

out of conviction or for opportunistic reasons, and obtained influence through university positions in return: the first German full professor in urology (Otto Ringleb (1875–1946)) was installed in 1937 at the Friedrich-Wilhelm University of Berlin. Ringleb was at that point in time also an *SS-Obersturmführer*.

One of this book's many strengths is that it lays emphasis on the practice and methods of forced sterilisation and castration policies of men (operated on by surgeons or urologists), a topic that has not received as much historical attention as the sterilisation of women (operated on by gynaecologists). The German Law for Prevention of Genetically Diseased Offspring (*Das Gesetz zur Verhütung erbkranken Nachwuchses*) was enacted in 1933. Around 400 000 patients who had been diagnosed with certain so-called hereditary diseases were sterilised after a verdict in 'hereditary health courts'. Similar laws existed in a number of countries. While about nine out of ten sterilisation victims were female in, for example, Switzerland and Sweden, about fifty percent of all victims who were sterilised in Germany between 1934 and 1945 were men. If the author had discussed his results on sterilised men with a European perspective, this part would have been an even more welcome addition to this growing field of study.

Krischel's book relies on primary published materials such as research papers, discussions in medical journals from the 1930s and 1940s and instruction materials in textbooks, as well as archival documents from different state and university archives, practitioners' personal papers and company archives. The author could have provided more detailed insight on some personal files. There is a hint that some files have been destroyed for political reasons (p. 53), but he could have elaborated further on this matter. The book is well structured and it is fully illustrated with pictures, tables and reprints from contemporary journals and the daily press. An index would have been helpful for readers who are interested in certain urologists or politicians.

The particular strength of Matthis Krischel's thesis results from mobilising and drawing together methods, theories and approaches from different fields of inquiry related to the history of medicine in the 'Third Reich'. The reconstruction of the relationship between German urology societies and the National Socialist regime and how German urologists have dealt with their past gives us a multifaceted picture that is relevant to the history of science. Krischel's remarkable contribution unravels institutional and personal continuities and will be valued by various audiences such as historians, physicians and educated laymen. It will also be a book well worth reading for courses on medicine in the 'Third Reich'.

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Nicolas Rasmussen, *Gene Jockeys: Life Science and the Rise of Biotech Enterprise* (Baltimore: Johns Hopkins University Press, 2014), pp. 249, \$35.00, hardback, ISBN: 978-1-4214-1430-2.

Gene Jockeys is a gracefully written and authoritatively researched account of early American biotech (circa 1975–90) organised around five genetically engineered protein drugs, starting with human insulin and ending with tissue-type plasminogen activator (tPA). Human growth hormone, interferon and erythropoietin are the other three drugs

examined from what now appears ‘a golden age, as well as a gold rush, for scientists working to bring the first biotech drugs to market’ (p. 183). With narrative verve and matchless command of sources including interviews, scientific papers, newspaper and magazine articles, and legal documents from court battles over patents, Nicolas Rasmussen reconstructs a history from which he draws lessons that deserve wide attention. Packed into this short book is an extraordinary amount of information and insight, on everything from how exactly the cloning of genes got done in 1978 to the geopolitics of science funding in the twentieth century.

Perhaps Rasmussen’s most exciting lessons concern the link between those two, understood in light of his own studies synthesised with a rapidly growing body of superb scholarship on and around Cold War science. He gives his point of view concise expression when he observes, near the end of the chapter on human growth hormone (each drug gets a chapter unto itself), that the biologists who left academia for Genentech *et al.* ‘were idealists in remaining true believers in the scientific culture that had grown up around the Cold War ideology of basic research’ (p. 96). As explained in a bravura opening chapter, generous funding of basic research came to be prized by the US government after the Second World War as useful symbolically as well as materially, serving both to advertise the freedom that creative minds enjoyed in the capitalist democracies and to ensure a steady supply of the better weapons and medicines that, put into production by private firms, would keep the free world ahead of communist tyrannies. Molecular biology was exceptionally well placed to benefit, for it had all the intellectual and moral glamour of science pursued for science’s sake, yet all the applied-science associations of its disciplinary parents, physics (the bomb) and genetics (eugenics), as well as those of a disciplinary near-neighbour, endocrinology (drugs). By the early 1970s, molecular biology was booming, above all at the elite institutions privileged by Cold War funders. But then came détente, and a drying up of the funding, leaving a pool of very good, very competitive, and very pampered young persons who sensed professional opportunity in the new technology of recombinant DNA and obstruction in the hierarchical, increasingly regulated and impoverished world of academia. On Rasmussen’s telling, they joined industry not in the first instance to make money but to make discoveries and reputations.

Back when he was a graduate student in molecular biology at Stanford in the 1980s, Rasmussen participated in a small way in the scientific-business culture that these ‘gene jockeys’ – their semi-joking term for themselves – helped to create. (The acknowledgments include thanks to ‘the fine people I worked with briefly in marketing services at a certain biotech company’, p. vii.) He thus brings a marvellous blend of insider sympathy and outsider detachment to the stories of the recombinant drugs born of that culture. It is the more instructive that he writes with such disapproval about the one drug in his five from elsewhere: erythropoietin, or ‘Epo’ for short. If Genentech was, in Rasmussen’s words, ‘a postdoc’s republic’ (p. 96), where elite scientific talent was nurtured and scientific priorities took precedence over business and legal ones, Amgen, which secured the patent for the Epo gene, was the land of the drug-company executive turned venture capitalist. Rasmussen is relentless in his prosecution of arriviste Amgen: cutting corners and cutting deals; hoarding research materials and findings; hiring staff from non-elite places and getting routine science from them; and making a fortune on the basis of a patent it did not much deserve, for a drug that, though it seemed for a while to help anaemia sufferers who lacked natural Epo (which stimulates the production of red blood cells), rapidly became the cheater’s choice in athletics and cycling, and eventually came under suspicion for causing cancer. Not that it was, as it were, all Amgen’s fault. Aiding and abetting Amgen, in

Rasmussen's view, was what amounted to increasing deregulation throughout the 1980s and 1990s in US intellectual property rights and drug-trialling regimes. Even so, with Amgen, the rot set in, and an overall ambience of crass commercialism from which the historian must now rescue the likes of Genentech, Biogen, the Genetics Institute and other first-generation biotech firms.

What did they achieve, and what should we learn? Rasmussen reckons that recombinant insulin and the rest would have come to market anyway, though less quickly, since protein drugs had long been at the centre of the biology-industry nexus, and recombinant versions were so obviously the next step for pharmaceutically directed genetic engineering. They were the easy pickings, and early biotech's success is inseparable from their availability. So it is misguided, Rasmussen suggests, to try to replicate that (in any case exaggerated) success by recreating the biology-and-business friendly conditions that led to the founding and flourishing of those first firms. To do so, as he writes in conclusion, 'would be as futile as capturing a breaking wave in a bottle' (p. 191).

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Bjørn Okholm Skaarup, *Anatomy and Anatomists in Early Modern Spain* (Farnham: Ashgate, 2015), pp. 298, £70.00, hardback, ISBN: 978-1-4724-4828-6. *The History of Medicine in Context*.

In this well-researched and engaging text, Bjørn Skaarup offers the first full-length study of Renaissance anatomy in early modern Spain. Skaarup explores the state of anatomical knowledge, the role of dissections, the institutionalisation of Vesalian practices and the role of anatomical publications in the major universities of the kingdoms of Castile and Aragon between 1550 and 1600. He also traces the influence of the new anatomy on developments in medical and surgical training in the universities and the practice of medicine in numerous hospitals linked to those institutions. Spanish medical history, and anatomy in particular, remains conspicuously absent in a growing body of scholarship on Renaissance anatomy across Europe in spite of a recent burst of English-language publications on the subject. Skaarup's monograph brings to light Spanish developments in Renaissance anatomy and provides a foundation for comparative work. It also contributes in some rather unexpected ways to a growing conversation about Spanish-Italian medical connections during the era. Additionally, Skaarup thoughtfully probes the historiography of notable 'giants' in the field of early modern Spanish medicine, like Lopez Piñero, and suggests a number of alternative interpretations and factual corrections.

The rise and fall of anatomy studies in late sixteenth-century Spain is explored through a wide range of sources including university records, royal decrees, letters, art and literature, municipal documents, anatomy books, and other medical treatises. Skaarup points out that the institutionalisation of Vesalian anatomy at the universities of Castile and Aragon is clear evidence of the integration of a novel scientific paradigm; its subsequent decline is more difficult to explain. Yet, anatomical studies did decline, and, Skaarup argues, some of the most renowned anatomists of the era, like Matías García, contributed significantly to that decline.

The book is organised by region and university, and chronologically from the first to the last Spanish universities to establish anatomical studies. Valencia was the forerunner, introducing anatomical studies at its university in the first decades of the sixteenth century.