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EDITORIAL NOTE

Living in pandemic times

ALEXANDER W.A. KELLNER

The world has changed forever. This statement may sound a little clichéd, but more and more scientists and policy makers around the globe perceive this as an inevitable fact. The terrorist attacks of September 11, 2001 also provided a similar feeling, but nothing compares to what we are living today. Even after a reliable vaccine against COVID-19 (the disease inflicted by the virus SARS-CoV-2) is developed and made available for billions of people, the fear of another outbreak that might again take the world hostage – perhaps being even more contagious and deadlier – will be in our minds and passed on to future generations.

The human species has been struggling with viruses since its existence, but the odd aspect of the present situation is our neglection of the early warnings in the last decades that such a disaster was knocking at our door. The Marburg virus (MARV) in Germany (1967, originated from primates imported from Uganda) and Angola (2005); the severe acute respiratory syndrome – SARS (2002-2004), first in Asia but later spreading to other continents; the influenza or swine flu pandemic (2009); the Middle East respiratory syndrome (MERS, 2012, 2015 and 2018); and the disturbing Ebola outbreak in West Africa (2014-2016), just to mention a few that have made the headlines (more on the website of the World Health Organization*).

There have even been some very influential world leaders pointing out the danger that viruses pose to us. One was Bill Gates, who provided a short but quite impressive TED talk (available at YouTube**), dismissing nuclear war as the greatest peril in the world – against the beliefs of many. The co-founder of Microsoft Corporation argued for the potential negative impacts of a high infective virus, further adding that the world was not ready for it. This remarkable presentation for its timeliness was five years ago.

Countries are still struggling on how to deal with COVID-19 since nobody was well prepared for such a pandemic. The consensus is to "flatten the curve", meaning to reduce the number of daily new cases. Delaying the contamination will give health systems a better chance to prepare and reduce fatality rates (e.g., Kenyon in press). A few countries managed to achieve this with reasonable success, but for

*https://www.who.int
**https://www.youtube.com/watch?v=6Af6b_wyiwI

others the future does not look so bright. As this editorial note is being written, the official death toll claimed by COVID-19 in Brazil is close to 12.000. The number of infected people is skyrocketing and not many researchers doubt that the current acknowledged 170.000+ will soon break the 1 million mark. Perhaps we are already much closer to this figure than one would like due to the general sense that the official numbers are substantial underestimates. As the Brazilian Ministry of Health has recognized, the country is pretty much in the dark when it comes to credible figures regarding this virus. By the way, the problem with lack of data is not an exclusivity of this country.

Do we might learn something from this tragedy? Skepticism is running high for all in Brazil where the course of action of the federal government has just been harshly criticized (e.g., The Lancet 2020). In the present situation, one cannot avoid thinking about the deforestation of the Amazon as a good example of how wildlife could expose unknown pathogens that might infect humans (e.g., Val 2020), with unpredictable consequences. So far, not many effective measures have been taken to prevent this from happening. On the contrary, official numbers indicate that illegal logging in the Amazon area is higher than ever.

Arguable, it seems that the priorities of most countries continue to heavily focus on "how to achieve the fastest monetary growth", with the general sensation of economy taking precedence over all other issues, including environment and health. Perhaps we are suffering from another disease, somehow deeply rooted in the minds of our societies: acute myopia. This shortsightedness of several major players with the power to influence the "course of things" keeps them from seeing that investing in science is the only way to prevent and mitigate pandemic situations, and in a broader scale, to foster social and economic development of a nation. Leaders that have grasped that are doing better for their people, what includes the responses and mitigation to the actual COVID-19 pandemic.

Crossing the minds of several researchers is our inability to know when the next virus might "jump" from wildlife to humans and how this might affect our society. Hopefully, non-human animals will not be blamed as has happened in the past. We can only prepare for such situations if the basic biology of new organisms and our vulnerability to any pathogens they might carry is understood (e.g., Fauci et al. 2020). One cannot help to wonder that, if the "changing world" was already quite challenging for scientists (e.g., Andreote 2018), it is going to be even harder in post-pandemic times. Not to mention the particular situation of Brazil, that has other viruses to take care, such as dengue (e.g., Colonetti et al. 2018) and zika, some actively spreading to other places in the South American continent (e.g., Bayona-Pacheco et al. 2019).

The world will be reflected in before and after COVID-19. The question to be answered is if investment in science will be moved up in the agenda of policy makers around the globe. We can only hope that the millions of lives claimed by viruses along decades, and highlighted by the current situation, will somehow lead to changes in the priorities of investments. Hopefully, there might be a shift of financial resources from areas such as the development of more destructive guns and military facilities to better scientific labs to foster basic science. A better understanding of the natural world could perhaps become more beneficial to our societies. A wishful thought.

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ALEXANDER W.A. KELLNER
https://orcid.org/0000-0001-7174-9447

Laboratório de Sistemática e Tafonomia de Vertebrados Fósseis, Departamento de Geologia e Paleontologia do Museu Nacional/UFRJ, Quinta da Boa Vista, s/n, São Cristóvão, 20940-040 Rio de Janeiro, RJ, Brazil

E-mail: kellner@mn.ufrj.br