

risked less than whites would have done, because they were presumed to have superior resistance to yellow fever.

The absence of this racialised set of ideas within Apel's analysis is a significant omission. How enlightened were the early Republic's medical cognoscenti, after all, if they continued to reinforce racist prejudice that black bodies were unfailingly strong rather than subject, equally to white bodies, to fevers or other weaknesses? Given the persistence of racism within the United States today, and ongoing arguments about it, it's a good bet that any assessment of yellow fever which included the issue of race might gain greater purchase in historical consciousness than one which excluded that issue.

Joyce E. Chaplin
Harvard University, USA

doi:10.1017/mdh.2017.39

Paul David Blanc, *Fake Silk: The Lethal History of Viscose Rayon* (New Haven, CT, and London: Yale University Press, 2016), pp. xiv + 309, \$40.00, hardback, ISBN: 978-0-300-20466-7.

'The workers will serve as experimental animals', noted Alice Hamilton, the renowned American industrial hygienist and activist for labour protection, in 1929 (quoted on p. 81). Hamilton, who had made her name investigating industrial toxins while working at the Chicago-based social reform initiative Hull House and later as the first female member of faculty at Harvard, was referring in this instance to the pernicious threat of carbon disulphide. As Paul David Blanc demonstrates in his excellent *Fake Silk*, this chemical behind the manufacture of viscose rayon (the affordable, mass-producible fake silk of the book's title) and cellophane held debilitating, and potentially fatal, consequences for the workers involved in making it. Meanwhile, consumers could blithely enjoy the product's benefits without suffering any of its harms.

As early as the mid-nineteenth century it had become clear to French physicians investigating workers in the rubber industry, where carbon disulphide was first used as a solvent, that the chemical could lead to woeful results, including impotence, nerve damage, eye damage and insanity. Suicide attempts – and threats of violence against others – were not uncommon amongst afflicted workers. Over time, medical reports stretching from France, Britain, Germany, Italy and Russia to, slightly later, Japan, went on to cite dangers associated with the chemical in its various manufacturing uses. Nonetheless, carbon disulphide proved an invaluable component in making 'fake silk' and its cousin cellophane, alongside the production of numerous other products from pesticides to a treatment for alcoholism. As a consequence, its harmful side effects often went unreported, unrecognised and, for those workers who had been made ill by exposure to the chemical, uncompensated. In fact, despite the vast medical evidence contraindicating the use of carbon disulphide, it has grown in demand into the twenty-first century. As Blanc notes, rayon production increased twofold between 1990 and 2010 (p. 214). Production may have shifted focus from the United States and Europe to China, Indonesia, India and Thailand, but the effects of the chemical have certainly not dissipated, even amidst safety innovations to protect workers from its fumes.

The story Blanc tells is both thrilling and devastating. He pieces together a complex puzzle that takes the reader across the globe, tapping archival and primary printed sources, together with interviews with former workers, in various languages and countries around

Europe, the US and Japan. Blanc's aims in the book are twofold. First, he seeks to cast a spotlight on a neglected but endemic industrial – and environmental – illness. Second, in doing so, he seeks to 'memorialize the terrible suffering that has occurred' (p. ix). He is successful in achieving both aims. The story unfolds over seven chronological and thematic chapters, beginning with the initial discussions in France of health problems amongst rubber workers. By the late nineteenth century, German psychiatrists and British industrial hygienists picked up the trail of carbon disulphide toxicity. Meanwhile, across the Atlantic, American physicians began noting problems amongst workers using new chemical pesticides with carbon disulphide in order to clamp down on gophers and ground squirrels. By the 1890s, the chemical became the mainstay of a new invention: viscose. Due to its properties as a solvent, carbon disulphide could eat through plant-derived cellulose, breaking it down into fine filaments that could then be woven like silk or cotton.

This invention of synthetic cloth proved revolutionary, not only changing the manufacturing process for clothing – and destroying the health of workers in its wake – but also the consumer culture of fashionistas. By the interwar period, Blanc shows, 'fake silk' had come to be prized amongst working-class and lower middle-class women who could now afford fine stockings and fashionable clothing. Although frowned upon by those who favoured actual silk and natural materials, and by those like *Legally Blonde's* fictional Elle Woods for its frailty, the material took off. It continued to boom during the Second World War and even played a special role in propaganda, evidenced by the production of children's kimonos in Japan featuring airplanes, bombs and the Japanese flag side-by-side with those of China and occupied Manchuria. Behind the cheerful fashion scene lay a grimmer picture. In Germany, for example, forced labour – often drawn from nearby concentration camps – helped to fuel the country's 'fake silk' factories.

The effects of carbon disulphide in manufacturing viscose rayon and associated products were downplayed during the war, but came to the forefront again in 1966, at the first international conference devoted to the topic. However, despite growing international recognition of the chemical's hazards, little was done to regulate it. For example, in 1977, the US National Institute for Occupation Safety and Health proposed stricter limits of accepted exposure levels, but its proposal was not binding. The following year, the UK's Industrial Injuries Advisory Council dismissed the possibility of recognising coronary heart disease as a risk associated with carbon disulphide manufacture – despite ample evidence to the contrary. As Blanc shows throughout *Fake Silk*, official reluctance to intervene in manufacturing, the lobbying efforts of major multinational firms and the internationally scattered scientific evidence about carbon disulphide combined to militate against regulation. As a consequence, companies sometimes closed their doors after enough workers became ill – or after the local water supply grew tainted, and relocation to outposts across the world grew increasingly common. The manufacture of 'fake silk' did not, however, go away.

Blanc's study is compelling in its ability to intertwine what could be a challenging history of the chemical industry with social, business and labour history. It is unusual to find a book that successfully combines a discussion of contemporary pop culture, a detailed analysis of chemical production and a sweeping narrative of the pitfalls in regulating multinational businesses. The book is well paced and well written and will appeal to medical, business and labour historians as well as to those with an interest in writing the global history of a particular product or illness. The only small quibble one might cite is the lack of images. One could imagine a richly illustrated version of this story, including

photos of now desolate factories, 1930s magazine advertisements for stockings, kimonos with airplanes and the faces of afflicted workers. This absence is, of course, a minor issue, and Blanc illustrates the volume well with his precise prose.

Julia Moses

University of Sheffield, UK

doi:10.1017/mdh.2017.40

Hans-Joachim Freisleben and **Helga Petersen** (eds), *Sie kamen als Forscher und Ärzte . . . : 500 Jahre deutsch-indonesische Medizingeschichte* (Cologne: Koeppel, 2016), pp. XII + 592, €98.00, hardback, ISBN: 978-3-89645-225-2.

A unique kind of book has arrived to enrich our knowledge of the bilateral medical relations between two large nations in Europe and Asia that have not been the focus of much research on colonial and post-colonial medicine: Indonesia and Germany. Yet it has to be said from the start that it is neither a contribution to (professional) medical historiography nor an edition of sources. It is rather a broad collection of material of highly diverse quality on many aspects related to medicine, originating from historical interest within the German-Indonesian Medical Society. This society was founded in 1996 and is an interesting platform for encounters in itself. The book contains a comprehensive retrospective of different periods in the history of Indonesia and Germany, but concentrating on the former.

As famous figures in the early modern history of naval medicine, Balthasar Sprenger, Andreas Ultzheimer and Engelbert Kämpfer, with their descriptions of the exotic, turn up in the first chapter, along with less well-known employees of the Dutch East India Company (VOC). For several of them, their stay on the islands of what is now Indonesia was rather an incidental episode on the passage to and from Japan. When in about 1800 the Dutch state took over from the company, the number of German doctors as researchers and practitioners in the new colony increased, and among them was Franz von Siebold. The most interesting and nearly only original sections in this second chapter are the biography of Friedrich August Carl Waitz, a forgotten medical writer based on Java, by Werner Kraus, and – although more descriptive – the paragraphs by Hans Berg on the work of Adolf Bastian (the founder of German ethnology) on Indonesia.

The next wave of German doctors came after the First World War, and this chapter consists mainly of a compilation of several German medical dissertations. When Germany lost its overseas territories, colonial doctors who did not manage or did not want to find work in Germany looked for employment in countries that would take them. As Africa was largely occupied by the allies, who were not in favour of German staff, Asian countries like China and Dutch India offered important opportunities, especially for former military doctors whose qualifications recommended them for disease control, but also for missionary doctors who opened new mission hospitals. Several of them developed a deep interest in local ways of healing, one of them, Wolfgang Weck, during his later work for the Nazi party became affiliated to medical historiography.

In the 1950s, when Dutch staff had left the country and many German doctors were looking for paid jobs, Indonesia became the developing country with the highest number of German doctors. In co-operation with the German chamber of physicians, doctors who could not earn the necessary money for a practice of their own in Germany or were looking for a better position were recruited by the Indonesian health authorities to serve