

**Pennington Hugh (2022) COVID-19: The Postgenomic Pandemic. Cambridge: Polity Press. 140 pages. ISBN: 9781509552146**

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What is a pandemic? This may be a peculiar question to ask at this moment in time, when – depending on who you ask – we all just lived through one, or are still in the middle of that experience. At any rate, here in Austria, where I write these words, the first attempts to revise what the experience has been like have already started. The current Chancellor, who fell into the job in the middle of the pandemic, has begun to apologize for the government being too submissive to experts – even though those same experts have long expressed dismay about their advice being ignored in politics. In general, Austria increasingly stands out as a peculiar case in terms of pandemic management. Perhaps the main – and very controversial – issue on which Austria went its separate way (at least in the EU) was by introducing a vaccination mandate into law, which was never executed. The country also established regular testing as a management strategy in a significantly more expansive manner than others – albeit with great variation within its federalized health system. Experiencing this as an expat who continuously had half an eye on what my native country and others were doing, it appeared like ‘the same’ pandemic looked substantially different depending on where one was looking from.

While this may not be a surprising observation for an STS audience it is not something for which Hugh Pennington, emeritus professor of bacteriology at the University of Aberdeen and scientific advisor to the British government in various capacities, has much use. In the foreword

of his book *COVID-19: The Postgenomic Pandemic*, he wastes little time on marking off his territory. He states that his book is “evidence-based” (p. viii) and about “science” (p. viii) for “the non-scientist” (p. vi). To Pennington, this implies that he does not consider different national responses, nor does he want to comment on “the impact of that endemic condition, banal nationalism” (p.viii). Furthermore, he makes a point of saying that “[s]ocial media is avoided like the plague” (p. viii) (both puns presumably very much intended). What the slim, 140 page book does offer across its thirteen brief chapters, is an overview of the past, present and (possible) future of the (micro)biology of the SARS-CoV-2 virus and the associated disease, COVID-19.

Central to Pennington’s narrative is the observation that COVID-19 is the first ‘postgenomic pandemic’. This is so because various postgenomic techniques – including PCR tests, the use of whole genome sequencing to identify virus variants and the development of vaccines based on messenger RNA techniques – have been central to how we have come to scientifically understand the disease and its causes. Pennington traces both how these postgenomic technologies have been developed in the context of laboratory research and how research on previous pandemics – and on the coronaviruses responsible for SARS and MERS in particular – has informed the rapid identification of the SARS-CoV-2 virus, but also generated certain assumptions about how pandemics unfold that were uprooted by COVID-19. He further



describes how the virus began to get a hold on the world from early 2020 onwards and held that grip until and beyond the time Pennington was writing his book. He clearly and succinctly describes key biological aspects, scientific findings and surprises of the virus and its clinical manifestation, for example in chapters on the early stages of the pandemic and on variants. He combines this with discussions of some of the key technologies that played a role in the pandemic, such as PCR-tests and vaccines. His focus is on assessing the scientific evidence for their utility and the shift they entailed towards a postgenomic perspective on pandemic disease – although one may wonder if and how it would have made a difference if other pandemic technologies – face masks, epidemiological ‘dashboards’ or contact tracing, to name just a few – would have been part of the equation. Nevertheless, the claim that COVID-19 is a post-genomic affair is made convincingly, and the observation that a quintessentially postgenomic technology – the PCR test – has been central to diagnostics in a way that a test had not been in any previous pandemic provides interesting food for further thought.

As the COVID-19 pandemic will, in all likelihood, persist as a theme for STS research for some years to come, Pennington’s observations about the shifting scientific basis of how we recognize health and disease in the postgenomic age, and how postgenomic techniques change biological research and medical diagnosis (see also Richardson and Stevens, 2015), provide a valuable baseline. At the same time, STS research may take this observation to further explore how sociality and the meanings of individual biologies shift in this context (see Reardon, 2017). For example, the observation that “this postgenomic attribute [of the PCR test] makes it fundamentally different from all previous pandemics – influenza, cholera and plague – in which routine case finding and the construction of epidemiological statistics both during and after a pandemic were based on symptoms” (p. 45) has far-reaching implications that Pennington does not further explore. This shift from symptoms to molecular tests first makes it possible to even imagine the category of non-symptomatic cases, a category that many would see as a defining characteristic of the

COVID-19 pandemic. Worries about what to do with people carrying the virus without being ill themselves turned into a formidable puzzle for pandemic management, and indeed efforts to keep people who considered themselves healthy while infected from infecting others turned into an important source of discord around pandemic governance. On this point, Pennington has little to say about how this shift from symptomatic to molecular identification of the disease changes the experience of having COVID.

This omission is symptomatic (pun also intended) of what I found to be the book’s most significant limitation. The focus in the book is squarely on bearing witness to the awesome scientific achievements in understanding COVID-19 – a kind of witnessing that borders on hagiography, for example in Pennington’s decision to make bracketed references to any and all of the Nobel Prizes won by people involved in laying the groundwork for the ‘Postgenomic Age’. As such, the book often reads as fodder for an exercise in studying boundary work in action for aspiring STS students (Gieryn, 1999). Yet the very nature of a pandemic as an episode carried forward not only by virus particles jumping from one person to the next, but also by human relations, decisions, actions and inactions, is all but absent (Pickersgill, 2020). This may have been Pennington’s intent – the focus is on ‘the science’ after all – but also fails to do justice to the pandemic – and pandemic research – as a hybrid affair (Anderson, 2021; Löwy, 2020). Pennington himself cannot fully escape this relationality in his descriptions. For example, he writes how New Zealand’s remoteness and border controls long kept COVID in check, while “[i]ts application of managed quarantine for all coming into the country, frequent PCR testing, extensive use of WGS, and high-quality public health system had made the country a very useful source of information about the virus” (p. 69). This comes awfully close to considering how different nations have coped with the pandemic, something the author had initially set out to avoid. Yet it proves the point that pandemic research cannot fully be separated from its (social) context. In sum, then, there is a lot to learn in *COVID-19: The Postgenomic Pandemic* about how postgenomic technologies feature in contemporary medicine, yet the book has less to

say about pandemics. It will be up to the books to come -undoubtedly a substantial number – to tell us more about how this one virus caused such different pandemics around the globe.

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