

Introduction

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Why Study Pharmaceuticals?

The evolution of the modern pharmaceutical industry over the 20th century—from its early intersection with the image and later the structure of scientific research, to its dramatic post-WWII expansion and late-century saturation of medical and marketing media—has implications stretching far beyond medicine and business. That evolution has involved and affected much broader social, cultural, economic, and political developments. Pharmaceuticals are not merely used by doctors to control objective diseases, by patients to control subjective symptoms, or by manufacturers and marketers to control lucrative markets. Their uses and meanings are fluid and take shape at the intersection of many interests and disciplines.

Prescription drugs embody our ardent hopes in biomedical futures (for relief of suffering and prevention of morbidity and mortality) and also great fears (of medicalization, medical control, and side effects). Lurking in every capsule or tablet is a version of the *pharmakon* analyzed by Jacques Derrida—a thing that is both cure and poison.¹ But the pharmaceutical does not simply collapse into this binary alone. Drugs take on value because they simultaneously alter the chemistry and biology of our bodies, the expectations and categorization of our experiences, and the potentialities and networks of our social relations.

In the past decade, a number of ethnographic and historical studies, speaking to very different audiences, have framed pharmaceuticals as an ideal “sampling device” to study the interactions of medical science, clinical practice, consumerism, culture, industry, and the marketplace in the 20th and early 21st centuries. This volume draws together seventeen important works from this field over the past decade to give an introduction to this robust and vital new field of study.

We use the term “pharmaceutical studies” to encompass these humanistic and social scientific studies of prescription drugs.² From the point of view of the anthropologist, historian, sociologist or philosopher, a pharmaceutical can serve as a narrative device for exploring the politics, economics, cultures, and beliefs that potentiate and sustain its use.

It can serve as a tracer tool that can be used to elaborate complex global flows of knowledge, capital, and people. Any pharmaceutical on the market today has been the focus of intense research and marketing efforts, expert regulation, and vernacular interest. It is an object that mediates borders between medical science and popular belief, health and disease, and spheres of licit and illicit. It is also—unlike other interesting biomedical matters such as research protocols, standards, or ethical codes—always a *thing*, a part of the material world invested with specific forms of value and stamped with highly regulated forms of knowledge. In their varied approaches to studying such “informed materials,” scholars working in the area of pharmaceutical studies both demonstrate the interdisciplinarity of science and technology studies (STS) and illustrate some of the field’s broader problematics.³

This volume cannot claim to present a synthesis of all of the important new research in the expanding field of pharmaceutical studies. On the one hand, economic analyses of pharmaceutical markets, ethics, adverse effects, or speculative innovations continue to fill pages in a number of dedicated and general journals on a monthly basis. On the other hand, a steady stream of exposé journalism—some highly nuanced, some crude—documents the role of the pharmaceutical industry in gouging consumers, selling sickness, exploiting research subjects, and selling life-saving drugs at prices that are inaccessible to many who would benefit from them. In selecting the contributions to this volume, however, we have chosen research that highlights social relations often obscured by conventional narratives of triumph and tragedy, of assumed biomedical realism, or conversely of the fabrication of disease by pharmaceutical marketing. We wish to show the value of an STS approach to describing important transformations of biological and social worlds brought about by developments in the field of pharmaceuticals.⁴ The STS approach opens the door for analyses of drugs in both social and biological environments, by situating the scientific, organizational, and rhetorical work to produce a successful (or failed) pharmaceutical in these contexts. There can be no pharmaceuticals without that work: bare molecules do not become pharmaceuticals without ties to health concerns, scientific knowledge, appropriate regulation, effective marketing, and receptive prescribers and publics. Therefore, while there are many potential fields and areas of pharmaceutical studies, this volume focuses on those that draw from close empirical attention to key social contexts. We have chosen some exemplary articles that illuminate the multiple and complex social connections that pharmaceutical studies can make visible.

A Prehistory of Pharmaceutical Studies

It is not a new thing to argue that one can learn much about a society by studying how it tries to cure what ails it. Critical writings about Western therapeutics have been connected to broader forms of social critique for centuries. When, in June of 1527, the young Phillippus Aureolus Theophrastus Bombastus von Hohenheim, later known as Paracelsus, publicized his critique of the Galenic pharmacopoeia in favor of the more rational therapeutics of chemical pharmacy, he burned books of Galen and Avicenna on the front steps of the University of Basel, just as Martin Luther had burned a papal bull a few years earlier on the front steps of the Elster Gate of Wittenberg. Likewise, the acerbic pen of the mid-19th century Boston physician and social commentator Oliver Wendell Holmes was appealing to broader popular critiques of orthodoxy when he stated that “I firmly believe that if the whole *materia medica*, as now used, could be sunk to the bottom of the sea, it would be all the better for mankind, and all the worse for the fishes.”

The popular genre of therapeutic skepticism grew in size and scope over the 20th century, coincident with the growth of the principal firms that now constitute the global

pharmaceutical industry. The work of investigative journalists Samuel Hopkins Adams and Ida Tarbell helped build popular support for the passage of what became the 1906 Pure Food and Drugs Act, which founded the US Food and Drug Administration and the modern age of pharmaceutical regulation in the United States. This lineage of pharmaceutical muckraking can be traced through the middle of the 20th century to a burgeoning genre of literature in the early 21st century and is closely related to the growth of the consumer movements in Europe, North America, Latin America, and Southeast Asia.⁵ Such critical accounts have been matched by an equally popular series of paeans to medical progress, including a host of popular works that continue to celebrate the forward march of the pharmaceutical industry.⁶ Already by the middle of the 20th century, much popular and scholarly literature on the role of pharmaceuticals in society was heavily polarized between triumphalist and muckraker accounts. One might switch from one ideological position to another—as did journalist Milton Silverman somewhere between his rose tinted *Magic in a Bottle* (1943) and his much darker *Prescriptions for Death* (1982)—but relatively few authors found suitable space between the two camps.⁷

Into this highly polarized field, a few islands of nuanced empirical scholarship on the role of pharmaceuticals in society have developed in the past 50 years. In 1959, the young sociologist Renée Fox—a student of Talcott Parsons who would go on to become perhaps the leading medical sociologist of her generation—published her first book, *Experiment Perilous: Physicians and Patients Facing the Unknown*, a multilayered account of uncertainty in the ethics and practice of innovative pharmaceutical research at the Brigham and Women's Hospital in Boston, Massachusetts. Although cortisone, one of the experimental pharmaceuticals described in her account, would become an iconic “wonder drug” of the late 1940s and 1950s, in Fox's account, the pharmaceutical research enterprise was a sphere of ambivalence: no black hats or white hats walked the halls of the Brigham, just an array of people working from their own limited positions of knowledge and possibility. Working from another center of the sociology of science, the Bureau of Applied Social Research at Columbia University, James S. Coleman, Elihu Katz, and Herbert Menzel conducted a careful study of the utilization of new pharmaceuticals among the medical communities of several small Midwestern cities as a test site for studying the diffusion of medical knowledge. The resulting text, *Medical Innovation*, became an immediate staple in the field of the sociology of knowledge upon its original publication in 1966.⁸

Historians of medicine initially approached the modern pharmaceutical industry with caution: when James Harvey Young published his history of patent medicines, *Toadstool Millionaires* (1961), the 20th century research-based pharmaceutical industry, appeared as a rational therapeutic solution to the 19th century huckster of patent medicines. In turn, insider histories of the pharmaceutical industry, such as Miles Wetherell's *In Search of a Cure* (1975), tended to take the production of new drugs and successful organization of companies as natural correlates.⁹ But Young's careful cultural history of the persuasiveness of patent medicine promotion would be extended by later historians—including authors in Charles Rosenberg and Morris Vogel's edited volume *The Therapeutic Revolution* (1979)—to account for the sociocultural significance of late 20th century pharmaceuticals as well. Judith Swazey's *Chlorpromazine in Psychiatry* (1974) was perhaps the first careful book-length pharmaceutical biography to narrate the social life of a single medication, from conception to development to wide-scale deployment, exploring the transformative potential that pharmaceuticals could effect upon the social institutions governing the management of the mental illness. It would be followed by Michael Bliss's *Discovery of Insulin* (1982), Mickey Smith's study of the social life of Valium, *Small Comfort* (1985), and by a series of more sweeping social histories of the modern pharmaceutical industry and its tangled relations with academic science and clinical practice over the 20th century.¹⁰ In a very

different historical theater, Daniel Headrick's *Tools of Empire* (1981) chronicled the transformative role of the fever-reducing drug quinine in allowing the spread of European empires in tropical Africa, Australasia, and Latin America over the 19th and early 20th centuries.¹¹

In its colonial and early postcolonial manifestations, an incipient field of medical anthropology concerned itself with questions of ethnobotany (often connected to bio-prospecting for medically useful materials) on the one hand, and the comparison of local indigenous medical *beliefs* to apparently universal biomedical forms of medical knowledge on the other. Following the inversion of the ethnographic lens in the 1970s and 1980s, however, the modern pharmaceutical itself became an increasingly important subject for ethnographic inquiry.¹² An early focus on the significance of Western pharmaceuticals as a component of cargo cultures gave rise to more in-depth accounts of how therapeutics as commodities became invested with different layers of performative and ritual meanings in the global North as well as South.¹³ By the late 1970s, anthropologists such as Jean Comaroff could use ethnographic materials from sub-Saharan Africa to complicate understandings of the placebo effect in American medical practice, while Susan Reynolds Whyte traced the different meanings and efficacies of an apparently universal cure like penicillin across different locales of therapeutic action in Uganda.¹⁴ Many anthropologists in the 1970s and 1980s, working in field sites marked by scarcity of essential medications and/or overabundance of inessential or harmful medications, incorporated activism and advocacy along with their analysis of the political economy of pharmaceuticals. Michael Tan, Hildebrak Haak, and Anita Hardon were just a few of the many anthropologists whose work in Southeast Asia, Latin America, and sub-Saharan Africa led them to join the pharmaceutical advocacy network Health Action International, whose founding manifesto at the steps of the World Health Organization in 1981 called for a more rational use of medications. By the 1990s, new developments in the anthropology of consumption (especially Arjun Appadurai and Igor Kopytoff's "biographical approach" to consumer goods as charted in the 1986 *Social Life of Things*) became the backbone to a series of calls for the organization of a new field of pharmaceutical anthropology, such as by Mark Nichter and Nancy Vukovic in 1994, and by Sjaak van der Geest, Susan Reynolds Whyte and Anita Hardon in 1996.¹⁵ The second of these calls was made via a thorough survey of earlier anthropological studies of the production, marketing, prescription, distribution, and use of medicines. These categories demonstrated the utility of a biographical approach to commodities, but also showed how the social lives of medicines mapped onto political economies. This juxtaposition would influence much thinking about pharmaceuticals, including the current volume as a whole.

By the turn of the 21st century, a series of sociological, historical, and anthropological tool kits were available for those interested in charting the social lives of pharmaceuticals.¹⁶ As more and more Americans were consuming prescription drugs for an increasing number of chronic conditions, and more and more radio advertisements, billboards, and websites advertised prescription drugs directly to consumers, and more and more scandals involving new (and often suppressed) risks of blockbuster developed in the early 2000s, the social study of the pharmaceutical became an interdisciplinary field of wide interest in investigative journalism and scholarly research.

Key Themes in Pharmaceutical Studies

These early links among the sociology, history, and anthropology of pharmaceuticals have since stretched further afield toward social epidemiology, legal studies, bioethics, political science, and philosophy. This increasingly interdisciplinary field nonetheless coheres around a series of key thematic foci: (1) using pharmaceutical as "sampling device" to open up and study broader social phenomena, (2) situating the pharmaceutical as an object at the

boundaries of the licit and illicit, enhancement and treatment, and normal and pathological, (3) interpreting pharmaceutical consumption as a cultural text and a site of identity politics, (4) charting the movements of pharmaceuticals as global commodities with heterogeneous maps of access, cost, risk, and benefit, (5) understanding the pharmaceutical as a site of knowledge production, through organized clinical trials and through the more inchoate experience with drug risks in the general population, (6) analyzing the creation and maintenance of markets for drugs and knowledge about them, and (7) examining the politics and economies involved in regulating pharmaceutical markets on local and global scales.

1. *The pharmaceutical as sampling device*

In his 1962 work, *The Cholera Years*, Charles Rosenberg argued that a disease—like cholera—could be used as a methodological “sampling device” for historians interested in tracing more intangible qualities of cultural history like the role of expertise in governance and the secularization of civic discourse.¹⁷ Pharmaceuticals, too, serve as tools to study networks of social relations. The production of drugs requires certain networks of social relations in the first place, facilitates other, new formations, and can even obviate longstanding traditions. Drugs are not just of interest in their own right but, as Susan Reynolds Whyte, Sjaak van der Geest, and Anita Hardon consider, tools for studying the social lives of medicines. The trajectories of otherwise quite distant groups of people become closely linked in the production, circulation, and consumption of a single pharmaceutical agent.¹⁸

In one way or another, the chapters in this volume use pharmaceuticals as both methodological and narrative devices to study broader social and cultural phenomena; thus we might take this first very general theme as intersecting with all of the others below. For example, Gabriele Soto Laveaga’s “biography of a drug” (Chapter 12) explores among other things the work and organization of Mexican peasants to harvest the root of the barbasco plant, previously considered a noxious weed, as the key ingredient in the synthesis of cortisone.¹⁹ Or, to take only one other example, we might look to Jongyoung Kim’s study (Chapter 11) of how Korean medicine is reinventing itself to fit with different and changing therapeutic cultures, becoming a different kind of treatment in hybrid contexts in Korea, and then different again as it is exported to the United States.

2. *The pharmaceutical as a mediating agent*

Why is a prescription required for a prescription drug? The answer lies somewhere in the *pharmakon*: all prescription drugs are both poisons and cures, prescriptions are required for those agents that are seen to sit on the knife-edge of risk and benefit without expert guidance. The prescription and the prescription drug constitute a boundary between lay and expert knowledge.²⁰ They also lie at boundaries of legal remedy and illegal succor and pleasure. Most drugs of abuse are or were at one point products of the pharmaceutical industry: amphetamines, opioids, barbiturates, tranquilizers, all were licit drugs before they became illicit ones.²¹ How they are dealt with legally has depended crucially on medical prescriptions, in conjunction with especially issues of race, gender, and class.²²

Of late, pharmaceuticals have taken on increased roles in mediating the distinction between health and disease, between treatment and enhancement and between the extent to which health is understood as a right or as a good.²³ As Simon Williams et al. (Chapter 2) and many others in this volume illustrate in different ways, some of these processes of transformation might now better be termed “pharmaceuticalization” than “medicalization.”²⁴ Medicalization became a key word in critical scholarship in the 1960s and 1970s, especially to those who railed against medical profession’s authority to take control over intimate events and processes, often simply through classification. Yet with the relative weakening of the medical profession in the political economy of health care in the 21st century, the implicit

professional focus of medicalization has lost some of its traction: physicians today appear to be only one set of actors in struggles for control over bodies, health, and illness. Williams et al. suggest that a comparable array of intimate events are now interpreted and addressed through the medium of the pharmaceutical. Joseph Dumit's chapter here (Chapter 3) is part of his larger argument that the past fifty years have seen the instauration of a new model of health and disease, on which we are all less than healthy, and could be treating—typically with pharmaceuticals—our shortcomings.²⁵

Historians, anthropologists, sociologists, and others have increasingly looked to pharmaceuticals to understand changes in disease and illness categories: as part of the construction of disease, or “selling sickness” and “disease mongering,” in the terms of the pharmaceutical industry's critics.²⁶ In this volume, Jeremy Greene (Chapter 5) describes the emergence of asymptomatic hypertension as a disease in its own right, rather than as a sign of some other condition; this emergence has much to do with a new drug, Diuril, which could be used to treat hypertension. Jennifer Fishman (Chapter 7) looks at the actors attempting to construct a new illness, female sexual dysfunction, in a way that can make it amenable to treatment with drugs, even in the absence of specific available drugs. The connections between drugs and diseases are especially apparent, and have been widely studied, in the arena of psychopharmaceuticals, where the boundaries between health and illness seem particularly malleable.²⁷ However, drugs have been crucial to establishing the boundaries of other diseases: menopause, osteoporosis, hypercholesterolemia, and irritable bowel syndrome, to name a few.²⁸

3. *Pharmaceutical consumption as a cultural text*

Prescription drugs have also served as a key focus of consumer activism. From the journalistic work that led to the passage of the 1906 Pure Food and Drugs Act, to the foundational texts of Consumers Union in the 1930s that led to the passage of the 1938 Food Drugs and Cosmetics Act, to the anti-monopolistic hearings of Estes Kefauver in the 1960s, pharmaceuticals have played a key role in animating key moments in American consumer history. A significant part of consumer activism around pharmaceuticals have related to the identity politics of specific consumers, as understood across axes of gender, race, or sexuality. Organized inquiry and protest about the safety of oral contraceptives, diethylstilbestrol (DES), and hormone replacement therapy (HRT) were crucial to the development of health feminism in the 1960s and 1970s. Likewise, the gendered marketing of diet pills, minor tranquilizers, and sleep aids has been the nidus of a complex series of critiques about the medicalization of gendered inequity in American society.²⁹ A robust strand of feminist scholarship has expanded beyond studies of reproductive technologies in America and Europe to their deployment in the global marketplace³⁰ and beyond women's health in the spheres of obstetrics, gynecology, and psychiatry toward the gendering of other forms of pharmaceuticals, such as cardiovascular medications.

The pharmaceutical consumer, as subject or object, also has been characterized along racial lines. Anne Pollock's study of BiDil (Chapter 6), the heart drug approved by the US Food and Drug Administration for treating heart failure in African Americans, shows how contours of race become revealed in the context of discussions of prices and patronage. BiDil brings the issue of race into sharp relief, but other work on the conjunction of race and pharmaceuticals has looked at metaphors, genetic research, and technologies used to label some bodies as racialized in particular ways.³¹

Several cultural texts and subtexts can be enacted when a pharmaceutical is prescribed, purchased, and consumed. Particular drugs come with meanings attached, and thus are often understood to be taken (and often even prescribed) by particular kinds of people. Pills become social and cultural signifiers whose meanings are not fully controlled by prescribers or by the

legal and regulatory frameworks that govern pharmaceutical consumption. They are often closely connected with ideas of the self, of the social world, of community and nation.³²

Nathan Greenslit (Chapter 5) looks at the drug Sarafem, which is chemically identical to Eli Lilly's antidepressant Prozac, but is packaged, culturally coded, and marketed for premenstrual dysphoric disorder. The result, arguably, is that Sarafem is a different drug than Prozac; the people who consume the two drugs understand their problems and identities differently. Likewise, Cori Hayden's account (Chapter 18) of the jockeying of competing kinds of copied drugs in the early 21st century Mexican pharmacy shows the challenges posed to would-be consumers of generic drugs when "the same thing" can be purchased along several different lines of guarantee of therapeutic equivalence. What does it mean to purchase a brand-name drug when a cheaper product exists that claims to do the same thing? What risks are entailed in purchasing a cheaper *similar* pharmaceutical in place of an authenticated *generic*? How and why do different consumers choose to consume the same thing differently?³³

4. *The pharmaceutical as a global commodity*

Although the themes discussed so far have not focused exclusively on American and European examples, the field of pharmaceutical studies presented in this book is tipped toward American studies. Yet the pharmaceutical is, as it turns out, an excellent device for studying transnational flows of commodities and connected economies of knowledge.

Pharmaceuticals have played a role in the mediation of global economies of knowledge and goods, since the first European voyages of discovery in the 15th century and before. The spices sought by Vasco da Gama in his nautical exploration of the East Indies, and Columbus and others in developing the West Indies trade were understood to be powerful therapeutic objects. Many of the new objects brought back from the New World—including anti-syphilitic guaiac bark, antipyretic Peruvian bark, and stimulant coca leaves—would pose significant challenges to previously stable Galenic *materia medica* and would help to enable new systems of thinking about therapeutics, like the 16th century iatrochemistry of Paracelsus mentioned earlier.

Though pharmaceuticals have long moved in global markets, the structure of the research-based pharmaceutical industry shifted dramatically in the second half of the 20th century toward a more explicitly globalizing model, in which research, production, and distribution of drugs within a single company could take place in a series of 10–20 countries scattered across several continents. It has been a bitter irony that this increased globalization in the business of pharmaceutical production and research has not resulted in global equity in pharmaceutical access, or in the adequacy of regulatory regimes to safeguard consumers. Consumer activism around pharmaceuticals in the late 20th century became a key site for critique of multinational corporations—a form of "anti-globalization" critique *avant la lettre*.³⁴ As the International Organization of Consumers Unions shifted its policy center to the global South in the 1970s (literally moving its offices from the Hague to Penang, Malaysia), its new president, Anwar Fazal, created a transnational network of advocacy groups around pharmaceutical overuse and underuse in the developing world.

One key area of contemporary pharmaceutical studies then, is to demonstrate the relevance of reading the pharmaceutical as a global commodity that nonetheless takes on different forms of meaning and value within local markets. Some notable works to focus in this balance in recent years range from ethnographies of counterfeit drugs in Nigeria to studies of the availability or unavailability of neoplastic drugs in East Africa or antiretroviral drugs in West Africa to the general non-visibility of endemic killers of the global South (malaria, trypanosomiasis, tuberculosis) as markets for firms based in the global North.³⁵ Stefan Ecks, in this volume (Chapter 17), likewise demonstrates the pluralistic understanding of markets

for what would seem to be the same anticancer drug, Glivec, in North American and South Asian markets. Cori Hayden's essay (Chapter 18) traces the differential marketing of the "same things" in generic pharmaceutical markets in Mexico as opposed to the United States. Adriana Petryna's contribution (Chapter 14) notes with some alarm the distance between the geographies of pharmaceutical consumption (understood as a geography weighted toward North, and West) and the geographies of pharmaceutical knowledge production (increasingly weighted further East, and South).

5. *The pharmaceutical as a site of knowledge and value production*

As "informed materials," pharmaceuticals take on value through association with new forms of knowledge.³⁶ Conversely, the existence of pharmaceutical interventions help bring other forms of knowledge into being and have helped to stabilize certain forms of biomedical knowledge-making, most notably the randomized controlled trial (RCT). The study of pharmaceuticals opens up key windows into how biomedical objects take on value—and lose value—in relation to the production and adherence of new biomedical facts.³⁷

Pharmaceutical knowledge was validated through a variety of means in the nineteenth and early 20th centuries. But by the middle of the 20th century, pharmaceutical value was increasingly associated with the rise of RCTs as an ascendant form of biomedical knowledge-making, from the 1948 MRC streptomycin trials in the UK onward. The rise of the RCT is a result, among other things, of reform movements that distrusted practitioners. At the same time as clinical trials came to validate pharmaceuticals, however, pharmaceuticals also helped establish clinical trials as the new "gold standard" in biomedical epistemology.³⁸ Clinical trials became key means to consolidate popular controversies over the safety and efficacy of experimental therapeutics, but as critics have since established, comparison with placebo alone is rarely sufficient to ensure that new pharmaceuticals are effective—or safe—in all relevant senses of the term.³⁹ Concerns over the safety of pharmaceuticals emerge frequently, despite negative findings in initial, short-term RCTs. Many discoveries of the harmful qualities of drugs—from DES to HRT, sulfanilamide to Avandia—depend on the accumulation of "drug experience" through lay and professional forms of pharmacoepidemiology, but as a result are often easily discredited or devalued in relation to institutionally conducted RCTs.⁴⁰

Pharmaceutical knowledge is increasingly produced across many locations, often by contract research organizations.⁴¹ Thus, understanding how knowledge of pharmaceutical safety, efficacy, or quality is produced and attached to specific products requires attention to broader social networks of knowledge production and ratification. Several essays in this volume—from Jill Fisher (Chapter 13) to Adriana Petryna (Chapter 14) to Kaushik Sunder Rajan (Chapter 15)—describe infrastructure needed for commercial trials and processes by which subjects are recruited for those trials.⁴² The pharmaceutical industry has attempted to reduce its costs by standardizing requirements internationally; this allows companies to use the same research for their applications for a drug's approval in many jurisdictions. In creating the International Conference on Harmonization (ICH), it helped to make the testing of drugs a global phenomenon, even though it has been tempered by local therapeutic cultures, and has been challenged by countries insisting on the racial or ethnic differences of their populations.⁴³ It has been argued that the ICH agreement has tended to harmonize standards "downward," resulting in overall weaker carcinogenicity testing, weaker reporting of adverse events, and less long-term monitoring of adverse events.⁴⁴

Production of drugs themselves, as material objects, is understudied, relative to the production of knowledge about those drugs. Because of their association with advanced science, pharmaceutical production may often be imagined as an activity taking place in isolated and sterile laboratories. Gabriela Soto Laveaga's contribution (Chapter 12) takes us

into the Mexican jungles, where through the middle of the 20th century, a raw ingredient for the synthesis of steroids was collected by *campesinos* on a vast scale; endocrinological drugs posed particular organizational challenges because of the minute quantities of the precursor substances available from animal organs (from slaughterhouses) or urine (collected from pregnant women or horses).⁴⁵ Other works have looked at pharmaceutical production facilities as chemical plants, with attendant environmental consequences.⁴⁶

6. *The pharmaceutical and its markets*

Of all of the relationships mediated by pharmaceuticals, one enables all others: the relationship of good to market. Pharmaceuticals have circulated through mass markets as long as mass markets have existed; much of the earnings of the early advertising industry were supported by patent pharmaceutical firms; by the end of the 19th century, the Lydia E. Pinkham Medicine Company could boast that it was the largest advertiser by volume in the world.⁴⁷ Since the expansion of direct-to-consumer advertising of drugs in the United States, and the permission of some forms of it in Europe and elsewhere, marketing has become visible to far broader audiences and has helped to create broader markets. The visibility of direct-to-consumer advertising has led to an extensive conversation about whether the promotion of medicines should or should not be subject to a different code of ethics than other consumer goods.⁴⁸

Drugs may be taken up in new markets because of local forces, such as physicians' efforts to treat more patients.⁴⁹ What may be most striking about pharmaceutical marketing, though, is companies' integrated efforts, encompassing not just advertising, but efforts that work through medical science journals, regulation, medical education, one-on-one contact with doctors, and many other media.⁵⁰ Kalman Applbaum shows (Chapter 9) that drugs are created along with markets, as companies try to make salient certain cultural texts for the different actors necessary for mass consumption of a new product. There need not be a clearly defined preexisting demand for a pharmaceutical to be successful, if its marketers can have enough power to shape the different terrains they wish to occupy.⁵¹ In particular, pharmaceutical companies can attempt to structure and restructure medical knowledge in different ways, whether through innovative drug discovery or through hegemony over medical knowledge production and communication. The latter, it has been argued, can often be shown to be a better investment of resources.⁵² This may be why, as Sergio Sismondo's study (Chapter 10) of "publication planning" indicates, pharmaceutical companies invest significantly in the planning, creation, and circulation of scientific articles tied to their products.⁵³ To physicians, some of the most visible conduits of both pharmaceutical marketing and communication are sales representatives, who can be important shapers of medical opinion. These "detailers" beat paths from office to office, trying to earn a minute or so of a physician's time to make a sales pitch.⁵⁴ They bring food for doctors and staff and drug samples to be given away to patients and information companies have shaped to give scientific backing to their pitches. As Adriane Fugh-Berman and Shahram Ahari describe (Chapter 8), sales representatives have carefully honed approaches to classifying doctors and then tailoring their approaches to methods most likely to succeed.

7. *The pharmaceutical as subject of regulation*

Concerns about pharmaceutical piracy can be found in earlier regimes of intellectual property regulation, including 17th century disputes.⁵⁵ It is notable that pharmaceuticals became patentable in Europe early in the 20th century; the histories of these patent laws are varied and revealing.⁵⁶ More recently—in the early 1980s—a group of companies within which the pharmaceutical industry was very prominent put intellectual property at the top of the US

trade agenda. They helped to design international agreements and a successful strategy for convincing other countries to sign onto those agreements.⁵⁷ The result was the Agreement on Trade-Related Aspects of Intellectual Property Rights or TRIPs, which has formed the basis for new intellectual property laws in countries around the world.

Even though it has reacted strongly against many government attempts at regulation⁵⁸ (TRIPs being an exception), the multinational pharmaceutical industry has influenced, adapted to, and profited from those regulations. It is today very much a creature of its regulation. The distinction between legitimate pharmaceuticals and their legitimate counterparts—such as patent medicines, herbal remedies, supplements, illegal drugs, and traditional medicines—has depended and continues to depend on demarcations that require certain medicines to be scientifically tested for their safety and efficacy, approved for particular uses, and then prescribed by licensed physicians or sold through licensed pharmacies.⁵⁹

In general, state-based regulators are receptive to pressures to balance interests in safety and effectiveness with the financial interests of a thriving industry that, it is argued, provides long-term health and economic benefits. Thus, the experts who evaluate drug applications are expected to be “friendly” to the industry even as they apply strict standards, and the regulator as a whole is expected to support the industry even as it upholds laws.⁶⁰ Several studies have drawn attention to the alliances of organized medicine and the organized pharmaceutical industry, especially the US-based Pharmaceutical Research and Manufacturers of America (PhRMA).⁶¹ These alliances have been important in lobbying for particular policies and in defending the legitimacy of pharmaceutical knowledge in contrast with alternative forms of therapeutics.⁶² Physician/industry relationships—which grew very close and relatively uncontested, for much of the late 20th century—are now increasingly reexamined as social ties with significant potential for individual and institutional conflicts of interest.

Regulation happens at many different levels and not just by states. Adopting E.P. Thompson’s well-known concept of “moral economy,” we can understand how particular forms of collaboration between researchers, doctors, and pharmaceutical companies are and are not acceptable.⁶³ The idea of moral economies as forms of regulation, at least of justifications of behaviors, has been picked up by a number of researchers in pharmaceutical studies.⁶⁴

In its public relations efforts, the pharmaceutical industry justifies its monopolies, its prices, and its marketing practices in terms that invoke moral economies. The industry’s astronomically high estimates of the cost of bringing a new drug to market are used to justify—to consumers, political actors, and states—high prices and restrictive patent regimes. Despite numerous challenges, these estimates have been widely circulated and are deeply ingrained in debates in the public sphere.⁶⁵ Alternate moral economies are at play in the case described by Stefan Ecks (Chapter 17), in which corporate philanthropy is used as a justification for high prices in wealthy markets, even as it undercuts local competition in places like India. The claim that copying or reverse engineering drugs, as Brazil has threatened to do for AIDS drugs, is mere piracy and a rhetorical plank used to defend international patent regimes in the face of humanitarian demands. Maurice Cassier and Marilena Correa (Chapter 16), though, challenge this claim, arguing that copying and innovation are continuous activities, that copying is a form of innovation with its own productive capacities.

Guide to this Volume

This volume is the result of two decades observation of a developing field of study and of teaching courses for undergraduates and graduate students on the social study of pharmaceuticals. We intend the book to be used as an entry point into the field for students and teachers

and others interested in thinking critically about living with pharmaceuticals. The articles and chapters here are ones that we have found particularly useful and that we believe can fit together to form a coherent sample of excellent work in pharmaceutical studies.

But this representation can only be partial. As the extensive footnotes to this brief introduction suggest, a great many excellent works are not represented in the volume. We had to make some difficult decisions to keep the length down and make the volume affordable. Even so, almost every chapter here has been shortened from its originally published form, many of them significantly shortened. We have tried to keep the central examples, narratives, and theoretical points intact but sometimes at the expense of subthemes and particularly interesting asides.

We have clustered the chapters into five sections: (1) pharmaceutical lives, (2) new drugs, diseases, and identities, (3) drugs and the circulation of medical knowledge, (4) political and moral economies of pharmaceutical research, and (5) intellectual property in local and global markets. However, each of these chapters could have been placed in one or more different sections. As the earlier discussion has suggested, the thematic connections that link these chapters cut across all sections of the book. There is no need to read the chapters in order. Indeed, many chapters refer to others in the volume or other works by authors represented here, and so it would be possible to read the volume simply by tracing connections across chapters.

We hope that readers will find new productive routes through the book and out into the expanding and dynamic field that is pharmaceutical studies.

NOTES

- 1 Jacques Derrida, *Dissemination* (Barbara Johnson, trans., University of Chicago Press, 1981).
- 2 The term “pharmaceutical studies” sometimes is also used to refer to coursework offered toward a career in pharmacy or pharmacology, clearly far from our purposes here.
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