

## Lessons from history



*Cheryl Power and Ross Barnard*

Approximately 6 months ago, as COVID-19 became the focus of our day-to-day life, it was constantly referred to as unprecedented. In fact, this word has been used to describe almost everything that has subsequently occurred. Unprecedented of course means ‘without previous instance, never before known or experienced’. At the same time the general thrust of many headlines in the media was to cast SARS-CoV-2 as a killer virus wreaking havoc on an undeserving and unsuspecting population.

Both these descriptions annoyed us intensely because they completely denied the history of infectious disease as we know it. Our hope is that, after reading this issue of *Microbiology Australia*, you will understand our frustration – if you didn’t already share it. The theme of this issue is, as the triptych on the cover declares, *Yesterday, Today and Tomorrow: Plagues, Pestilence and Pandemics*.

To illustrate the power and persistence of infectious disease there are articles on some of the all-time greats: influenza, leprosy, poliomyelitis, tuberculosis and gonorrhoea. There are articles about great scientists, CJ Martin, Pasteur, Burnet and many others who are less well known. They not only contributed to countering these scourges but also helped to build the great institutions, CSL or Commonwealth Serum Laboratories and AAHL as it is affectionately remembered, now renamed ACDP or the Australian Centre for Disease Preparedness. The history of vaccination takes a special place for two reasons – that it is the only way infectious disease has ever been eliminated and that it is so much the current focus for our path back to normality.

There is no doubt that COVID-19 is a huge problem, but humans should not be seen purely as passive players in this or any other microbial drama. Humans have always played an instrumental role, whether knowingly or inadvertently, in the emergence of

plagues and pestilence, whether by a failure to control vector populations, or by providing favourable conditions for vector proliferation (for example, rats and mosquitoes), or by providing favourable conditions for the survival and transmission of the microbes themselves. These phenomena accompanied the transition from hunter gatherer mode to sedentary farming, entailing higher human and animal population density and living closely with domesticated wild animals and their microbial boarders. In retrospect it is clear humans have unwittingly taken severe risks. Whether by massing ourselves in mega cities or onboard gigantic cruise ships, we have set the scene for amplification events. And while we have changed, socially and culturally, so have the microbes, more randomly but very effectively.

Theodosius Dobzhansky wrote in 1973 that ‘Nothing in biology makes sense except in the light of evolution’. Looking at the current pandemic as an evolutionary event thus gives us the final perspective on our current predicament, a situation that was faced yesterday and that will be faced again tomorrow, albeit with different microbes, but possibly using remarkably similar strategies to those used in times past.

Histories, according to Hannah Arendt (1959), are more than just a record of a chronological sequence of events but rather they are stories that are ‘significant objects of reflection and understanding’. By engaging with the past we can learn the lessons of those who came before us and use them to guide our actions today.

History has shown the value of quarantine, and of keeping a distance from disease, whether by physical barriers or behavioural changes. Basic hygiene, good nutrition provided by safe food chains, and clean water supplies, are all vital. Dirty cities needed to be drained and cleaned before infectious disease could be conquered or controlled. These measures are the pillars on which modern medicine, including antivirals, antibiotics and vaccines, developed by armies of committed scientists, can deliver miracles, but only if they are strongly supported and funded by both society and government.

We should never forget the lessons from the past. As Edmund Burke (1765) said, ‘In history a great volume is unrolled for our instruction drawing the materials of future wisdom from the past errors and infirmities of mankind’.

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