

CHAPTER 11

CHINA'S VIRUS?

'It came from China' – President Donald Trump

(I would like to thank Professor Ray Jansen for his help and advice with this chapter.)

Covid-19 is one of seven coronaviruses known to infect humans. The others are SARS-CoV, MERS-CoV, HKUI, NL63, OC43 and 229E, with the latter four being associated with milder symptoms.

In the 17 years between the first SARS outbreak in 2002 and the appearance of the novel coronavirus (Covid-19) at the end of 2019, the consumption of wildlife, particularly African wildlife, by China and other Far Eastern countries has increased year on year. Many species of animal are prized for their meat and/or other body parts, including iconic tigers, lions, rhinos and elephants, along with many smaller creatures, and, increasingly, pangolins. Some are locally bred, but most are poached and trafficked in order to cater for the seemingly insatiable, ever-expanding consumer markets. In the last chapter I described my visit to two countries that are ignoring international law and are, in effect, wildlife supermarkets for whole animals and body parts, most of which are being sold illegally. As consumption has increased so has the risk, and finally the consequences are upon us, bringing human life on earth to its knees.

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I was in Tswalu on 8th February 2020 when Barry Lovegrove, a fellow Struik Nature (Penguin Random House) author who knew I was writing a book on pangolins, approached me, carrying his laptop. He was coming to tell me the breaking news that scientists believed that pangolins were the likely carriers of Covid-19 to humans.

Wendy Panaino, research scientist stationed at Tswalu, is a globally acknowledged pangolin expert, and it didn't take long for the world's media to find her, and emails from major broadcasters and newspapers from all over the world to come flooding in. The African Pangolin Working Group and others were similarly inundated with requests for information – on a species that most people in the world had never even heard of.

Some viruses can be transmitted directly to humans from bats, birds and other hosts. However, this transmission process more often involves an intermediary or vector. The host is sometimes referred to by virologists and epidemiologists as a reservoir species, and on its way to humans from the reservoir species and through the vector, the virus may combine with another virus in a process called a recombination, or it may mutate. In either event, a more deadly virus may result.

In China's wet markets (where wild animals are slaughtered and sold for human consumption), cages containing birds, bats and many other small mammals are often stacked on top of each other. Urine and faeces drop down through the cages onto the animals stacked below; thus, if bats are stacked in cages above civet cats or

pangolins, those animals can end up taking in body fluids from the bats above them. A bat coronavirus genome is 96% similar to the human version, while pangolin coronavirus is 90% similar. Chinese scientists further discovered that the S-protein in Covid-19 is 97.4% similar to the S-protein found in bats. This strongly indicates bats as being the reservoir species.

An RBD is a ‘receptor binding domain’, an area in the stalks of the virus, and it is here that some of the deadliest characteristics of the virus are hidden. The RBD and its amino acids are a 96% match in both pangolin and human coronaviruses. This does not prove that pangolins are the Covid-19 infection agent, but it is a compelling signpost.

A paper by four Chinese scientists (from Hainan, Fujian and Central South Universities and a laboratory) says that Covid-19 almost certainly recombined in pangolins before making the jump to humans. They believe that bats were the reservoir species, pangolins the vector, and humans (via China’s wet markets) the recipients – that Covid-19 is very possibly a recombination of bat and pangolin coronaviruses.

The work of Chinese researchers was in line with that of American scientists from the Baylor College of Medicine in Texas. The US research identified the Malayan pangolin as the likely vector. Researcher Matthew Wong from Baylor College discovered that the distinctive RBD docking mechanism in Covid-19 was identical to that found in the Malayan pangolin coronavirus. Professor Joseph

Petrosino, Wong's Baylor College supervisor, said that pangolin and bat viruses may have come together in the same animal, and recombined with devastating results, creating the novel coronavirus.

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In a letter to *Nature Medicine* published on 17th March 2020, research scientists Kristian Andersen, Andrew Rambaut and Robert Garry make clear their opinion that Covid-19 is not a laboratory construct or a purposefully manipulated virus. Their letter discusses the Malayan pangolin as being involved as a probable vector. Research performed largely by scientists associated with the University of Michigan joins the ever-growing body of scientific opinion favouring Malayan pangolins as the link between bats and humans. This work torpedoed earlier theories that snakes may have been the vector. In addition, it disproves another theory associating Covid-19 with the virus that causes HIV AIDS.

In a very prescient scientific article published in the journal *Clinical Microbiology Reviews* in October 2007, the authors, led by Vincent Cheng, state in their concluding paragraph that 'the presence of a large reservoir of SARS-CoV-like viruses in horseshoe bats, together with the culture of eating exotic mammals in southern China, is a time bomb. The possibility of the re-emergence of SARS and other novel viruses from animals or laboratories and therefore the need for preparedness should not be ignored.' The world ignored

this and countless other warnings and 12 years later the time bomb exploded in the form of Covid-19.

Scientists are cautious until they are certain, and until the science has been peer reviewed, and accepted as proven, the ‘Covid-19 to humans via bats and pangolins’ claim cannot be taken as fact. However, Professor Petrosino did make the following statement: ‘A virus known to exist in bats, and a virus found in a pangolin virus sample appear to have recombined to form SARS-CoV 2 (Covid-19). But some viruses can be transmitted between mammals relatively easily, so there is no way to tell whether there is another animal where these two viruses perhaps co-existed. More surveillance is necessary.’

There have been challenges to these pangolin theories, but several other studies also explored the link, and the majority of scientific opinion supports the likelihood of pangolins being the Covid-19 vector. It is worth noting that in the 17 years since the SARS outbreak in 2002, scientists have still not reached 100% agreement as to how that virus got to humans.

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As the virus spread during April and May 2020, so did the war of words between the United States and China. Before the end of December 2019, US officials were already pressing China for more data about the disease, and for the opportunity to work directly with virologists in Wuhan. China’s reluctance to grant access to data and

to Wuhan's scientists did nothing to calm the suspicion and rumours that accompanied the growing pandemic.

In early May, a headline from *The Times* (UK) read: 'I've seen evidence that it came from Chinese lab, says Trump'. A similar approach was adopted by his Secretary of State and other senior US officials, although no actual proof or evidence was offered to back up this position, and top US officials have subsequently backed off from this allegation. Early on in the blame game, a Chinese official claimed that the virus had been brought to Wuhan by American athletes taking part in international military games. In addition to the US/Chinese claims and counterclaims, there was a bewildering array of conspiracy theories, amongst which was the idea that the virus had been engineered by China to destabilise Western economies, and that 5G technology had played a part in the outbreak.

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With its enormous population, giant cities, huge trade in wildlife, and wet markets, China is a vast viral petri dish. After the outbreak of SARS in 2002, and again after Avian influenza A (H7N9) in 2013, the Chinese government acted to close wet markets in the country. Yet these efforts were half-hearted and shockingly short-lived and within months the markets were up and running again. Now, early in 2020, with Covid-19 ravaging almost every country in the world and bringing the global economy to its knees, was a replay unfolding?

Chinese government moves in January and February 2020 to ban and limit trade and consumption of terrestrial wildlife products were a little late. The stable door was being closed after the horse had bolted. Or was it being closed? On Sunday, 6th April 2020, the UK's mass circulation tabloid newspaper, the *Daily Mail*, published an article in their *Mail Online* edition saying that China's wet markets were once again open and operating as they always had. As I had witnessed in Vientiane in Laos, these markets sell an extraordinary variety of both wild and domestic animals. There is no provision for even basic hygiene, with different animals being slaughtered and skinned on the same surfaces, without any proper cleaning in between. Open bloody meat can easily become infected. The newspaper was reporting from a market in Guilin in southwest China, and another correspondent photographed a medicine seller re-opening his business in Dongguan selling bats and other animals. The *Daily Mail's* correspondent in Dongguan was quoted as saying, 'The markets have gone back to operating in exactly the same way as they did before the coronavirus. The only difference is that security guards now try to stop anyone taking pictures, which would never have happened before.'

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From January 2020 onwards there was considerable reporting, in both mainstream and social media platforms, of modifications to China's Wildlife Protection Law (WPL). Much of the published

information was misleading or inaccurate. The first development came on 26th January, when three Chinese agencies, the Ministry of Agriculture and Rural Affairs, the National Forestry and Grasslands Administration, and the State Administration for Market Regulation issued the ‘Notification regarding the prohibition of trade in wildlife’. This required all facilities keeping wild animals in captivity to quarantine them; and all consumptive operators, including food outlets, supermarkets and produce markets, were banned from selling wild animals in any form. The ban was to last until the national coronavirus epidemic was over. There appeared to be grey areas in the ban, such as the status of products sold for Traditional Chinese Medicine (TCM), and manufactured products such as tiger or lion bone, wine and cake.

On 24th February, China’s highest law-making body, the National People’s Congress (NPC), put in place a series of measures that appeared to back up and strengthen the restrictions imposed in January. These measures prohibited trade in most terrestrial wild animal species consumed as food. The ban only covered food, so trade in pets, TCM and ornamental artifacts was not addressed. Although there seemed to be notable loopholes, which meant the measures fell short of being a total ban, these moves indicated significant departures from the existing WPL, and seemed to demonstrate recognition of the dangers posed by wildlife consumption. Although the pandemic had triggered moves by China’s lawmakers, many issues needed to be reviewed and resolved

before permanent changes could be made to the WPL. The term ‘wildlife’ would need to be defined, in terms of whether it covered captive-bred species. Some items used in TCM, such as pangolin scales, might still be able to be traded and consumed if classed as TCM – although this would fly in the face of the ban on commercial trade in all eight pangolin species, which are CITES Appendix 1 listed, whether TCM or not. One way sellers explain the trade in pangolin scales is by claiming that the scales are part of stockpiles that pre-dated pangolins being Appendix 1 listed.

It was also announced that the WPL would be revised during 2020 and a review process started. Pro-wildlife campaigners and conservationists hope the amendments will result in a permanent ban on all trade in wildlife, and that the ban will be enforced. Those hoping for such a ban are concerned that items used in TCM will escape restriction, as may captive-bred wild animals. They argue that such exemptions would create loopholes for opportunists, which would seriously compromise the effectiveness of the new amendments. One encouraging indicator is a proposal to buy out or compensate wildlife farmers who agree to switch to alternative forms of ‘agriculture’.

The NPC meeting in May passed new laws affecting Hong Kong, but revision of the WPL did not come up. At the time of writing in June 2020 the review process is ongoing, and people worldwide are waiting to find out what new measures will eventually become law. The coronavirus pandemic has left the world in no

doubt that China's wildlife laws affect every human living on the planet.

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The value of the trade in wild animal products in China in 2019 was estimated to be over \$70 million, which is a huge sum. In contrast it is thought that the first SARS epidemic in 2003 probably cost the world's economy around \$50 billion, and some believe that this second SARS pandemic could result in a loss of \$25–30 trillion, leading to a deep recession and, quite possibly, a depression. The economic devastation will probably cause as much death and misery as the medical pandemic. The eating habits of one set of cultures will represent the most expensive meals in the history of the human race.

The World Health Organisation's International Health Regulations (2005) are a legally binding instrument of international law that aims to (a) assist countries to work together to save lives and livelihoods endangered by the international spread of diseases and other health risks, and (b) avoid unnecessary interference with international trade and travel. The signatories include China and the other Far Eastern wildlife-eating countries. It seems that, by failing to learn the lessons of the dangers posed to human health by consuming wild animal products, these countries are ignoring their responsibilities under international law.

If science does eventually conclude, emphatically, that Covid-19 came to humans via the illegal sale of pangolins in Wuhan's wet

markets, then China stands guilty before the world. The Communist Party's situation was further compromised by their choosing to silence the early warnings about the latest virus, tragically illustrated by the death of a medical doctor, Li Wenliang, whose attempt at whistle-blowing was brutally suppressed. Professor Steve Tang, director of the SOAS China Institute in London, was quoted in the UK press in April 2020: 'In terms of priority [in China], controlling the narrative is more important than the public health or the economic fallout. It doesn't mean the economy and public health are not important. But the narrative is paramount.' According to western press reports, such as appeared in *The Observer* (UK) on 12th April 2020, documents relating to research and publishing procedures published online by Chinese universities appeared and were then quickly removed.

China has questions to answer: Did the virus originate from the 'wet' markets, or from lax practices at the Wuhan research centre? Furthermore, why are sensitive and potentially dangerous research establishments located in a major city, and not in an isolated rural area? Between 12th and 31st December there were at least 104 Covid-19 cases and 15 deaths in Wuhan, yet at the end of the month the Chinese government's official line was still that there was no clear evidence of human-to-human transmission of the virus! The province of Hubei was sealed off from the rest of China early in the outbreak, but not from the rest of the world. Why?

If China and the Far East stop consuming, then Africa and others will stop supplying. Wildlife will benefit hugely, and mankind will have pressed one of the many re-set buttons that the Covid-19 lesson invites us to do.