

## The forgotten pandemic: 1900 bubonic plague in Sydney

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Interest in COVID-19 has made many people aware of the so-called Spanish flu pandemic, which killed millions worldwide post World War I. We also have some recollection of the more recent SARS, MERS and Ebola outbreaks, though none of these came to Australia. But when we think of bubonic plague or 'the black death' as it is also known, most of us think of Europe in the Middle Ages, where it is estimated that the plague killed between 30–60% of the population.

Throughout history, the plague has been rightly one of the most feared diseases. But it also remains a disease of the 21st century and is endemic in many parts of the developed and undeveloped world.<sup>1</sup> While Australia appears free, in the USA for example, there are over 30 species of wild rodents found to be chronically infected; California reported its most recent case on 20 August 2020.<sup>2</sup> The reservoir populations of fleas live in symbiotic harmony with their rodent hosts; the trigger for an outbreak, as distinct from an occasional individual instance of the disease, appears to be some unrelated factor leading to death of large numbers of the host rodents. The fleas then move to their less preferred host, humans.<sup>3</sup>

Between 1897 and 1902, many medical researchers in various countries, including Dr John Ashburton Thompson in Sydney, contributed to the recognition of the part played by rodents, and

rats in the spread of bubonic plague.<sup>4</sup> Prior to their work, plague was thought to be a gastrointestinal infection.<sup>5</sup> This belief influenced the initial management of the 1900 Sydney plague outbreak by the New South Wales government.

The official story of the plague outbreak in Sydney is also documented in the meticulous handwritten minutes of the NSW Board of Health.<sup>6</sup> As Board Chairman, Dr Ashburton Thompson (1846–1915) was eminently skilled for the role, given his research interests. He played a key role in the suppression of the 1900 pandemic and stands out as an enlightened man of principle.

In and around 1900, it was widely anticipated in Australia that an outbreak of bubonic plague would occur.<sup>7</sup> The disease had been spreading slowly throughout China, originating in Yunnan, and was expected to reach all inhabited continents.

While bubonic plague is very different from COVID-19, being bacterial in origin and with a very high mortality rate, the reaction of the various state governments and attempts to contain and manage the outbreak in Sydney some 120 years ago provide an interesting comparison to our current experience ... and suggest that perhaps things may not have changed that much.

While the outbreak in Sydney in 1900 seems small by current COVID-19 numbers, it must be remembered that the mortality rate from bubonic plague at that time was over 30% and the etiology was not fully understood. Sydney's population at the time was less than 500,000; when the plague was deemed to be ended here, there had been only 303 reported cases with 103 deaths – a success story by standards then and now.

Thompson accepted the relationship between rodents and human infection early in the outbreak and constantly tried to influence government behaviour, based on the correct causative factors. Together with his work on smallpox, leprosy and the lead poison-

ing outbreak in Broken Hill, he deserves far greater recognition for his work and influence than he has been accorded in the wider medical community.

As noted, the 1900 Australian pandemic had its origin in Yunnan, China where the disease is thought to have established itself between 1800 and 1850. Its attempted containment failed when an uprising in 1855 by the 'Mohammedans' was deemed to require troops to be sent in. There was a slow spread over the next 28 years, reaching Hong Kong and Canton in 1894. By this time, steamships were replacing sailing ships, with the consequent rapid movement of people and goods and the ships' associated rat and flea population.

The slow spread of the plague gave the NSW Board of Health adequate warning. There was never any doubt plague would arrive on the east coast – and Sydney was a critical and busy port for both goods and travellers. In December 1899, there was a reported outbreak in Noumea, and ships from that port were quarantined.

On 15 January 1900, a suspected case was detected in Adelaide, and police were required to document the names of all entering travellers to South Australia.<sup>8</sup> Ultimately, the case turned out to be a false alarm, but border control was a tool in the government's first line of defence. The first actual case was recorded in Sydney on 23 January 1900, when Arthur Payne, a dockworker, his family and two visitors were put into isolation at North Head Quarantine Station.

During the period January to August 1900, 264 cases and 1832 contacts were quarantined at North Head.<sup>9</sup> The peak was 105 cases in the month of April.

The management of the plague outbreak in Sydney had five components:

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- quarantining of patients and contacts at North Head Quarantine Station
- lockdown and cleansing of affected parts of Sydney
- border control
- extermination of the rat population
- inoculation or vaccination of at-risk populations.

While Thompson and his colleagues supported this strategy in general, they strongly objected to the government's implementation. The Board repeatedly requested the government to use the Coast Hospital (a dedicated infectious diseases hospital) rather than North Head for ill cases, but their pleas were to no avail, even though the quarantine station was grossly overcrowded and had become a tent city.<sup>10</sup>

The Board also disagreed with the extent of removal of contacts and the period of quarantine for asymptomatic people.<sup>11</sup> After removal of the victim and their contacts, the cleaning staff appointed by the Department of Health moved in. Over 3000 men were employed. It appears this process was extreme; one resident of the Rocks made the following observation:

... the ravages of the cleaners, a body of desperadoes hired by a tyrannical govt to carry out the boweless edicts of the Health Dept, fortified by strong drink, these men carried out a veritable orgy of destruction. They had white washed everything they could lay their hands on. One lady assured me tearfully they had even white washed her piano.<sup>12</sup>

During March and April, the government focused on cleaning, despite Thompson's pleas to address the rat problem as the priority. Finally, after more pressure from Thompson, the government introduced a capitation fee of two cents (later increased to six cents) for each rat captured and killed in Sydney. When the capitation fee was increased, there were rumours of rats being imported from the country! By 31 October, 108,308 rats had been put to the sword.<sup>13</sup>

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A plague vaccine had been developed in 1897 by the microbiologist Waldermar Haffkine. Although not 100% effective, it significantly reduced mortality. The 300 doses ordered in 1899 before the outbreak were used to inoculate health workers. When further supplies became available in mid March 1900, inoculation was offered to the general population. Public demand increased rapidly, but supplies ran out by the 2 April. New supplies became available in May, but by this stage the public panic was beginning to subside and the public's response was disappointing. In total, 10,700 were vaccinated; with only 14 cases of plague recorded among the inoculated group.<sup>14</sup>

Some of the broader effects of the plague in the community are noteworthy.

- The *Sydney Morning Herald* (12/03/1900) reported a boom in property prices in the western suburbs and the *Bulletin* (31/03/1900) reported a mad rush to the Blue Mountains.
- Sydney residents avoided travelling to the city, and the Autumn AJC Carnival was poorly attended.
- Victoria overreacted, imposing restrictions on mail and rail services from Sydney. When plague eventually reached Melbourne the *Sunday Times* (20 May 1900) wrote: 'Sydney has but little sympathy for Melbourne in connection with the plague visitation owing to the unneighbourly attitude of the Southern capital while the attack was confined to this city.'

But perhaps the most revealing part of the community response was the desire for scapegoats. While specific minorities were not massacred as in past plague epidemics, irrational racist behaviour was on display. Old racist fears about the Chinese came to the fore, in part because the plague occurred in areas of high Chinese population and the fact the pandemic had originated in China.

Ashburton Thompson was outspoken in defending minority groups. He made the point that the Chinese numbered only 4000 out of a metropolitan population of 450,000 and that only 10 had contracted the plague. Chinese were not the only ethnic group singled out. Alderman Sullivan of the Redfern Council suggested Syrians (at that time, the term embraced all people from the Middle East) and Indians were predisposed to plague.

Like other pandemics, this outbreak brought out its share of charlatans. Vitadatio, the great Tasmanian herbal blood remedy, was said to cure not only plague but also cancer, Bright's disease, TB, and hydatids. It was found to consist principally of cheap gin. Other therapies promoted were Canadian Club whiskey and Dr Morse's Indian Root pills.

Perhaps the most innovative remedy offered was Metzlers protective anklets, which were like army type gaiters or spats; their purpose was to stop fleas jumping onto their victims' ankles! Other less damaging promotions included The Good Bicycle Co. suggesting that 'riding a bike was better than travelling on crowded buses' and the Mutual Store Chain, which promoted 'amid winter plague sale'.<sup>15</sup>

Because of the experience gained in the 1900 outbreak, the 1902 outbreak was handled much more capably. The mortality rate was reduced by one third because the sick were quarantined and treated at the Coast Hospital rather than North Head – a measure which Ashburton Thompson had been advocating from the start.

Also on a positive note, Dr J.H.L Cumpston, the first Director-General of Health of the newly minted Commonwealth Department of Health, felt the 1900 outbreak caused a complete revolution in social medicine in Australia. The awareness of the link between infectious disease and animals and the role of insects as vectors gave public health medicine a stronger scientific basis.

There was also an improvement in building regulations and their enforcement.

The 1900 bubonic plague pandemic was one of the deadliest in recent history – with over 15 million deaths. In Sydney, it provoked hysteria, racism, conflict, exploitation and, with the benefit of hindsight, government overreaction in some areas and too-slow reactions in others. It is now interesting to consider the facts about the 1900 bubonic plague considering Australia's COVID-19 experience, given changes in the approach to and the management of a life-threatening outbreak of a worldwide, potentially lethal highly transmissible infectious disease.

## Endnotes

- 1 Butler T (2013). Plague gives surprises in the first decade of the 21st century in the United States and worldwide. *American Journal of Tropical Medicine and Hygiene*, 89, 788–793.
- 2 Lewis S (2020, August 20). California has its first case of bubonic plague in 5 years. How likely are you to catch it? *CBS News Online*.
- 3 Thearle MJ et al. (1994). *Plague revisited: the black death: an account of plague in Australia, 1900-1923*. Royal Australasian College of Physicians.
- 4 Ibid.
- 5 Pollitzer R (1954). *Plague*. WHO, p 298.
- 6 NSW Medical Board, Minutes of proceedings and registers, Vol 1 1838-Feb 1901 (NSW State Archives).
- 7 Thearle MJ et al., *op.cit.*, p 8.
- 8 Ibid.
- 9 Foley JD (1995). *In quarantine: a history of Sydney's Quarantine Station 1828–1984*. Kangaroo Press.
- 10 NSW Medical Board, *op cit*.
- 11 Thompson JA (1900). *Report on the outbreak of plague at Sydney 1900*. William Applegate Gullick – Government Printer, Sydney, p 14.
- 12 Sleeman P (1987). A plague upon the nation. *Historic Australia*, 4, pp 13–17

- 13 Curson P & McCracken K (1989). *Plague in Sydney: The anatomy of an epidemic*. NSW University Press, p 161.
- 14 Thearle MJ et al., op.cit. p 28.
- 15 Pollitzer R, op. cit. p 226.

## About the author

Dr Barry Catchlove AM is a Sydney University medical graduate who has spent most of his professional life in health management, including 10 years as CEO of the Royal Children's Hospital in Melbourne. He was a fellow of Sydney University Senate and President of the Alumni. His knowledge about pandemics is part of a broader awareness of medical history, particularly the way paradigm shifts in knowledge have influenced a range of medical practice and society in general.