Seeing Covid-19, or A visual journey through the epidemic in three acts, writes Cristina Moreno Lozano

Digital newspapers and TV news in Spain (and surely, elsewhere) are full of images and videos narrating the COVID-19 pandemic (caused by the SARS-CoV-2 virus). Through these images, we can see the situation as it happens in our hospitals, parliamentary rooms and balconies throughout the country from a distance. Thousands of conversations circulate on social networks like Twitter or Facebook (in many languages) including images. We can see images of professionals and citizens wearing masks and medical equipment, animals walking around empty cities, police or military officers working out in the streets, etc. Memes and infographics circulate through WhatsApp or Telegram groups of family, work, or friends. In national and local newspapers, we can see graphs of infected cases or mortality, or estimates of the number of infections. This visual scenario, which is difficult to depict in words, is not limited to Spain. We can see similar images circulate in English-speaking newspapers and social media channels. For a migrant PhD student in lockdown like myself, I wonder if it is this *seeing* that keeps me closer to family and friends in my hometown Madrid. Is there something comforting in the visual? Images, videos, illustrations and graphs, play journalistic and scientific roles, but also social, political and affectional ones.

Infectious diseases such as the plague, cholera, or syphilis populate our literature and cinema, in many languages. The epidemic imaginary is quite present in popular cultures (in many languages and places). Outbreaks of realistic or fictional epidemics have been imagined by dozens of authors

and artists over the years. Perhaps the infamous *The Plague* by Albert Camus is the first that comes to mind. I'm currently (re)reading Angela Carter's *The Passion of New Eve* (1977), an otherwise apocalyptic fiction. Carter's fiction is unexpectedly full of infective or pandemic metaphors. Or rather, I am particularly receptive to them these days. Not to mention video games (like *Plague Inc.*, *Deus Ex* or *Infected*), board games (like *Pandemic* or *Virus*), and films and TV series (*The Walking Dead*, *Contagion*, *I Legend*, etc.). In most of these, the main plot is an epidemic outbreak of bacterial or viral origin (see also Comelles and Perdiguero-Gil 2016; Benton 2020 in the previous Covid-19 Forum). Epidemiologists, zombies, politicians, doctors, wild animals, viruses and bacteria populate our imagination, becoming "cultural heroes" (Lynteris 2016, 2019) in popular culture. There is something in these epidemic and apocalyptic fictions that captures our attention. These imagined worlds that have captivated me so much for years now are not very easy to bear. I'm sure I'll have time to re-imagine them in another occasion. At this point, "the next" outbreak (pandemic, this time) has arrived (Caduff 2018) and the mass media is full of news stories, but also of icons, videos, and images. How do we visually represent the pandemic in the media and social media in Spain? In these last weeks, visual representations of the COVID-19 epidemic outbreak have travelled at scales and speeds that exceed my capacity to analyse. Join me on a visual journey through the COVID-19 pandemic in three acts, where we'll think with three different vignettes at different scales.

1. **The Viral Portrait**

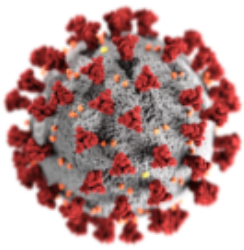

Figure 1. Illustration of SARS-CoV-2 virus, designed at the CDC, in the U.S. in 2020.

Across many digital newspapers, TV news or social media (in Spain and elsewhere) we can find virus icons, both black & white and in full colour, of the virus SARS-CoV-2. Blurred behind headlines or on the front line of your screen, a greyish sphere, with spikes or pegs shaped like cloves around it in orange and maroon red on a dark, empty background. Where does this 3-D image come from? On January 21, 2020, just after the U.S. Centers for Disease Control (CDC) activated its emergency response, CDC's illustrators were asked to produce an icon, or "beauty shot" of the virus (CDC 2020, Figure 1). These medical artists have created illustrations for other pathogenic bacteria and virus of public health interest like gonorrhoea or Zika virus before. Apparently someone told one of the illustrators (Alissa Eckert) that this image haunts them on the sporadic trips to the supermarket: when they reach something on the shelf, they picture the spiky thing in their head and pause (Giamo 2020). Reflecting on such spread of the "beauty shot" – which has even been made into cookies and knitting projects (I haven't seen images of these, unfortunately!) –, Eckert seems to be glad the image is "out there doing it's job" (quoted in Giamo 2020).

But, what is the image's "job"? I started to reflect on this thanks to the contributions made in a Twitter thread started by architectural historian Anna-Maria Meister (@tweetissima, see Twitter thread). Historians Lukas Engelmann and Robin Wolfe Scheffler (see Wolfe Scheffler 2019, on cancer molecular research, also pertinent to the discussion) commented on this thread at the end of March 2020. They noted that the illustrated spiky illustration is the visualisation of a model, produced using an EM (electron microscope) image. These images have no optical colour – the "beauty shot" is

thus a colourised version, which draws attention to particular structural protein components of the model (i.e. the spikes). This reminds me of Lukas Engelmann's work on the HIV models and the HIV icon (Engelmann 2018), where he precisely analyses these points in detail; but I am also instantly reminded of a book I greatly enjoyed reading during my Masters studies, Emily Martin's *Flexible Bodies: the role of immunity in American Culture from the Age of Polio to the Age of AIDS* (1995).

Whilst these protein spikes represented in EM images are relevant for the daily work of molecular microbiologists working with these models and systems, the "beauty shot" image illustrated by the CDC (and its multiple variants created thereafter) play an important role in science communication or public health awareness instead. Is it this the job these coronavirus images need to get done? Diagrammatic, structural representations of microscopic entities like the SARS-CoV-2 virus are turned into portrait-like (viral) images of the virus, as Engelmann goes on to say in that same thread, resulting in pictures of the viral enemy, where uncertainties and unknowns seem to dissipate (see more on diagrams in the special issue edited by Engelmann, Humphrey and Lynteris 2019). Theirs is a specific kind of labour, i.e. emotional labour: in getting their job done, these viral portraits might suggest control, risk, or fear, mobilising our emotions and having a strong impact in social life.

2. **Epidemiological Diagrams**

Data, charts and maps proliferate and circulate widely in these weeks of confinement within and across countries (I will reiterate on the idea of 'circulation' again and again. For an extended consideration of the notion of circulation as applied to the analysis of scientific images and objects, see Santesmases 2017, 2018, and Santesmases and Gradmann 2011). Numbers, percentages – both counted and estimated – are more often than note shown in tables, charts and graphs. In Spain,

for instance, the numbers of incoming and outgoing protective gear sets bought and sold populate news headlines. Likewise, the number of temporary beds provided by the ephemeral emergency hospital set up in IFEMA convention centre in Madrid. Number of deaths, number of infections. All of them, divided by age. These numerical data are often displayed by regions, or compared to data from China or Italy. But I'm not that taken by the proliferation of these numbers as much as by how they are represented. How are we *seeing* these numbers?

Figure 2. Map and a graph representing the number of cases diagnosed positive with SARS-CoV-2 virus in Spain as of April 4th 2020. These images feature in a newspaper article in El País newspaper (Zafra, Blanco and Pires, 2020).

Epidemiological models and mathematical projections are extremely speculative, but in their if-scenarios they enact control. The promise of such near-real time surveillance of the epidemic (see Engelmann 2020, in the previous Covid-19 forum) takes visual forms, giving the 'illusion of epidemiological "nowcasting" (ibid.). Epidemiological data is given visual form as it is produced (see as an example, Figure 2). Is it these graphs, maps and charts, full of coloured and curvy lines, names of countries or regions, and arrows that

allow the unknown to be “cooperatively predicted”, I wonder? These representations circulate across mass media and social media, bringing (real and speculative) epidemiological numbers and other kinds of data to our homes. It fascinates me how some of my friends want to *know* the estimates, they discuss these models and graphs on WhatsApp. These graphs, charts and maps may also be getting a job done. These visuals might also give us reassurance and hope in the midst of the uncertainty of so many unknowns (on diagnostic certainty, see Street and Kelly 2020 in the previous Covid-19 forum). Whilst both the virus portrait and the epidemiological graph or diagram enact control in various ways, I adventure to speculate that these diagrams might combine with the emotional labour performed by the spiky viral icon.

3. **Nostalgic Illustrations**

Figure 3. Poster created and published by Javier Parra (see on Twitter), on March 16th 2020.

The present pandemic outbreak is a new chapter in the “war against microbes”. Such language, and the war metaphor, has never died out and it seems it’s here to stay (e.g., see more on metaphors by Martin 1995, among many others). As I’ve seen in my own work on resistant infections and antimicrobial resistance (AMR), with the Covid-19 outbreak this war metaphor is also fruitful in its visual form. In the last weeks, a fascinating kind of illustrations have circulated through social media platforms in Spain, such as those made by illustrators Mr Z (https://www.mrzethecreator.com/) and Javier Parra (Figure 3). They resemble the aesthetics of the Republican propaganda that circulated throughout the country

during the Spanish Civil War. In these, not only a war metaphor (the war against the virus, that is) is very much present, but their aesthetics evoke a certain kind of historical nostalgia, and the politics of such aesthetics cannot be overlooked. These images are directed at those who by staying at home are "resisting" the virus together, "flattening the curve". They are somehow also aimed as public health awareness images, yet not produced by health authorities (like the "beauty shot" made by the CDC), but by artists of their own accord.

In these illustrations the protagonists are both Spanish society, one might say, as well as public healthcare workers. What is represented in these images is an idealised public health system and its workers, and and idealised Spanish society, however: that which stays in the balconies and applauds their healthcare workers every evening, whilst they heroically fight this new bout. I wonder how do these images get their job done, as epidemiological graphs or spiky icons might do, and what kind of emotions they evoke this time. Is it control? Maybe solidarity? That's an open question. It's difficult not to feel a kind of emotional attachment to some of the illustrations, photographs and videos that circulate among my personal networks today. Whatever job these visual forms of information might be getting done during this outbreak, the truth is that I somehow also find comfort (not just fear and distress) in *seeing* them, discussing them with my loved ones back home, and going on a visual journey with them.

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#Covid19: The Spectacle of Real-Time Surveillance, writes Dr Lukas Engelmann

One of the most striking factors of the 1918 Flu pandemic is that the pandemic's global scope and devastating impact only became visible after the fact. To determine the flu's global distribution and to reconstruct its case numbers and fatality rates at the end of the First World War was a task eventually left to the pandemic's historians. To those in the trenches and hospitals, a global flu catastrophe had been unthinkable and for flu to have such devastating effects was simply unimaginable. The history of pandemics has many such examples. When twenty years earlier, the city of Porto was hit by an outbreak of bubonic plague, scores of physicians and medical

officers traveled to the Portuguese port-town to verify what had been equally unimaginable: that plague could find a strong-hold in the hygienic modernity of Europe. In similar terms, in the 1980s, while AIDS ravaged communities in Western urban centres, it took enormous efforts to convince the global community that the same epidemic was rampant in sub-Saharan Africa, where it had followed different patterns of transmission. In almost every epidemic in history there has been a substantial delay between its emergence and the development of a widely agreed-upon representation of its scale, distribution and overall dynamic. Crucially, the historical reconstruction of epidemics is not merely a task of accurately counting cases and fatality rates, but also often one of overcoming and revising those tired concepts, outdated assumptions and political dogmata, which the epidemic had rendered redundant.

With COVID-19, things seem to run on a different scale. Digital epidemiology holds the promise of offering near-real time surveillance of the epidemic, cum-pandemic, while it keeps emerging. Circumventing dated and excruciatingly slow reporting chains from front line-physicians to laboratories to national reporting institutes and clearing-centres to the World Health Organization, the disruptive promise of digital epidemiologists is attractive. Any ongoing epidemic could be inferred directly and seamlessly from the global data exhaust, collected from what people do and what traces they leave online. As demonstrated with Google Flu Trends, applying simple models of epidemic dynamics could render the geographical spread of search terms into an indicator of viral distribution. Early on in the COVID-19 crisis, reports circulated of a Canadian company whose system had shown the threat of the new virus earlier than any health reporting institution. The BlueDot algorithm digests news reports from languages other than English, taps into global animal disease reporting and – its true asset – tickets data from airlines to predict possible global distribution patterns following any

unusual event. In this case, a week ahead of health bodies, the company had already alerted its customers of an imminent threat. Wired accordingly announcee shortly after the coming reign of the “AI-epidemiologist.”

Apart from such debatable sophistication of prediction, the COVID-19 history is written daily, if not hourly on social media. Countless apps offer hourly updates, various services bring animated maps to trace the live-progress of the virus and following the COVID19 hashtag on Twitter combines an endless stream of case and fatality updates, infused with an equally infinite stream of opinion pieces, interpretations and reflections (just like this one). Real-time surveillance brings the global community face to face with the developing epidemic, suggesting a sense of participation as well as control. The epidemic’s live feed enables a mode of global observation that allows for contemplative reflection of the theatre of global contagious relations. The show is perhaps best consumed in this Youtube livestream, with its neat slideshow of maps, representing up-to-date numbers complete with an ‘easy-listening’ auditory pastiche.

In China, meanwhile, the spectacle of real-time surveillance was quickly rendered into a Foucauldian caricature. A new app, designed to assign its users a risk score based on their location data compared with national transport data, existing case records and whatever else the Chinese government has access to, folds surveillance and containment into one. Scrutinizing social networks and spatial proximity of citizens, a higher risk score suggests individual behavior changes at the risk of social stigma. The design exploits social and political vulnerability to encourage social distancing on the basis of obfuscated correlations and deeply flawed assumption of reliability. With false accusations, xenophobia and an “infodemic” of false information rampant, the unknowns about COVID-19 remain overwhelming. Investigating the epidemic’s distribution requires careful modesty and

critical reflection on the conditions of data reporting, and interventions need to balance human rights with containment strategies. However, the constant stream of real time updates, animated distribution maps and refined predictions delivers a dangerous sense of oversight and certainty.

Further, the spectacle of real-time surveillance does not offer an agreed-upon, well-established and heavily scrutinized picture of the epidemic. The cacophony of images, representations, interpretations and framings reminds us of what Treichler has called an "epidemic of signification" in the case of HIV/AIDS: thousands of attempts to make sense of the event and to give meaning to a crisis while we are still in the thick of it. However, on the Twitter timeline, constantly updated maps and livestreams appear to promise more than just interpretations. What they deliver is the result of folding the weak and unreliable modeling tools of forecasting and prediction into the illusion of epidemiological "nowcasting."

Rather than closing the gap between the historic event and its delayed critical analysis, real-time surveillance is fundamentally simulation. The pictures, maps and inferences emerging in real-time are based in a few routinely used models, which inscribe assumptions and theories when allocating numbers to reduce the complexity and contingency into drastically simplified social mechanics. "The knowledge produced through the simulation of pandemics", Sven Opitz wrote recently, "is characterized not by correlation but is constitutively infused with approximations, estimations and speculations." The result is not a more or less accurate representation of what is really going on with COVID-19 in the world, but a series of presentations that constantly invoke yet another world of COVID-19. However, the simulations of possible – or with Deleuze, virtual – epidemics assume nonetheless a status of real representations. As such the "nowcasted" epidemic has palpable effects on social worlds,

which as in the case of the app of the Chinese Government, require urgent critical scrutiny.

One of the first, and perhaps one of the most significant, models of epidemic theory was developed in the aftermath of the 1918 Flu pandemic. Confronted with the uncertainty fueled by the shock of the unseen scope of the pandemic, the Reed-Frost model was charged with reproducing the standard dynamics of epidemics. It was supposed to deliver an experimental workbench to the epidemiologists, who had failed to deliver actionable results based on (the lack of) observation. In the digital age, the spectacle of real-time surveillance in epidemic crisis let us take part in experimenting with the fragments of data that this developing crisis offers. However, outside of the lab and nurtured by the global hype around data science and AI, this epidemiological experimentation now involves an unprecedented scale of research subjects on- and offline, while its operation appears largely ungoverned by ethical oversight or researcher's virtue.

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When there is an epidemic, social prejudices arise, writes Amitangshu Acharya

In the early 1900s in New York, a strange event took place in the upscale enclaves of Long Island. Many of its denizens began to mysteriously contract typhoid. The emergence of a disease associated with filth and poverty in a slick and affluent quarter deeply unsettled the city's medical establishment.

A sanitary engineer named George Soper was asked to investigate the phenomenon. He discovered that a cook named Mary Mallon, a middle-aged Irishwoman, had worked for at least eight of the families that had been attacked by typhoid. Mallon, herself perfectly healthy, would leave her employment each time a case broke out and move to another family. Soper set off on a hunt. He traced Mallon's whereabouts, stalked her to find where she lived, and finally confronted her, accusing her of being a carrier of typhoid. When Mallon refused to cooperate and undergo medical tests, Soper convinced the police to arrest her.

Incarcerated purely on a hypothesis, Mallon's blood, urine and faecal samples were then collected against her will. When the results came back, they showed the presence of *Salmonella typhi*, the bacterium that causes typhoid, and the noose of public disapproval quickly fell around her neck.

Soper was celebrated for having established the existence of 'healthy carriers' – people who carry and spread disease-causing pathogens but stay unaffected. Mallon was disgraced

and went down in history as ‘Typhoid Mary’.

For decades, that unkind moniker normalised the violence and vilification of a poor, illiterate, immigrant woman, who was also a passionate and gifted cook. Mallon was demonised by the medical establishment and the press as a ‘super-spreader’, akin to a mass murderer. She was believed to have infected 51 people, three of whom died, but exact numbers were difficult to establish.

Finding the enemy

Mallon was sent into quarantine for 26 years, next to the Riverside Hospital on North Brother Island, where she finally died in 1938. An impassioned exoneration came 63 years later, from an unexpected yet unsurprising quarter. In *Typhoid Mary: An Urban Historical* (2001), the late Anthony Bourdain wrote with great empathy for his fellow chef: “Cooks work sick. They always have. Most jobs, you don’t work, you don’t get paid. You wake up with a sniffle and a runny nose, a sore throat? You soldier on. You put in your hours. You wrap a towel around your neck, and you do your best to get through. It’s a point of pride, working through pain and illness.”

Typhoid outbreaks were not new to New York City, but Mallon had been singled out as a public enemy, more deadly than the disease itself. Her true crime, perhaps, was reminding the rich and powerful that pathogens had little respect for the class divide that separated Long Island from the Bronx.

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The story of people and pathogens is that of a difficult evolutionary marriage. Pathogens want to live and prosper. Killing off humans – the hosts – would become a self-defeating exercise. Both parties, therefore, try to work towards mutual survival. After a certain point in time, the two declare an uneasy truce and humans start to live with the pathogen. We have done so many times before, and we will do so with the

novel coronavirus.

The biological coexistence that emerges out of a pandemic is in stark contrast to its social effects. Diseases don't have a social preference, and pathogens don't distinguish victims by race, class, religion, gender or other identities. However, history shows that each time there is a pandemic, deep-rooted social prejudice resurfaces, often with horrifying results.

During the Great Bubonic Plague in Europe in 1348, the Catholic Church was convinced that the Black Death was a Jewish conspiracy to undermine Christianity. Accused of poisoning wells to spread the disease, Jews were subjected to horrific torture and forced to make false confessions. Soon, the mephitic smell of the burning flesh of thousands of Jews lingered in the air of Strasbourg, Cologne, Basel and Mainz.

The Roma of Europe faced similar persecution. Giorgio Viaggio, in his book *Storia Degli Zingari in Italia* (1997), has documented 121 laws framed in Italy between 1493 and 1785, restricting the movement of *Zingaris* (a pejorative term for Romas). Such laws were driven partly by the prejudiced view that the Roma people caused and spread epidemics.

In medieval Europe, outbreaks of plague were blamed on people who practised traditional medicine. They were branded 'witches' and persecuted. Historian Brian Levack (2006) estimated that 90,000 people were punished for witchcraft in Europe. Though we don't have exact figures, the brunt of it seems to have been borne by women.

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The medieval belief in plague spreaders was dispelled with the arrival of germ theory. Diseases were spread not by people but by micro-organisms or pathogens. They could travel through air, water or physical contact between humans and non-humans. We learnt that germs had no regard for social categorisations. One assumed that the discovery of this apolitical and amoral

‘germ’ would lead to epidemics being seen through the clear lens of a microscope and not by glasses tinted with prejudice.

But the microscope was not only an instrument of discovery; it was a tool of the Empire. The tropics were teeming with diseases, detrimental to the health of Anglo-European administrators. Mosquitoes, it seemed, were far more insurgent than colonial subjects. It was the microscope that shaped the colonial understanding of “tropical disease”. The outbreak of ‘Asiatic cholera’ in 1817 – a pandemic named because it was believed to be endemic to India’s Gangetic region – soon spread to Europe and sparked fears of an invasion of diseases originating in the colonies.

This prompted intense scientific enquiry. In his nuanced account of the attempt of 19th-century medical science to localise diseases, historian Pratik Chakrabarti writes in 2010 of how Robert Koch’s discovery of *Vibrio cholerae* – the comma-shaped cholera pathogen – was pinned to the tropical environment and body. Specifically, the intestine and biliary tract of the colonial subject.

Then there was leprosy, so stigmatised that the word ‘leper’ became synonymous with a social outcast. The *Manusmriti* mandated the ostracisation of lepers as ‘sinners’. Even after the Leprosy Commission report in 1891 concluded that the “amount of contagion is so small it may be disregarded,” Indian and European upper classes actively campaigned against allowing the afflicted to be seen in public, as their sight produced disgust and loathing. This led to the Leprosy Act of 1898, which institutionalised people with leprosy, even using gender segregation to prevent reproduction. All to please the aesthetic sensibilities of the colonial elite.

If colonial science contributed to the tropicalisation of epidemics, literature reified it. Thomas Mann’s novella *Death in Venice*, set in the city of water during a cholera outbreak,

described the disease as ‘Indian cholera’, which, “…born in the sultry swamps of the Ganges delta, ascended with the mephitic odor of that unrestrained and unfit wasteland, that wilderness avoided by men…”.

Epidemic orientalism

Researcher Alexandre White in 2018 referred to such incidents of colonial construction as “epidemic orientalism” in his thesis. This often shaped the way diseases were named – Asiatic cholera (1826), Asiatic plague (1846), Asiatic flu (1956), Rift Valley fever (the 1900s), Middle East respiratory syndrome (2012), Hong Kong flu (1968), to cite a few. Now, the World Health Organisation has guidelines to name infectious diseases in neutral, generic terms.

Socially, however, epidemics and diseases continue to be pinned to race, gender, sexual preference and geography. The Trump administration has repeatedly called COVID-19 the ‘Chinese virus’, and some refer to it as ‘Kung Flu’. Naming reinforces prejudice. The original term for HIV/ AIDS was the acronym GRID – Gay Related Immunodeficiency. Though short-lived, it worked to boost what American televangelists were already calling it in the 80s: “gay plague” – divine punishment for sexual deviance. The belief that HIV/ AIDS has a preference for gay men now lives on in legislation in various countries, prohibiting men who have sex with men (MSMs) from donating blood or organs.

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If history tells us one thing, it is that we have managed to deal with disease-causing pathogens significantly better than with our entrenched prejudices. Pandemics don’t produce hate, but they do serve to amplify it.

The Trump administration would like to believe that the Chinese government’s mismanagement and attempts to cover up the incidence and spread of COVID-19 is a conspiracy aimed at

destabilising America. It recalls the Catholic Church's invocation of the notion of *pestis manufacta* (diabolically produced disease) to accuse Jews of trying to sabotage Christianity. Similarly, European politicians Le Pen and Salvini's racist invectives against migrants and refugees as carriers of the coronavirus intersects with Trump's rhetoric. During his campaign for the U.S. presidency four years ago, Trump revived the medieval European idea of 'plague spreaders' by claiming, "Tremendous infectious disease is pouring across the border" carried by Mexican immigrants. Ironically, it is Mexico today that's guarding its borders from carriers entering from the U.S.

India's latent prejudices have similarly risen in tandem with COVID-19. Building owners have barred entry of medical staff into their own homes. People speak of social distancing using the terminology of caste and untouchability. People from Northeast India are facing racist comments and threats of eviction. The same government that sent planes to ferry Indians back from foreign countries failed to house its poor migrant labourers or to send them safely home. The ongoing lockdown has seen a mass exodus of workers, trekking hundreds of kilometres to get home, sleeping on streets, struggling for food and water. Some 20 have died so far. As this goes to press, governments are scrambling to set up relief camps for those persuaded to stay back, and transport those who insist on leaving. And in U.P., returning workers are hosed down with surface disinfectants as if they were the pathogens. Added to this, communal prejudice has found new viral spread, riding piggyback on the Tablighi Jamaat conclave in New Delhi's Nizamuddin area.

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Science was supposed to liberate people from irrational beliefs by proving that pathogens don't look for a particular race or place – all they need is a human body, warm, moist and nutrient-rich. Unfortunately, even the scientific

understanding of hosts, vectors and carriers has been appropriated to reinforce social prejudices.

Stigma produced in the churn of a pandemic has a long afterlife. No one understood that better than Mary Mallon. Quarantined for more than a quarter of her life, her name is still synonymous with disease.

The same aggressive hounding of the afflicted persists today. Desperate to maintain quarantine, governments are publishing patient names and addresses, affixing door stickers, stamping their skin with indelible ink, all of which violate medical ethics and could lead to social ostracism.

And we stand today facing the same question a poor, immigrant woman asked of society at the beginning of the 20th century. Is it necessary to forego humanity in order to save human life?

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