

thinking processes. Yet, as defence spending increased, AI's proponents and detractors became uncomfortable with the glib assertions being promulgated within policy and media exaggerations, especially the belief that enormous computer systems controlling weapon systems could be "bug" free in their script, and commonsensical in their behaviour. This political and social context was only a part of the story. Connectionists, a new but inchoate group of psychologists, neuroscientists, and philosophers of the mind, also tore into the AI project. They argued that phenomena were represented within emerging networks (usually neurological) and not symbolic systems, which many within old-fashioned AI paradigms had claimed. In hindsight, all of AI's failed promises and faulty philosophical assumptions have led some to pronounce it a failed research programme. On this point, Boden demurs. She observes that AI enormously advanced both itself and the cognitive sciences. In that sense, and contrary to its critics, AI continued as a fruitful area of research, but like its latest corollaries, computational neuroscience and artificial life, the field remains embryonic even today.

Whether Boden's volumes really ought to culminate in a penultimate discussion of the philosophies of *mind as machine* or in a final summary in the last chapter of triumphal sounding claims for the cognitive sciences, I shall leave to others to decide. Having read those chapters alongside M R Bennett and P M S Hacker's excellent *Philosophical foundations of the neurosciences* (2003), I find myself having misgivings about the conceptual foundations of much of the cognitive sciences project as outlined by Boden.

In any case, Boden's volumes, despite their evident value, will aggravate many. Those least charitable will see them as a rather devoted effort to restore attention to Warren S McCulloch's contributions to the cognitive sciences. Historians studying periods before 1945 will find fault both with her facts and pithy generalizations. Similarly, those still living cognitive scientists whose careers spanned 1945 and 2000 are bound not to

recognize the caricatures of themselves, or people they knew, in her story. Instead they will likely encounter a narrative that for them fails to capture things "as they were" and summarizes scientific arguments without paying them full justice. Such criticisms, which have already begun circulating about this work, strike me as unwarranted, especially because Boden's practitioner viewpoint brings with it the hindrances such life experience implies. Anyone failing to note Boden's polemical tone is just not awake. Putting it simply, the work is too large to be free of an agenda. However, for that same reason, criticisms of this work from other practitioners appear no less problematic. In my view, these volumes and the responses of critics to them will be of greater significance as primary source material than they will be in defining the historiography of the cognitive sciences. On balance, these volumes are thought provoking and open a doorway towards improved understanding of the patterns of science in the second half of the twentieth century.

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**Ulrike Enke** (ed.), *Die Medizinische Fakultät der Universität Giessen: Institutionen, Akteure und Ereignisse von der Gründung 1607 bis ins 20. Jahrhundert*, Stuttgart, Franz Steiner, 2007, pp. 450, illus., €72.00 (hardback 978-3-515-09041-4).

This book is the first of a three-volume publication and is the result of a 2005 symposium focusing on the 400-year history of the medical faculty of the Hessian town of Giessen in Germany. The dual focus of the seventeen contributions to this initial volume is both on medicine as a work and research discipline in a small university town, and on life within (and with) the institution itself, from its inception in 1607 to the times of the Weimar Republic.

In chapters dealing with matters as diverse as the establishment of a maternity house, the

importance of the Giessen model of veterinary medicine within the medical faculty and the acquisition of purpose-built edifices to embrace modern anatomy and practical physiology, the authors examine and illustrate the seemingly unstoppable rise of the Giessen medical faculty. Despite its humble beginnings, it is shown that progress in the medical faculty, though often slowed, was never halted by the university's overall preference for matters of theology and jurisprudence over medicine, demonstrating instead how groundbreaking this small university could be in the development of education and practice in very disparate areas of medicine. The rise of its importance culminates with the description of the city's establishment of a dedicated clinical quarter, in which the much-enlarged medical faculty could fully unfold.

Even as the investigation of such aspects as examination rules at the university provides a reflection of the wider trends in medical education, politics and medical professionalization of the time, the human perspective is not neglected. While early leading figures—such as Gregor Horst (1578–1636), instrumental in shaping the fledgling faculty's direction—sunk into historical obscurity despite their extensive work in the field of medicine, the example of Michael Bernhard Valentini (1657–1729) illustrates how a small seventeenth-century university “on the periphery” could nevertheless eschew provincialism, being populated by remarkably worldly researchers whose extensive curiosity contributed to the scientific and medical debates of their time. Later echoes of this early worldliness can be found in the chapter dealing with the twentieth-century German “plague expeditions”.

On the flipside, as if to counterbalance too much effusive optimism and positivity, the reader is treated to a vivid vignette of the renowned dramatist (and reluctant medical student) Georg Büchner's (1813–1837) miserable Giessen-experience. Further interesting and contrasting shadows are cast by

the description of medicine's “crisis” in the 1920s through the prism of the physician and medical historian Georg Honigmann (1863–1930) as well as through the examination of the emergence of mental hygiene, along with the rise of such concepts as degeneration and eugenics, through the work of Robert Sommer (1864–1937) and Emil Gotschlich (1870–1949).

Overall, it can be said that the authors approach the subject from such manifold angles and perspectives that the result is a truly comprehensive account of the workings of an institution through time. The effective use of biographical vignettes, drawn from the ranks of both faculty and students over several centuries, successfully conveys a real insider's perspective into the life behind the faculty walls. Further approaches, ranging from straightforward chronology to contextual socio-political examinations, refocus the reader's metaphorical lens, drawing away from the individual and details, instead providing tantalizing apertures into the history not only of the institution, but also the much wider issues of medical education, currents of professionalization, scientific developments and even expeditionary medical research from a German perspective over a period of several centuries.

Jubilee publications are always curious beasts, and often the result of such projects can prove problematic, their core subject matter, the history of a single institution, being of interest mostly to a limited demographic of alumni, supporters and specialist historians. Drawing such projects out into trilogies can pose a very real risk of the end product deteriorating into an exhaustive vanity publication. Thankfully, the combination of scrupulous authorship by established historians and a clear idea of the desired outcome enables this book to buck such a trend.

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