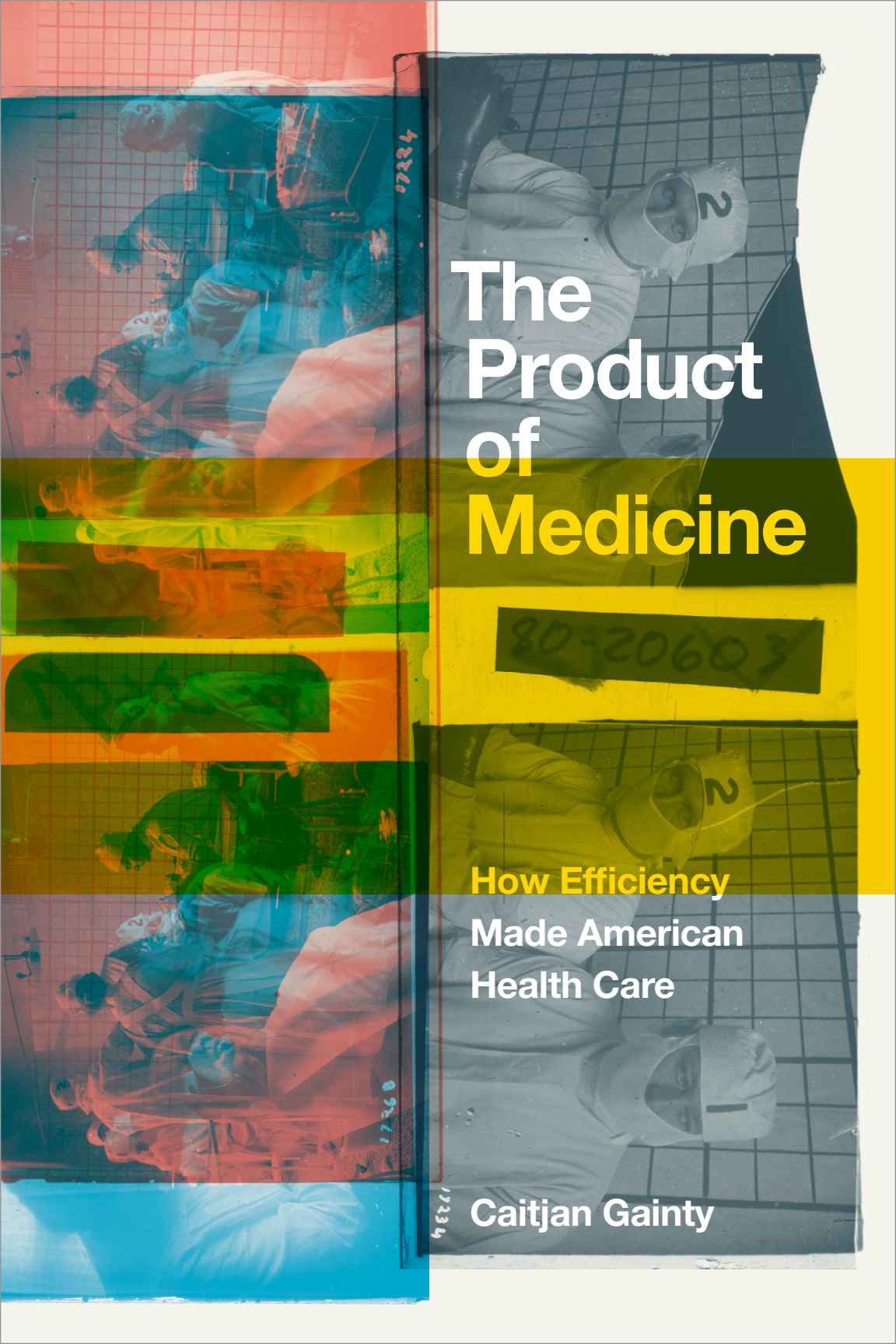

The Product of Medicine

How Efficiency Made American Health Care

Caitjan Gainty

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HOW EFFICIENCY MADE AMERICAN HEALTH CARE

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Duke University Press *Durham and London* 2025

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Printed in the United States of America on acid-free paper ∞
Typeset in Portrait and Helvetica Neue by Westchester Publishing Services

Library of Congress Cataloging-in-Publication Data
Names: Gainty, Caitjan, [date] author.
Title: The product of medicine : how efficiency made American health care / Caitjan Gainty.
Description: Durham : Duke University Press, 2025. | Includes bibliographical references and index.
Identifiers: LCCN 2024025091 (print)
LCCN 2024025092 (ebook)
ISBN 9781478031604 (paperback)
ISBN 9781478028420 (hardcover)
ISBN 9781478060611 (ebook)
Subjects: LCSH: Medical care—United States—History—20th century. | Medical policy—United States—History—20th century. | Medical care, Cost of—United States. | Medical economics—United States—History—20th century. | Industrial efficiency—Social aspects—United States.
Classification: LCC R152 .G35 2025 (print) | LCC R152 (ebook) |
DDC 338.4/73621—dc23/eng/20250130
LC record available at https://lccn.loc.gov/2024025091
LC ebook record available at https://lccn.loc.gov/2024025092

Cover art: Historical photographs from the Frank and Lillian Gilbreth Collection, Archives Center, National Museum of American History, Smithsonian Institution.

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publication supported by a grant from

The Community Foundation for Greater New Haven

as part of the Urban Haven Project

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Acknowledgments

The surgeon and efficiency zealot Ernest Amory Codman opened his treatment on the anatomy of the shoulder with a long, provocative, and wildly entertaining preface. An autobiography-cum-hagiography, it details the peaks and valleys of a life lived slightly outrageously and certainly melodramatically. "If an author has labored to present his material in clear English, properly punctuated and painstakingly illustrated for the benefit of the reader," he wrote, "surely he should be allowed to indulge himself in his preface."

Indulge he did, taking readers on a journey from his youth as a "conventional enough Boston-Harvard boy" to his adulthood, lingering especially over the various indignations (real and manufactured) that he suffered as a surgeon and would-be reformer. Among other vignettes documenting his misunderstood genius, he details his on-again, off-again relationship with the mighty Massachusetts General Hospital (MGH); the failure of the little ten-bed hospital nary a mile from that medical behemoth (and which he rather petulantly organized to exact revenge for wrongs, real and imagined, enacted by the MGH); his other on-again, off-again relationship with the American College of Surgeons; his habit of outraging colleagues with provocative paraphernalia—cartoons, passive-aggressive dedications, and, yes, autobiographical prefaces he was sure they would deem inappropriate. It's all here, all told with characteristic flair and perhaps just a dash of narcissism.

But apart from Codman's general audacity and Don Quixote-esque stabs at the air, what has always struck me about this preface are the reasons Codman offers to explain this odd addition to a scientific study of the shoulder. We should know him, he claims, because to know him is to know his work. Life refuses to be compartmentalized. There is continuity between life and work, after all, even if sometimes we would like to pretend, and do pretend, otherwise.

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Such is certainly the case with this book, which had its start, as did my career as a historian of medicine, with a chance encounter at the University of Chicago, where I had been toiling away as a medieval historian and was knee-deep in expanding my still and forever limited skills with the Latin language. The encounter was with Alison Winter, who became my PhD adviser, my model for things to do (*do* write creatively and take chances) and not to do (*don't* use bathroom breaks as a motivating tool), and my very dear mentor and friend.

Even notwithstanding my Latin failures, medieval history wasn't in the cards for me, and Alison had the gall to take me on as a history of medicine student, for reasons I still don't know but am grateful for. She shepherded me through my PhD, through my personal foibles, through job applications, through life.

Alison was an inspirational person who was inspirationally herself at all times. The last time I visited her was at the very end of her life, when she was unable to speak but listened to me as attentively and thoughtfully as ever. When she died of a brain tumor in 2016, those who knew her, whether personally or through her works, knew they had lost something incredibly precious and rare. Others who knew her better than I did and were far dearer to her felt this loss far more keenly. And I am sure they still do, as I do. I am forever grateful. She gave me my career; she pushed me to write, think, and be more creative. I am a better person and scholar for having known her.

She was, of course, not alone among those who supported me over my years at the University of Chicago. I am grateful to Robert Richards, Jan Goldstein, and especially to Jim Sparrow and Adrian Johns for keeping up with me in the years since. I appreciate the mentorship and friendship of Sarah Igo and Cathy Gere, and I am forever grateful to Michael Allen, who was a wonderful mentor before my transition to the study of modern medicine. Thank you for never holding my poor Latinity against me.

Especially dear to me still from those years are Geoffrey Rees, the most wonderfully creative person I know, and the perennially curious and world's best and perhaps only historian-geriatrician Dan Brauner, with whom I formed a little triumvirate, injecting lashings of history into medical ethical conversation. Since then, they have both in their own way kept me going and kept me honest, each reminding me of the reasons why I like to do this work and what I hope to get out of it.

It was also over this period that I came to know the archivists and librarians who would become decade-long correspondents. Among these especially I thank Susan Rishworth and Dolores Barber at the Archives of the American College of Surgeons, who were as generous with their time as they were insightful with

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their advice. Also at the College, I was lucky to meet three historically minded surgeons—David Nahrwold, Peter Kernahan, and George Sheldon—who welcomed me into their fold. Susan Sacharski at the Northwestern Memorial Hospital Archives was both a witty email conversationalist and an extraordinary colleague in the navigation of the Joseph DeLee papers; Renee Ziemer at the Mayo Clinic's W. Bruce Fye Center for the History of Medicine guided me through the early years of the Mayo Clinic; and Jessica Murphy at the Special Collections and Archives at the Countway Library sent me scads of documents from the Ernest Amory Codman papers once I moved to London. Daria Wingreen at the Smithsonian, Katey Watson and the staff at the Purdue University Special Collections, where the Frank Gilbreth papers are held, and Julia Pope at the Ford Health Services Lam Archives offered vital help as the book came to completion. I am exceptionally grateful to these individuals (indeed, to all those employed behind the scenes at the institutions I visited or bothered via email for weeks or months on end) for making this book possible.

I am also grateful for the support of my more recent mentors and friends. David Edgerton and Abigail Woods brought me up professionally, and I am thankful to both of them, in different ways, for taking an interest and taking the time through many ups and downs to make sure I would thrive. I constantly appreciate the friendship of Agnes Arnold-Forster, my first PhD student and more recent co-everything-er. And I am likewise grateful to Grazia de Michele, who inspires me daily, takes no guff, and is an amazing historian and an even better friend. In my community of scholars and friends both in London and outside, I thank Adam Sutcliffe, Jon Wilson, Anna Maerker, Chris Manias, Tom Arnold-Forster, Paul Addae, Toby Green, Daniel Hadas, Jesse Olszynko-Gryn, and countless others who inspire me daily and whose conversations and interventions have made my work better in countless and critical ways.

Friends and PhD fellows-in-arms, now far-flung, still offer a constant backdrop of support. I am grateful to them all, but especially to Jen Karlin, for always fitting me in amid a schedule that is equal parts passionate clinical and intellectual work and herculean athletic feats; to Marcie Holmes, for her sharp and incisive critique on all manner of things and for walking the streets of London with me at some of my lowest points; and to Lily Huang, for constant intellectual inspiration. Deeper in my past but still constantly in my present, I thank Mary and Margaret Kowalsky and Bernard Prusak for always being just an email or a text or a phone call away, and Sarah Benioff and her family for, from the moment I met them, wholeheartedly and unquestioningly embracing me. I am also grateful to Linda and Rebecca Canino and Rachel Lavoie, who have

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shown me more love and taken more care than I can ever properly thank them for. They have collectively made it their business to make me their family in the deepest sense of that word.

To my family, the one I grew up with, I owe perpetual thanks as well. To my parents, Clem and Mary Kate, I owe the luxury of endless educational opportunities, constant support, and boundless love and the million joys of growing up in a house full of happiness. They didn't see this book come to fruition, but I hope that they would be proud.

My brother Denis also did not live to see this book, although in many ways its completion is his doing. Full of the most endearing (and maddening) eccentricities, he and I were of the same mind (his mind, he would always say) from early on. He walked me to kindergarten; kept me up till all hours for late-night jogging sessions—because they were better for you, he insisted—when we were teenagers; and later on in life, when we were much further apart geographically, became my daily dog-walking phone call. I hope he would be as proud of me now as I was on the occasion of his book. I am so glad that I get to celebrate with my brother Chris, a source of incredible support and perennial kindness, the cleverest of quips, and the oldest and most obscure of television theme songs, and with Jen, Eliza, and Clem.

To my current family, the family I have made, I am most grateful of all. Lola and Lexi are sources of indescribable happiness, silliness, love, and crazy, zany fun. Fox and Rizzo, and before them Larry, Cornelia, and Scrapsy, and before them Thelonious and Helga have kept me feeling loved, entertained, and well exercised for decades.

But I really owe this book to one person, the joyful, optimistic Frog to my (sometimes) gloomy, grumpy Toad—Lucas Canino. We met playing pickup soccer at the University of Chicago. I had forgotten my water bottle, so he offered me his. He has been giving me things, taking care of me, wordsmithing my sentence jumbles, listening to my ideas, generating enthusiasm and optimism for the future, producing an endless supply of ridiculous knock-knock jokes, and making my world infinitely more beautiful ever since.

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Introduction

On March 1, 1915, Drs. Eugene Pool and Frederick Bancroft arrived at the Providence, Rhode Island, home of Frank and Lillian Gilbreth, the power couple behind industrial efficiency. They had been summoned there to continue an efficiency study begun several years earlier at the New York Hospital, where both Pool and Bancroft worked as surgeons. Now, standing in the Gilbreth family dining room, refashioned into a mock operating room for this "conference on the standardization of hospital practice" (figure Intro.1), they listened as Frank Gilbreth kicked off the proceedings with a diatribe. The typical operating room, he declared, was an embarrassment of inefficiency. To start, each surgeon worked with proprietary tools—all similar but *just* different enough from another surgeon's instruments as to constantly frustrate those who assisted them. And the *disorder*. Unnecessary objects and equipment lay strewn around the surgical spaces he had seen, with no evidence that their placement had been considered at all. Surgery was a circus of objects and people muddling along in what ought to have been one of the most important tasks: saving a human life.[1] And there was no agreement, Gilbreth pointed out, on what the new germ theory required of surgeons. Some surgeons wore masks, while others argued that such precautions were only necessary for those who tended to "talk over an open wound."[2] What worried him was not the inconsistent take-up of germ theory principles—something that extended across the profession and into wider society. It was the lack of any consistent procedure or standards.[3] Gilbreth was convinced that uniformity, even when arbitrarily established, led to organization, and organization led to efficient—and therefore better—surgical care.

Gilbreth's medical critique would not have been surprising to the two surgeons. Indeed, he had been dressing down medical practitioners both in person and in print for years. Fresh off his first stint in 1912 in the operating rooms of the

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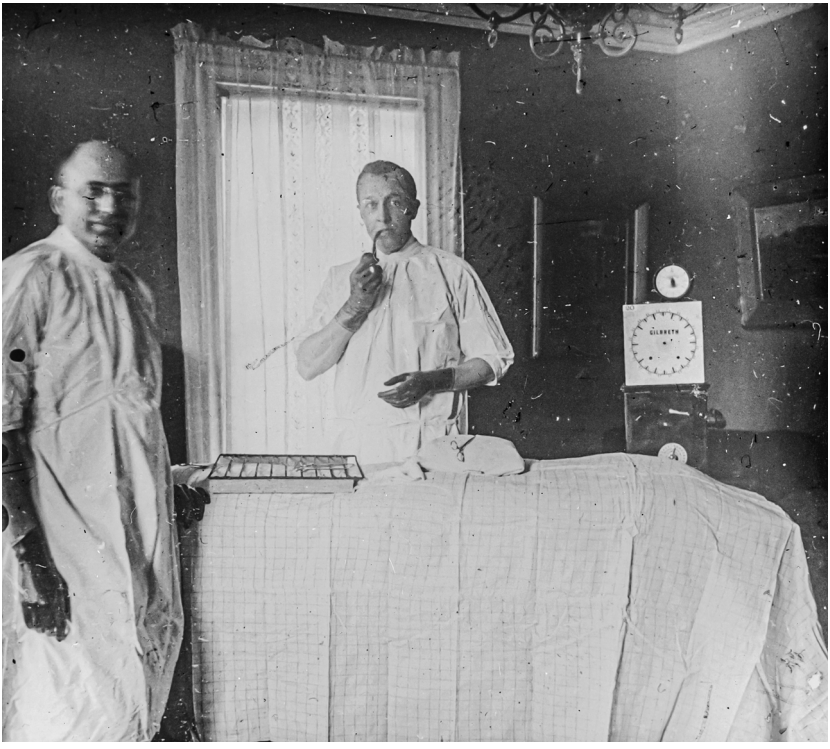

FIGURE INTRO.1. Eugene Pool (*right*) and Frederick Bancroft (*left*) taking a break from performing their surgical procedures in front of Gilbreth's cameras at the Gilbreth's Standardization Conference held at his home in Providence, Rhode Island, on March 1, 1915. Image courtesy of the Smithsonian Library and Archives, Washington, DC.

New York Hospital, where he had met Pool and Bancroft, Gilbreth told a writer at *American Magazine* that when measured against workers in other professions, surgeons were surely no better in skill than the humble dockwalloper, whose job it was to perform the leftover tasks of the shipping trade. Yet somehow, he marveled, their place in society was markedly different. While dockwallopers and bricklayers were judged as some of society's lowliest members, surgeons somehow retained their position as society's "highbrow," even though their ways of working in no way justified this level of prestige.[4] Such "caste distinctions," as he called them, were artificial, antiquated, and in need of change.[5] Indeed, in the logic of efficiency, class held little sway. There were only better and worse workers.

These charges were not unreasonable, as Pool and Bancroft knew. Though there had been major medical breakthroughs over the turn of the twentieth century—Lister's theory of asepsis, the diphtheria antitoxin, the X-ray machine—

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their potential had largely been eclipsed by medicine's persistent problems. For one thing, the populist nineteenth century had given rise to a medical Babel of various sects, each with their own methods and theories about how the body worked, and each vying for patients in a crowded and chaotic medical marketplace. Meanwhile, medical education shared the problems of education more generally, insofar as it was so varied and inconstant across its different institutional settings that it was impossible to tell what a medical student actually needed to know in order to be an effective practitioner. Most hospitals were dismal affairs—sometimes dirty, always inefficient. And the process of codifying and organizing knowledge of symptoms, diseases, and treatments for illness and injury, which began in the nineteenth century, was still slow.[6] This was no small thing, since without a common nomenclature, even sharing information about a disease was a tricky business. Like surgical tools, the diagnosis and treatment of pathologies depended largely on the experience and preferences of each individual practitioner.

To Pool and Bancroft, the right solution to this medical malaise—the solution that had brought them on this pilgrimage to Providence—lay in efficiency study.[7] And they were not alone in this belief. In fact, as Gilbreth informed a meeting of efficiency experts, the Gilbreths "ha[d] not met a single doctor in our travels who has opposed us; we . . . had the finest cooperation of nurses, and from every trustee whom we have met."[8] Like his famous contemporary and erstwhile mentor Frederick Winslow Taylor, Gilbreth was best known for his interventions in factories, where he applied the standardizing and rationalizing instruments of efficiency study to industrial workers and their labor. But he was also no stranger to medicine, often boasting that his work on surgery and in hospitals, undertaken with his wife Lillian (his business partner, coauthor, and prominent industrial psychologist) had taken him "from Maine to California inclusive, through the rivers of Quebec and Toronto" and "as far north as Stockholm and as far south as Italy." It was a geographic breadth of experience that led the Gilbreths to one damning conclusion: "The doctors," he told a mixed meeting of efficiency experts and medical practitioners in 1916, "are awful." And though he had "not lost all confidence in mankind," Frank Gilbreth said, his experience of medical labor and of the state of the hospitals in the United States was anything but reassuring.[9]

Happily, Gilbreth did see some points of light scattered across the professional darkness. In this speech before the Taylor Society, he cited at least a hundred fifty practitioners who had actively "co-operated with him" in these studies, though he confined himself in that speech to dropping a few big names. Though it is unclear if or when he had met them, Gilbreth talked about

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William and Charles Mayo, whose work in efficiency was so well known that Gilbreth said he felt it hardly necessary to discuss it. He gave a shout-out to Pool and Bancroft and a nod to Ernest Amory Codman, the famously snappish surgeon and efficiency guru whose outlandish efforts to reform the profession had earned him a real reputation in the East Coast medical world.

Then there was the obstetrician Robert Latou Dickinson, "for whom," Gilbreth told those gathered to hear his speech, "he had the highest admiration," even though he was, Gilbreth privately confided in Pool and Bancroft, "ridiculous" when it came to matters of efficiency.[10] And of course he could not forget, he noted, the hospital superintendent and efficiency enthusiast Thomas Howell, who had facilitated his studies at the New York Hospital.

Clearly, Frank Gilbreth loved to grandstand, but his swagger was not without substance. His name was certainly a respected one to many medical practitioners and administrators with a modernizing bent. He was known to the medical heavyweight Sigismund S. Goldwater, a hospital superintendent and editor of the efficiency-suffused journal, the *Modern Hospital*, which dedicated its inaugural issue in 1913 to efficient hospital management, design, and organization. And he was familiar to John Hornsby, another *Modern Hospital* editor and writer of the popular "Items in Hospital Efficiency" column in the journal. Indeed, there is good reason to think that the Gilbreths rubbed elbows with all the major figures in this medical efficiency moment. Even the educational reformer Abraham Flexner, best known for his audit and standardization of American and Canadian medical schools, knew their work well enough to comment on the likelihood of success for a proposed collaboration with Dickinson in 1914. It would have been hard for him not to: Gilbreth proselytized his medical efficiency work as widely as he could, welcoming the possibility of speaking at any venue that would have him and publishing multiple discussions of the value of medical efficiency in the medical and lay literature.

Though they are both associated today almost exclusively with industry, both the Gilbreths and—more importantly—efficiency made a pronounced splash in early twentieth-century medicine. And it was no mere dalliance. Efficiency principles were translated directly to measures like the standardization of medical education, surgeons, hospitals, diseases, and therapies. They were also integral to the developing logic of medical mores—namely, that rationalized processing made a "good" product, and that good medical products should be replicable and disseminable. And this in turn was what medical organizations sold to the public: not an *effective* set of treatments or therapies necessarily, though they might also be that, but a set of *standard* therapies and the promise of *thorough* processing. What "modern" medicine could uniquely offer was efficiency.

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Though the reach and breadth of medical efficiency was undoubtedly widespread and its implications for medicine profound (in both epistemological and material ways), medical efficiency has never been a hot topic for historians of medicine. It has received particularly short shrift despite—or perhaps because of—Frank's explicit, rather showy and well-publicized forays into medicine. This despite the fact that, as Flexner observed, the sheer ubiquity of efficiency in this period made ridiculous the supposition that it would not be an actor in every educational discussion, including medicine.[11] Not only was medicine subject to the same cultural pressures as other parts of American life, it also explicitly sought out the kind of intervention that efficiency could provide. So where has medical efficiency gone? And what was its story?

Though in many ways the reinstatement of efficiency that this book undertakes seems straightforward—filling the gaps, as one does, in the historical record—it accomplishes much more than that. For one thing, it recaptures a key mechanism of medicine's modernization—one that we continue, in the public sphere, to chalk up to a rather vaguely constituted but firmly held idea of scientific and technological innovation. In their own time, medical efficiency enthusiasts rejected this view. Instead, they saw efficiency as the fundamental catalyst of medical modernization—the entity that energized preexisting pushes to order medicine in epistemological, bureaucratic, and professional terms and added to them the modernist values of the early twentieth century.[12] And though its proponents continued to maintain that medicine was "scientific" and therefore modern, it is clear that they understood efficiency to be an essential part of their science, one that demanded the "systematic . . . accumulation of data, the framing of hypotheses, and the checking up of results."[13] It was the "science" of efficiency that made medicine modern, and this has had underrecognized but great significance across both the history and contemporary of American medicine.

Of course, there *is* more to medicine than just the management of information, and medical efficiency experts in the early twentieth century thought so, too. Their adoption of efficiency was only partly predicated on the real, quantifiable improvements to organization that medical efficiency could deliver. It also carried a more ephemeral set of qualities and characteristics that held for them the promise of something even greater.

Here, the specifics of medical efficiency meet the larger history of efficiency in the United States, revealing a new story. Unlike the history of industrial efficiency in the main, where individuals like Taylor and Henry Ford along with businesses like the Ford Motor Company, Standard Oil, and US Steel dominate both the archive and the narrative, medical efficiency has featured a more

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diffuse array of actors, organizations, and activities.[14] And perhaps because of their elevated medical "caste," as Gilbreth put it, their voices have been preserved in the archive.[15] Of course, we cannot know everything that the rank and file of medical practitioners experienced, since only medicine's louder and more powerful voices had their words recorded and their records kept for posterity, but the dynamic views and discussions among even these highbrow practitioners still shed light on the intrinsic ambivalences of efficiency, in theory as in practice. For one thing, it shows a remarkable willingness among practitioners to align themselves and their work with the world of the factory floor.

What results is a story that shifts efficiency's near singular significance as the de-skilling source of monopoly capitalism into a rather more dynamic if at times utterly contradictory experiment in American democracy. Ida Tarbell, who was famous for her muckraking exposé of the monopolistic and antidemocratic activities of Standard Oil, differentiated monopoly from efficiency, explaining in 1917 that efficiency done right was not "in conflict with democracy" but "on the contrary . . . ha[d] come as a sympathetic handmaiden of democracy, showing her how she can help men to develop themselves along the line of their inner call."[16]

Though a dramatic story in its own right, especially for the tension between efficiency as an oppressive, disciplining force, on one hand, and a democratic, creative principle on the other, the reappraisal of efficiency also raises questions about its relation to the story that efficiency has been most specifically tied to—namely, the history of modern capitalism.

Historiographical Considerations

The general sidelining of Gilbreth's quest to bring efficiency to medicine is representative of the absence of efficiency more broadly in the stories we tell about medicine's modernization over the early twentieth century. Because neither of the Gilbreths were medical practitioners (despite Frank's insistence that his own knowledge of medicine was substantial, not least because of the many children he had "chaperoned . . . into the world"), their placement outside the medical profession has looked to some as though they lacked the standing to seriously inspire any reform in medicine's hierarchical and closed workplace. Seemingly, the highbrow status of the surgeons and medical practitioners that Gilbreth had been so keen to bring down gave these practitioners no reason to listen to the Gilbreths or to yield to their efficiency interventions.[17]

The historical record does not support this view. But the historiographical one at least explains it. The marginalization of efforts like the Gilbreths' has at

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least something to do with the way in which the lessons of power were thought to be differently manifested in the history of medicine compared with business and industry.

Though with conceptual origins that ran all the way back to the 1930s, the new social history of medicine of the 1970s and 1980s saw power as the operative structure of medicine's twentieth-century history. This in large part arose from the milieu created by anti-institutional figures like Ivan Illich, Thomas McKeown, and Archie Cochrane, whose radically different takes on medicine nonetheless rested on the relatively common thread: that medicine had never been—or at least in McKeown's softened view, had not until recently been—actually *effective*.[18] Though Illich was by far the most extreme of the bunch, not least for his belief that medicine was actively harmful to human health, even the most conservative of these commentators agreed with this basic premise. Their supporting evidence lay in charts that showed the relative powerlessness of vaccines in the wake of rising and falling infectious disease over decades; in the absence of progress in the fight against cancer; and in the arrival of the major new health catastrophe, AIDS.

This view that medicine was not especially effective raised a pressing question: how had medicine acquired such comprehensive cultural and political control if it fundamentally lacked the clinical and scientific efficacy on which that power had presumptively stood? The answer for many was professionalization, and it was one that built medicine back into the language of capitalism.[19] For those like Paul Starr, the keen-eyed historical sociologist, it was taken for granted that the transformation of medicine from a small-scale set of disunified and locally specific operations to the cultural and political behemoth it became had to have been the result of a social—not clinical—transformation.[20]

Efficiency was a poor fit for this new narrative. In its industrial contexts, it was being rediscovered and then positioned into a different version of power acquisition—through capitalist integration—that conflicted with medicine's own. The reading of figures like Frederick Winslow Taylor, the "father of scientific management," and Henry Ford centered on the way in which the rationalization of work denied both agency and subjectivity to workers. With these men blazing the trail, the efficiency "managerial class" shut out the voices and expertise of workers, replacing them with arbitrary and bureaucratic forms of control—all in service to the "almighty dollar" and manifested in the monopolistic successes of individuals like Andrew Carnegie and John D. Rockefeller, whose fortunes were built on the back of the working class. Though this view of industrial efficiency has since been increasingly nuanced and even contested within the academic literature, it is nonetheless still commonplace to assume

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that Taylorism, Fordism, or scientific management (or any of the other monikers used to designate industrial efficiency) embodied, as Harry Braverman famously put it, capitalist production. It would not go too far to say, then, that to many scholars, Taylorism not only opened the door to the monopoly capitalism of the early twentieth century, it *was* monopoly capitalism at the small or local scale.[21]

Intuitively, where efficiency is about the exertion of power over workers, the imposition of efficiency study onto medical workers, with its implicit threat of presenting an external, industrially inflected managerial class, runs up against the story of professionalization, where authority was acquired by medicine and from within. From that perspective, the methods of efficiency study projects like Gilbreth's, especially as they functioned in the literature as methods for the acquisition of power, did not look like they could have a place in medicine *until* they were appropriated into the apparatus of medicine's power acquisition project. At that point, Flexner's efficiency-suffused study of medical education, which many assert he took up at the behest of the American Medical Association (AMA), together with the standardization efforts of large medical organizations (especially the AMA, the American College of Surgeons, and the American Hospital Association) and the actions of medicine's monopolistic cabal (known as "organized medicine"), were all seen as playing a role in how medical power was acquired by and for medicine.[22]

Perhaps because of these poorly meshing narratives, much historical literature simply offers up medical efficiency as a failed endeavor or historical outtake: the phenomenon that could have succeeded—but didn't—in preventing the coming capitalism of the medical marketplace.[23] There have since been critical additions, including the study of standards in the American context and even scientific management and industrial efficiency in medicine outside of it.[24] None of these, though, have been able to capture the full picture of medical efficiency, which extended far beyond its practical application.

One finds some initial grist for this mill in the scholarly argument about the meaning and scope of industrial efficiency. Some have argued that industrial efficiency interventions were limited in scope and impact and thus could never have achieved the characteristic widespread de-skilling they were supposed to have enabled in the name of monopoly capitalism. Others have shot back that industrial efficiency was more of a movement than a set of specific practices, so that even if it was limited in practice, it marked the transformative change in the ideology of labor that made capitalism.[25]

But the problem is that in the American context at least, efficiency was certainly not limited to industrial contexts. Nor was it only in medicine. It was

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everywhere. Indeed, between 1910, when Louis Brandeis brought the term "scientific management" to the attention of the public with his claim, printed in the newspapers, that it could save the railroads "one million dollars a day," and 1929, when the rude awakening of the Great Depression remade efficiency into public enemy number one, efficiency played a large part—some might say an integral part—in American life.[26] As Samuel Haber's classic work on the subject described, efficiency was so ubiquitous and so well regarded over this period that to say that something was "efficient" was just about the highest praise possible.[27]

This was the era of efficiency in government, with departments dedicated to improving government function by reducing waste, and in the conservation movement, where it helped to build a formula for the more responsible use of flora and fauna.[28] It was efficiency that led Melville Dewey to create his eponymous system for organizing, standardizing, and streamlining American libraries (in campaigning tirelessly to reform the inefficiencies of English spelling, Dewey even streamlined his own name, for a while operating under the sobriquet "Melvil Dui").[29] Meanwhile, Lillian Gilbreth was introducing efficiency to the domestic sphere, producing the modern kitchen with its cabinets above and below and ergonomic worktops along with other space- and step-saving solutions.[30]

The Gilbreths applied their gospel everywhere, often carrying out work in front of large crowds. They turned their attention to sports, studying rowing, golf, and, on one bright sunny spring day in 1913, baseball. On the very last day of May, the roughly twenty thousand who turned up to watch the New York Giants play the Philadelphia Phillies at the Polo Grounds were given the unexpected pregame pleasure of witnessing the Gilbreths perform a showy master class in efficiency study that promised to advantage the base stealer and pitcher alike (figure Intro.2).[31]

Efficiency was also something people could personalize. From 1914 to 1918, Edward Purinton, a self-appointed personal efficiency expert and director of the *Independent*'s efficiency service, offered life advice in the magazine's "Efficiency Question Box" section for readers seeking spiritual and material uplift from efficiency. Purinton was prolific, with a purview that covered just about everything, from the best way to vacation (do whatever is the most opposite of one's work) to the best way to discover one's true passion.[32]

And efficiency could be found woven through contemporary literature. Edith Wharton, marking the final days of the efficiency craze in 1927, named the protagonist in her novel *Twilight Sleep* Pauline Manford (man-Ford). The character was a woman so obsessed with efficiency and the productivity it enabled that she wanted to standardize the emotional vagaries right out of the human heart, replacing it with an organ where function singularly followed its form.[33]

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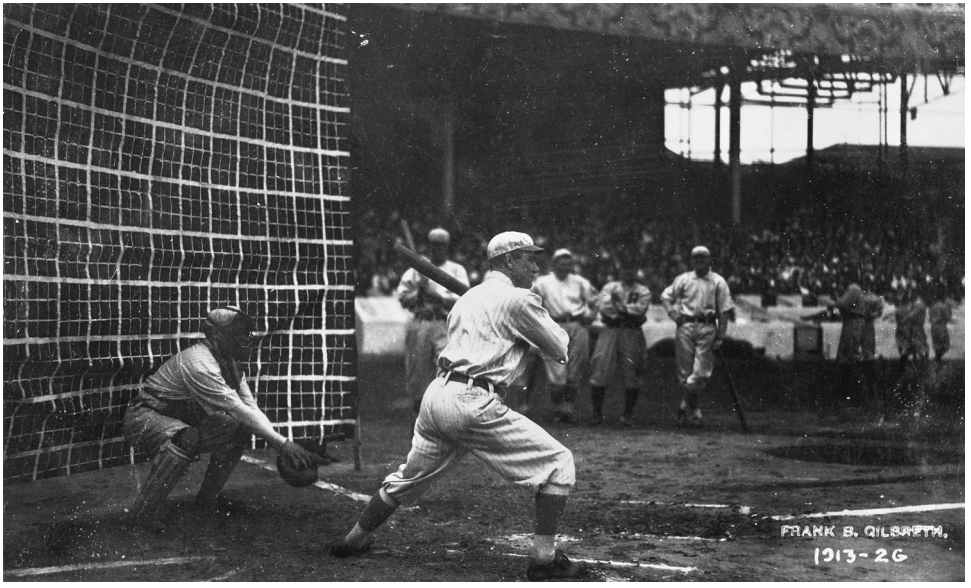

FIGURE INTRO.2. Larry Doyle of the New York Giants is at bat to take part in Gilbreth's efficiency studies of baseball, held during the pregame of a Giants versus Philadelphia Phillies game on May 31, 1913. The *New York Tribune* ran the photo two weeks later, noting that "according to the pictorial record in this case, the swing of the batter's bat until it struck the ball occupied .042 of a second." Image courtesy of the Frank and Lillian Gilbreth Library of Management Research and Professional Papers, Purdue University Libraries Archives and Special Collections, West Lafayette, Indiana.

Whether sidelined as the more nefarious (because more insidious) signs of efficiency's total control over American politics and culture or dismissed as amusing cultural side effects of what was squarely an industrial story, these many colorful iterations of efficiency have been given short shrift. But they point to the malleability of efficiency as a concept and its persistence as a method that, just as it certainly enacted an autocratic logic in the factory, was simultaneously enacting a thoroughly democratic logic in public life.[34] It is this counterintuitive mix of explicitly democratic, even populist, theoretical underpinnings and equally explicit antidemocratic, monopolistic tendencies that come together in medical efficiency.[35]

This tension has already come out in a few studies of the Gilbreths, whose more outlandish displays of efficiency and conspicuous quest for egalitarianism helped single out their efforts historically.[36] Indeed, it was not exceptional for Gilbreth to insist, as he did in the pages of the *American Magazine*, that

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surgery was just another form of manual labor that any dockwalloper properly trained could do. Less an explicit takedown of medical practice (though it was also that), the article registered efficiency's well-known egalitarian values and its potential for social mobility.[37] More recent studies that take a closer look at Fordism find similar tensions. Important distinctions might be made, for example, between the personal beliefs and policies of Henry Ford and the conceptual system of Fordism that ultimately bore his name. Stefan Link makes a convincing case for the rethinking of Ford's own relationship with work and workers, in part by addressing head on the ambivalence of Ford's views and the views that grew around him into "Fordism."[38]

Indeed, any account of medical efficiency must grapple with these tensions. While the story here is partly about the science of medicine that efficiency made, it is also and sometimes more prominently about the struggle to make medicine a modern entity, insofar as it was both egalitarian and democratic and also standard-driven and tightly codified.

In this sense, *The Product of Medicine* is chiefly concerned with telling the story of medical efficiency as one of modernization extending from the origins of efficiency in the factory, across American political, cultural, and economic life, and into medicine. Hardly just a monolithic power acquisition process, efficiency lent medicine a form, a set of functions, and a logic that spelled out what seem now to be efficiency's counterintuitive, even sometimes apparently mutually exclusive, goals and aims—on the one hand, autocracy and monopoly; on the other, liberation and social mobility.

At the same time, this work also creates an opportunity to see, through the far more visible lens of medical efficiency, how efficiency was constituted. And where efficiency is viewed as having critical importance for understanding the shape and scope of industrial capitalism, it sheds light too on how early twentieth-century figures understood the potential of efficiency to create the modern democracy they hoped the United States would become.

At least for some. Medical efficiency, and efficiency more broadly, was primarily a white preoccupation focused most often on the structuring and needs of the growing middle class. It was a movement aimed at those *Collier's* journalist Bruce Barton referred to as the "silent majority," who "were neither radicals nor reactionaries" but "middle of the road folks who own their own homes and work hard."[39] Where race did enter into early twentieth-century discussions, it is often explicitly parenthetical: the othered discussion and debates that were happening outside efficiency spaces proper.

The book traces the contours of this exclusion, particularly by noticing where and, perhaps more importantly, *how* it is performed. There is the "blink and

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you'll miss it" discussion of the Black medical schools slotted into the very last pages of Flexner's famous report; the characteristically contradictory understanding of race and efficiency in the Ford "empire"; and the explicit concerns of the National Medical Association (NMA), the Black physicians organization, over the segregationist implications of the medical efficiency fixes made at the American College of Surgeons.[40] Commenting on hospital standardization efforts during the 1920s, the president of the NMA noted crucially that it wasn't necessarily that standardizing organizations intentionally aimed to hurt the Black medical community. It was that "they had not considered us at all."[41]

There is an obvious point here: efficiency and its attendant values were in this way explicitly emblematic of the particular racism of the early twentieth century. Efficiency in these contexts was emptied of its content as a vehicle for considerations of the demands of American democracy and ceased to concern either of its conceptual extremes: egalitarianism, on the one hand, and autocracy on the other. Instead, it became yet another weapon in an already enormous social arsenal dedicated, whether intentionally or not, to segregation and exclusion. Though in ways more complex than they seem at first blush, efficiency created and to some degree also policed both implicit and explicit racial lines within medicine. Here, then, the book offers glimpses of the institutionalization of racism within medicine and the navigation of these limits within Black medical organizations over the period in which medicine became modern.

Structure

The Product of Medicine is organized thematically to capture medical efficiency in its many registers and functions over its heyday—the first half of the twentieth century. Chapter 1 examines some of the essential material gains that efficiency brought to medicine. With an emphasis on the establishment of medical products, as these were being reimagined by the efficiency logic of the day, it opens with the failure of medical practitioners to reach a conclusion on what it was that medicine produced. This looks now like an existential concern about medical effectiveness. In fact, the determination of a product was the starting point of the efficiency method. Essential to efficiency study was the designation of a product. Only once this was established could attendant processes be rationalized in pursuit of improving efficiency.

For their obvious kinship with industrial processes, insofar as each supplied a product at the end of a process, digestion and childbirth were natural targets for efficiency interventions. But like industrial processes, questions about how best to relate the process by which a product was made to the product itself guided

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considerations of both. The chapter specifically examines the turn of attention to the rationalization of process that came increasingly to guide ideas about what good childbirth looked like and what best digestive practices required of an eater. But this was not a problem internal only to the human body, as the chapter demonstrates via discussion of the process-oriented, assembly-line method of care at the very successful and already dearly beloved Mayo Clinic.

Chapter 2 moves into the meeting of industrial mores and medical values that took place at the Henry Ford Hospital. Billed in its own time as an institution that would import and apply Ford's assembly-line practices to medicine, the chapter describes the ways in which the Ford Hospital, in its most modern qualities, was distinctly *un*-Fordist. That is, its modernizing principles were borrowed largely from the other major modern hospitals of the day—those that had already adopted efficiency as their watchword in myriad ways. The single caveat to this Fordist story, arguably the single way in which the Ford Hospital was really a "Ford product," was in the heady mix of efficiency and democracy, of control and mobility, that guided Ford's insistence on charging consumers who arrived at the hospital a flat rate: a logic that sprang directly from what is now his rather counterfactual insistence that capitalism, when done right, would foster meaningful social uplift.

Chapters 3 and 4 build on this counterfactual, delving into two of the most prominent examples of medical standardization, first at the American College of Surgeons and then in the hands of medicine's best-known standardizer, Abraham Flexner and his (in)famous report for the Carnegie Foundation on the state of medical education and the prospects for its repair.

The third chapter focuses on the hospital standardization effort of the American College of Surgeons. It traces the efficiency logic that led from a purely populist notion of standardization—where standards were adopted because of their popular appeal—to a system that, to its proponents at least, avoided both the chaos of populism *and* the rigidity that made efficiency autocratic, arriving at a manifestation of standardization that seemed therefore properly democratic.

These competing ideologies were also at the heart of Flexner's study and subsequent attempts to standardize medical education, which is taken up in chapter 4. Though generally read as an instrument of medical professionalization, Flexner's body of work in educational reform attests to his belief—however naïve—in efficiency's power to both maintain and develop educational egalitarianism. In many ways, the project failed, yielding instead to a far more capitalist, exclusionary logic that parsed the medical world in ways that Flexner seemed not to anticipate. But in his attempts nonetheless to maintain efficiency's competing

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demands, and in his general failure to do so, we catch a first glimpse of the way efficiency begot or became capitalism: not as the thing it was always meant to be, but as the thing that it ineluctably became when the small scale of efficiency study hit the large scale of racist, classist, and sexist politics and culture in the United States. Although these issues received their fullest airing at the time in the context of the so-called poor boy that critics claimed would always be on the outside of Flexner's reforms, the chapter ends with a fuller consideration of where these standardization attempts left Black students of medicine.

Chapter 5 returns to the American College of Surgeons to consider its attempts to "sell" its standard hospital across the country. In contrast to the Flexnerian outcome, the College continued to manage its delicate balance of autocratic method and egalitarian ethos. In the construction of a market for the standard hospital—the College could not survive, it realized, without one—the ACS managed always to stop just short of the out-of-bounds capitalism that Flexner's standardizing efforts had come to embody and that its contemporary, the AMA, seemed fully to embrace. The arc of the story will not be unfamiliar to those who know of the work of other medical organizations of the period that were "selling" health with all the verve that patent medicine operators had deployed to sell their tonics. The chapter, however, turns both on the uniqueness of the College's product—"standard" and *therefore* modern medicine—and on the College's surprising success as a standardizing body.

The book closes with a well-known moment in medicine's history in the United States: the events leading up to and around the prosecution of the AMA as a monopoly. In this way, chapter 6 marks the end of the efficiency movement, which was ushered out by the Depression and the shifting mores of medicine, away from the moorings in efficiency and toward the power-acquisition processes that historians have more generally described. But this is still not all there is to say. For even as medicine became more monolithic as an industry itself, it also became more polarized, resolving the tensions intrinsic to efficiency into the two extrinsic poles of modern medicine that are still with us now: as a powerful and nefarious medicalizing behemoth, on the one hand, and a beneficent and effective service for those who need it, on the other.

Though this book is embedded in the twentieth-century medical efficiency moment, I hope it also helps reconceptualize where we are right now. *The Product of Medicine* softens what has been a rather narrowed vision of medicine's twentieth-century history as first a story about power acquisition. And though the book also follows in some part from the understanding that modern medicine, like nearly all places of work in this period, moved with the prevailing winds of industrial capitalism, it shows that the terms and obligations of these

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prevailing winds are not as clear as we have perhaps thought. Medical attempts to designate an essential identity for modern medicine may have begun with familiar capitalist questions about how to produce a marketable product, how to get people to buy it, and how to get them to *need* it. But medicine was not only on a quest to become economically legible via the establishment of a monopoly. Just as crucial was the achievement of its cultural legibility as a legitimately democratic, legitimately modern, and in that sense legitimately useful industry.

In our own time, perhaps this book will spur a reconsideration of how we think about what medicine has meant or what it can mean. Indeed, this work is quietly invested in introducing how this history of medicine might change our relationship to health care and its reform today. One of the difficulties attendant in writing medical history is how conspiratorial it can seem from the outside: the AMA as medical history's nefarious actor, hell-bent on avoiding a federal plan of health care provision, is not even six degrees removed from the conspiracy-laced notion that Bill Gates wants to plant microchips in our bodies with the COVID-19 vaccine. So polarized are our discussions about medicine that the primary response is the same glossy, superficial narrative that thinking in terms of a "social transformation" went to such lengths to displace: that medicine achieved its vaunted cultural position by dint of effective therapies, the miracles, the lifesaving practices, the scientific progress that have made it the beneficent and lifesaving venture it is today.

In a response to Christy Ford Chapin's prompt to think about what the intertwining histories of medicine and capitalism might yield, the eminent historian of medicine Nancy Tomes observes that understanding the interplay of medicine with the larger world around it, including capitalism, gives us a chance to "'pop the hood and look inside'" to see in greater detail the workings of medicine and industry in the early part of the twentieth century.[42] This is indeed what she has done in her own books on the transformation of medicine in the context of capitalism. And it is what this book also aims to do—to offer a new historical perspective on this tumultuous period in hopes that this particular effort to "look under the hood" reminds us that there is a wide and broad analytic space between scientific positivism and conspiracy. And that is where medicine makes its home.

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Notes

INTRODUCTION

1 "Conference on the Standardization of Hospital Practice," March 1, 1915.
2 Baldwin to Gilbreth, March 4, 1916.
3 On the question of what germ theory required and how this was worked out, see Tomes, *The Gospel of Germs*.
4 Nock, "Efficiency and the High-Brow."
5 Gilbreth and Gilbreth, "Hospital Study."
6 See Rosenberg, "The Tyranny of Diagnosis"; Vogel and Rosenberg, *The Therapeutic Revolution*; and Warner, *The Therapeutic Perspective*.
7 Pool and Bancroft were themselves accomplished efficiency experts. In addition to becoming well known in efficiency circles, they also wrote on systematizing surgery. See, e.g., Pool and Bancroft, "Systematization of a Surgical Service."
8 Gilbreth, "Untitled Speech," 18. See also, e.g., "Secretary" to Abraham Flexner, March 9, 1914.
9 Gilbreth, "Untitled Speech," 18–19.
10 Dickinson was a prolific contributor to the medical efficiency literature, even if Gilbreth regarded him as something of a dilettante. See, e.g., Dickinson, "Hospital Efficiency from the Standpoint of the Hospital Surgeon," and "Standardization of Surgery." He is better known now, though, for his work in sexology research and eugenics and for his medical drawings and illustrations and later his sculptures. See, e.g., his work with Lura Beam, *A Thousand Marriages* and *The Single Woman*. The close relationship between eugenics and efficiency is described especially cogently in Currell and Cogdell, *Popular Eugenics*.
11 See, e.g., Flexner, "Adjusting the College to American Life," 363–65.
12 For the pre-efficiency state of affairs, see especially Warner, *The Therapeutic Perspective*, and also Rosenberg, "The Tyranny of Diagnosis."
13 Flexner, *Medical Education*, 5. John Harley Warner has addressed in depth the question of how and why science entered medicine twice over; see Warner, "Science in Medicine," and "The History of Science and the Sciences of Medicine." See also

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the important work of Steve Sturdy and Roger Cooter, who make a similar point in "Science, Scientific Management and the Transformation of Medicine in Britain."

14 Richard Lindstrom offers a more nuanced exception to the historiography; see Lindstrom, "'They All Believe.'"

15 See especially Lindstrom's exceptional attempts to recover these voices. Lindstrom, "'They All Believe.'"

16 Tarbell, "Fear of Efficiency, 21.

17 Gilbreth, "Untitled Speech," 18. A more general discussion of scientific management takes place in Rosmary Stevens's *In Sickness and in Wealth*; she implicitly notes (75–79) the desire of surgeons to achieve an autonomy and authority entirely of their own. In this vein, see also Susan Reverby's "Stealing the Golden Eggs," a study of Ernest Codman, who was a Gilbreth devotee. Joel Howell has a much more thorough discussion of Gilbreth's studies but ultimately attributes the significance of efficiency in medicine to Robert Latou Dickinson, a Gilbreth devotee. See Howell, *Technology in the Hospital*.

18 In the details, their views were in fact rather disparate, but the uniting factor, of basic medical ineffectiveness, was a constant. See Illich, *Medical Nemesis*; McKeown, *The Role of Medicine*; Cochrane, *Efficiency and Effectiveness*.

19 See, e.g., Starr, *The Social Transformation of American Medicine*; E. R. Brown, *Rockefeller Medicine Men*; Berliner, *A System of Scientific Medicine*, as well as "New Light on the Flexner Report"; and Markowitz and Rosner, "Doctors in Crisis." Robert Weiss and Lynn Miller also offer a breakdown of these claims in "The Social Transformation of American Medical Education," as does Eliot Freidson in his *Profession of Medicine*. In a 1990 editorial that can only be described as an exasperated outburst, Thomas Bonner criticized these kinds of accounts that read early twentieth-century medicine as fundamentally about power acquisition. He accused them of "presentism," suggesting that they had flattened the nuances of the early twentieth century period in their attempt to describe them in the terms set by the late twentieth century's preoccupation with capitalism, technocracy, and professionalization. See Bonner, "Abraham Flexner and the Historians."

20 Starr, *The Social Transformation of American Medicine*.

21 Braverman, *Labor and Monopoly Capital*. For a useful summary of the historiography, see Chris Wright's "Taylorism Reconsidered."

22 As Roger Cooter summed it up in a 2004 historiographical essay, although we may struggle to put shape to what medicine is, and thus how or what we study when we study it (it is, he quoted John Pickstone, really more of a "convenient omnibus term" encompassing a wide variety of practices, people, and ideas), we can at least say with confidence that "at root medicine is about power: 'the power of doctors and of patients, of institutions such as churches, charities, insurance companies, or pharmaceutical manufacturers, and especially governments, in peacetime or in war.'" Cooter, "'Framing' the End of the Social History of Medicine," 312. Cooter here quotes Pickstone's essay "Medicine, Society and the State."

23 See especially Reverby, "Stealing the Golden Eggs," and Crenner, "Organizational Reform and Professional Dissent." References to the failures of efficiency are a common theme in history of medicine texts. Classic among these are Stevens, *In Sickness*

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and in Wealth, and Starr, *The Social Transformation of American Medicine*. But there are also useful corrections to this view, which do not call themselves efficiency but are in every way consistent with, or predecessors to, efficiency efforts. See, in this vein, e.g., Warner, *The Therapeutic Perspective*, and Rosenberg, "The Tyranny of Diagnosis."

24 Sociological work on standardization has been quite useful, although it does not, by and large, consider efficiency to any great degree. See, e.g., Timmermans and Berg, *The Gold Standard*. On the implications of scientific management in British medicine over a similar period, see Sturdy and Cooter, "Science, Scientific Management and the Transformation of Medicine in Britain." For an examination of the unexpectedly intertwining mores, practices, materials, and approaches of industry, efficiency, and medicine in European countries, see Schlich, *Surgery, Science and Industry* and his case study "Trauma Surgery and Traffic Policy in Germany."

25 The classic articulation that Taylorism amounted to little in practice is probably the work of Daniel Nelson, *Frederick W. Taylor and the Rise of Scientific Management*. See also Wright, "Taylorism Reconsidered."

26 See Nelson, Frederick W. Taylor and the Rise of Scientific Management; see also, e.g., Kraines, "Brandeis' Philosophy of Scientific Management."

27 Haber, *Efficiency and Uplift*. See also Aitken, *Scientific Management in Action*; Kanigel, *The One Best Way*; Hounshell, *From the American System to Mass Production*; Alexander, *The Mantra of Efficiency*; and Rabinbach, *The Human Motor*.

28 Hays, *Conservation and the Gospel of Efficiency*.

29 Dewey, or Dui—first name, Melvil—as he chose for a time to be more efficiently known, was not successful in this venture. Rather than reify his position as an efficiency figure, this phonetic fix flopped, cementing the retrospective view that the eccentric in this case had not been the English language but Dui himself. For more on Dewey, see, e.g., Wiegand, "Dewey Declassified," and Fields and Connell, "Classification and the Definition of a Discipline."

30 See, e.g., Graham, "Domesticating Efficiency."

31 "Movies to Help Baseball Players Economize Force."

32 Edward Earle Purinton was first brought to the attention of readers of the *Independent* in October 1914. The editors, in their "Just a Word" column, announced that the magazine's November 30 issue would be an "efficiency number" and would highlight Purinton's work, since his "writing on this . . . topic has attracted the attention of millions of people." On December 21 of that same year, Purinton inaugurated the *Independent*'s "Efficiency Question Box" column (later renamed "Mr. Purinton's Efficiency Question Box" as his fame grew), which invited readers to send in questions on the "subject of personal efficiency as it relates to health, work and business." In the first edition alone, questions ran an illustrative gambit, from practical inquiries about instituting greater efficiency in the use of delivery wagons, to a plead for help in curing "two years of nervous breakdown," to the efficiency method by which a man might find his "supreme talent." See also Purinton, *Efficient Living* and *Personal Efficiency in Business*. For more background on Purinton, see Alexander, *The Mantra of Efficiency*.

33 See, e.g., Durkin, "The (Re)production Craze," and Lichtenstein, "Domestic Novels of the 1920s."

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34 The examples describing efficiency as autocratic are many. See, e.g., Lalvani, *Photography, Vision, and the Production of Modern Bodies*; Corwin, "Picturing Efficiency"; Tenner, "The Technological Imperative"; Mandell, *Making Good Time*; Montgomery, *Workers' Control in America*; Cohen, *Making a New Deal*; Nadworny, *Scientific Management and the Unions*; Aitken, *Scientific Management in Action*.

35 As Rosemary Stevens put it in her formidable 1989 study of American hospitals, "From the medical point of view the standardization movement was . . . both aristocratic (elitist) and democratic (or all-inclusive). . . . From its beginnings to the present, hospital accreditation has embodied mixed messages" (Stevens, *In Sickness and in Wealth*, 52).

36 Lindstrom, "'They All Believe,'" and Gainty, "'Going after the High-Brows.'"

37 Nock, "Efficiency and the High-Brow."

38 Link, *Forging Global Fordism*. Even Taylor has occasionally seen glimpses of rehabilitation. See, e.g., Nyland, "Taylorism, John R. Commons, and the Hoxie Report." Perhaps best known are Daniel Nelson's works on Taylor; see Nelson, *Frederick W. Taylor and the Rise of Scientific Management*, and "Scientific Management and the Workplace." See also Nyland, *Reduced Worktime and the Management of Production*; Schachter, "Democracy, Scientific Management and Urban Reform."

39 Barton, "Concerning Calvin Coolidge," 8.

40 A good starting point for discussion of the standardization considerations of the National Medical Association is Gamble, "The Negro Hospital Renaissance."

41 Green, "Annual Address of the President," 215–16.

42 Tomes, "Comment," 374. She credits this phrase to Steven Mihm and quotes it from Beckert et al., "Interchange: The History of Capitalism," 515.

1. THE PRODUCT

1 Codman, "The Product of a Hospital," 491.

2 Gilbreth, "Hospital Efficiency."

3 Starr, *The Social Transformation of American Medicine*.

4 Starr, *The Social Transformation of American Medicine*, 22.

5 For a fuller discussion of Codman, see Reverby, "Stealing the Golden Eggs," and Crenner, "Organizational Reform and Professional Dissent." Codman's search for a product led to his founding the "End Result Hospital" in Boston's Beacon Hill, which he ran between 1911 and 1917. Setting surgical outcomes as the product by which he and his colleagues might be measured, Codman recorded his hospital's "end results" in detail, subdividing surgical errors and distinguishing those caused by a failed product from those caused by disease itself. The success of this pursuit, though, has remained uncertain. For example, S. S. Goldwater wrote to Codman in 1913 to voice concern over a particular follow-up aspect of the end-result system employed at his own New York Hospital, noting that "efficiency tests . . . are always of some value [but] sometimes it is necessary to put the measuring rod on the testing method itself." For more on the specifics of Codman's emphasis on product, see Codman, *A Study in Hospital Efficiency*. See also Gainty, "The Autobiographical *Shoulder* of Ernest Amory Codman"; Berwick, "E. A. Codman and the Rhetoric of Battle."

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