative narrative, whereas all of the individual professions have seemingly absolved themselves of any responsibility to render the totality of academic life coherent. In this section, I will lay out a census of the six big trends that have shaped the modern regime of science management and funding in recent decades as it bears on the sciences. In the following section I provide a rudimentary primer in the theory of neoliberalism for those hesitant to plunge directly into the key texts. The eventual upshot will be to demonstrate that there can be no return to what many fondly imagine as the Golden Age of Science during the Cold War.

The Deindustrialization of the West, and the Putative Emergence of a "New Knowledge Economy"

Although it is difficult to point to any single phenomenon as paramount in our slate of late twentieth-century watersheds in science, it would be foolish to avoid the most significant economic development of the last quarter-century, namely, the loss of manufacturing base in most of the post-World War II

they see it, but in that respect they are little different from the phalanx of avid gamblers found in any downmarket casino, convinced that they possess a foolproof system that can beat the house. You can't "efficiently" gamble on an optimal portfolio in a Pareto-Levy world, and you cannot economize on information in science.

The New Production of Ignorance

The Dirty Secret of the New Knowledge Economy

[T]here has fallen to the universities a unique, indispensable and capital function in the intellectual and spiritual life of a modern society.

—WALTER LIPPMANN, 1966

Dave, my mind is going. I can feel it.

Let us rendezvous once more with Viridiana Jones in our journey, before it draws to a close. While she has repeatedly experienced the shock of recognition while reading this book, there is no denying she feels that it has gone overboard in some respects. Can the university have really grown so irrational and self-destructive over her lifetime? Why has it enthusiastically bought in to the biotech start-up model of research when that sector as a whole loses money, is insured to more than 80 percent failure rates, and has yet to produce a serious track record of new and innovative cures? Has it really elevated patents a prime indicator of the worth of knowledge (and stipulated it a criterion for tenure in some fields) when the quality of patents granted has simultaneously been degraded? Has it really erected all sorts of barriers to productive research, like material transfer agreements (MTAs) and nondisclosure agreements and preemptive ownership of copyrights, to such an extent that gross aggregate measures of science conducted, such as (suitably adjusted) numbers of papers published in core journals by researchers in the United States, have fallen over the last decade? Have scientists really turned a blind eye to clear portents of intellectual corruption? Have the biosciences really permitted scholarly journals to become quagmires of ghost authorship, ghost journals, and hidden conflicts of interest? Have universities invested all their hopes in their technology transfer offices, when they almost never break even, much less make serious money?¹ Why are universities encouraging a few faculty to become personally rich in corporate start-ups at the expense of aggregate tenured employment in universities at large? Viridiana can't quite bring herself to concede that the push to "commercialize the university" has been one of the biggest Ponzi schemes this side of Bernie Madoff and Allen Stanford.

Yet, it is not simply hand jive. She now sees that many of Walter Lippmann's progeny² no longer believe in the "special role" for the university that was a

prime motive for her becoming an academic in the first place. Viridiana feels she has a somewhat better grasp now on some of the things that were nagging away at the margins of her consciousness, but somehow, in the end, it hasn't really helped her mood. Like most of her American compatriots, she wants every trenchant critique to end with an identikit list of ten things we can do to fix it, or an ambitious program of "reforms" that assuage our feelings of political helplessness. She has little patience with Big Picture political theory. And anyway, doesn't a sad air of nostalgia hang like a pall over this book? Time and again have I not written as though the Cold War was, if not a Golden Age of Science, at least a time when the median scientist knew that his or her small contribution was part and parcel of a bigger noble quest?³

Just when Viridiana was feeling most irritated with this book, she happens to stumble across a paragraph in a book review in the *New Republic*:

Last year, I published a book describing how right-wing economics had come to dominate American politics. Whenever you write a book about something bad that's happening, you get asked for the solution. I'd shrug and admit that I didn't have one. The questioner would usually look slightly disappointed, so I'd add that nothing lasts forever, and eventually something will come along to change things. The financial crisis might be that something. (Chait 2008)

In a flash of insight, Viridiana gets the parallels with the present volume: It will probably take a system crash before the leaders of today's universities will admit the current wave of commercialized knowledge production has proven unsustainable on its own terms. Until then, bureaucrats will strategically make use of the economic crisis in order to redouble their efforts to privatize the university (Kelderman 2009; Gray 2009). What is a scientist to do in the current predicament? In the meantime, wouldn't there be some merit in drawing up a systematic bill of indictments of the present regime of science management, just as part of an attempt to get clearer on the warning signs, in preparation for what promises to be big changes coming down the pike? Just wait till Chinese scientists start being portrayed in the world press as the intellectual *avant-garde* in research areas deemed "hot": will neoliberals change their tune then? Or perhaps, when a Chinese firm snaps up Thomson Reuters, initially to better control financial reporting, but then as an afterthought to skew bibliometric measures of science more in their own direction? The future, as always, is as yet unclear.

Upon further reflection, Viridiana begins to comprehend why natural scientists do need to get a better grip on neoliberalism as a prevailing theory of the nature of knowledge. When naive but well-meaning crusaders come

clutching their "reforms" to "fix" an isolated problem with science, be it the creative commons license or proposals to fund scientific research programs through elaborate prize competitions, be they disciplinary codes of ethics or legislation to append some compromise version of a "research exemption" to contemporary patents, they play right into the hands of their neoliberal opponents. For the neoliberals don't make piecemeal proposals around the edges to "fix" what they regard as deficient aspects of science: They come equipped with an ambitious and comprehensive vision of how to reengineer markets economywide to better conform to their ideal vision of the marketplace of ideas. They reflexively romance the market and revile the regulatory agencies. This has taken place within a phalanx of think tanks engineered to translate that vision into manageable chunks: the Shelby Amendment, the Uruguay Round of the GATT negotiations, the new U.S. cabinet-level post to further strengthen IP control, Supreme Court rulings like *Daubert* and *LabCorp*, the statutory extension of federal student loans to those enrolled in distance-education schools like the University of Phoenix, the bringing of trade in educational services under the aegis of the WTO, and so on. Neoliberals love to dazzle with ditsy science-fiction scenarios, like recent claims that the discovery of physical laws can be completely computer automated (Keim 2009). They are the ones who are upbeat, promising a shiny new world of whiz-bang science right around the corner. The changes they extol are big and bold. They know how to market ideas. The neoliberals are not out to "save" the university: It has been in their opinion a major citadel of resistance to their economic crusades in the past and therefore must be disciplined, not saved. If some fail, it will be no tragedy, wrote Milton Friedman:

Businessmen, who may be bankrupted if they refuse to face facts, are one of the few groups that develop the habit of doing so. That is why, I have discovered repeatedly, the successful businessman is more open-minded to new ideas . . . than the academic intellectual who prides himself on his alleged independence of thought . . . Self interest has been reinforced by the herdlike instinct of so many intellectuals, by their sheltered environments, in which they talk only to one another. (1978, xi, xiii)

The neoliberals have therefore remained three or more steps ahead of sententious defenders of open science, with the latter always playing catch-up because they didn't understand the nature of the game that they were caught up in.

There is in fact a concise theoretical point that runs like a red thread throughout the chapters of this volume, and the time has come to make it explicit. Not only has each chapter been constructed to introduce detailed evidence that the neoliberal approach to the marketplace of ideas and its

embodiment in the regime of globalized privatization is flawed, but indeed each has been carefully selected to illustrate precisely where the flaw resides. The Achilles heel of neoliberalism is that it gets the functions of markets in society all wrong: Markets are not only limited and intermittently unreliable information processors; they can equally well be deployed to produce *ignorance*. As George Stigler admitted, "The marketplace rewards the tastes of consumers . . . whether the tastes are elevated or depraved. It is unfair to criticize the marketplace for fulfilling those desires" (1963, 90). Markets *do* respond to the demands and wishes of those with resources, but the upshot may just as well be the willful intentional production of ignorance for many target groups.

The current modern regime of science organization in many respects is not a new knowledge economy as much as it is an engine of agnogenesis. What are the real consequences of the materials transfer agreement, the modern patent, the contract research organization, for-profit ghost management of publications, the sound science movement, the economics of information, or for that matter, even most of the science policy literature? Do they exist to augment and enhance human understanding, or are they instead bent to rather murkier ends, leaving us all less wise and more confused than at the outset? I can just picture Viridiana (and maybe you, patient reader) starting to back away in horror, wondering just how far this paranoid rant might go. But I would implore Viridiana to provisionally entertain the notion that here resides the blind spot of all previous incarnations of the economics of science, the maggot deep within the fruit. The primal presumption of the neoliberal concept of the marketplace of ideas is that if information is a commodity, then it must necessarily be a "good"; some of it is lower quality than the rest, to be sure, but even if only of infinitesimal worth, more is always better, intones the economist. Just as there are no "negative" prices, there is putatively no such thing as negative information. No one would ever voluntarily pay to become dumb and dumber, would they? Ignorance is therefore like a vast vacuum, the infinite empty space surrounding our bustling little planet, at least for the modern neoclassical economist; any infobit introduced into it can only diminish it, if only to some tiny extent. There is a necessary arrow of time, because people only strive in one direction. Capital accumulation can only be a story of human augmentation. Retrogression, at least for most economists, is not an option. This is such a dowdy simple point, so foundational to the economics profession that it goes unspoken, that it takes a lot of effort to perceive it at the heart of a pervasive worldview and even greater effort to disabuse oneself of the notion.

Initially, I had planned to compose a chapter on the various ways in which formal economic theory treated information,⁴ but now I have come to ap-

preciate there is no need for such a technical exercise in this book. Not only would it bore Viridiana silly, but it would also distract her from comprehension of the reasons why the plethora of minor high-tech "reforms" so prevalent in scientists' commentaries on the current regime—increasing mandatory "disclosure" to offset conflicts of interest (Brainard 2008; Slaughter et al. 2009), a Creative Commons amendment of IP to include "copyleft" (Boyle 2008), Web-based open source approaches to biological experiment, prize competitions run through for-profit Web entities like www.innocentive.com (Dean 2008), a Sarbanes-Oxley Bill for science (Michaels 2008), mandates for public registries of clinical drug trials, wiki-based collaborations—none even begin to address the real problem. Techno-enthusiasts like Yochai Benkler (2006), however well intentioned, merely serve to distract attention from the fundamental predicament of modern science. Contrary to what some of my young friends have said, it is not some misbegotten exercise in nostalgia to trace the current degradation of the American science base back to its historical roots in specific political and economic initiatives, and then carefully gauge the extent of the rot over time relative to the previous regime.

America is crowded with a surfeit of overconfident reformers who have little comprehension of what they seek to reform. Whatever their avowed politics, they are inspired by the widespread conviction in the regime of globalized privatization that if you bend knowledge generation to commercial discipline and market organization it will inevitably result in a surplus of knowledge, and, furthermore, "competition" will promptly direct it to its most efficient users. In this neoliberal version of the world, there is simply no way that knowledge could become clotted or otherwise diminished or corrupted by having a price attached.

One discovers this thought pattern in the most curious and unexpected of places, such as in science studies and the history of science, where the median individual would be personally offended if you suggested that they were mere conduits for neoliberal folk wisdom:

We also are chipping away at the public image, indeed the self-conception, of "intellectuals" and scientists, who typically have argued in universals. These individuals speak and write of what should be valid for everyone, of what is true or just or good. Intellectual history and history of science aspire to undermine these universals by recovering their specificity and locality. (Porter 2009, 642)

This could just have easily been written by Hayek himself; all one needs to add is an explicit appeal to the market test to supersede the discredited universals.

Strangely enough, there currently abides a pop literature that thinks it detects a similar sort of problem in the American body politic, but it misses out on the significance of the means of production of ignorance. Of late, there have been a spate of books with titles like *The Age of American Unreason* (Jacoby 2008), *The Dumbest Generation* (Bauerlein 2008), *The Assault on Reason* (Gore 2007), *The Cult of the Amateur* (Keen 2007), *Does the Truth Matter?* (Geenens and Tinnevelt 2009), *Empire of Illusion* (Hedges 2009), and *Just How Stupid Are We?* (Schenckman 2008). Most of them aren't very insightful. It is easy to dismiss them out of hand as the hyperventilation of the flabby remnants of the 1960s generation; blogs are full of these types of accusations. What better topic upon which to bloviate armed with little or no knowledge than the proposition that people around you are getting dumber, no? And yet there lurks a different and darker possibility, that these philippics are in fact symptomatic of something bubbling up that's a little unusual, if not quite new, in the contemporary knowledge economy. The celebration of Wikipedia is one of its symptoms (Mirowski and Plehwe 2009, 418–428; Carr 2010). Maybe the spread of home schooling, the dissolution of libraries, the strangulation of the sophisticated newspaper, and the Googlization of research have had insensible yet cumulative effects upon the processes of science. Just suppose we are onto something when we suspect that the neoliberal “reforms” of American science and American society over the last two decades have actually fostered the corruption of knowledge output. Set that alongside the parallel phenomenon of the neoliberal “reforms” of both the primary (Apple 2005, 2006) and university educational systems and then a dumbing-down of the average American over the same time frame stops being a scenario pitched beyond the prudent realm of possibility.⁵ Here again, Viridiana's creeping uneasiness may indicate something more beyond her own personal misfortunes.

The possibility of the very corruption of our attention spans has occurred to more than a few people of late. Nicholas Carr, in an entertaining article in *The Atlantic* (2008), and in his book *The Shallows* (2010), has suggested that the Internet has a downside, as well as its being a great boon to all of us who used to have to devote a trip to the library every time we wanted to look up a citation. As he writes, certain manifestations of ease in supply of the stuff of thought may also come to shape the process of thought. “My mind now expects to take in information the way the Net distributes it: in a swiftly moving stream of particles . . . I can't read *War and Peace* anymore. I've lost the ability to do that. Even a blog post of more than three or four paragraphs is too much to absorb. I skim it” (2008, 56). The temptation might be to retort that perhaps those weak-willed humanists may fall prey to louché practices, but that would never happen to serious scientists. Yet, in *Science* of all places, there is evidence to the contrary:

Using a database of 34 million articles, their citations (1945 to 2005), and online availability (1998 to 2005) . . . as more journal issues came online, the articles referenced tended to be more recent, fewer journals and articles were cited, and more of those citations were to fewer journals and articles . . . the number of years of commercial availability [of a journal online] appears to significantly increase concentration of citations to fewer articles within a journal . . . These changes likely mean that the shift from browsing in print to searching online facilitates avoidance of older and less relevant literature . . . If online researchers can more easily find prevailing opinion, they are more likely to follow it, leading to more citations referencing fewer articles. (Evans 2008, 395, 398)

While not exactly the precise same effect evoked by Carr, there is again the phenomenon that, contrary to the usual construction of the marketplace of ideas, augmented choice through increased access actually leads to a *narrowing* of the range and quality of the knowledge shared; explicit commercialization of provision of scientific publication only exacerbates the effect. Both Carr and Evans are tempted to attribute this to a form of technological determinism, indicting something specifically about computers as addling our curiosity, but, of course, it may instead actually be symptomatic of the larger set of neoliberal changes to society I have enumerated in this book. Distressing as it may seem, people may just be getting measurably dumber or, at minimum, less willing to engage with novel complex arguments.⁶

Luckily, I need not overdo playing the part of Cassandra to Viridiana's Laodice, as it seems there are the beginnings of a literature that takes seriously the proposition that various social structures can be dedicated to the *production and promotion of ignorance*, and that if there happens to emerge a flourishing market for ignorance, then the production of knowledge will take a beating. I shall wind things up by spelling out the implications of this proposition in this chapter, but before that, I want to highlight the work of the historian of science Robert Proctor as proposing the study of the production of ignorance under the rubric of “agnotology” (in Proctor and Scheibinger 2008). It is good to have a term close to hand to refer to the active production, maintenance, and manipulation of ignorance, because it will prove necessary to distinguish that phenomenon from two other ancillary connotations of the term: (1) the naive state of nonknowledge, namely, the “vacuum theory” of the economists and (2) the state of selective inattention due to fundamental limitations in our cognitive makeup. Both obviously exist, but they are a part of our individual epistemic predicament; yet precisely because they are constitutive of each of us as humans, they are *not* the subject of the historical case to be made in this chapter.

The capacity to differentiate the three versions of “ignorance” will be a propaedeutic for everything that follows in this chapter. It will turn out that many commentators muddy the modern production of ignorance by shifting indiscriminately between three different connotations. For instance, it is undeniable that the more research we do, the more we discover that we do not know. This is just *Definition 1 (vacuum theory)* and is a perfectly healthy phenomenon, a prophylactic for the besetting sin of hubris so common among intellectuals. Likewise, the exponential growth of scientific publication renders it impossible to aspire to the status of true polymath and stay on top of everything. This is *Definition 2 (bounded rationality)* and is just one important aspect of our cognitive predicament, that attention and memory are limited. Of course, we are impelled to develop rules of thumb (and computer prosthetics) in order to navigate our way through a world far richer than our paltry abilities to grasp it. Who would argue otherwise? Yet, beyond those two phenomena, when whole sets of institutions are deliberately bent to sow doubt, to spew out a fog of contrarian results, to reassure the uneducated that the truth is whatever they want it to be,⁷ to treat the unequal distribution of knowledge as the natural dictate of freedom of choice and simultaneously to praise the innate “wisdom of crowds,” then a surfeit of ignorance is the inevitable intentional consequence. This is *Definition 3, the manufacture of ignorance*. As I shall argue, it is precisely this third kind of ignorance that neoliberals have theorized and promoted. While neoliberals certainly didn’t invent it, they are its most ardent contemporary boosters. Yet in an ironic way, seriously coming to terms with Definition 3 turns out to be also the best argument against subscribing to the neoliberal worldview. From here on out, Definition 3 will be our touchstone referent of any subsequent use of the term “ignorance” with regard to the commercialization of science.

The Neoliberal Will to Ignorance

The roles and functions of ignorance in theories of society have gotten neglected in the rush to praise the new knowledge economy.⁸ An earlier generation of sociologists and anthropologists were much more willing to entertain the notion that ignorance (Definition 3) could actually perform certain social functions and that, from the vantage point of certain actors, it was worth the effort to foster and sustain. Émile Durkheim, for instance, argued that solidarity and cohesiveness of groups were better brought about in an indirect fashion and that ignorance therefore was a lubricant that might facilitate integration of individuals into communal activities. More recently, McGoe (2007) has argued that certain bureaucratic organizations, such as regulatory

agencies, might find it logical to feign ignorance and conduct one faulty inquiry after another in order to serve implicit unspoken interests. Without either endorsing or rejecting such notions, it is far more important for our current argument to understand how key neoliberals have approached the issue of ignorance. And the premier representative of a theoretically sophisticated neoliberal theorist is Friedrich Hayek.

Hayek is noteworthy in that he placed ignorance at the very center of his political theory: “The case for individual freedom rests chiefly on the recognition of the inevitable ignorance of us all” (1960, 29). Most commentators tend to interpret this as an appeal to ignorance (Definition 1, and possibly 2), but I think they need to expand their horizons. The distinction begins to bite when we take note that Hayek harbored a relatively low opinion of the role of education and discussion in the process of learning, and notoriously, an even lower opinion of the powers of ratiocination of those he disparaged as “the intellectuals.” In this, he diverged dramatically from the opinions of one of the early heroes of the neoliberal movement in the 1930s, Walter Lippmann (recall the 1966 quote that prefaces this chapter). This, of course, was the mirror image of Hayek’s belief in the Market as a superior information processor:

Nor is the process of forming majority opinion entirely, or even chiefly, a matter of discussion, as the overintellectualized conception would have it . . . Though discussion is essential, it is not the main process by which people learn. Their views and desires are formed by individuals acting according to their own designs . . . It is because we normally do not know who knows best that we leave the decision to a process we do not control. (Hayek 1960, 110)

Because I have already surveyed the general character of neoliberal doctrine and have scrutinized it in detail elsewhere (Mirowski and Plehwe 2009), for the nonce I more intently focus on the supposed nature of the learning process that “we do not control” and its relationship to ignorance. For Hayek and other advocates of “emergent” social cognition, true rational thought is impersonal but can only occur between and beyond the individual agents who putatively do the thinking. As Christian Arnsperger so aptly put it, for Hayek, “rational judgment can only be uttered by a Great Nobody” (2008, 90). That may seem odd in someone superficially tagged as a methodological individualist supporter of freedom, but it just goes to show just how far ignorance (Definition 3) has become ingrained in American political discourse. The trick lies in comprehending how Hayek could harbor such a jaundiced view of the average individual, while simultaneously elevating “knowledge” to pride of place in the economic pantheon:

Probably it is true enough that the great majority are rarely capable of thinking independently, that on most questions they accept views which they find ready-made, and that they will be equally content if born or coaxed into one set of beliefs or another. In any society freedom of thought will probably be of direct significance only for a small minority. (Hayek 1944, 164)

For Hayek, "Knowledge is perhaps the chief good that can be had at a price" (1960, 376), but it is difficult to engross and accumulate, because it "never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess" (Hayek 1948, 77). You might think this would easily be handled by delegating its collection and winnowing to some middlemen, say to academic experts, but you would be mistaken, according to Hayek. He takes the position that all human personal abilities to evaluate the knowledge commodity are weak, at best. And this is not a matter of differential capacities or distributions of innate intelligence: "The difference between the knowledge that the wisest and that which the most ignorant individual can deliberately employ is comparatively insignificant" (ibid., 30). Experts are roundly disparaged by Hayek, and he accuses them of essentially serving as little more than apologists for whomever employs them.⁹ On the face of it, it thus seems somewhat ironic that Hayek would be touted as the premier theorist of the new knowledge economy. But the irony dissolves once we realize that central to neoliberalism is a core conviction that the Market really does know better than any one of us what is good for ourselves and for society, and that includes the optimal allocation of ignorance within the populace: "There is not much reason to believe that, if at any one time the best knowledge which some possess were made available to all, the result would be a much better society. *Knowledge and ignorance are relative concepts.*"¹⁰

What purportedly rescues Hayek's system from descending into a relativist quagmire is the precept that the Market does the thinking for us that we cannot. The real danger to humanity resides in the character who mistakenly believes he can think for himself:

It was men's submission to the impersonal forces of the market that in the past has made possible the growth of civilization . . . It does not matter whether men in the past did submit from beliefs which some now regard as superstition . . . The refusal to yield to forces which we neither understand nor can recognize as the conscious decisions of an intelligent being is the product of an incomplete and therefore erroneous rationalism. It is incomplete because it fails to comprehend that

co-ordination of the multifarious individual efforts in a complex society must take account of facts no individual can completely survey. And it also fails to see that . . . the only alternative to submission to the impersonal and seemingly irrational forces of the market is submission to an equally uncontrollable and therefore arbitrary power of other men. (Hayek 1944, 204–205)

There you have Hobson's choice: either the abject embrace of ignorance or abject capitulation to slavery. The Third Way of the nurturing and promotion of individual wisdom is a sorry illusion.¹¹ The Market works because it fosters cooperation without dialogue; it works because the values it promotes are noncognitive (O'Neill 2003). The job of education for neoliberals like Hayek is not so much to convey knowledge per se as it is to foster passive acceptance in *hoi polloi* toward the infinite wisdom of the Market: "General education is not solely, and perhaps not even mainly, a matter of the communication of knowledge. There is a need for certain common standards of values" (1960, 377). Interestingly, science is explicitly treated in the same fashion: If you were to become an apprentice scientist, you would learn deference and the correct attitudes toward the enterprise, rather than facts and theories (ibid., 112). Of course, Hayek rarely refers to "the Market" as I do here, preferring to refer instead to euphemistic concepts like "higher, supra-individual wisdom" of "the products of spontaneous social growth" (110). Formal political processes where citizens hash out their differences and try to convince one another are uniformly deemed inferior to these "spontaneous processes," wherein, it must be noted, insight seems to descend out of the ether to inhabit individual brains like the tongues of the Holy Ghost: This constitutes one major source of the neoliberal hostility to democratic governments. But the quasi-economistic language testifies that the nature of the epiphany is not otherworldly but more distinctly mundane and pecuniary: "Civilization begins when the individual in pursuit of his ends can make use of more knowledge than he himself has acquired and when he can transcend the boundaries of his ignorance by profiting from knowledge that he does not himself possess" (22).

This language of "use and profit from knowledge" you don't possess might seem a bit mysterious until we unpack its implications for ignorance (Definition 3). I second the analysis of Louis Schneider (1962, 498) that Hayek should be read as one of a long line of social theorists who praise the unanticipated and unintended consequences of social action as promoting the public interest, but who takes it one crucial step further by insisting upon the indispensable role of ignorance in guaranteeing that the greater good is served. For Hayek, the conscious attempt to conceive of the nature

of public interest is the ultimate hubris, and to concoct stratagems to achieve it is to fall into Original Sin. True organic solidarity can only be obtained when people believe (correctly or not) they are only following their own selfish idiosyncratic ends, or perhaps don't have any clear idea at all of what they are doing, when in fact they are busily (re-)producing beneficent evolutionary regularities beyond their ken and imagination. Thus *ignorance helps promote social order*, or as Hayek said, "knowledge and ignorance are relative concepts."

I have heard the objection that this characterization is tendentious because it hangs the peculiarities of all of neoliberalism on the idiosyncratic writings of one man. But it so happens that many of the early Mont Pelerin Society members took very similar positions on the marketplace of ideas, some even within the same rough time frame. I have already quoted Milton Friedman disparaging academics. One of my own personal favorites is George Stigler's *The Intellectual and the Marketplace* (1963). Therein he argued that businessmen were better than academics or government agencies at promoting academic freedom and diversity of thought. Intellectual talent works best when it is gathered together in like-minded hothouses, says Stigler, but public education tends to disperse talent, subjecting it to entropic decay. Truth and progress, by their very nature, can only ever be possessed by a small elite, and the marketplace of ideas can serve that function just fine. The masses are optimally stupid because of a rational cost-benefit calculation on their part: "The large mass of the public does not find it economically worthwhile to become well acquainted with the effects of policies which have small harmful effects on each beneficiary"¹²; "I cannot believe any amount of economic training could wholly eliminate the instinctive dislike for a system of organizing economic life through the search for profits" (1963, 95). Instead, intellectual entrepreneurs in privately funded think tanks/universities will churn out the knowledge that elites want and need, perhaps even before they fully realize it; when elites see evidence of the right stuff, they will gladly pony up the funds to support it. "Inquiry has been most free in the college whose trustees are a group of top quality leaders of the marketplace" (87). The marketplace of ideas turns out to be an uncompromisingly closed elite phenomenon, with economic elites funding elite scientists, and the rest of the world safely ensconced in bone ignorance. This was not a doctrine intended just for economics but for all of science. As Stigler said in an address to the Mont Pelerin Society,

Affairs of Science, and intellectual life generally, are not to be conducted on democratic procedures. One cannot establish a mathematical theorem by a vote, even a vote of mathematicians. [Therefore] an elite

must emerge and instill higher standards than the public or the profession instinctively desire.¹³

Stigler was awarded the National Medal of Science in 1987. Maybe the National Science Foundation itself has something to answer for in the rise of neoliberal agnotology.

There are at least two salient implications here. The first is that neoliberals are not at all troubled by the contemporary transformations of science and the university described in this volume. *The production of ignorance (Definition 3) is a sound business strategy, not a retrograde intervention*. Take, for example, the junk/sound science movement. So what if the Marshall Institute fills the room with fog about the true effects of secondhand smoke, or the Competitive Enterprise Institute obscures the real impact of global warming, or the Discovery Institute reframes the extent of biological evolution (Oreskes and Conway 2010)? So what if government regulation is blocked by drawn-out legal battles over the kinds of paid science that can be introduced in regulatory interventions? Or, if you like, take the spread of MTAs throughout university science. So what if certain classes of research are frustrated and stymied by reach-through clauses, or that knowledge transfer is slowed to a crawl between researchers in the same fields? Or consider, if you will, the creeping phenomenon of ghost management of scientific papers. So what if the reader has no idea who or what really stands behind the work reported on the printed page? Or take the (implicit) cover-up of the fact that numbers of scientific publications are actually falling in recent decades in the United States, while Americans continue to congratulate themselves on their superior innovative abilities. So what if the general populace is lulled into complacency by the lack of solid statistics concerning research in the United States on the part of the government and the National Academy of Sciences? None of these constitute real symptoms of debility for the true neoliberal. As long as scientists can be cajoled to defer to the Market to decide how knowledge will be subsidized, sorted, winnowed, and allocated, their resulting personal ignorance can only be eventually conducive to the public good, because it makes the system work more smoothly. Indeed, the trademark neoliberal doctrine in science studies since 1980 has been the mantra "Science has always been commercial" (Latour and Woolgar 1979; Shapin 2008b): an utter travesty of the actual history, as I noted in Chapter 3, but the first tenet of the neoliberal credo.

The major point to be savored here is that individual ignorance fostered and manufactured by corporations, think tanks, and other market actors is suitably subservient to market rationality, in the sense that it "profits from the knowledge that the agent does not possess." Paid experts *should* behave

as apologists for the interests that hire them: This is the very quiddity of the theory of self-interest. As Schneider explains, "Organic theorists hold that while actors may conjointly achieve important 'beneficent' results, they do so in considerable ignorance and in ignorance of the socially transmitted behavior they are reproducing contains accumulations of 'knowledge' now forgotten or no longer perceived as knowledge" (1962, 500). Burkean conservatism revels in the preservation of tradition, the great unconscious disembodied wisdom of the ages. This is why cries of "teach the controversy" in the schoolroom, "sound science" in the courtroom and stipulations of "balance" in the news media are sweet music to neoliberal ears. Neoliberals strive to preserve and promote doubt and ignorance, in science as well as in daily life; evolution and the market will take the hindmost.

The second salient implication is that, from the neoliberal vantage point, science does not need special protection from the ignorant, be they the partisan government bureaucrat, the craven intellectual for hire, the lumpen MBA, the Bible-thumping fundamentalist, the global cooling enthusiast, or the feckless student. In an ideal state, special institutions dedicated to the protection and pursuit of knowledge can more or less be dispensed with as superfluous; universities in particular must be weaned away from the state and put on a commercial footing, dissolving their distinctive identities as ivory towers. Science should essentially dissolve into other market activities, with even its "public" face held accountable to considerations of efficiency, profitability, and subservience to personal ratification. "Competition" is said to ensure the proliferation of multiple concepts and theories with the blessing of the private sector. The only thing that keeps us from enjoying this ideal state is the mistaken impression that science serves higher causes, or that it is even possible to speak truth to power, or that one can rationally plan social goals and their attainment.¹⁴ Despairing of extirpation of these doctrines from within the university in his lifetime, Hayek and his confederates formed the Mont Pelerin Society and then forged a linked concentric shell of think tanks to proselytize for the neoliberal idea that knowledge must be rendered subordinate to the Market.¹⁵ Little did he suspect just how successful his crusade would be after his death.

Hayek is sometimes portrayed as a postmodern figure who did not believe in capital-T Truth, but, again, I don't think that really gets to the heart of the matter. Equally misguided would be the interpretation that Hayek would only promote the production of instrumentally useful knowledge: "Science for science's sake, art for art's sake, are equally abhorrent to the Nazis, our socialist intellectuals, and the communists. Every activity must derive its justification from a conscious social purpose" (Hayek 1944, 162). Instead, I believe he initiated an important neoliberal practice as advocating a double

truth doctrine: one for the masses, where nominally everything goes and spontaneous innovation reigns, and a different one for his small tight-knit cadre of believers. First and foremost, neoliberalism masquerades as a radically populist philosophy, one that begins with a set of philosophical theses about *knowledge* and its relationship to society. It seems at first to be a radical leveling philosophy, denigrating expertise and elite pretensions to hard-won knowledge, instead praising the "wisdom of crowds." Writers such as Malcolm Gladwell, Jimmy Wales,¹⁶ James Surowiecki (2004), and Cass Sunstein (2006) and many science studies scholars contemptuous of experts are its pined pipers. This movement appeals to the vanity of every self-absorbed narcissist, who would be glad to ridicule intellectuals as "professional second-hand dealers in ideas."¹⁷ But, of course, it sports a predisposition to disparage intellectuals, because "knowledge and ignorance are relative concepts." In Hayekian language, it elevates a "cosmos"—a supposedly spontaneous order that no one has intentionally designed or structured—over a "taxi"—a rationally constructed order designed to achieve intentional ends. But the second and linked lesson is that neoliberals are simultaneously elitists: They do not in fact practice what they preach. When it comes to actually organizing something, almost anything, from a wiki to a corporation to the Mont Pelerin Society, suddenly the cosmos collapses to a taxi. In Wikipedia, what looks like a libertarian paradise to outsiders is in fact a thinly disguised totalitarian hierarchy.¹⁸ In the spaces where spontaneous public participation is permitted, knowledge in fact degrades rather than improves. But no matter, because the absolute validity of that knowledge was never the true motive or objective of the exercise; rather, subordination of the overall process to corporate strategic imperatives provides the real justification of the format, as well as its economic foundation. It is all about "optics" and controlling the agenda. It adds up to a double truth doctrine: one truth for the masses/participants, and another for those at the top.¹⁹

Christian Arnsperger (2008) captured the double truth doctrine nicely by insisting that Hayek had denied to others the very thing that gave his own life meaning: the imprimatur to theorize about "society" as a whole, to personally claim to understand the meaning and purpose of human evolution, and the capacity to impose his vision on the masses through a political project verging upon totalitarianism. It was, as Arnsperger puts it, a theory to end all theories; it was not so different from the "end of history" scenarios so beloved of Hayek's epigones. The doctrine of special dispensation for the elect is one very powerful source of ongoing attraction of neoliberalism for the disaffected, the feeling of surrender to the wisdom of the market by coming to know something most of the nattering crowd can't possibly stomach: Freedom itself must be as unequally distributed as the riches of the

marketplace. The ignorance of hoi polloi serves to reconcile them to that brute, bittersweet fact.

Do Economists Really Love Science?

I doubt if there is any branch of social science that ardently pledges its undying love for science more than economics. If imitation really is the sincerest form of flattery, then economics from its origins (Mirowski 1989) has been desperately seeking the approval of the natural philosophers. Most of this affection has historically been unrequited, but that is neither here nor there for our present purposes. The question before us now is whether economists can love science so very much that they might stifle it, or whether they can at least leave it less flourishing than when they found it. By this I don't just mean that "money can induce individuals and organizations to make judgments and decisions that violate research norms such as objectivity, openness, honesty, and carefulness" (Resnik 2007, 77). No, I seek to explore something far more insidious, and thus far more dangerous: the kind of thing immortalized in Oscar Wilde's *Ballad of Reading Gaol* or Ingmar Bergman's *Scenes from a Marriage*. If recent events even remotely mirror these archetypical plot lines, then this has dire consequences for the future of a viable economics of science.

By contrast with the Mont Pelerin neoliberals, I believe that most mainstream neoclassical economists are sincere when they pledge their fealty to science. Most wouldn't freely endorse the tenets that ignorance is bliss, or necessary grease for the wheels of social order, or the inevitable terminus for the vast mass of humanity. If anything, their mathematical models frequently induce them to treat ignorance as a simple deficiency, along the lines of the vacuum theory of ignorance (Definition 1).²⁰ Economists regard themselves as intellectuals and lovers of knowledge, by and large. Many in the profession think economists are the true heirs of the Enlightenment (that is, in the eventuality they have some notion of what the Enlightenment was). Most of them really do love physics, even if they flunked out or otherwise bailed out of physics programs elsewhere earlier in their careers. Nonetheless, I want to explore the proposition that recent trends have enrolled them into practical complicity with the new production of ignorance, and therefore, by implication, economists may be among the last people on earth to whom you should voluntarily entrust your science base. (I shall deal with the paradox of self-reflexivity soon thereafter.) This, in turn, will lead us to contemplate what sorts of things can be done about the modern globalized privatization regime of science.

Without making a major issue of it, the dodgy track record of economists in their dealings with science has run like Ariadne's thread throughout the cur-

rent volume. In Chapter 2, we observed how various attempts to "defend" science in the university as a necessary complement to economic growth have been less than stellar in the logic of their empirical and theoretical elaborations. Chapter 3 noted in passing that neoclassical economists have benefited tremendously in postwar America, first by becoming allied with the military during the Cold War regime (Mirowski 2002) and later by occupying a central location within the current regime of globalized privatization. Even though science organization and funding had been transformed from top to bottom twice in twentieth-century America, economists persisted in treating it as though it were one generic phenomenon spanning the entire century. (To be fair, philosophers of science and some sociologists were equally culpable in this.) Chapter 4 marked the turning point, where mainstream economists became enrolled into the defense of key aspects of the contemporary regime, serving as apologists for the strengthening of intellectual property and arguing that science was basically unchanged by the reconstruction of the university and the proliferation of encumbrances upon research such as the MTA. Chapter 5 looked at the track records of biotech and pharmaceutical companies, the poster children for the new knowledge economy, and found things were neither as rosy nor as straightforward as many economists had painted them. Chapter 6 demonstrated that the quality of the science produced in the new regime had been degraded in very specific ways; only here was there a deafening silence from the economists. In the meantime, they argued that it was simply a matter of fiscal prudence that most universities would need to scale back on research and to cut costs (J. Johnson 2009). After this litany of failure, it would appear only prudent to inquire into how the mainstream economics profession could have gotten things so very wrong.

The diagnosis would far exceed in length the etiology of the disease described in this volume, but we have now arrived at a major proposition that accounts for the fact identified in Chapter 2 that modern orthodox economists fervently believe that science is the ultimate motor of the economy, even in the face of decades of controverting evidence (Macilwain 2010). Simple expenditures on R&D, however defined and denominated, do not readily correlate with economic growth. Expenditures on "human capital" do not directly translate into augmented skills and knowledge. Why not? The reason could be simple: If the neoliberal reengineering of science has resulted in a vast ramping up of the production of ignorance, as I have repeatedly suggested in this volume, then it immediately follows that more expenditure on science does not necessarily result in more scientific output. Agnotology destroys the correlation. Promotion of the marketplace of ideas can easily destroy knowledge just as readily as it can augment it; some more sophisticated neoliberals understood this perfectly well, as I have documented above. The

reason economists come across as credulous and naive when they prescribe more education and more expenditure on R&D as the panacea for every economic problem under the sun is that they only have room in their models for ignorance (Definition 1), but there is much more in heaven and earth than is dreamt of in their philosophy. As long as they are willing to preach the marketplace of ideas throughout the land, the neoliberals are perfectly happy to let the economics profession mander in their own ignorance. And this ineffectual morass includes the National Academy of Sciences and the AAAS, both of whom seem to think that politics boils down to lobbying for ever-increasing largesse at the public expense, absent any serious justification, beyond outmoded appeals to the linear model of innovation (or, worse, national chauvinism).

A detailed account of the missteps mainstream economists have made when it comes to modern science policy would undoubtedly exceed the space limits of any book, not to mention the patience of the reader.²¹ To avoid either of these, I will simply gesture toward the Big Picture. The trends and tendencies that turned out to be important have all conspired to bring economists to the threshold of what I believe is a fundamental fallacy: that “science” can and should be subject to the very same analytical practices (what they engagingly call tools) that they have applied to any other commodity or situation—in other words, there is nothing particularly special about science, except in the sense that it may require an insignificant tweaking of economic theory (Zamora Bonilla 2008). As the philosopher Uskali Mäki has commented on this move, “Viewing science as an economy means transferring the familiar ideological and political issues from economics to science theory along the dimension of hands-off free markets . . . The capacity of science to reach whatever epistemic or other goals depends on its industrial organization, market structure, regime of regulation, or governance structure . . . But this requires a troublesome translation from economic theory to the philosophical vocabulary of knowledge and growth” (2008). Examples of the tweaks have been covered in Chapter 2; here I confront the deeper proposition that science unproblematically falls into the class of things economists can and should attempt to anatomize and minister unto.

The main trend derives from a Big Picture narrative of the history of economic thought that I have proposed in other work. Restricting my generalizations to Anglophone dominant schools of economics, most would concede that British Classical Political Economy (Smith, Ricardo, Malthus, Mill, Marx) set as its main task the exploration of the physical principles of production and their implications for social organization. By construction, science was something that intruded from “outside” this problem situation, although it might inform the broad outlines of what it was possible in prin-

ciple to “produce.” The rise of neoclassical economics in the late nineteenth century profoundly changed the terms of this setup. Not only did this school attempt to arrogate the status of science by close imitation of the mathematical formalisms of physics (Mirowski 1989), but it also redefined the core of economic theory to be concerned with the efficient static allocation of things between individual agents. The move was underdeveloped along two dimensions: (1) the actual psychological processes of the agents were finessed (if not actually repressed) under the rubric of ‘utility’, and (2) physical production was downgraded to the tenuous status of a static virtual phenomenon, situating it further removed from any grounding in the natural sciences. In a strange way, neoclassical economics sought to become more “scientific” in outward form (mathematics, imitation of physical field theory) while simultaneously becoming less tethered to the physical sciences in substance and content. The trend continued with the third great transformation of economic theory after World War II, from withdrawal from concern with allocation per se to greater efforts devoted to treating the agent as an information processor, patterned upon various theories of the computer (Mirowski 2002). The story of postwar mainstream economics has been a parade of various attempts (rational expectations, game theory, behavioral/experimental economics, neuroeconomics, behavioral economics) to take economic analysis in a more cognitive direction, but, again, without any serious engagement with the natural sciences (except for continued appropriation of characteristic mathematical formalisms).

One can draw all sorts of implications out from this frame tale (as I have done elsewhere), but the one inference germane to our present concerns is that each subsequent transformation of mainstream economics has only exacerbated a deep confusion about how knowledge relates to the economy, and its attendant adoption of the appropriate stance of this economic theory toward the natural sciences. While it is a trite observation that mainstream economists act like they can superannuate and subsume all other social sciences within their own “paradigm,” only a few foolhardy souls have argued that modern economics should also subsume the natural sciences under its explanatory purview. The upshot has been that confusion reigns over the appropriate way to incorporate knowledge into mainstream economics models: the scandal of the “economics of knowledge” is that there is no agreement or standard approach to the putative topic.

Of course there are numerous individual options, each with their own proponents: Chapter 2 covered the Arrovian “public good approach” and various odd attempts to encompass technological change in growth theory, if only because they get mentioned so much when economists turn their attentions to science. But each of those theoretical traditions (and most other

more obscure options) encounters in modern economics an equal and off-setting model set that neutralizes most of the conventional wisdom that they advocate. Take, for instance, the work of George Stigler and Gary Becker (both Mont Pelerin members, as it just so happens). In a famous paper (Stigler and Becker 1977) they argue that all differences in knowledge, "whether real or fancied," should be reduced to a production technology within the utility function, so that all economic questions can be reduced to static given preference functions that do not change over the life experience of the person. Of course, such a model has absolutely no relationship to any known school of cognitive science, but that was really never the point. Instead, what this modeling strategy accomplishes is to reduce so-called rationality to an utterly tautologous nonrefutable phenomenon: There can be no such thing as real difference between agents, and certainly no such thing as false knowledge (Vanberg 2004). Anyone who entertains the resulting "human capital" as a serious theory of human knowledge (a) must be blind to the fact that it contradicts other mainstream approaches to knowledge as a "thing" such as the public goods approach cited above; (b) must hold cognitive science in the same contempt as do Becker and his epigones; and (c) must suppress the possibility of the conscious production of ignorance. This is just one example of the unconscious muddles in economics concerning knowledge; there are literally untold bounties of them.

If you can't get your story straight about how to treat knowledge in your core price theory, then you most certainly will have a hard time stabilizing your approach to an economics of science. But then it seems the situation has become more addled and incoherent of late, if such a thing were possible. Over time, because of the successes of the Mont Pelerin/think-tank phalanx in America (and then elsewhere), the median member of the mainstream economics profession grew more neoliberal in her orientation and outlook.²² One consequence was to ratify almost every economist in the belief there existed a standard approach to the economics of knowledge within the mainstream, however sparse the empirical evidence for such a view. Usually they just elevated their locally favored circumscribed model to pride of place. What they did glean from their repeated encounters with neoliberal ideas was that the market was the information conveyance device par excellence in human endeavors, and they proceeded to embed that conviction in all manner of theories, from the "efficient markets hypothesis" in finance to the "rational expectations revolution" in macroeconomics to principal/agent stories in the theory of the firm to the theory of "common knowledge" in Nash game theory. Once this conviction became entrenched throughout the discipline, it began to dawn on a number of economists that something like it must be true for the natural sciences as well.²³

I need to be clear about why this intellectual move, now virtually ubiquitous in the economics profession, constitutes a contradiction in terms of the neoclassical model of the economic agent. It has long been understood among economic methodologists that the status of the agent has always been asymmetrical to that of the economist/analyst in modern mainstream economic theory.²⁴ The economist *qua* "scientist" acts as though she can stand above and outside of the economy and its agents, looking down on them benevolently and explaining why their activities and plans are thwarted or realized. But what gives economists this Godlike ability? The short answer is that the economist arrogates to herself a constitutional capacity that she denies to her little agent offspring: the ability to survey the rules and institutions imposed by the "model," to critically engage in self-reflexivity, and to decide whether or not the agent (it?) will accept the terms and conditions dictated by the model. One way to put this is the agent is doomed to be a total slave to the model, a cognitive robot, a fixed nonentity rather than a person in process of becoming someone else; by construction, the agent cannot under any circumstances rebel against the scripted role imposed by the economist. But another, better way of putting the same insight is that *if the economist and the agent were on the same epistemic footing, then the cognitive acceptance by the agent of the model putatively describing their experience would be a necessary precondition for the validity of the model*. No economist would ever grant that, so instead they pretend to glare down on the world from Mount Olympus (or was that Mont Pelerin?).

This explains in a nutshell why any neoclassical "economics of science" is a bald contradiction in terms and ends up trapped within a neoliberal double truth as astringent as anything in Hayek. Because every neoclassical economist believes in her heart of hearts that she is a scientist in good standing, to then proceed to model "science" dictates that she would have to extend to her agents the same courtesy of symmetric epistemic and cognitive status as she receives. But doing so would preclude all the standard model components of the neoclassical agent: fixed well-behaved preferences, knowledge modeled as a commodity, fixed cognitive and epistemic abilities of the agent, and the inability to survey and question the aptness and logic of the model describing his predicament. A "well-behaved neoclassical agent" would make for a lousy scientist. Yet what is science if it is not the sustained conscious alteration of previous beliefs, perceptions, existing knowledge, and, ultimately, the rules previously thought to govern reality? Isn't critical scrutiny of the received model the duty of every imaginative scientist? So if the mainstream economist wants to press ahead with her orthodox economics of science, she has one of two choices: (a) reimpose the asymmetry by making her scientist agent stupider than she is (if she is indeed smart enough to see this

conceptual problem in the first place) or (b) restrict the model so that both it and the agents inside cannot comment on the quality or character of the scientific knowledge being produced (e.g., science as “black box” or disembodied “technical change”). In either case, the scientist is being portrayed in the neoclassical model as *less than fully rational*. Most natural scientists would never accept such a characterization of themselves. Hence existing models of the economics of science can’t pass the snicker test: Scientists can rarely be cajoled into seeing themselves in the neoclassical speculum.

Wade Hands has touched upon the bogus character of the existing literature when he has distinguished between an “economics of science” and the possibility of an “economics of scientific knowledge,” or ESK:

[Mainstream] economics of science analyzes (explains and/or predicts) the behavior of scientists in the same way that an economist might analyze the behavior of firms or consumers. Like the Mertonian school of sociology, the economics of science almost always *presumes* that science produces products of high cognitive quality, but investigating whether it “really” does so is not considered to be the proper subject for economic analysis (it would be like an economist investigating whether the products of a firm “really” satisfy consumer wants). By contrast, ESK . . . would address the question of whether the epistemologically right stuff is being produced in the economy of science . . . [Were they to entertain the latter,] Economists doing ESK will certainly run into a similar problem. If scientists are pursuing their own self-interest (reputation, promotion, etc.) then economic scientists must be pursuing their own self-interest as well. (2001, 360, 390)²⁵

Many economists, oblivious to the internal contradictions, nevertheless proceeded to apply neoclassical models to science, starting, not coincidentally, with the advent of the globalized privatization regime. The chickens came home to roost when various economists then began to base policy prescriptions on the thesis that the marketplace of ideas was the appropriate framework to superimpose on any number of questions involving science and the universities. I have been taken aback in the course of the research for this volume to repeatedly stumble over evidence of how famous economists have intervened at key junctures to help institute bulwarks of the modern regime of globalized privatization of science and to undermine the Cold War university. For instance, it seems George Stigler played a critical role in mobilizing intellectual resources and justifying the shift in stance of the pharmaceutical sector toward research and pricing policies in the early 1970s.²⁶ Stigler, following up on his own neoliberal theory of knowledge production, convened a Pharmaceuticals Project (with funding from Big Pharma), which

argued that FDA regulation of drugs was stifling pharmaceutical innovation. The solution was to privatize more aspects of drug research; one of the offshoots of the project was the Center for the Study of Drug Development, headed by Louis Lasagna. Members of this latter organization were among the earliest entrepreneurs conjuring the CRO industry covered in Chapter 5 (Petryna 2009). This was the very same George Stigler, Nobel Prize winner, who argued in discussion of Arrow’s (1962) paper on the economics of science that “the paradox is that information is expensive to produce and cheap to distribute raises serious problems. In fact Arrow might have pointed out that the optimum incentive to invent presumably would require an infinite patent period, very much as the privilege of living in a house for only 17 years would lead to a suboptimal amount of building.”²⁷ Following this logic, the pharmaceutical sector, in conjunction with some key neoliberal economist allies,²⁸ were instrumental in pushing the agenda at the Uruguay Round trade talks that bequeathed us TRIPs and the globalized strengthening of intellectual property (Drahos and Braithwaite 2002; Sell 2003).

There were many other examples of neoliberal interventions in the “knowledge economy.” I have already mentioned Milton Friedman’s proposal (1981) to abolish the National Science Foundation. As the economist George Shultz told William Simon during the energy crisis of the 1970s, “I’m so glad it’s you who’s heading up the energy bureaucracy. That way it will go out of business, and you’ll be able to keep the damage in check” (M. Jacobs 2008, 208). Richard Levin was installed as president of Yale with a mandate to privatize its biotechnology research portfolio (Geiger and Sá 2008, 137). But interventions like these did not happen simply or solely at the level of legal infrastructure: It has also happened at the level of encouraging the junk science/sound science movement. Naomi Oreskes has recently documented the role of such economists as Nobel winner Thomas Schelling and Yale economist William Nordhaus in providing intellectual support for those who sought to contest and deny global warming (Oreskes et al. 2008; Oreskes and Conway 2010). Indeed, one of the recent books advocating “environmental skepticism” and promoting “sound science,” which garnished substantial attention critiquing the physical science, was written by a specialist in game theory, not a trained climate scientist (Lomborg 2001).

Of course, mainstream economists have not been omnipresent shadow Svengalis lurking behind every important development in the new regime of science management; my point is that they have served as major promoters of the new production of ignorance, *whether they were aware of it or not*. Models of the economics of science render the scientist just as ignorant as the neoliberal is content to render the average citizen ignorant. They wind up serving as apologists for the new regime, witting or no, to the extent that

they attempt to make the world conform to their image of the Market as information processor. It happens when economists who work for think tanks attempt to intervene in scientific debates in the natural sciences; it happens when economists argue that litigation science is not harmful to the research enterprise, because it maximizes competition among points of view;²⁹ it even happens when economists like Paul David, who pride themselves in opposing neoliberalism, argue that the best way to defend the integrity of the modern university is simply to calculate and impose the optimal mix of public- and privately funded science (David and Dasgupta 1994). One can sympathize when David argues,

For university administrators to encourage (or even permit) political leaders to entertain the hope that the energies of their faculties and students could be harnessed to yield accelerated productivity growth, showers of better-quality products, enlarged export earnings, and local job creation—all within the brief time frame that will make a difference in the coming elections—is not merely deceptive. It is quite reckless in risking the almost certain disappointment of unrealistic expectations, and so may bring in its train public disaffection and damage to the university. (2007b, 263)

Yet sympathy turns to despair when we realize that he does not apparently notice two things: first, the provocation of disaffection of the public with their universities is *part of the design of the entire neoliberal agenda*; and second, the neoliberal production of ignorance drives a wedge between scientific research and economic growth, such that any promises of payoffs, however delayed and unpredictable, are no longer grounded in the current system of research. The neoliberals are aware of that but are unperturbed; they don't want science to be funded based on any such reasoning. They look forward to the rapturous day when all knowledge (and not just science) is comprehensively funded and coordinated by the market, and state-organized research is reduced to a pitiful insignificant remnant. Paul David, by making his benchmark some ideal neoclassical marketplace of ideas, himself ends up undermining "public" science in the name of subjecting it to a balanced optimization calculus. One particular flaw in that argument is the conflation of the state university system with the locus of publicly funded science.

Indeed, it could be suggested that the modern economics profession, insofar as it was incubated in the postwar university, has fouled its own nest by becoming highly complicit in the dissolution of the Cold War university. It started out with the hostility of neoliberals like Milton Friedman and George Stigler to the state provision of higher education. Friedman devoted much of his accumulated fortune to the privatization of state-supported education,³⁰

which he regarded as the largest residual sector of state socialism in the West. The more economists shifted the image of education from preparation for citizenship to accumulation of personal "human capital," the harder it became to maintain public support for state-subsidized higher education (Apple 2003, 2006). One implication of human capital theory was to shift individual student support from scholarship grants to student loans—another neoliberal innovation. In a stratagem notable for its Machiavellian brilliance, individual universities were then encouraged to solicit more private funds to offset cuts in state subsidy, but the more the university consequently became increasingly embroiled in market activities, the more it lost any political justification for state support, resulting in a downward spiral of appropriations and the de facto privatization of the American public university system. *Pace* Paul David, there is no longer any option to find that elusive optimal public/private mix in research and education, because the state system of higher education has been irreversibly privatized (Rizzo 2004). Most people seem unaware of the degree to which (in America) flagship state research universities no longer depend upon any substantial state subsidy, as dramatized in Figure 7.1.

This dynamic is exemplary of how the spread of certain neoliberal beliefs concerning how knowledge production works eventually leads to a transformation in the range of possibilities whereby research and learning can proceed. In the neoclassical economics of science one supposedly enjoys infinite choice over the shape and extent of commercialization of scientific research, as well as of scientific training and dissemination of results. But in reality, range of options and extent of commercialization have been intimately connected, and not in the liberating direction. The privatization of research funding has been followed by the privatization of the American university and the fencing off of open modes of access to knowledge; the 2008 economic contraction only exacerbated this trend. Choice over modes of conduct of science is shrinking, rather than expanding. Conveniently, intellectual rationalization by mainstream economists has smoothed the path nearly every step of the way.

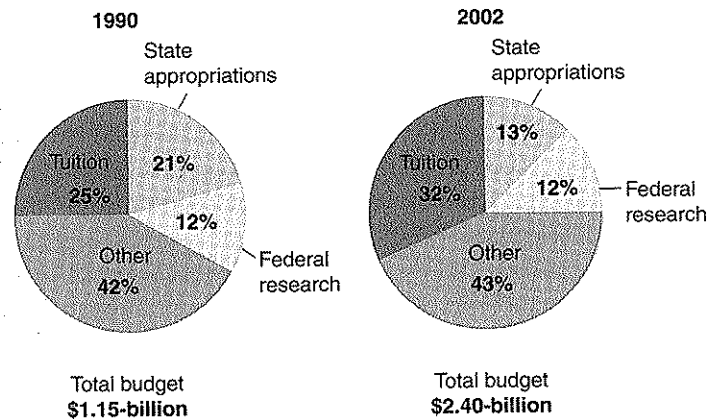
It is difficult to escape the conclusion that, for most economists, much of what is happening to the conduct of natural science on the ground at the university and within the lab doesn't actually seem to raise many qualms. One fact germane to their apparent equanimity is that economics, alone among the academic professions, has enjoyed almost unchecked expansion within the university in the twentieth century *throughout the world*. For instance, in one large sample of universities sited within the British commonwealth, the only field that met or exceeded the growth of total faculty numbers in economics from 1915 to 1995 was in chemistry (Frank and Gabler

2006, 133, 160). As they suggest, "Although it is good to understand why university economics prospered more than psychology over the twentieth century, it would also be good to know why at the end of the century economists were ten times more common on average in the world's universities than psychologists" (2006, 202–203). Clearly economists think their untrammelled success within the university was entirely warranted, because the

Shifting Sources of Revenue

The decline in taxpayer support for public colleges has affected institutions in every state, some more than others. In response, many public-university systems have pushed hard to raise more private dollars (most of which has been directed to endowments) and attract additional federal research funds. Here is a glimpse at how those trends have played out at three public-university systems:

Pennsylvania State University



Private gifts and grants

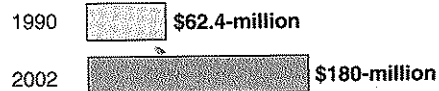
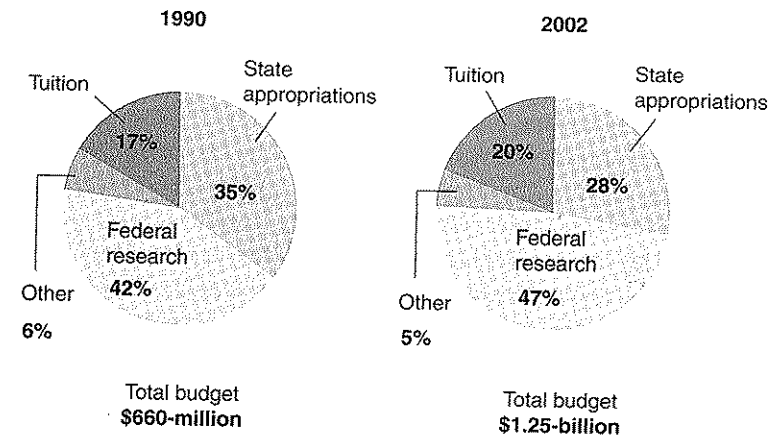
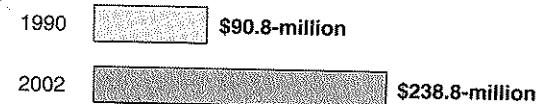


Figure 7.1. Budgets of some major American state universities. More recent (2006) approximate data on individual flagship universities: the University of California system gets 18 percent of its budget from the state; Pennsylvania State gets 13 percent; University of Colorado gets 9 percent; Michigan State University gets 18 percent; University of Wisconsin gets 19 percent; University of Massachusetts gets 26 percent. Sources: Selingo (2003), graphic; Rauchway (2007); Lyall and Sell (2006); and university Web sites.

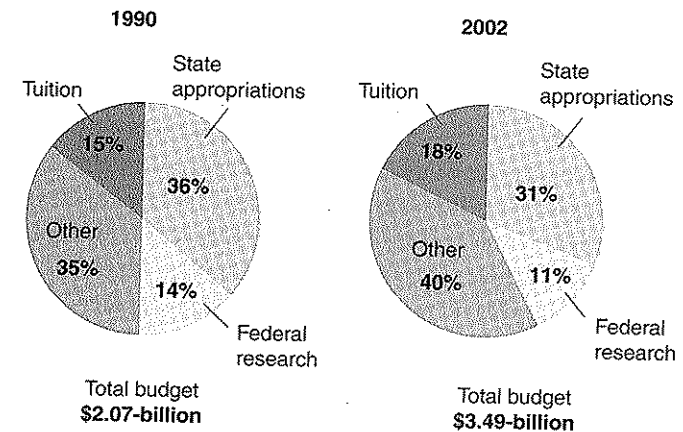
University of Washington



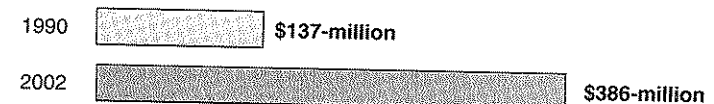
Private gifts and grants



University of Wisconsin



Private gifts and grants



Source: Chronicle reporting

Figure 7.1. (continued)

stamp of approval of the marketplace of ideas was on their foreheads. It is just an unfortunate fact of life that if some fields expand, then others must shrink. The ebb and flow of the sciences is for believers in the marketplace of ideas just part of the natural order.

Other academics might not agree, and instead they strive for more causal accounts. One is provided by Marion Fourcade (2006), who estimates that economics has displaced other fields by growing from roughly 1 percent of all university faculty at the beginning of the last century to about 4 percent at the end, and she links the phenomenon to the role of the American economy in the globalization of world trade and discourse. As she points out, "Western companies investing abroad . . . carry with them scores of lawyers and consultants, who then find themselves in a powerful position to penetrate local markets, and in the process impose their own definitions of reality" (2006, 150). Neoliberal economics lavishly benefits from this dynamic, because it deals in the seemingly universalist rhetoric of abstract economics and efficiencies, apparently unfettered by any geographic, cultural, or intellectual specificities, and economics is thus transformed into a generic technology of bureaucratic and political power by corporations, central banks, the IMF, the World Bank, the WTO, and so on. Very few natural sciences have enjoyed a comparable strategic role in the American Century.

So it seems economists may not so intently feel the pain of their brethren in the natural sciences who are undergoing downsizing and restructuring, and they may be deficient in the moral sympathy that would allow them to focus their attention more concertedly on the drawbacks of commercialization. But that is not the only way that economists stand out in the contemporary intellectual ecology. Another is that, in the annals of the American university, the *economists*, not biomedical researchers, pioneered the practice of forming start-up firms while remaining employed as faculty members during the Cold War, by arguing that there was no conflict between their responsibilities to their shareholders and to their students. Indeed, it was instances of entrepreneurship like the Harvard neoliberal economists Martin Feldstein and Otto Eckstein in the 1960s luring venture capitalists to help them create for-profit start-up firms (in this particular instance, Data Resources, Inc., selling econometric forecasts)³¹ that pressed the envelope on holding down full-time major faculty positions while simultaneously serving as CEOs of corporations (Parker 2005, 509). By the 1980s, once the biotechnology boom began, that was no longer such a rare occurrence. It would therefore naturally seem to many in the economics profession that what had been good for the economists in the past should be presumptively equated with what should be good for science as a whole in the future. Rather than imposing symmetry on the agents in their models of the economics of sci-

ence, neoclassicals surreptitiously impose symmetry in real life by positing that natural scientists in vivo *should* want what the economists want. As I have demonstrated, there is growing evidence that this synecdoche is based on faulty data and flawed premises.

The Paradox of the Cretan Liar

There is one last conceptual problem that needs to be confronted in this dark view of the role of economists in the current regime of privatized science. My argument in this volume, and more explicitly of this chapter, has been that scientists should be wary of neoliberal arguments concerning the virtues of the supposed marketplace of ideas, and even more specifically, to beware economists bearing gifts of an economics of science. But then, avers Viridiana, how about you, Philip Mirowski? Aren't you an economist? Don't you yourself come bearing the promise of a sound and valid economics of science?

There are both a simple answer and a more complex answer to this objection. The simple answer is to take this book to anyone in your local economics department and ask him or her if it was written by a "real" economist. The more complex answer is that, if the neoliberal project collapses in the wake of the economic crisis of 2008 (although the chances of that happening now seem substantially less than 50/50), then a comprehensive and sophisticated appreciation for the way that science and the economy interact will not generally be conceded as forthcoming from economists any more. Past approaches to the economics of science will come to be discredited. Scientists will, by that time, have lost patience with neoliberal ripping tales concerning their natural expertise romancing the market and general omniscience in the all-powerful marketplace of ideas.

The Bonfire of the Vanities

Viridiana harkens back to the newspaper quote from the current president of Harvard concerning her distress: "Have universities become captive to the immediate and worldly purposes they serve? Has the market model become the fundamental and defining identity of higher education?" (Faust 2009). The implication seems to be that Harvard is willing to confront and reconsider the trends we have documented in this volume. But upon learning a little more, Viridiana finds out that stirring op-eds are one thing, but actions quite another.

I argue that a major characteristic of the modern neoliberal era of the new knowledge economy is the unapologetic production of ignorance. I think

most people would accept that fraud is one manifestation of the production of ignorance, and it is one of the more perilous phenomena that are encouraged by the commercialization of research. The connection to Harvard is the largest case of fraud (in dollar terms) ever settled by Harvard University that I wish to recount here. It involves two economists, Andrei Shleifer and Lawrence Summers. Most people have heard of the latter, if only as being Faust's predecessor, the erstwhile president of Harvard University, and Barack Obama's late economic policy czar.

One of the stranger phenomena of the late twentieth century has been the noticeable inclination of major research universities in the United States, and now Europe, to resort to hiring economists as captains of their institutions.³² This in itself has also been an artifact of the neoliberal agenda, because boards of trustees are predominantly composed of businessmen and have not often sought out humanists as ideal candidates to bring about the commercialization of various aspects of the university. In any event, Summers was explicitly recruited by the Board of Overseers at Harvard to help bring what was perceived to be a relatively recalcitrant university, with an overly autarkic faculty body, closer to the market ideal (Bradley 2005, 67). Summers came aboard with strong neoliberal credentials, for instance, having served as one of the advocates for the "Washington Consensus" while at the IMF (*ibid.*, 31).

Most people have been bequeathed the impression from the news media that Summers had been forced to resign his position as Harvard's president because he had an "abrasive" personality, or possibly because he made some unfortunate remarks about why women were underrepresented in the higher academic ranks of the natural sciences.³³ Without gainsaying those characteristics, almost no one had mentioned the settlement of the fraud case, and the ensuing scandal that erupted six months or so after Harvard agreed to pay more than \$31 million to settle a government lawsuit against itself and economist Andrei Shleifer.³⁴

Shleifer was one of Summers's protégés, and a famous economist in his own right. He was widely regarded as an academic star in the economics profession, winning the Clark medal from the American Economics Association, designating him the most promising economist under age forty in 1999. One of his specialties was the express application of neoliberal theory to government regulation (Shleifer 2009), and in particular, in a piquant irony that cannot pass unnoticed, on neoclassical models of optimal levels of fraud and corruption in capitalist economies. He also was an acknowledged expert in what has come to be called "behavioral finance," which, for the purposes of the present audience, simply means he was a student of the divergences from the pure "efficient markets hypothesis" in such areas as stock

markets and corporate finance. Shleifer was born in Russia in 1961, and a fluent speaker of Russian, but emigrated to the United States in 1976. He attended Harvard as an undergraduate, and was taken under Summers's wing there. Shleifer was one of the youngest economists ever granted tenure at Harvard, and he worked on Russian development economics and finance at the World Bank when Summers served there as chief economist. After the collapse of the Soviet state in 1990, USAID contracted with Harvard, and in particular the Harvard Institute for International Development (HIID) in 1992, to help administer a "shock therapy" privatization program in the New Russia. Due to his Russian expertise, Shleifer was selected to run the project. Because of his expertise both in the application of neoclassical theory to government functions and in finance, the project was particularly focused upon setting up a reformed banking and financial sector in Russia.

Now, to prevent any possibility of the appearance of taking unfair advantage of their privileged access to information, not to mention their ability to shape events, both USAID and Harvard expressly forbade anyone involved with the contract to invest in the newly privatized Russian economy. "In July 1994, Shleifer . . . began investing in Russian enterprises in direct violation of his contract and the restrictions imposed by AID and Harvard" (McClintick 2006). Their subsequent attempts to profit from the privatization process later took a number of baroque twists and turns (*ibid.*), which we need not recount here for our present purposes. However, it is not irrelevant that the Harvard Corporation had itself been investing up to 2 percent of its endowment in Russian securities involved in the privatization in the mid-1990s, so it was not simply an innocent bystander.³⁵

It is important here to pull back from these minutiae of personalities and historical events in order to observe that this situation constituted a problem of conflict of interest, a standard pathology found throughout the sciences in the modern era of the privatized university (Slaughter et al. 2009). The economist Shleifer was supposed to both produce and convey technical academic information, in this case concerning the best way to set up a financial system in a former Soviet transitional economy, and simultaneously to commodify that information, which in this case took the form of engaging in corporate activities that would profit from that information. In a pure marketplace-of-ideas scenario, supposedly there would be no problem here: If his consulting activities made money, then that would be *prima facie* evidence that it was indeed the correct way to organize the system and propagate the knowledge. But not everyone would accept the legitimacy of the marketplace-of-ideas scenario in every instance, particularly when a substantial contingent remains skeptical that there exists a single best method to construct anything as complex as a financial system in a country that had

little prior experience with one. Worse, in a fluid geopolitical situation like that after the fall of the Berlin Wall, the project was hedged round with mutual suspicions of crude taking advantage of a former rival, with the attendant degradation of the quality of the “knowledge” on offer.³⁶ From an Olympian perspective, this situation closely resembles a report on a clinical trial of a drug, where the principal investigator holds a substantial share of the corporation that stands to earn millions if the drug is found effective, and was paid by the corporation to carry out the clinical trial in the first place; moreover, the investigator’s university also buys a stake in the company.³⁷ Conflicts of interest are pervasive and inevitable wherever and whenever research is fully privatized, because making money is never comprehensively isomorphic to making truth (Cook et al. 2007). Neoliberals simply deny that proposition: For them, making money is the only truth. The naïve and the unwashed may choose to believe otherwise, but the neoliberal theorist then suggests the Invisible Hand or natural selection will themselves weed out these mendicants, depending upon the extent of their tough-mindedness. The only truth societies can absorb is the truth they are willing to pay for.

Sometimes, neoliberals deride concerns over conflicts of interest by attempting to reduce the problem to a spurious moralism: No one is more petty or self-interested than the ivory tower academic mired in penury, they sneer.³⁸ But this commits the fallacy of misplaced concreteness: Conflict of interest is an *institutional* problem, not an essentially personal matter of ethics. Different institutional structures foster or discourage different types of critique and discourse; and as a form of critique, the neoliberal marketplace of ideas is notoriously short term, weak on the handling of unintended consequences, and poor at the unpacking of subtle nuance. This is nicely illustrated in the Harvard case.

The problem of conflict of interest at HIID could not be confined to Andrei Shleifer or the small team at work on the Russia project. When the Inspector General’s Office began an investigation into Harvard’s conduct of the project in 1997, Shleifer dug in, insisting he had done nothing wrong. From a neoliberal viewpoint, one can understand how he might argue that position, but it was not the legal understanding of government lawyers, or the perception within the Russian Federation. Indeed, one can sympathize with Russians fed up with Americans lecturing them on corruption and their supposed lack of respect for market discipline. On May 19, the first deputy prime minister demanded USAID terminate the HIID program, and the Russia Project was then killed. The Russian authorities carted off the Harvard project’s computers and files “for safekeeping.” Harvard then fired most of the Russia cadre from HIID, but Shleifer retained his tenured

professorship. Later, Harvard did rescind his named chair. After an FBI investigation, a grand jury rejected criminal prosecutions,³⁹ but USAID filed civil charges against Harvard in September 2000.

This, as they say, is where the plot thickens. Shleifer’s mentor, Lawrence Summers, was appointed president of Harvard in March 2001. Indeed, Summers stayed with the Shleifer family when he interviewed for the president’s job. Summers had been aware of Shleifer’s problems, and if the major players had been cognizant of that, they might have suspected that Summers might shield his protégé.⁴⁰ To ward off such suspicions, Summers took the position that “conflict-of-interest issues should be left to the lawyers” and formally recused himself from the ongoing litigation. However, McClintick (2006) reveals that Summers intervened repeatedly at Harvard in order to keep Shleifer on the faculty, award him a chaired professorship, and promote him as a respected Russia expert. After all, Summers had been brought back to Harvard to nurture and promote the entrepreneurial spirit of faculty like Shleifer—in 1994, Shleifer had also helped found a firm called LSV Asset Management, again turning his financial expertise into market profit. Thus, Harvard elected to settle the civil suit on its own behalf in August 2005, with Harvard ordered to pay \$26.2 million to the government, and Shleifer to pay \$2 million in recompense. None of the defendants acknowledged any liability under the settlement, and the details of other lawsuits were sealed.⁴¹

The story does not end there. As news of these events leaked out, Harvard faculty began to challenge the administration as to why Harvard should pay out a settlement of more than \$26 million plus legal fees of over \$10 million for the actions of a professor (and some ancillary actors), when he seemed to get off relatively scot-free. When the McClintick article appeared in January 2006, Summers himself was challenged at a faculty meeting. His response was, “I have taken no role in Harvard’s activities in the courts, nor . . . familiarized myself with the facts of the situation . . . I am not knowledgeable of the facts and circumstances to be able to express an opinion as a consequence of my recusal” (quoted in Ciarelli and Troianovski 2006; also Ivry 2006). This was more than informed observers could swallow. Met with a wall of silence, the faculty responded with incredulity, outrage, and a vote of no confidence in their president, the first in the history of Harvard. Before he died in 2008, Dean Jeremy Knowles ruled that the report on the matter by the Committee on Professional Responsibility must itself remain secret.

McClintick’s article in the obscure outlet *Institutional Investor* (hardly a muckraking rag) was entitled “How Harvard Lost Russia” (2006). Perhaps it may seem to be venturing into hyperbole, but one can see what he meant: a little problem of “conflict of interest” had ballooned all out of proportion

into an international crisis, which itself had repercussions for the future of Russia's economic infrastructure and (as we have learned to our regret) global geopolitics. And again, risking hyperbole, this sequence of events was possibly the straw that broke the camel's back, causing the Harvard Corporation to rethink their controversial president, leading to Summers's resignation on February 21, 2006. Chains of causality are always notoriously slippery, but isn't that just what unintended consequences are like? Under a different institutional setup, one less tolerant to a little entrepreneurialism between consenting adults, wouldn't many components of this sequence of events have been rendered less likely? A little bit of commercial action on the side for a true believer in the marketplace of ideas, trading on his academic status, led (inadvertently) to corrupted science, a crippled socialist transition to capitalism, massive court costs, and the fall of the president of the supposedly most prestigious university in America. For lack of a horse . . . An active PR campaign kept this from becoming a major topic of conversation on all the chat shows, let alone being analyzed as a paradigm instance of the fallout from the progressive privatization of the modern university.⁴² Yet, "behind the scenes, the Harvard Russia scandal continues to fester" (Warsh 2009a).

The denouement to this tale is as indicative of life in the modern university as it is of the role of the contemporary economics profession. Summers did resign, but he has been rehabilitated as a political insider, becoming one of the top economic advisors for the Obama administration. He is now the subject of numerous complimentary journalistic portraits. He was the person behind the financial bailouts of Wall Street firms and the arbiter of the correct public policy to deal with the economic crisis of 2008. He did not suffer financially either, becoming part-time managing director of the D. E. Shaw Group, a hedge fund, while serving as an editor of the *Brookings Papers*.⁴³ Andrei Shleifer did not suffer unduly, serving as editor of the *Journal of Economic Perspectives* all during the period of his backroom battles with government attorneys, and he has continued to publish numerous papers on Russia, the role of corruption in development, and the "right" way to impose a transition from socialism to capitalism. He has proclaimed, "It is natural to refer to the last quarter-century as the Age of Milton Friedman" (Shleifer 2009, 123). In what may be a damning piece of evidence concerning the current state of the economics profession, he was in 2008, according to ISI Thomson, the top-cited scientist in economics and business in the world.⁴⁴ Shleifer later sold his share of LSV Asset Management for an undisclosed sum, undoubtedly mitigating the pain of paying the court fine. In the interregnum, he was treated with kid gloves by Summers's temporary replacement, Derek Bok, so did not have to relinquish any of his Harvard perquisites.⁴⁵ He has never publicly defended any of his activities, and no one in the

economics profession has ever urged him to do so. As Warsh wrote in 2008, "He has become, as he might say, a normal professor, or perhaps as another MIT-trained economist put it the other day, a normal Harvard professor."

This is not the story of "a few bad apples," or of overweening hubris, or pushy East Coast glitterati, or even unjustified government meddling in the marketplace of ideas. (I know some of you think that.) It is instead the story of the neoliberal corruption of knowledge. It is the story of the paladins of the economics profession preaching the commercialization of science, profiting from its installment, all the while denying any of its unsavory aspects. It is the story of a university that publicly seeks to assuage fears of the corruption attendant upon the commercialization of knowledge, while privately it pays to cover up the consequences. It is simply one more incident in the ongoing project to reengineer American universities to become the cash cows of the knowledge economy. It is the story of Viridiana Jones in the Temple of Mammon.