universally effective medicines. By the end of the eighteenth century, despite the growing tensions between two conflicting assumptions – uniform human response to drugs and inherent racial differences – the economic and administrative advantages of mass-produced medicines ensured the continued international growth of this lucrative industry.

Just as with other marketable commodities, the impact of these new medicines varied depending on local circumstances. For plantation owners in the Caribbean, standardized forms of healthcare served to reinforce discipline and productivity among the subjugated peoples that they regarded as interchangeable units; in contrast, 'unfree migrants' – a term coined by Dorner – regarded the obligatory tablets and potions that were dispensed as further tools of white domination. The pattern was different in New England, as Dorner illustrates with a salutary case study of an opportunistic Bostonian surgeon, Silvester Gardiner, who was more interested in wealth than in health. By astutely controlling his British imports, Gardiner rose to become a leading retailer in an extended regional supply network. Ambitious for further gain, he embarked on land speculation, investing his medical profits in the burgeoning Maine timber industry. His fortune soared, but at the expense of impoverished tree-fellers – those 'Harty Men Are brought to Meare Skeletons' (p. 131). Formerly renowned for his lithotomy skills, Gardiner was forced by rebellious protesters to abandon his luxurious mansion and take refuge in England.

In British colonies around the world, ranging from Pennsylvania to India, administrators increasingly recognized the value of medical self-sufficiency and, with varying degrees of success, devised schemes to avoid relying on imports that were expensive and often arrived too damaged to be of use. Yet although some local companies did start manufacturing for themselves, British producers still benefited from the imperial infrastructure that had been set in place. During the nineteenth century, larger corporations began emerging that subsumed their predecessors – and that is why Dorner was able to track down rich archival material not only in the Wellcome but also inside the headquarters of London's modern medical giant, GlaxoSmithKline.

As Dorner points out right at the end of his book, these medicines offered no guaranteed cures. This is no conventional story celebrating progress in the battle against disease, but instead a politicized account of yet another way in which commercialization helped to consolidate imperial ambitions and offer unsubstantiated hope to exploited consumers. By incorporating specific examples within a powerful narrative, Dorner's *Merchants of Medicines* provides an original analysis of eighteenth-century globalization that is dispiriting but rings horribly true.

Dylan Mulvin, Proxies: The Cultural Work of Standing In

London: MIT Press, 2021. Pp. 228. ISBN 978-0-2620-4514-8. £40.00 (paperback).

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Proxies: The Cultural Work of Standing In investigates the production and popularization of the stand-ins, models and prototypes that inhabit our world. The aim of *Proxies* to direct

the reader's attention to the standards that we take for granted – from patient programmes to *Playboy* centerfolds at the heart of image processing – is satisfied through a clear articulation of its central thesis and a handful of persuasive case studies. The book arms historians of science and technology with a powerful new tool for unbraiding the relationship between standardization and the production of knowledge.

Dylan Mulvin begins by introducing the US military's Urban Target Complex, a dummy town built from shipping containers and empty bomb canisters located in south-western Arizona fewer than six miles from the US–Mexico border. Known colloquially as 'Yodaville' after retired US Marine Corps colonel Floyd 'Yoda' Usry, the installation was constructed in the late 1990s in response to an operation by US special forces in Mogadishu during the Somali Civil War (later made famous by the 1999 book *Black Hawk Down* and the 2001 film of the same name) to enable soldiers to train for a new kind of urban warfare. Characterizing Yodaville, which houses a very real US military presence, as a 'stand-in' for foreign war zones, Mulvin explains that the complex acts as a theatre of war without risking any of its territorial occupations. Yodaville is our introduction to the 'proxy', which performs this dual function to act as the 'necessary form of make-believe and surrogacy that enable[s] the production of knowledge' (p. 4). Such knowledge production, by this account, relies on the people, artefacts, places and moments invested with the authority to represent the world.

Proxies 'mediate between the practicality of getting work done and the collective, aesthetic, and political work of capturing the world in an instant' (p. 5). To make this case, Mulvin considers the international prototype kilogram (IPK) in his second chapter, a cylindrical piece of platinum–iridium held in a vault in the suburbs of Paris from which the measurement standard of mass was derived for 130 years. The IPK was regularly compared with its sibling kilograms to ensure that its measurement remained static, a process which involved a fifty-minute ritual of washing and cleaning by its stewards. It is this procedure, which ensured that the IPK could perform its function as a mechanism for triangulation, that leads the author to conclude that foundational to the idea of 'measurement' was the human, manual and embodied practice of hygiene (p. 36). Situating this process within a broader story of data hygiene, Mulvin convincingly proposes that the curation and maintenance of data are a 'necessary, though not sufficient', condition for bringing things into measurable relationships (p. 72).

Chapter 3 considers the 'Lena' image, a now-canonical test image for digital image processing cropped from a photograph of Swedish model Lena Forsén in the centrefold of the November 1972 issue of *Playboy* magazine. Mulvin connects the standardization of the JPEG and MPEG image formats, which were based on a 512-by-512-pixel version of the Lena image scanned by engineers at the Signal and Image Processing Institute at the University of Southern California, with a model of professional vision 'conditioned by prototypical whiteness of test images and a field shaped by controlling space and bodies through optical capture' (p. 112). In doing so, the text draws attention to the politics of proxification through which standards are shaped by testing regimes, and professional practices are in turn moulded by the cultural milieus where professionals work.

Mulvin fast-forwards to the 1990s in Chapter 4, to a moment when the Lena image had calcified into a material proxy within the field of digital image processing and an artefact of the professional vision of computer engineers. Situating the image within the broader story of computer science and engineering in the 1990s, the author returns to the theme of embodied labour to connect the use of test images such as Lena with the institutional context of mistreatment and misrecognition. The story here is one of historical exclusion in which women had little capacity to shape the direction of computer science as a discipline, were limited in shaping the media environments of their workplaces, and were excluded when men defended and repaired the utilitarian value of the Lena image. The

Lena centrefold image is thus presented as evidence of the porous nature of the proxy: it carries the traces of institutional and cultural milieu and leaves 'indelible marks' in return (p. 143).

In Chapter 5 we are introduced to standardized patient programmes used to train medical professionals through the use of actors employed to simulate illness and disability. Standardized patients offer their bodies as stand-ins for a universe of potential bodies, performing their humanity while acting 'as if' they are sick or disabled (p. 145). In doing so, the author argues that standardized patients embody the decisions made about how best to represent the world made by the standard-maker. These living proxies thus 'have an impossible but necessary task of standing in for all of us' as recipients of effective and humane medical practice (p. 181). Mulvin concludes in Chapter 6 by interrogating the way in which standards are concealed and their integration within infrastructure made sensible, mundane or unremarkable. The book closes with a consideration of the tools and strategies available to those engaged in the excavation of proxies: iconic retextualization pioneered by artists to challenge conceptions of normality, the breakdown of infrastructure itself into a subject of analysis, and efforts to spot the tell-tale signs of the defence and maintenance of proxies. It is perhaps unsurprising that the reader is invited to 'take stock of the common reference points' of their knowledge infrastructures at the book's end (p. 202). A deeply original piece of analysis and backed by a rich bank of examples, *Proxies* succeeds in equipping – and provoking – historians of science and technology to ask, to whom or to what do we delegate the power to stand in for the world?

Keith Ewing, Joan Mahoney and Andrew Moretta, MI5, the Cold War, and the Rule of Law

Oxford: Oxford University Press, 2020. Pp. 528. ISBN: 978-0-1988-1862-5. £84.00 (hardback).

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MI5, the Cold War, and the Rule of Law (1945–64) embarks on its analysis from the legal perspective (questions of authority, power and accountability) and the tradition of civil liberties. The material examined in the book includes security files at The National Archives which were hitherto unavailable to scholars coming from this tradition. What this book ultimately suggests is that even thoroughly criticized reading of the classical concept of the rule of law (Dicey) theoretically provides more protection for the civil liberties as compared to the system in which MI5 operated.

In the context of the 'defence of the realm', MI5's primary functions were countering attempts at espionage, sabotage and subversion. The authors present the picture in which we see the service dedicating a vast amount of its resources to countersubversion activities against legal working-class and left-wing organizations. Initially, the oversight of MI5 was in the hands of the prime minister, as regulated by the Attlee directive (1948–51),