

## **Fear and Loathing in the Economics of Science.**

Review of Philip Mirowski (2011) *Science-Mart. Privatizing American Science*. Cambridge, MA:

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“No sympathy for the devil; keep that in mind. Buy the ticket, take the ride...and if it occasionally gets a little heavier than what you had in mind, well...maybe chalk it off to forced conscious expansion: Tune in, freak out, get beaten” -- Hunter S. Thompson, *Fear and Loathing in Las Vegas*, 1998 [1971].

In *Science-Mart*, Philip Mirowski addresses a fictional reader: Viridiana Jones, a novice scientist learning about the social structure of science. I could not resist identifying with Viridiana - even as I disclaim any kinship with the original references: Luis Bunuel's 1961 object of virginal desire and moral corruption and, I guess, Jones on the side of Indiana. I feel as if I know Viridiana. And the Viridiana I know is not as complacent or beholden to the myths of academe as Mirowski takes her to be. I would venture that Viridiana is a pinch less curious and a measure more anomic than Mirowski admits. Like me, she will likely feel an unsettling calling to the words of Hunter S. Thompson, as if fear and loathing were sentiments equally fit to describe our occupation in the present day University as they did for a drug propelled tour through Sin City.

We feel the same, because Viridiana and I are on the same, raw and wild ride: budding academics assaulted by discussions of the current state of the University. Take for instance the experience of reading the 2010 book *Marketplace of Ideas*, authored by role-model Professor Louis Menand. Where one might expect guidance and perspective, we find a string of platitudes about the liberal origins of the

University, its current challenges, and the misguided choices of the current crop of academic initiates. As Menand and other rock-stars of the American campus stack tens of thousands of dollars in speaking tours and popular books about the identity crisis of the ivory tower, the targets of reprimand are the drone bees that teach their courses, for little money and no prospects. Menand worries that the latter may resist necessary reforms. Haven't the initiated heard of thinning budgets and demographic retreat? Why do they insist upon doomed careers, he seems to ask. There is plenty of fear for this University, top down and from the bottom up.

Menand might entertain the hypothesis of the irrational TA but others see instead the microeconomics of choice. "As the corporate marketers used to point out, Gen X is the ironic, slacker generation. We're the hip and all-knowing generation that has watched far too much television, becoming jaded about practically everything in life. We're the generation that postpones the "adult trappings" of life, often leaching off the earnings of our baby boomer parents." (Johnson, Kavanagh, Mattson 2003, 91) In this alternative reading, aren't the endowed Professors, Menand or Larry Summers, worth every cent for their intellect, experience and public service? Aren't the TAs and other lumpen academics getting the self-serving freedom they so much admire? The stark divide is not one of generation, although the discriminant is often age. It emerges of the separation between research and teaching, with all the star power and dollars resting on the former, and loathing filling in the gap.

Even as I place my tinge of bitter disillusion in Viridiana's heart and mind, I nonetheless believe that some reasoned explanation could be given to the current state of affairs. The principal account is that the economy has changed and by force of economics, the University is undergoing reform, a narrative that contains no agents, no ideologies, only an evolutionary process of salutary adaptation. Philip Mirowski's *Science-Mart* interrupt that track of reasoning. Our economics of science has it all wrong.

Both as theory and as historical account, and it's a scam.

### **Imaginaries: of Frankensteins and Trolls**

The 21<sup>st</sup> century University is a work in progress since the 1980s. In the interim, the principal funders and managers of science: the state, industry and the philanthropies, have seen their relative power and agendas reordered. Mirowski lists as the primary elements that forged the transformation:

“deindustrialization, the structural effects of the rise of the Internet, the egregious fortification of IP [Intellectual Property], restructuring and outsourcing of corporate R&D, the withdrawal of the state as science manager and patron, and the opting out of the state as primary provider of advanced education” (p. 114). In their wake, the University re-imagined itself as a corporate venture. Penetrating markets with intellectual property claims and exporting a lab from academic to corporate campuses have become the signal achievements. The redrafting of the University's mission statement prompted the emergence of offices to manage Technology Transfer and Intellectual Property, of new model careers that direct scholars to cash on knowledge through start-up firms, and it brought the Humanities and Social Sciences to the mental confusion that Menand propagates in *Marketplace of Ideas*.

The confusion is justified. The Midas-like claims made of the academy-business partnership do not match the actual record of innovation, economic growth and financial health of the Universities. The state of play is so much the opposite of what was promised, that Mirowski candidly admits that his reader might feel his book “has gone overboard in some respects” (p. 315). His observations are that our research economy produces worse science. The trumpeted “just in time” science cuts corners to meet the minimal standards and stake a claim to ownership of intellectual property, the most prominent example being Craig Venter’s Celera Corporation race to claim the human genome. Big Pharma invented the Contract Research Organization and overhauled the practice of drug trials, speeding up the

process and packaging new products that represent only minor changes to existing active entities, solely for the purpose of ever extended property rights. Commercial science breeds “junk”, beliefs that walk and talk like knowledge but that are meant to equivocate and delay regulation from tobacco to global warming. The easy money in the new regime is in extracting rents from intellectual property, not in new or in substantive discoveries, but in controlling the research tools that are spread across the research system, public and private. To keep up, Universities institute tight surveillance so that no intellectual property leaks into competitors' hands (often other Universities), and a new cadre of functionaries is busy at creating legal encumbrance that manages the terms and the traffic of materials, tools, and techniques. The latter are known generically as Material Transfer Agreements, and Mirowski calls them “Frankensteins of stitched-together chunks of IP control” (p. 172). Not every department of knowledge production and academic inquiry looks like this, but the elite biomedical sciences, those elevated as exemplar for the University of today and tomorrow, are drawing from this script of horrors.

In uncovering the soiled promise of the new science economy, Mirowski takes a few steps too far into the drama of the supernatural. He does not go “overboard” as much as he does not much care to interrogate the imagined research futures that sell Commercial Science. After all, even Mary Shelley’s Frankenstein began his life as the modern Prometheus. Even if Material Transfer Agreements appear as Frankensteins to Mirowski’s eyes, speaking of surveillance, constraint and punishment, to the eyes of the actors they also imagine great bounties and new ways of life in the University. There are other monstrous creations in Mirowski’s sights, such as “Trolls”, that acquire intellectual property to go hunting for infringement and extract compensation. They hold no horizon for the production of knowledge or wealth, solely cashing in. To those that stitch together the Frankensteins and go out trolling, the horrors in *Science-Mart* somehow appear as wondrous and magnificent. We do not learn in Mirowski’s account how the metamorphosis is accomplished, besides passing references to

“insubstantial promises and projections”. Technological and scientific imaginaries as “collectively imagined forms of social life and order” are not new, and a thread not pursued in *Science-Mart* is to historicize those imaginaries, for instance exploring how neoliberal research futures contrast with similar imaginations over postwar physics and nuclear technology (Jasanoff and Kim 2009). One possibility is that the changes we see in the University are catching up to a mass culture inflected by the world of commerce. Families are today invited to see blood as deposits and cord blood as venture capital (Waldby and Mitchell 2006). Is science coming early or late to the neoliberal Fantasia?

### **Of Economics: from Cold War to Neoliberalism**

Before uncovering the perversity of the current science regime, the first target of *Science-Mart* is the economics of science. At mid twentieth century, MIT economics framed knowledge as a public good, and made it the *deus ex machina* of economic growth. Contrasting with that simple-minded belief, Mirowski outlines a rich narrative account of the political economy of knowledge. He distinguishes three regimes of science organization. The “captains of erudition regime” spanned the 1890s into World War II and was characterized by the use of corporate in-house research labs for controlling competition. The Universities were primarily sites for education and not research. The principal sciences were chemistry and electrical engineering. The “Cold War regime” that began with the end of World War II and ended circa 1980 was characterized by the arrival of the state, mainly the military, as a manager and funder of science, while mass education and the integration of research and teaching made the Universities principal players. At the corporations, the research labs were revenue earners thanks to state contracts. The principal industries were physics, operations research and formal logic. The current regime is labeled “globalized privatization regime” where biomedical sciences, genetics, and computer science dominate. Labs have moved out of the corporation, sometimes jumping the border, as research is outsourced.

In *Science-Mart*, the transition from the captains of erudition regime to the Cold War one is unimportant. The critical juncture is the second partition, the move from the Cold War to the corporate neoliberal regime. Economists had prominent roles to play in that story. They framed science as public good. Paul Samuelson was a ghostwriter of Vannevar Bush's *Endless Frontier*, wherein knowledge becomes a commodity like orange juice or national parks, subject to provisioning either by the market or the state. But making knowledge a thing, fundable and measurable, was not enough to dawn the corporate regime. Mirowski writes: "very few universities make any money whatsoever, much less serious revenue, from their management of their IP assets. This curious situation forces us to contemplate the notion that the modern insistence upon the commercialization of science is more likely to have ideological" (p. 182) The privatization of knowledge is the accomplishment of Friedrich Hayek from his platform at the University of Chicago and with the assistance of the Mount Pelerin network.

### **Of institutions: a new economics of science**

With economists so deeply implicated with the absurdity of the current regime, Mirowski sketches a blueprint for a new institutional economics of science that is historically informed and that aligns stages in the governance of the University and business to technology change and intellectual history. Writers on the current transformations of academe have plenty of respect for institutions. Nearly everyone targets the Bayh-Dole Act of 1980, giving non-profit organizations such as Universities a bidding right over intellectual property, as formative of the new commercial period (for instance Geiger and Sa 2009). But Mirowski is unsatisfied when institutions are so narrowly and Congressionally conceived. His claim is that the institution undergoing the most dramatic change is not the University but the vertically integrated, national, Chandlerian Corporation. In a number of incremental steps, IP has been redefined from individual ownership to corporate ownership, and transnational trade

agreements have expanded corporate powers to circumvent national control. Antitrust has been weakened, while IP law has been strengthened. Commercial science is boutique knowledge for the globalized corporation. Hence, even as Mirowski casts economists into principal parts in the story, the triggers for change in his account are, in close examination, institutional.

Mirowski builds a new case for public support as creative of the infrastructure for production of knowledge and for functioning markets, what he calls a “science base”. The punchline is that “without an ongoing, vibrant science base, no one would recognize ... random acts of genius for what they really [are].” (p. 83) Can there be a more appropriate message for an historian than to call for the creation of context?

Knowing some of the work on innovation and technology regimes that Mirowski references, I am a bit troubled about how novel his economics of science might be. The sacred figure for most of the authors Mirowski draws upon, is Joseph Schumpeter. Even, as happens with most economists drawing on history, their references to Schumpeter are perfunctorily, there is something worrying in Schumpeter’s legacy that is not addressed in *Science-Mart*. If we trace back the steps to Solow and his production function with its technological manna from heaven, and ask about the seed for that idea, we might end up faced with Schumpeter. His is another linear model of science: science is restive and ignored until the entrepreneur is allowed to set it in motion and shape it into innovation and then development. If Hayek conquered Chicago, did not Schumpeter conquer Harvard and MIT? Mirowski’s regimes echo the Schumpeterians by identifying a group of innovative and dominant sciences that elsewhere have been connected with long waves of the business cycles (Freeman and Louçã, 2001).

My Schumpeterian anxiety leads to a minor historical point about whether we have identified the

original sin of the commodification of knowledge: should we not be attaching it to Schumpeter instead of Hayek? Science was already conceived as the instrument that in the hands of business moved our economies before it was made into a thing in a production function, and already also seen as motionless without the touch of enterprising men. Mirowski's suggestion to conceive science as an infrastructure is a better description to track the abuse and subordination of science to corporate or statist projects. But that is a meaning science has carried throughout the 20<sup>th</sup> century, and it is no easy task to envisage how that prefaces a change from the current science regime to an alternative. When Mirowski gives a flavor of what a better science might be, it reads to me as hopelessly romantic, speaking that "the real bonanza of knowledge does not come from the preconceived target entity (which in some sense is already "known"), but rather from all the unexpected things that turn up along the way. Scientific research is above all a process that has to remain open to the serendipitous, the unexpected, the incongruous, and the unanticipated." (p. 289) The force of Mirowski's case for a new science regime is not in his institutional economics of science but in his denunciation of science today as an IP Ponzi scheme.

### **Of trust: public and mine**

Near the back of the book, Mirowski drops a bomb: "the provocation of disaffection of the public with their universities is part of the design of the entire neoliberal agenda" (p. 338). Like Mirowski, I believe there is a neoliberal agenda and that it profits from the alienation of the citizenry from the matters of science. But I don't believe the public's disaffection is the neoliberals doing. Neoliberal economists came late to the punishing of Cold War statist science and were happy to tip their hats to the Leviathan when the bounty was plentiful, welcoming the funds of the NSF and the CIA. The crisis in authority from the mid 1960s into the 1970s was the realization of the co-option of science by the state, from ROTC to Dow to Project Camelot, and it did not begin on the Right. Mirowski knows this well since he has written more and better than anyone else on the perversities of military patronage upon economic



knowledge.

The public is not a character in Mirowski's story. The closest to it is innocence personified in Viridiana Jones. Perhaps, Mirowski does not think highly of the public (or publics) as actor(s) in the transformations of science, often we take "public" to stand for "passive". I argue that in the public lies a part of the story that remains untold, an important one if we want to militate for changes in the governance of science today. The primacy and autonomy of science as a "base" and as serendipitous exploration, as Mirowski envisions, seems to me objectionable to Right and Left alike. We should listen to the objections of the public and to its disaffection. We might realize that not all populist critiques of science are neoliberal and lead to corporate capture. We might discover a muffled protest against science's failure to empower civic action and produce new commons. My suggestion is that we need to pair a better economics of science with an understanding of how science co-produces imaginations of the collective and of the civic.

And I am back to fear and loathing, buying the ticket and taking the ride, but really uncertain of what the devil has waiting for me and our mutual fictional acquaintance, Viridiana. Mirowski suggests that we progress by scandal by teaching the initiated of the hidden evils of science, but he does not call them out for action, as when he writes "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." (p. 316) Is this an invitation to revolt or to wait for the Ponzi scheme to exhaust itself? Were the Viridianas of the world take matters into their own hands, what other "science base" should one be fighting for? What allies should we look for in our democracies and economy? I guess I am not that anomic after all, I do care about the answer.

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