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Simply Science

Illuminating insights, delivered weekly



Alok Jha

Science correspondent

Sir Jeremy Farrar has seen more than his fair share of outbreaks of lethal diseases. In 2002 he tracked the early cases of Severe Acute Respiratory Syndrome (SARS) as it spread from China to the rest of the world. Two years later, while working as a doctor in Vietnam, he alerted the world to new cases of H5N1, a deadly bird flu, after he found that it had re-emerged in humans. Over the past decade, as director of the Wellcome Trust, one of the world's largest funders of biomedical research, he has led the scientific and public-health responses to a number of epidemics, not least the Ebola outbreaks in west Africa in 2014 and 2016.

“The overriding sort of emotion really is fear”, he says of the first stages of an outbreak. “You don't know what you're dealing with in those early days—it's chaotic, it's frightening.”

Which brings us to covid-19. On New Year's Eve 2019 Sir Jeremy got a call from George Gao, head of the Chinese Centre for Disease Control and Prevention, about a cluster of cases of an unexplained pneumonia in Wuhan. Dr Gao's team had already ruled out SARS as a potential cause, which was reassuring. But Sir Jeremy's concerns increased as the first weeks of 2020 ticked by and the number of mysterious infections in China kept rising.

Something about this outbreak was different from the others he had experienced, he recalls. “You could really feel this was the [outbreak] that many of us had been advising was going to happen, the inevitable pandemic that many of us thought was going to come.”

Picture of the week



The Mashpi glass frog (*Hyalinobatrachium mashpi*) was discovered recently near active mining areas in the Ecuadorian Andes. The researchers who found the species, alongside another called the Nouns' glass frog (*Hyalinobatrachium nouns*), warn that local extractive mining practices threaten the biodiversity of the Andes. They have recommended listing the two new glass frogs as "endangered". Video by Rebecca Brunner, one of the study's first authors.

Two years later, the world is very familiar with covid. For our "Babbage" podcast this week, I spoke to Sir Jeremy at length about his reflections on the early days of the pandemic and, more importantly, how he thinks the world's future relationship with covid is likely to evolve.

Billions of doses of vaccine have been administered, new therapeutics are on their way and, in many countries, life seems to be opening up. But if you think the world will be able to bid goodbye to covid soon,

Sir Jeremy has a sharp reality check: "The idea that we'll wake up one day, and covid-19 will no longer be circulating the world, there's zero chance of that, it's now with us for ever", he says.

The outlook will vary from place to place. Countries with solid public-health infrastructure and good access to health care and vaccines are likely to be more resilient in coming phases. In the most optimistic scenario, covid infections will flare up every so often, especially during winter or when new variants emerge, but doctors and public-health experts will largely have the tools they need to manage outbreaks and help those who get ill.

Sir Jeremy's biggest concern, however, has come full circle to the pandemic's earliest days. His attention right now is on China. The country has pursued a "zero covid" policy from the outset, closing borders and stamping down even on tiny outbreaks. That policy has been remarkably successful at keeping China's death toll down. But it is implausible to keep such strict controls going for ever.

Many people in China have little or no immunity to the virus—either because they have not yet come across it or their locally made vaccines do not work as well as those administered elsewhere in the world. That means that, if the country wants to open up, the virus will spread—and China will have to endure huge waves of infection and illness.

This will no doubt be a big shock for China. But it also poses a huge risk for the rest of the world. As the country's 1.4bn people make their acquaintance with the virus, new variants are likely to emerge. Some of them could be more infectious than Omicron and some could be more severe, even for people who have already been vaccinated. In the worst case, a deadly new vaccine-resistant variant could set the world's pandemic clock back to zero. "That is not an impossible scenario", says Sir Jeremy. "We should be preparing for those sorts of scenarios to make sure that we don't go back to the horror of March 2020."

At the end of our conversation, I offered Sir Jeremy a time machine. If he knew what he knows now, would he do anything differently in those early days of the covid outbreak? You'll have to listen to "Babbage" to find out what he told me.

Thank you for reading this edition of Simply Science. If you have any thoughts or feedback about this newsletter or *The Economist's* science coverage in general, feel free to contact me at: alok@economist.com.



Loitering munitions

Baguette-sized flying bombs are about to enter service in Ukraine

Their operators will be able to pick the best target in real time



Hot coffee

Why global warming threatens east African coffee

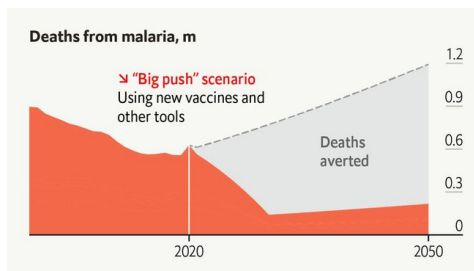
Other cash crops including tea will also be affected



Heat island

Mumbai plans for net-zero 20 years before the rest of India

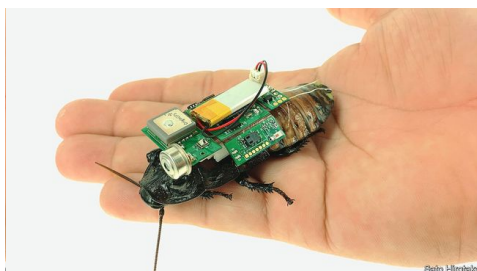
The megalopolis has released an ambitious “climate action plan”



Another vaccine victory?

Squashing malaria could save as many lives as covid-19 has taken

A jab that protects against the mosquito-borne killer is arriving at last



Cyber-roaches

Robotised insects may search collapsed buildings for survivors

They can detect movement, body warmth and exhaled carbon dioxide

Live digital event



Subscriber exclusive

In conversation with Dr Anthony Fauci

The White House's chief medical adviser joins us to evaluate the global response to the pandemic and to consider what lessons can be learnt for the future. Watch on Thursday March 24th at 5pm GMT.

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