

Medical Monopoly: Intellectual Property Rights and the Origins of the Modern Pharmaceutical Industry, Joseph M. Gabriel, University of Chicago Press, 2014, 328 pp, ISBN: 9780226108186, Cloth \$35.

In September 2015, a little known drug company called Turing Pharmaceuticals suddenly leapt into the public eye. In a matter of days its CEO, a young Wall Street trader named Martin Shkreli, caused widespread outrage as newspapers and social media flooded with stories about what some saw as hitherto unparalleled greed. The cause of this furor? Shkreli's company had purchased the marketing rights to a drug called Daraprim—a front-line treatment for the parasitic disease toxoplasmosis—and raised the price per pill from roughly \$15 to \$750. For many commentators, this story reflected the worst side of a drug industry that too often puts profits before people. In a short matter of time, Shkreli could legitimately make a claim on being the “most hated man in America.” A quieter, but still prominent minority, defended Shkreli's decision, suggesting that he was merely operating within the rules of the system, and that such tactics are necessary to fund the development of new, patentable drugs.

In *Medical Monopoly*, Joseph M. Gabriel brilliantly traces “the moment when the pursuit of profit and the advancement of medical science were first linked to one another.” He pursues this history of the pharmaceutical industry through an in-depth examination of intellectual property rights and marketing policy. Through a close reading of collections from more than two dozen legal and pharmaceutical archives, Gabriel charts the evolution of trademark and patent law and its relation to medicinal drugs from the pre-Civil War era up until the eve of the First World War.

At the heart of the book is an absolutely remarkable transformation, almost unthinkable by those of us living in the age of Shkreli and the Daraprim debacle. Prior to the Civil War, as Gabriel adeptly describes, the patenting of drugs was seen as an uncouth corruption of scientific and medical ethics. Such an attitude was pervasive among physicians, pharmacists, and pharmaceutical producers themselves. Trademarking a medicinal substance was squarely the domain of quacks, charlatans, and others whose quest for financial gain was seen as both illegitimate and incompatible with good medical practice. By contrast, proper drug manufacturers rejected the concept of monopoly over chemical wares. Instead, they framed themselves as benevolent partners, working alongside physicians and pharmacists, in the gradual pursuit of medical science. In this context, the free circulation of knowledge—without patent or trademark—was

paramount. In Gabriel's words, “scientific progress and monopoly” were understood as “mutually opposed categories.” Thus, in the dominant narrative of the pre-Civil War era, pharmaceutical producers closely followed on the heels of scientific developments, patiently waiting for researchers to explore the value of a plant or chemical before transforming it into a sellable, medicinal substance. In short, marketing should only proceed once efficacy and knowledge had been established.

Whereas general attitudes in the early American republic were noteworthy in their distaste for monopolies, shifting understandings of capitalism and the free market eventually eroded opposition to proprietary rights over medicinal drugs. While on the one hand, pharmaceutical producers (many of whom were physicians themselves) were responding to broader social shifts, Gabriel adroitly demonstrates that these companies were also active participants in bringing about corporate forms of capitalism. This change began to unfold in the period after the Civil War, when pleas in favor of trademarking and patenting medicines became louder. In short, those involved in the production of drugs had to make the case that profit and scientific advancement were not mutually exclusive; rather, they could be pursued simultaneously. Although the consequences would produce substantial financial gain, new arguments in favor of monopoly were not only formulated in terms of boosting profits. For instance, early defenses of pharmaceutical patenting noted that consumers would consequently gain access to safer medications, since the patenting process required the disclosure of ingredients. A move towards legitimizing monopoly would deal a fatal blow to nostrum producers, whose secret recipe cure-alls were notoriously popular among, and dangerous to, the public.

The book concludes on the eve of the First World War; by this time, the situation had changed dramatically. The modern form of drug nomenclature had solidified itself (the dual-naming system whereby drugs are called by both their brand and generic name) and proved a crucial step in ensuring that trademark holders could maximize their financial gain. Meanwhile, the notion that large profits were necessary so that they could be reinvested in further research was also gaining steam. New products of immense therapeutic value, like Adrenalin and Salvarsan, were made widely available through partnerships between researchers and industry. In short, a growing consensus suggested that “the promotion of medical science and the pursuit of corporate profits were deeply intertwined projects.” In other words, the modern pharmaceutical industry had been born.

In truth, this book could, and perhaps should, have been a dry read; navigating legal history is often an overly complex affair. The need to track minute changes to law can result in necessarily dense prose. Thankfully, Gabriel's book possesses nothing of the sort. He writes in an accessible and enjoyable style. The key arguments are plainly stated and convincingly argued. Although aimed primarily at fellow historians of medicine, the book could be easily read by a wide audience. Concepts that are intuitive to fellow drug historians, such as why it is important that drugs came to have both branded and generic names, are clearly laid out for non-experts. Thus, students would have no problem understanding the text's most important points.

Historical accounts of drugs and their marketing have become familiar fixtures within the world of medical history. Well researched and well written monographs and articles cover innumerable aspects of twentieth-century pharmaceutical history, including drug invention and discovery, the prescription system, fears over social and individual dependency, and drug advertising. By focusing on the issue of intellectual property rights, Gabriel's book serves as a very useful enhancement to virtually all of these studies, thoroughly enriching the discussion and debate over why pharmaceutical products came to play such a central role in the lives of North Americans over the last 150 years.

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Science History: A Traveler's Guide, Mary Virginia Orna, Ed., ACS Symposium Series 1179, American Chemical Society, Washington, DC, 2014, distributed in print by Oxford University Press, 384 pp, ISBN 978-0-8412-3043-9 (paperback), \$49.95.

This extremely detailed and meticulously referenced volume originated in a symposium held at the 237th National ACS Meeting in Salt Lake City, the content of which has been greatly expanded to include many additional sites. In Chapter 1, "Science History on the Road: An Overview," an introductory chapter outlining the rationale, goals, and content of the book, including practical helpful information about its use, Mary Virginia Orna reveals the origins of this volume about travel to places with scientific content. In 2009, she decided that it was time to "go public" about the tours discussed in this book, and the ACS invited her to organize the talks into an ACS Symposium Series volume. The study tours that she had conducted had as one of its goals learning science through travel to sites where the science actually happened.

The book is broadly scientific but also deals with areas other than chemistry. However, where appropriate, chemistry is the highlighted science. The book is also organized on the "base city" principle whenever possible: certain cities are hubs from which the traveler can branch out to other venues of interest. The second part of the book consists of four chapters on the sites in the British Isles: London and environs, including Oxford, the Royal Institution, Cambridge, and Scotland. The book's third part contains eight chapters on sites in continental Europe moving from north to south and then west to east. The final two chapters encompass the archaeology of Israel and fanciful journeys to Asia, Africa, and North and South America. The authors all have first-hand knowledge and in many cases, professional expertise, with respect to the history of the sites.

Chapter 2, "A View from the Cockpit: A Mid-Summer's 'Flight' through Chemical Europe," by Leigh Wilson, is an attempt to reproduce the unique atmosphere of the late John Wotiz's summer-long flying trip through historically important chemical sites in Europe. Chapter