

# Opinion Column by Dr. Paul Brey



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In my last letter written in November 2019, I mentioned the devastating dengue epidemic of 2019 that claimed 75 lives and infected tens of thousands in Laos. I also mentioned the resurgence of the Ebola virus in Africa and the WHO public health emergency and that our Institute was on standby to diagnose any suspected case of Ebola virus. But, as I wrote these lines about viral threats in Laos, unknowingly 1800 km to the north, in a wet market a novel coronavirus was already spilling over from some animal species into the wet market workers. Unidentified pneumonia in hospital patients was then linked to this market and a novel coronavirus was isolated and sequenced. It turned out to be a virus related to SARS (SARS-CoV-1) that had emerged under similar circumstances back in 2002-2003; hence this virus was named SARS-CoV-2 or Novel Coronavirus and the disease stemming from this infection has been named COVID-19 by the World Health Organization. In our interconnected world, this virus spread with breakneck speed around the world. Many countries did not understand or simply ignored the seriousness of this new coronavirus and did not take the necessary measures to stop its initial spread. After the virus had spread to many countries and at that point had in fact become uncontrollable, the World Health Organization

finally declared on 30 January 2020 a Public Health Emergency of International Concern. Eighty-four days later (22 April 2020) we have over 2.5 million confirmed cases and over 177,000 deaths worldwide. These figures are probably an underestimation of the true numbers. A major portion of the world population is in lockdown or under some form of confinement. Although the spread of COVID-19 has subsided in China the virus is still ravaging through most countries in the world. We do not know how many people will perish due to this modern-day plague.

Scientists from major research institutions like Institut Pasteur, NIH-NIAID, US-CDC, Robert Koch Institute, RIKEN, etc., and universities such as the University of Hokkaido, University of California Davis, etc., as well as international organizations such as the OIE and WHO have been clamoring since SARS in 2003 that another deadly zoonotic disease could spillover into humans. However, these warnings were not heeded and research funds were not allocated ... despite the fact that Ebola had re-emerged in Africa in 2014 and again in 2019... But that was an African problem... Middle Eastern Respiratory Syndrome Coronavirus (MERS), which emerged in 2012 in Saudi Arabia – it was considered a Middle Eastern problem... So, our calls and requests for funding went unheard and the research and field investigations to understand the origins and conditions of interspecies transmission of these viruses and yet unknown viruses were not carried out... Research funding is always a major struggle and during periods when disease levels are low, governments and agencies have a tendency to cut this funding for other priorities of the moment.

We have a tendency to forget past pandemics. For example, the Spanish Influenza (H1N1) epidemic of 1918 was truly devastating killing an estimated 50 million worldwide. Today, that generation has passed and there is no longer any collective memory of the devastation! We only have historical records of the mayhem caused by this influenza virus, but no

living testimony exists. In 1347-1351 the bubonic plague caused by the bacterium, *Yersinia pestis* decimated half of the population of Italy. The sheer number of deaths and social upheaval caused by this epidemic was considered catalytic for profound social changes to occur leading to what we call the Renaissance today.

Interestingly, Charles Nicolle, Director of the Pasteur Institute in Tunis and Nobel Prize in Medicine (1928) wrote in his book entitled "Destin des Maladies Infectieuses" (1933)

**"Nature's attempts to create new infectious diseases are as much constant as ordinarily vain. What happened in ancient times where, by exception, nature succeeded in its attempt, repeats itself at all times and will always continue to do so. New diseases will therefore inevitably arise."**

Nicolle's words still ring true even 87 years later and we should take them to heart. When the COVID-19 passes, which it will, we will go through some years where research will most likely receive a boost, but then depending on how society and governments see things, there is always a risk that we will once again return to complacency, which seems to be the default attitude for humans. We do hope that the COVID-19 electro-shock to humanity will be a wakeup call for this generation and generations to come.

Globalization, climate change, deforestation, land-use transformation, ease of travel all contribute to making our environment conducive for an increase in human, arthropod vector and wild animal contacts. The WHO estimates that more than 30 new infectious agents have emerged in the last forty years of which 75% were from animal origin (zoonoses). As tropical agriculture advances on forests, road and rail infrastructures cut through large swaths of jungle, ecotourists continue to visit bat caves, tourists who feed monkeys at Pagodas and other sites, all of these activities and many more knowingly or unknowingly augment the possibility

of human-animal contacts.

In addition, wildlife handling and consumption, whether legal or illegal, have been implicated or suspected in zoonotic infections spilling over into humans and causing disease, prime examples being SARS-CoV-1 and SARS-CoV-2. Hence, we need to reevaluate these behaviors and decide what measures are necessary to mitigate this risk caused by wild animal-human contacts and how to implement them in a way so that they are socially acceptable. Making laws that interdict the capture and sale of wild animals for human consumption, if not properly enforced or respected, will have no impact. Wild animal consumption for culinary or medicinal purposes is deeply rooted in many societies and cultures around the world from Asia to Africa. Wild animal trade is also lucrative and provides economic benefits for those who are willing to take the risks of capturing, transporting and selling wild animals. So perhaps a much deeper reflection is necessary to find a way to educate people who are involved in the trade, find economic alternatives and find ways to “wean” societies, who enjoy wild animal consumption, of this dangerous diet. If there is no buyer’s market for this wildlife, the trade will collapse over time. I know this is easy to say, but there must be a way to shut down this wildlife consumption that is the major vehicle leading to these zoonotic diseases spilling over into human populations.

In the meantime, when we get out of lockdown and receive the “all clear” signal, Institut Pasteur du Laos scientists will resume their fieldwork to try to find the origins of SARS-Cov-2 in bats, pangolin and other wildlife and to see what are the necessary events allowing the SARS-CoV-2 to leave its animal reservoir (suspected to be bats) into another recipient host animal that can also harbor the SARS-CoV-2 and eventually transmit it to humans.

