The symbolic economy of drugs

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Abstract
This essay reviews four recent studies representing a new direction in the history of pharmaceuticals and pharmaceutical science. To this end, it introduces the notion of a symbolic economy of drugs, defined as the production, circulation, and reception of signs that convey information about drugs and establish trust in them. Each of the studies under review focuses on one key signifier in this symbolic economy, namely the brand, the patent, the clinical trial, and the drug itself. Drawing on Pierre Bourdieu’s theory of the economy of symbolic goods, I conceptualize these signifiers as symbolic assets, that is, as instruments of communication and credit, delivering knowledge, carrying value, and producing authority. The notion of a symbolic economy is offered with a threefold intention. First, I introduce it in order to highlight the implications of historical and anthropological work for a broader theory of the economy of drugs, thus suggesting a language for interdisciplinary conversations in the study of pharmaceuticals. Second, I deploy it in an attempt to emphasize the contributions of the recent scholarship on drugs to a critical understanding of our own contemporary ways of organizing access to drugs and information about drugs. Finally, I suggest ways in which it might be of use to scholars of other commodities and technologies.

Keywords
economy of knowledge, evidence-based medicine, intellectual property, medical ethics, pharmaceutical studies


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This essay explores a paradox. Today, more resources are invested in producing knowledge and information about drugs, their effects, and their uses than ever before. As of this writing, the ClinicalTrials.gov database lists over 57,000 open clinical studies conducted worldwide. Vast resources are also invested to ensure that the results of clinical studies are published and circulate among medical professionals and the public. Yet there is no sense that pharmaceutical resources are being allocated more effectively and ethically today. On the contrary, concerns are growing ever more acute that populations in wealthier parts of the world are consuming drugs from which they might not benefit, even as less privileged populations are denied access to much-needed treatments. This divergence is driving the scholarship on pharmaceuticals and pharmaceutical knowledge in new directions.

In the past 15 years or so, scholars in the history and anthropology of medicine have written about drugs as classic examples of boundary objects (Gaudillière and Löwy, 1998; Gradmann, 2008; Watkins, 2009). Their work thoroughly revised our understanding of the process of drug development, long informed by histories of heroic scientists discovering miracle cures in the isolation of the laboratory. Against ‘magic bullet’ narratives that reduced drugs to mere molecules, the recent scholarship has successfully analyzed drugs as hybrid objects made within complex and intersecting networks of actors, technologies, and ways of knowing. The dominant genre within this body of work has been the so-called ‘drug biography’ (Gaudillière, 2005; Strasser, 2008; van der Geest et al., 1996). Tracing one drug or class of drugs as it travels through the laboratory, the factory, the clinic, the law, and the media has proven to be a powerful method to demonstrate how drugs emerge from and reconfigure relations between multiple social worlds (e.g. Bud, 2007; Epstein, 1996; Greene, 2007; Healy, 1997; Lakoff, 2005; Lesch, 2007; Rasmussen, 2008; Watkins, 2007).

The four books reviewed here shift the focus of analysis from pharmaceutical things to pharmaceutical knowledge. In some sense, drug biographies, too, are about pharmaceutical knowledge, about its hybrid nature and the hybrid spaces in which it is produced. Instead of constructing narratives around particular drugs or classes of drugs, however, the studies under review do so around particular technologies used to produce, manage, or disseminate information about drugs. Their central concern is what I will call the symbolic economy of drugs, the production, distribution, and reception of signs that convey information about and establish trust in drugs.

Two of the studies are by historians of US medicine, Joseph Gabriel’s stopping in the early 20th century, where Jeremy Greene’s picks up. David Healy’s is in part a medical scientist’s indictment of his profession, though one informed by the author’s deep engagement with the history of psychopharmacology. Kristin Peterson’s is an ethnography of contemporary Nigerian drug markets that also puts the drug markets of Europe and North America in a new light. In introducing the notion of a symbolic economy of drugs, therefore, my intention is less to survey a well-delineated field than to highlight shared concerns between diverse methodological approaches to the study of drugs.
Although in principle there is a symbolic economy of any commodity, I will argue that drugs are unusual commodities in precisely that respect. The pharmaceutical industry invests vastly larger resources in manufacturing knowledge, information, or discourses about drugs than it does in manufacturing the drugs themselves. No industry played a greater role in the historical development of the advertising profession (Lears, 1994; Tomes, 2005) and probably no commodity to this day is the object of such complex and elaborate marketing as drugs are. While countless studies have described strategies deployed in the marketing of drugs, I want to ask what it is about drugs that makes them the objects of such expansive (and expensive) talk.

The high costs of marketing and the ensuing lack of relation between the price of drugs and the cost of their material production are defining features of the economy of drugs. These features, I argue, are rooted in the epistemics of pharmacology. The relation between the circulation of information and the formation of prices has figured centrally in the economics of imperfect markets, which explains the power of marketing in terms of asymmetries of information (founding texts include Akerlof, 1970; Nelson, 1970; for a more recent article with reference to the medical market: Spiegler, 2006). With those goods whose qualities cannot be assessed until they are consumed – so-called ‘experience goods’ – consumers must depend on producers’ claims until the product is purchased and the claims tested against experience. With drugs, however, even direct experience – the experience of consuming the goods – provides no reliable method to dispel uncertainty. While a small number of so-called wonder drugs have effects so dramatic as to be unmistakable, most drugs in common use act in ways inscrutable to consumer and prescriber alike. However visible a drug’s most immediate effects may be, the possibility of further effects arising only in rare cases or in the long run can never be fully discounted. Pharmaceuticals, therefore, are experience goods for which the final judgment of experience is indefinitely deferred, and the dependence of users on discourses indefinitely prolonged.

Scholars, of course, have investigated some of the techniques devised over time to make visible the otherwise invisible properties of therapeutic substances (e.g. Latour, 1988). The embrace of the randomized controlled trial (RCT) as the gold standard for evaluating claims about drugs in the last half-century has received particular attention, for it crystallized hopes of setting pharmacology on a firm basis, of putting experiment and evidence in the place of belief and authority, and of drawing a clear line between rhetoric and science (Marks, 1997). Yet even the vast machinery of the RCT, in which sometimes thousands of subjects are enrolled to pin down the precise effects of a drug, often proves unable to put pharmaceutical controversies to rest.

The inscrutability of drugs’ properties is at the root of their symbolic economy. Since drugs both contain and conceal their special powers against disease, they cannot circulate unless supplemented by some set of signs, whether textual or visual, that informs consumers or prescribers of their effects on the body. Since pharmacology is a science in which the relation between observation and explanation remains inescapably loose, a vast territory is left open to imagination and rhetoric, which the drug industry – as well as its critics – seeks to occupy. This is the reason why the production and dissemination of pharmaceutical information became the object of a vast economy. It accounts for the uncommon investments of those who produce and prescribe drugs in building credit, gaining recognition, or accumulating symbolic capital.
Hence, the key conceptual sources for the notion of a symbolic economy of drugs do not lie solely in the economics of imperfect markets, but also in the sociology of symbolic exchanges elaborated by Pierre Bourdieu (1977, 1990, 1991). From Bourdieu, I borrow the broad definition of the symbolic as that which exists inasmuch as it is *recognized*, both semiotically as having meaning and socially as possessing legitimacy or authority. Behind this double definition is the insight that the systems of signs or categories we use to make sense of the world – natural and social – operate by projecting order onto it. As such, they produce knowledge, and also at the same time *values*, by making certain things and people appear to be in their places, to conform to their natures, and thus to possess normative power. Applying the language of economics to the domain of the symbolic, that is, writing about recognition as a good that results from investments, can be acquired, and then can be reinvested in the pursuit of further profits, is a way to account for the double effects of recognition. In doing so, Bourdieu’s work conceptualizes exchange and accumulation, or communication and domination, as inseparably linked. It ties together within a unified conceptual framework the two meanings of value as norm and as asset, which the distinct analytical vocabularies of moral and political economies, foregrounding either one of these at the expense of the other, tend to represent as opposed.

The concept of the symbolic asset as a sign endowed with meaning and an asset endowed with value is at the heart of this essay. Each of the texts under review concerns one key symbolic asset in the economy of drugs. Greene’s is about the brand, Gabriel’s about the patent, and Healy’s about the RCT, while Peterson envisages the drug itself as a sign when the regulatory arrangements explored in the other three studies cease to function. The brand, the patent, the trial, and the drug all provide examples of asset/signs, of instruments of communication and credit that impose order, convey information, and carry value. A common theme in all four works is the instability of the uses and meanings of each of these instruments. Imagined and implemented to serve the purposes of either marketing or, on the contrary, ‘evidence-based’ therapeutics, they have come to play unanticipated roles, often opposite to those originally ascribed to them. In these shifts and inversions, we see the limits of the dichotomies between science and marketing, evidence and authority, or ethics and economy with which the vast critical literature on the pharmaceutical industry usually operates. As part of an emerging scholarship intent on confronting the ambiguities of the contemporary concept and practice of evidence-based medicine, these authors point to the need for new categories to address the entangled production of things, knowledge, and values. The notion of a symbolic economy, I hope to demonstrate, has the potential to fulfill that purpose.

**The brand**

The symbolic capital of producers of drugs is carried primarily in their brands. The names of drugs, therefore, constitute the basic currency in the symbolic economy of drugs. As these names circulate and are recognized by growing numbers of actors, lay or professional, they acquire value for their owners. Much has been written on drug companies’ strategies to market their brands, to have the names of their drugs deposited in physicians’ and patients’ memories, then suggested and accepted as patients and physicians meet. The originality of Greene’s *Generic* (2014) is to study the power of the brand negatively. The vast price differences between drugs sold with or without a brand name is an index of the
value of the brand itself, thus of the very real dividends of accumulated symbolic capital. Likewise, the success and limits of efforts to ‘unbrand’ medicine provide a measure of how much the pharmaceutical brand has become – and is perhaps ceasing to be – the imposed medium of therapeutic transactions.

Behind the economic struggles between the proprietary and generic drug industries, Generic reveals a deeper struggle over the epistemics of drugs. The polemical literature on the contemporary pharmaceutical industry tends to represent this as an unproblematic story in which price is the only significant difference between branded and unbranded products, and in which any resistance to the use of generics comes from the self-interested manipulations of the proprietary drug industry or the superstitious fears of the manipulated public. Greene’s subject, by contrast, is the unsettled and unsettling question of what it means for a drug to be the same as another. The inscrutability of drugs is studied here through the uncertainties of their identification, for what we are able to discern in drugs ultimately decides how we discern them from one another.

The copying of drugs comes with a realization that there is more to a drug than just an active molecule in a specified amount; drugs are active molecules ‘bound up in a secret blend of binders, stabilizers, fillers, and excipients, stamped under a precise degree of pressure and coated with a proprietary coating’ (p. 7) – all of which matter to how they circulate and do their work within the body. The special skills involved in the production of efficacious drugs are part confidential trade secrets, part incommunicable know-how. The elusive and intangible properties that exceed the chemist’s purview are precisely what the brand captures and what forms the basis of its symbolic power.

But how much exactly do they matter? How does one measure the difference they make? The search for new ways of knowing drugs, of grasping these intangible qualities and representing their otherwise invisible effects on the body, transformed the pharmacological sciences in the postwar period. Biopharmaceutics and pharmacokinetics, as the study of the paths and rhythms of drug absorption and elimination came to be known, developed with funding from the proprietary drug industry, which saw them as investments aimed to produce trust in original brands and distrust in generic copies. Demonstrating how similar chemicals made different drugs was conceived as a way to extend the profits of monopoly beyond the life of the patent. By and large, however, these investments did not yield the expected symbolic profits for the drug industry. Evidence of significant differences did emerge in a few cases, but failed to do so in most. The ‘sciences of difference’ could be reimagined as ‘sciences of similarity’, showing how different drugs do similar work in the body and eventually providing the basis for the working definition of sameness – or ‘bioequivalence’ – on which the Food and Drug Administration (FDA) has relied to decide what counts as a proper copy.

To chart how the new sciences of similarity and difference transformed the symbolic economy of drugs, Generic offers detailed analyses of the signs, documents, and arenas in which information about generics was circulated. Much, of course, is said about the coining and regulation of generic names, from the first efforts to adopt an international pharmaceutical nomenclature at Geneva in 1892 to the formation of the US Adopted Names (USAN) Committee, which since 1964 registers and approves one name for each new molecule marketed in the United States. But other ‘pen-and-ink technologies’ (p. 143), such as official formularies of bioequivalent drugs and consumer handbooks of prescription drugs, were published in order to help physicians and patients see past or
through pharmaceutical brands. Each of these genres or media of information about drugs is shown to embody and reconfigure unstable relations of power between the proprietary and generic drug industries, organized medicine and pharmacy, patients and consumer groups, as well as federal and state governments.

Likewise, Greene is attentive to the stages on which these documents were disseminated and dramatized – congressional hearings first and foremost, but also press conferences and on occasion, courts. An entire chapter, for instance, chronicles the fate of a formulary drawn up by the FDA to help the Department of Defense curb its pharmaceutical expenditures. The ‘Green Book’, as it came to be known, listed drugs where generic copies could safely replace brand-name products. Hidden for years in the files of the Agency, the document was leaked in 1977 by FDA staffer Marvin Seife to activist William Haddad who publicized it in his successful bid to expand generic substitution in New York State. The episode, which led the State’s legislature to make generic substitution compulsory for the listed drugs unless otherwise indicated by the prescribing physician, and which compelled the FDA to endorse and publish the secret formulary, demonstrates how paper technologies acquired ‘greater talismanic and legal authority’ (p. 144) as they found wider publics. Greene also interprets this episode in light of the growing popularity of unbranded commodities outside of medicine, which testified to a broader ‘celebration of austerity’, an aesthetic of plainness and economy that placed a premium on commodities stripped down to the essentials. In his analyses, similarity always reveals itself as something that had to be made and performed rather than simply discovered.

How far did generics go in undermining the symbolic power of the brand in medicine? Enormously, by some measures: in the United States, where generics were embraced as a private sector solution to soaring health care costs, only one in five prescriptions is now filled with a brand-name drug. Yet generics have been embraced for quite different reasons in other political contexts. As Cori Hayden’s (2007, 2010, 2011) work on copied drugs in Mexico and Argentina demonstrated, definitions of the proper copy in the pharmaceutical domain mirror and transform broader, politically over-determined definitions of (national, ethnic, class, and gender) identity. Behind the global growth and transformations of the generic drug industry, Greene and Hayden uncover a protean ‘politics of the similar’, never simply the progress of a depoliticized therapeutic rationalism. The new pharmaceutical knowledges that emerged to adjudicate claims of similarity and difference have proved contested and open-ended. They conveyed no obvious meanings or implications until mobilized and made to speak in defined strategic contexts and documents. Generics, in other words, do not escape the symbolic economy of drugs. Far from being the silent segment of the pharmaceutical industry, as it is often portrayed, the generic drug industry ‘unbranded’ medicine only inasmuch as it allowed the generic name to function also as a new form of brand that carries its own symbolic value.

The patent

The recent rise of unbranded drugs provides a valuable point of entry into the history of the pharmaceutical brand, yet it illuminates mainly its latest chapter. Generics, as we understand them, exist only within the modern regime of intellectual property, a regime in which the value of the brand derives first from the patent on which it is backed. The generic drug industry offers drugs at reduced prices only because it can exploit products
already researched and developed by brand-name companies, whose structure and strategies depend in turn on the possibility of charging high prices on patented molecules. Today’s patents divide a pharmaceutical’s life cycle in two. Generics are by definition confined to the latter part of that cycle; the first part, during which a drug is developed, tested, approved, introduced to the market, and adopted in therapeutic practice, remains the preserve of proprietary companies. While generics effectively reduce the role (and cost) of brands after patents expire, they also leave the system of property rights on which this division of research labor rests essentially unchallenged.

Joseph Gabriel’s *Medical Monopoly* (2014) locates the origins of the modern regime of intellectual property (IP) in US pharmacy in the closing decades of the 19th century, long before American IP laws and practices became a blueprint for the creation of a new global IP order. Outside the United States, drug companies have long invented and marketed drugs without the protection of patents. In most countries of continental Europe, for instance, therapeutic agents were kept off the list of patentable inventions until as late as the 1950s or 1960s (Gaudillière, 2008). Even in the United States, where drug patents were never formally banned, they were considered profoundly unethical and remained marginal to the economy of pharmaceuticals until well into the 20th century. By tracing the formation of the discourse that cast patents as indispensable to the invention of drugs and the policing of the drug trade, Gabriel’s study complements Greene’s in illuminating ways. Where *Generic* explored recent efforts to reconstitute a public domain of drugs, *Medical Monopoly* uncovers the distant economic and ethical shifts that gave rise to present methods for appropriating drugs. In so doing, it also gives a sense of the paths not taken, even as IP rights extend their rule in and outside the United States with critical consequences for the allocation of pharmaceuticals and pharmaceutical knowledge (Kapczynski, 2009; Mirowski, 2011; Rasmussen, 2014; Sunder Rajan, 2006, 2012a).

The critique of patents in 19th-century medical ethics tied two concerns together. Physicians denounced monopolies on therapeutic agents, devices, or methods as contrary to the ethics of care, for they risked inflating prices in a way that limited patients’ access to necessary treatments. They also deemed them contrary to the ethics of science, for property and exclusivity ran against the principles of publicity, reciprocity, and disinterestedness that guaranteed the advancement of medical knowledge. Thus, the notion of a pharmaceutical commons to be defended in the interest of both science and patients, so central to current critiques of intellectual property, was first articulated in a legal and technological context with little resemblance to our own. Gabriel locates its roots in the medical profession’s self-image as a benevolent vocation, citing the profession’s first ethics codes, which made it a premise that all drugs should lie in a public domain, and that any attempt to remove them from it – whether through patents, trade secrets, or otherwise – amounted to quackery.

Accordingly, physicians’ ethics codes applied to drug manufacturers too, distributing them on either side of a divide between orthodoxy and quackery. ‘Ethical’ manufacturers – as companies choosing to abide by the rules of medical ethics were known – observed three main rules: they renounced patents, marketed their drugs exclusively to medical professionals, and sold them under their recognized scientific names rather than under fanciful brand names. ‘Patent medicine’ manufacturers, on the other hand, sought to bypass physicians, ignoring objections to the appropriation of drugs and advertising them in the popular press. What defined a ‘patent medicine’ was the intentions of its producer and the methods of its promotion, not the nature and quality of its ingredients.
Ironically, few patent medicines actually enjoyed the protection of a patent, yet the question of patenting loomed so large in 19th-century medical ethics that ‘patent’ came to function as a metonymy for the unethical in general.

As Gabriel suggests, however, benevolence came with benefits of its own. Orthodox physicians and ethical manufacturers shared what Bourdieu (1980) calls an ‘interest in repudiating self-interest’ (p. 268). Forgoing the immediate material profits pursued by patent medicine sellers resulted in deferred but valuable symbolic gains. Ethics codes, then, can be viewed as tools for the strategic management of the profession’s symbolic capital. By orchestrating the collective performance of disinterestedness and organizing the collective repression – both social and psychological – of the material interests taken in the practice of medicine, they insured members against the symbolic losses that visibly self-interested physicians might inflict on the profession as a whole. Medical ethics translated the basic intuition that medicine – like art, the most thoroughly developed example of a symbolic economy in Bourdieu’s (1996) sociology – ought to be conducted as a ‘trade in things that have no price’ (Bourdieu, 1980: 261), a business that thrives only by denying its nature as business.

What professional ideology framed as an opposition between benevolence and self-interest is best analyzed as an opposition between two regimes of capital accumulation. For medical professionals, the good to be pursued was autonomy based on reputation, the power to define and enforce the rules governing their field of recognized expertise. For the ethical drug companies, it was partnership with the medical profession in a bid to collect the dividends of its accumulated symbolic capital. Whereas patent medicine sellers relied for their profits on the wide diffusion of newspapers, ethical manufacturers counted on the special aura conferred on drugs as they appeared on physicians’ prescriptions as opposed to in newspaper ads. The strategies of orthodox physicians and ethical manufacturers thus escaped the logic of economics only from the viewpoint of an economy narrowly defined as calculated pursuit of material profits. When economy is conceptualized broadly to include symbolic alongside material goods, it can be made to account also for ostensibly uncalculating pursuits such as the arts of healing.

As told in Medical Monopoly, the story of drug patents illustrates these subtle links between ethics, economy, and authority. At the heart of that story, Gabriel shows, was the unstable relation between substances and their names. The growth of the patent medicine business in the wake of the Civil War brought thousands of compounds to the market under commercial names that masked rather than revealed the nature of their ingredients. The anarchic proliferation of drugs of uncertain composition led to a radical reimagining of the role of patents in medicine. While patents used to be associated with secret ingredients in the same sweeping critique of monopolies, a defense of patents emerged in the 1880s that hinged instead on what separated patenting from trade secrets. As physician and pharmacist Francis Stewart, the main protagonist in Gabriel’s narrative, argued, ‘a thing patented is a thing divulged’. Patents’ original purpose was to reconcile the publication of inventions with the interests of inventors by dissociating monopoly from secrecy. Patent applications, therefore, comprised a description of the invention, or, in the case of drugs, their chemical identities. As a collaborator of Parke, Davis, then the country’s leading ethical drug firm, Stewart was well aware of the economic value of a new drug’s formula, and saw in the temporary granting of exclusive rights a fair price to pay for drug companies’ most valuable secrets.
To make sense of the timing and reception of Stewart’s argument, Gabriel situates it within two contemporary movements. The first is the medical elite’s project to ground the practice of medicine in the sciences of the laboratory and the clinic. From the viewpoint of early-20th-century reformers, no greater obstacle existed to the rationalization of medicine than the multiplication of drugs of unknown composition, since it left therapeutic decisions in the hands of a superstitious public rather than in those of expert practitioners. Framing patents as a tool for fixing the relationship between pharmaceutical names and things, Stewart’s argument fit squarely within the project of therapeutic reform. He envisioned provisory monopolies as a mechanism to restore order and transparency to the drug market, suggesting – in what was then a deeply counterintuitive proposition – that patents should be embraced as a remedy for the evils of the patent medicine trade. As Stewart’s views shattered the profession’s unanimity against patents, a distinction between legitimate and illegitimate forms of appropriation gradually took the place of the indiscriminate rejection of monopolies in medicine.

On a larger scale, Stewart’s labors were also aligned with the ‘corporate transformation of America’ (Gabriel, 2014: 154) in the post-Civil War period, a process in which the broadening of intellectual property rights played a crucial role. Industry leaders, Congress, and the courts gained a growing awareness of the importance of symbolic assets as markets expanded and the economy was restructured around large national corporations. Knowledge and information could be protected by patents or trade secrets. Even reputation, often the fruit of vast investments, could be poached on by counterfeiters, and thus began to be recognized as a form of property. The production of drugs illustrated these changes like few other sectors of the economy. For Gabriel, the birth of the modern US pharmaceutical industry dates back to that moment, as the ethical wing of the drug industry succeeded in making the appropriation of drugs through patents acceptable to the medical profession. Once patented, the aura and value of a new drug no longer relied on a formula kept secret; it derived instead from its official and protected status as ‘original’, or in today’s parlance, an ‘innovator’ product.

The recasting of patents as ethical monopolies was a key shift in a broader series of transformations that reconciled the medical profession with the fact that pharmaceuticals would not merely be produced, but also researched and developed primarily by a private and proprietary industry. Together, these transformations amounted to what is perhaps the most far-reaching shift in the symbolic economy of drugs. They led in particular to the development of ‘scientific marketing’ (Gaudillière and Thoms, 2013), the strategic production and dissemination of pharmaceutical knowledge by an industry with a vested interest in seeing its drugs appear on the prescriptions of physicians. Our present pharmaceutical arrangements, in which the public relies on physicians to decide which drugs to trust and consume, while physicians depend in important yet largely invisible ways on the industry to decide which drugs to prescribe, emerged as a result of it.

The clinical trial

As pharmaceutical firms became more central to the medical field, they also became subject to stricter regulation. National agencies like the FDA took on the role of central banks in the symbolic economy of drugs, of lenders of the authority invested in claims about drugs. Their role grew as a result of crises resulting from misplaced credit, with the
task of guaranteeing that future claims were sound and could be accepted confidently by both physicians and patients. The most consequential of these crises was the global thalidomide catastrophe of the early 1960s, when a remedy marketed as combatting morning sickness was linked to severe birth defects in the babies of women who had consumed it during their pregnancies. As a result, authorities in the United States and other countries required that no new drug be admitted onto the market unless proven safe and effective in RCTs. The use of RCTs in medicine dated back to World War II, but in the wake of the thalidomide crisis RCTs became the cornerstone of our modern systems of drug regulation.

David Healy’s *Pharmageddon* (2012) is about the consequences of the embrace of the RCT as the fundamental law of our contemporary regime of ‘evidence-based’ medicine. The complex apparatus of the RCT, often requiring upward of 1,000 test subjects to be enrolled and monitored over extended periods of time, makes it a costly technology, unaffordable to all but a few organizations outside major pharmaceutical corporations. Scholars, therefore, have paid close attention to the consequences of the privatization, outsourcing, and offshoring of clinical research work on the kind of clinical evidence that gets produced and published (besides Healy’s own work, see Mirowski, 2011; Petryna, 2009; Sismondo, 2009). *Pharmageddon* ties the issues and arguments explored in this body of work together in a searching critique of the contemporary uses and understandings of evidence-based medicine. Like patents, RCTs were initially introduced in medicine as an instrument of therapeutic rationalization, a method to expose and contain the deceptive powers of marketing. For Healy, however, the combined effects of RCTs, patents, and prescription-only status for drugs – the three basic pillars in the architecture of our system for organizing the production and distribution of medicines and medical knowledge – have been to bind patients to physicians and physicians, in turn, to the drug industry as primary sources of information about therapies. The book’s main argument, then, is that these arrangements turned the RCT ‘inside out’ (Healy, 2012: 65), from a technology designed to debunk bogus claims about drugs to the most powerful tool to market them.

While historians of the RCT have foregrounded its ability to render visible the hidden properties of drugs, Healy is crucially concerned with its power to conceal what might otherwise be seen or sensed. To begin, randomization is a technology best suited to spot treatments that do not work. In RCTs, test subjects suffering from the particular condition against which a drug is tested are randomly split into two groups, one which is given the experimental drug, the other (the ‘control group’) a dummy pill or another known drug. If no difference is observed between the outcomes of both groups, the drug can be rejected as no more effective than the placebo or the treatment with which it is compared. In this way, RCTs have a unique ability to disprove false claims of efficacy, and, Healy notes, they have been used effectively to this end. When, on the other hand, test subjects appear to fare better on the drug than the placebo, it is shown that the drug somehow makes a difference. We learn that it works, but not how or why it does. The resulting statistical knowledge remains partial and potentially misleading as long as it is not complemented by a mechanistic description of the drug’s effect.

As they demonstrate efficacy without highlighting mechanisms, RCTs may have the effect of consolidating or ingraining inadequate diagnostic categories. The antidepressant drugs to which Healy devoted much of his earlier work as medical scientist and
historian, for instance, may perform better than placebos in clinical studies. They make a difference in enough cases to be approved as effective and prescribed to large numbers of patients. And yet, in the absence of an understanding of the nature and mechanisms of the disease, it remains unclear that what we categorize as ‘depression’ is not misleadingly loose, lumping together a plurality of disorders, only some of which respond to pharmaceutical treatment (Ehrenberg, 2010; Healy, 1997; Kirsch, 2010). The quality of the evidence produced in RCTs depends critically on the quality of the diagnostic categories with which research questions and subject pools are constructed. When these categories are flawed, RCTs that show even a small benefit for a treatment tend to justify the prescription of drugs to patient groups that might not benefit from them.

Furthermore, the RCT is better suited to identifying the benefits than the adverse effects of drugs. Many severe side effects are rare, occurring in fewer than one in a thousand patients. If one of these events strikes just one or two of the subjects enrolled in a clinical trial, as will usually be the case, it can always be ascribed to chance rather than to the drug itself. Such incidents fail to reach thresholds of statistical significance. For findings about rare events to reach these thresholds, trials would have to enroll many more subjects and/or be run over much longer periods than is necessary to obtain statistically significant results about benefits that accrue with a much higher frequency than rare adverse events. As a result, there is a structural bias in the evidence produced by RCTs, especially those run by private companies that have no incentive to run larger or longer trials than is necessary to obtain statistically significant results about benefits that accrue with a much higher frequency than rare adverse events. A case in point, thalidomide had been tested in clinical trials and deemed safe and effective by pharmacologist Louis Lasagna, who, somewhat ironically, played a key role in Congress’s adoption of the RCT requirement in the wake of the thalidomide catastrophe (p. 48).

A final constellation of issues, then, concerns the symbolic power of clinical trials over both the medical profession and the public. Although ‘evidence-based medicine’, which values the statistically significant findings of RCTs over all other forms of evidence, has effectively made medicine dependent on the pharmaceutical industry for its knowledge about drugs, medical authorities remain deeply committed to it. Endorsed by regulatory bodies and published in prestigious medical journals, clinical research funded, designed, and often ghostwritten on the industry’s behalf now serves as the basis for clinical guidelines that physicians are expected (and, increasingly, compelled) to follow. The valorization of this form of evidence at the expense of direct clinical experience, Healy suggests, has the effect of blinding physicians to the adverse effects of drugs. Although the effects are there for patient and physician to see, the fact that they are not proven in trials, recorded in the literature, and incorporated in clinical guidelines leaves them unrecognized, or even unrecognizable. By reorganizing the sphere of the visible and the invisible, RCTs are thus radically transforming the conditions of trust in drugs.

*Pharmageddon*, in sum, is an insistent meditation on the meaning of data evidence in medicine, on what it takes for an experience to count as evidence or for a clinical event to count as scientific data. The very words ‘data’ and ‘evidence’ portray pharmaceutical
knowledge in terms connoting an unproblematic immediacy, a simple and solid givenness, while referring in fact to the unstable products of a complex, costly, and contested production process. By misrecognizing that process and disguising its fragilities, the idiom of evidence-based medicine has contributed to erasing the boundary between science and marketing, disabling critique, and transforming RCTs into the pharmaceutical industry’s most prized symbolic assets. Despite appearances, Healy does not remind the reader of the mediated, constructed, and contested nature of pharmaceutical knowledge production in the name of a pre-statistical medicine founded only on the intuition and judgment of the clinician. What is advocated instead is an epistemological pluralism that recognizes more than one source of knowledge and more than one form of evidence about drugs and their effects.

The drug itself

In Bourdieu’s theory of symbolic capital, recognition is always entangled with misrecognition. A particular social order acquires legitimacy when its arbitrariness is successfully repressed, when the social world is (mis)represented as founded and justified in nature rather than made by history (Bourdieu, 1990: 112–115, 122–129). Similarly, the symbolic economy of drugs works to dissimulate the inherent instability of substances; it disguises and displaces the long and fragile chain of agents, practices, and institutions that affirms the identity and efficacy of medications. In so doing, it suspends disbelief, ensuring that drugs are taken without second thoughts, that people learn to omit the many dangers of absorbing powerful and unknowable toxics. Its operation is also one of ‘naturalization’, of representing drugs as tangible, self-evident things closed in on themselves, rather than fragile webs of signs and substances woven together by a multiplicity of actors and always ready to unravel.

This is why symbolic economies are best studied when they are in crisis. As long as promises are fulfilled, debts honored and respects paid, the social order need not be questioned. When the dialectic of expectations and experiences that upholds it unravels, however, what remains repressed or unspoken in the normal functioning of society tends to irrupt again into consciousness (Bourdieu, 2000: 160–162). Kristin Peterson’s Speculative Markets (2014) demonstrates how much drugs illustrate this dynamic. In contemporary Nigeria, a reported 30 to 50 percent of drugs on the market are fake or substandard. Owing to the almost total lack of the sort of securities that drug consumers enjoy in Europe or North America, Nigerians must reckon with the dangerous inscrutability of drugs. Distrust and disbelief, which the symbolic economy of drugs normally works to suppress, define their relations with pharmaceuticals. In this sense, Nigeria’s drug market differs also from the so-called emerging markets of middle-income countries on which the anthropology of drugs outside Europe or North America has tended to concentrate (Biehl, 2007; Ecks, 2013; Hayden, 2007; Lakoff, 2004; Petryna et al., 2006). In foregrounding a place as distant as possible from the pharmaceutical world surveyed in Healy or Greene’s studies, Speculative Markets uncovers crucial aspects of a symbolic economy in its global ramifications.

The evolution of the Nigerian drug market reflects the particular history of postcolonial West Africa. If it bears some obvious resemblances to the late-19th-century patent medicine market described by Gabriel, it is not because Nigerian pharmacy has lagged behind
in a teleology that will eventually lead to today’s European or American drug market. After independence, the new state’s commitment to the project of modernization and the revenues of the oil boom made Nigeria a prime market for Western pharmaceutical companies. The rising middle class saw a ‘high symbolic value associated with brand-name drugs’, and the pharmaceutical profession enjoyed a high degree of prestige (p. 42). When bust followed boom in the 1980s, however, foreign capital and currency left the country, structural adjustment programs radically impoverished Nigerians, and international drug companies scaled down operations before divesting altogether. As the country slipped from among the ‘emerging’ into the abandoned markets, drug shortages incited the government to relax regulations in order to facilitate the procurement of drugs from alternative sources.

The main clearinghouse in the informal pharmaceutical economy that emerged as a result is the drug market of Idumota in Lagos. Speculative Markets is first and foremost an exploration of that unique place – a few dense blocks where the wholesale drug trade for most of Nigeria and West Africa is conducted in crammed stalls of a few square meters – and the traders who bring it to life. Most of them are of Igbo ethnicity. Displaced in the wake of the Biafran War and barred from public employment, many Igbos made careers in the black and grey market economies of post-crisis Nigeria. In the Idumota drug market, they typically learn their trade as apprentices in family members’ shops, not as students in chemistry or pharmacy school. There, too, the pharmaceutical market relies critically on an economy of trust and credit, but one whose main resources lie in kin networks, rumor, and mutual control rather than in formal rules and regulations. Behind an appearance of chaos, it has a logic of its own, which Peterson sees as rooted in a distinctly Igbo economy oriented toward the conversion of goods into status, or material into symbolic capital, and toward the sharing of resources within the diaspora.

Ordinarily, regulation requires that any drug in circulation can be traced back to its place of origin, to the approved and certified factories that produced it. The drugs imported into Nigeria are of very different kinds and provenances. Many come from India or China, from the established generic companies that supply Europe and North America as well as from unsupervised and unaccredited manufacturers. Others are obtained through narcotics dealers who purchase large amounts of brand-name pharmaceuticals with the proceeds of the illicit drug trade and resell them at dumped prices in Nigeria as one of several money-laundering tactics. A small number also come from under-equipped and under-regulated domestic producers. Among all these, many are licit products, though often obtained through illicit channels; some are intentionally counterfeited; others are produced without fraudulent intent though also without adequate equipment; still others are good drugs that have expired or have been damaged by improper storage or transport. Once they enter the unsupervised spaces of Idumota and pass through the hands of traders who must convert credit into goods and goods back into credit as swiftly as possible, the link with their place of origin is irremediably severed. Given the places and rhythms of the Nigerian drug trade, regulation is made all but impossible.

When the origin of a drug is unknown, not much is left other than the drug itself to decide its quality. Yet as Peterson shows, the drug is a hopelessly unreliable sign of itself. Since consumers have little else to go on but shape and color, packaging, or price sticker to guess a drug’s provenance, these signs are also the objects of counterfeitors’ greatest attentions and investments. Similarly, the drugs most likely to be faked are those that consumers
are most likely to trust – brand-name products, expensive items, or well-recognized substances such as antibiotics or antimalarials. From the viewpoint of the patient-consumer, this leads to the paradoxical situation that the best drugs are also the worst and the most trustworthy are also the most likely to be adulterated. A powerful symbolic alchemy affects the status of all products that traverse Idumota. Mixed with substandard products from which they can no longer be distinguished, good drugs undergo an inevitable devaluation, whereas bad drugs mingled with legitimate ones are recycled into circulation and regain legal tender. These economic realities have important epistemic implications. Each time someone suffers adverse effects from a drug, fakes offer themselves as an obvious reason. Questions about side effects and drug resistance fail to be raised where an easier explanation is always at hand. In this way, the ubiquitous and elusive presence of fakes plays a crucial role in protecting the symbolic capital of established drug companies and maintaining a desire even for ineffective or injurious products.

One of Speculative Markets’ most interesting contributions lies in its effort to connect the symbolic economy of drugs to that of another special commodity, namely money. If not quite to the same degree, drugs and money are both goods that have value inasmuch as people believe in their value. As things that function as signs and whose prices mirror the faith and credit of those who circulate them, they are privileged objects of speculation. Tellingly, Peterson locates the beginnings of her story in 1971, when Nixon suspended the convertibility of the dollar into gold. The policies that the United States subsequently pursued to attract capital and preserve the dollar’s strength reverberated far beyond its borders. Across Africa, capital flight resulted in deindustrialization, rising debt, and loss of sovereignty – the conditions that pushed Western drug companies out of Nigeria and eventually gave rise to the informal pharmaceutical trade that now occupies their place. It was no mere coincidence, therefore, that the composition of drugs started to fluctuate alongside exchange rates. The uncertainties created by monetary instability gave rise to the speculative practices that have made Nigerian drugs so unreliable. Floating chemistries, in other words, were direct results of floating currencies.

Alongside other medical anthropologists (Sunder Rajan, 2012a, 2012b), Peterson interprets the specific physiognomy of the drug markets of the Global South in light of the same global economic transformations that made the pharmaceutical world depicted by Healy, Greene, and others (Dumit, 2012; Mirowski, 2011). The strengthening of IP regulations, for instance, explains high drug prices and the search for blockbuster products by Western brand-name companies. At the same time, it keeps patented products out of poor markets and gives rise to parallel pharmaceutical economies of the kind described in Speculative Markets. Through the case of Nigeria, Peterson thus clarifies the contours of a pharmaceutical world system made by financialization, unequal debt regimes, and expanding IP laws. It is often noted that the globalization of pharmaceutical production increases the risk that counterfeited items enter the pharmaceutical supply of countries like the United States, too. As Peterson shows, however, global differentials in credit and capital tend to keep the authentic brand-name products in countries that produce and own recognized currency while diverting adulterated or substandard items to countries that owe it to others. Places like Idumota act as key nodes in this global pharmaceutical economy, for they attract the world’s worst drugs in a way that by and large preserves the patient-consumers of wealthier countries, thereby enabling them to take their drugs for granted.
Conclusion

All four studies describe intriguing inversions of function. Generic names, initially conceived as ‘critique[s] of the brand’ (Greene, 2014: 39), have imposed themselves and fulfilled their rationalizing mission by functioning as brands of a new kind. Patents on drugs, long rejected as unethical, were embraced at the turn of the 20th century as a solution to the evils of the patent medicine trade – and might now, in some respects, be bringing us back to it. RCTs, adopted to control and contain the powers of marketing, have become the industry’s most powerful marketing tool. Finally, patents and trials introduced to guarantee the safety of drugs have so inflated the price of brand-name products that these have become the object of large-scale counterfeiting in under-regulated markets, turning what are meant to be the safest pharmaceuticals into the least trustworthy.

By highlighting such inversions, these studies bring into relief one of the fundamental features of the symbolic economy of drugs – namely, the fact that it forms a system. The uses and meanings of the signs that operate within it, in other words, are not predefined and unchanging; they are determined instead by their relations with one another in variable local or historical contexts. While the studies reviewed here each single out a different instrument of pharmaceutical communication, they link the shifting functions of these instruments to the transformations of the economy of pharmaceutical knowledge as a whole. Here also is the justification for reading them alongside one another. Together, they provide an overview of the transformations of the symbolic economy of drugs in key moments and places. As such, they should also serve to inspire research on the symbolic economy of other technoscientific commodities.

Finally, these studies raise the question of the place of scholarship in the symbolic economy of drugs. While scholars do not command the same material resources as large pharmaceutical companies, they possess a symbolic capital of their own that can be invested in inflecting how drugs and knowledge about drugs are produced and consumed. Along with much of the best recent literature on drugs, the authors under discussion demonstrate how much the sharp dichotomy between research and marketing with which the vast polemical literature on the drug industry generally operates has the effect of obscuring rather than illuminating the complex relations between ethics, economy, and autonomy in the production of pharmaceutical knowledge. As such, they suggest why the vast intellectual resources expended in criticizing drug companies have largely failed to pay off, while also offering new resources for transforming criticism of the pharmaceutical industry into a more balanced and far-reaching critique of pharmaceutical knowledge.

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