CrossMark

Paradigm-breaking pandemics, old academic politics

The reviews of *New Pandemics, Old Politics* by Paul Richards and Hugh Pennington show very different ways of thinking about pandemics. Richards is interested in the pandemy – that regrettably obsolete word that refers to the total social experience of a global outbreak of disease; Pennington narrowly with pandemics, in its adjectival form attached to specific microbes. The gulf between the two evokes C. P. Snow's *The Two Cultures*.[1]

Richards writes from a holistic perspective. He usefully expands on my use of Mary Douglas and Douglass North to focus on the contests among different norm institutions and the task of 'how to rebuild science as a more globally inclusive norm institution'. This is far more than a matter of popularizing scientific methods and findings; it's making scientists and their political masters understand the limitations of a scientific endeavour.

Shortly after the 2002–03 outbreak of SARS, Pennington wrote about Britain's dangerous underinvestment in pandemic preparedness: 'Doctors, veterinarians, civil servants, politicians and scientists must come out of their boxes, learn to speak their different languages and communicate more effectively. If they fail, sooner or later there will be a heavy price to pay. Evolution says so.'[2] He was more correct than he could have anticipated at the time. Progress in pandemic preparedness was reversed by the Trump administration and neglected in the UK, so that by 2019 we were more *de*-prepared than unprepared.

Pennington's goal in his 2004 paper was to advocate for more money and political backing for research into the microbiology of dangerous emergent pathogens, rather than to promote learning evolutionary-ecological and historical-sociological ways of analysis. This is clear from his review of my book: a brilliant microbiologist can make rudimentary errors of analysis outside his specific field. He writes that '[f]ighting the "war on disease" metaphor is to attack a straw man'. But he is the one attacking a straw man. He argues that I am unfair to microbiologists, from Robert Koch onwards. That's a misreading: the argument of the book is *not* that microbiologists are enraptured by the military metaphor in their scientific endeavours, but rather that the politics of their science has been captured and utilized in this way. And it is precisely because the scientific method of microbiological research has generated such powerful technologies that political leaders are beguiled into the erroneous belief that such science can master the world in ways that it cannot. Koch was a pathbreaking microbiologist who identified the bacterial agent responsible for cholera. He was also a decorated officer in a project of colonial conquest. The reason why Koch's discovery was fêted and translated into government policy (rather than the obscure Italian microscopist Filippo Pacini, who had independently isolated the bacterium twenty-nine years earlier) was that the German scientist was connected

[1] C. P. Snow (1969) *The Two Cultures*. Cambridge: Cambridge University Press.

[2] H. Pennington (2004) 'Politics, media and microbiologists', *Nature Reviews Microbiology* 2 (3): 259–62.

https://doi.org/10.1017/S0001972022000250 Published online by Cambridge University Press

to the political establishment and had a flair for capturing the public imagination with, among other things, military metaphors. Koch's triumph was celebrated in Berlin in 1884 as a step towards imperial mastery of the surface of the globe and all living things on it. Students of African history need not be told about how German colonial ambitions were manifest in the Berlin Conference a few months later. Like France's contemporaneous Pasteur Institute, it shows the Janus face of the *mission civilisatrice*.

We need more microbiological research, but we also need critical thinking about what it means to 'conquer' disease. Writing in today's very different context, the eminent microbiologists David Morens and Anthony Fauci share this broader perspective:

> Science will surely bring us many life-saving drugs, vaccines, and diagnostics; however, there is no reason to think that these alone can overcome the threat of ever more frequent and deadly emergences of infectious diseases ... The Covid-19 pandemic is yet another reminder, added to the rapidly growing archive of historical reminders, that in a human-dominated world, in which our human activities represent aggressive, damaging, and unbalanced interactions with nature, we will increasingly provoke new disease emergences.[3]

Criticizing my focus on the social context in which certain pathogens have emerged, Pennington writes: 'The notion that virulent pathogens are created by ecological, social and health pathologies runs through the book. Pathogens can be helped to spread by these forces, but created? Evidence, please. I favour evolution via mutation, a random process.'

A thread in my book could be called 'new pathogens, old *academic* politics'. This is a fine example. What counts as 'evidence'? Admittedly, ecological theories of the evolution of new pathogens cannot be tested in the laboratory, and my account of the emergence of the 1918 pandemic strain of influenza draws heavily on the work of Paul Ewald, which is not accepted by all (including Pennington).[4] But if 'evidence' is confined to replicable experiments, then the theory of evolution by natural selection would be thin indeed. And what is 'random'? Mutation is random at the molecular level, but natural selection is not. Insofar as we create ecologies that drive new natural selection pressures we shape the pathogens that adapt.

The most recent variant of the 'war on disease' resembles the 'war on terror' in that it sees potentially pandemic pathogens as emerging anywhere, at any time, without logic other than individual random mutation, and the task of preparedness and prevention being to tackle each one singly. That is an essential part of the pandemic disease prevention playbook, just as surveillance of individual terrorist suspects is essential to preventing terrorist attacks. But if we rely on this as the *only* response, we will refuse to take measures to make those ecological contexts less pathogenic.

Where I fully agree with Pennington is that '[t]he only certainty is that predictions about the timing and cause of the next one will be wrong. Viruses do not read our plans.' In fact, we can make a stronger hypothesis. The next pandemic pathogen will

[3] D. Morens and A. Fauci (2020) 'Emerging pandemic diseases: how we got to Covid-19', *Cell* 182: 1089. See *New Pandemics, Old Politics*, pp. 227–8.

[4] P. Ewald (1994) *Evolution of Infectious Disease*. Oxford: Oxford University Press.

https://doi.org/10.1017/S0001972022000250 Published online by Cambridge University Press

be one for which we are insufficiently prepared. It is almost tautological: if we had the apparatus for preparedness, it would be anticipated and intercepted. This is not (just) a matter of escaping our scientific net, but our social-institutional one. Among the most intriguing findings in writing a history of pandemic disease is that we only come to understand each pandemic pathogen, in its full context, some decades after the outbreak, and only in the wake of advances in microbiology, epidemiology and the social science of public health. Those advances are more than incremental progress in existing paradigms. Repeatedly, the paradigm itself shifts, and we see disease within a new framework.

The stimulus for *New Pandemics, Old Politics* was obviously Covid-19. I speculated that the pandemic would shake our ecology-of-disease paradigm, along the lines identified by Morens and Fauci in their paper from which I quote above. That debate continues but has yet to shape the politics of science in the shadow of the pandemic. What I did not foresee (as the book was completed before the first vaccines were certified) was vaccine denialism. This is shaking our assumption of public health rationality among people in developed nations. This form of de-preparedness is not only inhibiting the containment of Covid-19 and killing many people; it is also increasing the danger of outbreaks of other communicable diseases, such as measles. Insofar as limited population vaccine coverage shapes the natural selection pressures on SARS-CoV-2, perhaps we can concede that the virus does figuratively 'read our plans'.

Richards writes: 'Vaccine denial[ism] is not necessarily a product of ignorance. It is as likely a product of institutional exclusion.' It arises in part because 'so many key actors of disease transmission live outside [biomedical] frameworks and are motivated by other existential concerns'. The history of disease control measures, including quarantine, lockdown and population relocations, includes many cases of people opting for the lottery of infection over the certainty of destitution, their logic coloured with ideological claims and conspiracy theories. In a country such as the USA, where medical care is an expensive privilege and pharmaceutical companies are repeatedly caught in practices ranging from (legal but unethical) influence peddling in the halls of Congress to (criminal) peddling of demonstrably lethal products such as opioids, all for profit, sceptics of biomedical authority are nonetheless dismissed as inexplicably ignorant. Social scientists – dedicated critics of argument from authority – should empathize with such critique, despite the discomforting fact that it is articulated by the political right. This points to a rather obvious and very practical agenda item for an emancipatory people's science of public health: bringing scientists out of their citadel of expertise to appreciate why they may be so distrusted.

Alex de Waal
World Peace Foundation, Fletcher School of Law and Diplomacy,
Tufts University, Medford, USA
Email: alex.dewaal@tufts.edu
doi: 10.1017/S0001972022000250

https://doi.org/10.1017/S0001972022000250 Published online by Cambridge University Press