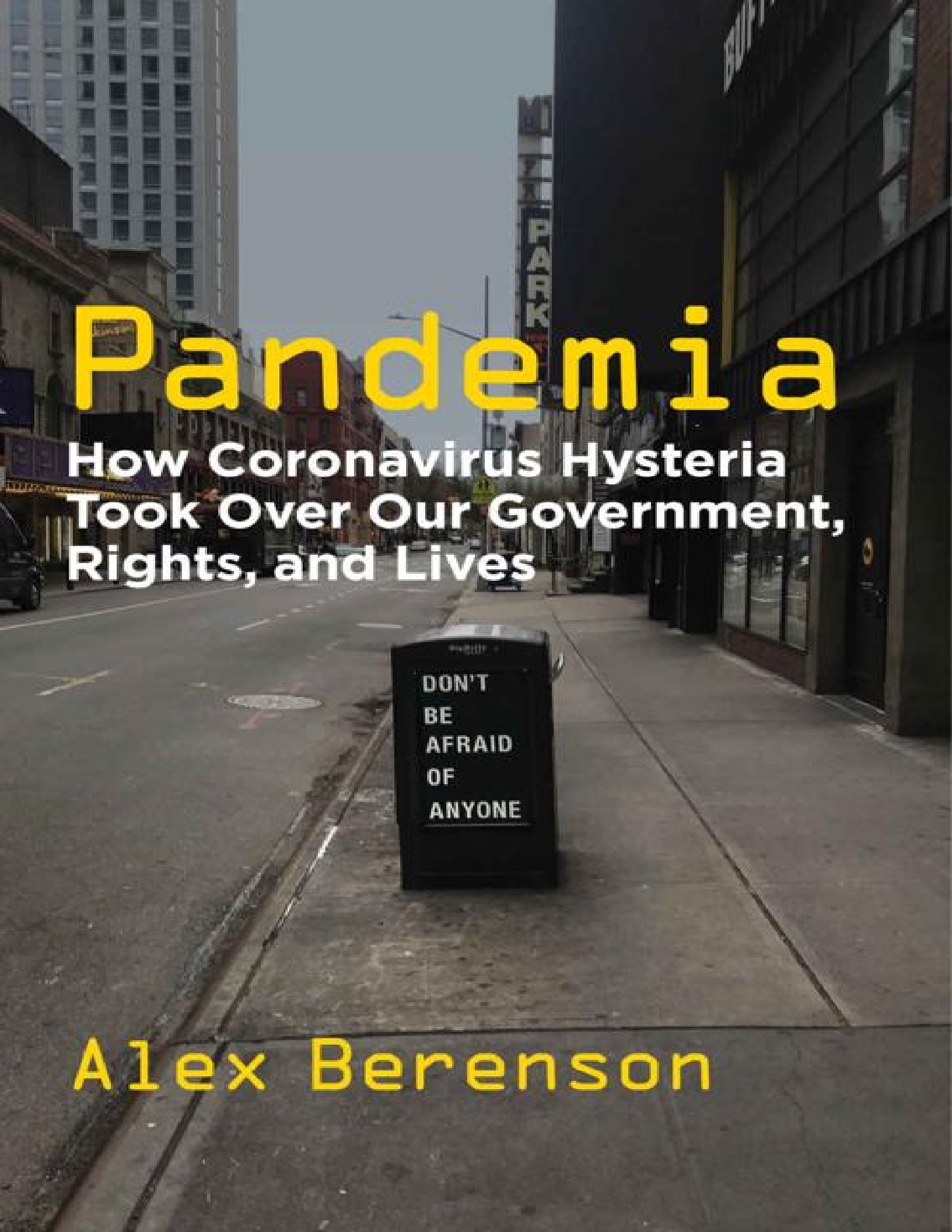

Pandemia

How Coronavirus Hysteria Took Over Our Government, Rights, and Lives

Alex Berenson

Pandemia

For Harvey, who fought to the end When you have eliminated the impossible, whatever remains, however improbable, must be the truth. —Sherlock Holmes

Go and try, you'll never break me. —"Welcome to the Black Parade," My Chemical Romance

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Welcome to Pandemia

A
t the beginning, the *very* beginning, the hide-in-the-basement, stock-up-on-bottled-water, shut-down-the-world-the-plague-is-here panic made sense.

Maybe.
But within a few weeks, even as the United States and Europe had just begun lockdowns, anyone paying attention could see the cure was worse than the disease. In our desperation to control Covid-19, we had done more damage to ourselves and the world than the virus ever could.
By then, though, it was already too late.
This is the true story of how media hysteria, political partisanship, overreliance on unproven technology, and scientific illiteracy brought the United States and the world to the brink of breakdown.
The true story of how we trashed civil liberties we had treasured for generations. How we denied school to our children and destroyed small businesses.
The true story of how we locked down and hid our faces from one another on the thinnest possible evidence. Of how a public health emergency

became big business overnight, as governments spent trillions of dollars to fight the coronavirus—and unnecessary lockdowns destroyed small businesses, hugely enriched giant corporations, and forced people off paid employment onto government checks. How we spent a year hiding the risks and overestimating the benefits of vaccines based on a radical new biotechnology. And how we then tried to force the shots on tens of millions of unwilling Americans—while censoring those who raised questions about them.

All in response to a virus much less dangerous than the Spanish flu, much less Ebola. A virus that is less dangerous to healthy children and young adults than influenza. A virus that does most of its damage to people at or

very near the end of their lives. A virus that killed slightly more people worldwide than diarrhea or Alzheimer's disease in 2020.

This is the true story many of you have never heard.
Not because I have a magic source at the Centers for Disease Control passing me thumb drives with hidden information. The facts that I and a handful of other journalists and "skeptics" have reported since March 2020 are readily available in government documents and hospital records and scientific papers.
No, the facts you're about to read aren't secrets.
The secret is in the perspective.
For the last two years, I have tried to approach Covid-19 and the vaccines for it as I do every story I write as a reporter—looking at evidence with an open mind and evaluating risks realistically. I have tried to compare lockdowns and other Covid policies to previous consensus views on the right way to manage epidemics.
Unfortunately, the media, especially the American media, committed early on to portraying the coronavirus as far riskier than it was and the vaccines as safer. Elite outlets like the *New York Times* went out of their way to foment panic and ignore positive news. Throughout 2020, many scientific studies offered reassuring data, especially the low risks Sars-Cov-2 posed to kids and young adults and their safety in schools. Practically everything pointed the same way.
Meanwhile, the models that had predicted apocalyptic outcomes proved wrong. Aside from a few bad days in New York City in March and April 2020, American hospitals were never close to being overrun. In fact, they were so empty in the spring of 2020 that many laid off workers. Even in New York, the field hospitals and medical ships went largely unused.
But no one seemed to notice, much less care.
Instead the *Times*, CNN, and the rest fixated on a single number, the count of Americans who had (reportedly) died from the coronavirus. Cable networks offered real-time tallies. The *Times* ran a special edition when the figure reached one hundred thousand.
They never put the figure in context. They never explained that our methods for recording Covid-linked deaths were likely producing overcounts. Or that even with our aggressive counting, the Covid death figure represented just over 10 percent of all American deaths in 2020.

Most important, they never explained honestly that Covid almost exclusively targeted the very old and sick.

Instead they went the other way, searching desperately for outlier cases—the handful of coronavirus deaths of people under fifty without preexisting conditions. Inevitably, they made mistakes, as when the *Times* called the murder of a twenty-seven-year-old Iowa man a Covid death.

Reporters are crucial watchdogs against government mistakes and overreach. *All* of government. But the media's hatred for Donald Trump blinded journalists to the power that state governors and unelected scientific and medical advisors wielded as the epidemic unfolded.

As Covid hit, governors in many states seized unprecedented control of their citizens. They refused to reopen schools. They imposed draconian rules on businesses. They forced people to wear masks, even outside. Journalists didn't question these monumental intrusions. They cheered them, while ignoring scientists who challenged the conventional narrative.

Hugely powerful social media companies such as Facebook and tech giants such as Google and Amazon went even further. Those corporations blocked videos and books and groups that questioned the value of the lockdowns—from which these same corporations have profited enormously. The social media companies worked with organizations such as the World Health Organization to become quasi-governmental censors. In suppressing honest debate and dissent, they set a dangerous precedent—and fed the rise of wilder conspiracy theories.

Yet they couldn't silence everyone.

This is the true story of how—to my surprise—I became a leading voice calling for an end to lockdowns and a return to normality. How the strange intimacy of celebrity in the age of social media enveloped me. My Twitter follower count grew from 7,000 to 200,000 in months, and then to over 300,000 in 2021. Some people told me I had kept them sane. Others said I was a psychopath who didn't care how many people Covid killed.

People followed my feed to get information they couldn't find anywhere else. I tried to source my tweets, offering links to the material I quoted. I wanted my readers to judge for themselves whether I had fairly represented it. I knew I had.

I will do the same in this book. I want to be as transparent as possible.

But it wasn't the information I offered that made people love or hate my feed—and me. It was my tone: enraged at the lockdowns, prodding, often

sarcastic. I didn't treat the epidemic with fear. Instead I insisted that "virus gonna virus." I wrote about "Team Reality" and "Team Apocalypse." I called masks "face diapers" and complained of "Neils and Karens" who wouldn't leave their houses. I created an Orwellian "Department of Pandemia" to announce rules about "the thing."

Even readers who supported me occasionally told me I was going too far, that I needed to remember that the coronavirus really did kill people.

But I believed I needed to speak out in a way that couldn't be ignored. I believed mainstream reporters were offering worst-case scenarios for reasons both economic and political. Panic was good for page views and terrible for Donald Trump. And most reporters at places like the *New York Times* hate Trump with a passion that can't be overstated. (As for me, I'm a registered independent whose politics are that it is impossible to be too cynical.)

On April 16, 2020, I tweeted:

Against hysteria, satire. Against storytelling, data. Against groupthink, reporting. Against authoritarianism, bravery. Most of all: Against millennialism, realism. And hope.[1]

Against hysteria, satire. And if that satire sometimes cut too deep or went too far, I had to accept the consequences.

"I can't tell if you are super angry or if you are enjoying yourself," a journalist said to me in June 2020. My answer: "Why not both?"

Day by day and hour by hour, the cause of fighting for the truth—and against our overreaction to Sars-Cov-2—took over my life.

Vanity Fair published two hit pieces on me. I went to war with the *Times*, a newspaper where I had worked for a decade. Old friends stopped speaking to me. Sometimes they publicly attacked me. My marriage staggered under the weight of my Twitter obsession.

Most painful of all, my father, who was dying of cancer, grew angry with me for pressing against lockdowns. He accused me of not caring about him. My stance became a subject we couldn't discuss.

Until, in May 2020, he died. (Not of Covid. Of leukemia.)

I didn't mourn him properly.

My wife was right, my friends were right. I was obsessed. I couldn't stop fighting. Couldn't and wouldn't. Can't and won't. Because our response to

the coronavirus is the worst public policy mistake worldwide in at least a century, since World War I, when Europe's leaders sent millions of young men to their graves for reasons they couldn't even explain. A generation after the fall of the Berlin Wall, we have run the other way, tearing up human liberty around the world.

The people who have caused the panic show no sign of letting up, no sign they plan to let us get back to normal anytime soon. If ever.

Yes, lockdowns in the United States have ended—but countries such as Australia and New Zealand show just how fragile our freedoms have become.

Meanwhile, we are still suffering from intrusive rules that vary state to state and country to country. Since the beginning of the pandemic, they have included "social distancing," mask requirements, school closings, bans on indoor dining, endless testing of college students, aggressive contact tracing, travel restrictions, quarantines for people without symptoms, and now vaccine mandates.

Yet despite the enormous cost of these measures, despite their intrusion on our civil liberties, *none* of them been shown to slow the spread of Covid. We engaged in a game of viral theater at incalculable cost, both real and psychic—particularly to children and teenagers, who were denied normal schooling and social interaction.

In August 2020, the Centers for Disease Control reported that 25 percent of adults ages eighteen to twenty-four said they had seriously considered suicide during the month of June. That figure was more than double the percentage who had reported doing so in a similar survey in 2018. These young adults are at essentially no risk from the coronavirus. But we made them terrified for their futures and locked them up to grapple adolescent angst, drug problems, or depression alone.

This is the true story of the pandemia: one part pandemic, five parts hysteria. Neither shaken nor stirred, but heated in a thermal cycler—also known as a PCR machine (another obscure and complex technology that played a crucial role in bringing us this crisis).

The coronavirus epidemic could not have happened a generation ago. Or a decade ago. *But not because of the virus.*

At the beginning, the *very* beginning, when the panic made sense, the novel coronavirus seemed special. Exceptional. It could lurk for weeks before suddenly cutting down its victims, we were told. It spread like the common

cold but killed far more aggressively than influenza, we were told. It colonized the nose and mouth for maximum infectivity before suddenly moving into the lungs for maximum lethality, we were told.

But a lot of what we were told wasn't true. We've learned now that Sars-Cov-2 isn't particularly lethal and that its contagiousness varies widely in different settings. Most people without symptoms don't spread it much. Really, the novel coronavirus is just ...a virus. It has one truly unusual symptom—many infected people temporarily lose their senses of smell and taste.

Not exactly Ebola, which has a 50 percent fatality rate.

So why was our response to this rather ordinary virus so different from our reaction to any other disease in human history? *Because it could be.* Because in our foolish brilliance we have created information technology indistinguishable from magic.

We closed offices and schools *because we could.* We now have the internet bandwidth for white collar workers to stay home—and for students to "learn" remotely, on their computers.

We counted and publicized deaths obsessively—and still do—*because we can.* We have database software that enables hospitals and health departments to aggregate information in real time.

We distribute that information to everyone instantaneously, through social and conventional media, *because we can.* We are not just choking on data, we are stuffing it down our throats. Yet we are desperate for more each moment. Many of us seem almost addicted to tracking the toll of the coronavirus. We know we should stop, but we can't.

We test endlessly for the virus *because we can.* Polymerase chain reaction (PCR) machines make the virus's RNA into DNA and that DNA into more DNA. They let us find a single fragment of the virus and multiply it a trillion times. A trillion is a million million, a thousand thousand thousand thousand. It is a number no one can really grasp.

And the mRNA Covid vaccines—created, developed, and put into use worldwide in under a year, faster than almost any other drug or vaccine in history—are only the latest example of our scientific brilliance.

But we are playing magic tricks *on ourselves*. We have forgotten a crucial fact: These medical wonders come at the highest possible price. When we multiply a viral fragment a trillion times, we get a positive test result in many people who never will be sick.

Then we tell those healthy people that they're ill, and we make them—and the people around them—stay home.

Our magic has made us insane.

Long before the coronavirus, physicians had a phrase for the havoc that over-testing healthy people can wreak: the medical cascade. A single unusual result on a medical test causes doctors to recommend more tests. Those tests can lead to drugs or surgeries, even for patients with no symptoms. Men have their prostates removed. Women are given chemotherapy for breast cancer. The temptation to *do something* is overwhelming. The financial incentives don't hurt either.

When it comes to Covid, all of us everywhere have been riding that cascade —even if we haven't had a single test.

Nowhere are the incentives stronger and the cascade more powerful than in the United States, with its incredibly expensive health care system. In 1960, Americans spent $27 billion on health care, or about $235 billion adjusted for inflation. That figure represented 5 percent of our overall economy.

In 2019, Americans spent $3.6 trillion—$3,600 billion—on health care. That represents a more than fifteen-fold increase in fewer than sixty years,*after* accounting for inflation. Medical spending is now almost 20 percent of the overall economy, more than energy and real estate combined. Other rich countries don't spend as much, but the trend is the same. We have medicalized our societies. Worse, hospitals themselves have proven remarkably effective vectors for spreading the coronavirus.

This dynamic was obvious almost immediately. As Italian physicians wrote in March 2020, "Coronavirus is the Ebola of the rich....It is not particularly lethal, but is very contagious. The more medicalized and centralized the society, the more widespread the virus."[2]

Yet weirdly, even as our societies have become more medicalized, our experience of death has turned more remote. Death itself is more horrifying and unthinkable than ever. Serious technologists now truly believe they will be able to cheat the reaper for all eternity by uploading their consciousnesses into the ether.

More than three million Americans died in 2020, but we hide many of those deaths in nursing homes and hospices. My father could not imagine his passing even as it was on him, but the denial that is understandable and perhaps even merciful for the individual pilgrim on his final journey will not work for society as a whole. Not if our denial about the mortality of the

aged and sick comes at the cost of denying children a chance at full lives of their own.

Please understand: *I am not saying Sars-Cov-2 is not real. I am not saying it does not kill people.*

What I am saying is that our response to the coronavirus has been vastly disproportionate. The coronavirus has not disrupted the food chain (though the lockdowns threatened to do so). It has not overrun hospitals (though vaccine requirements for reluctant nurses are putting the system under enormous stress). It kills fewer American children than drowning, cancer, abuse, or a dozen other conditions.

We panicked anyway.

Sars-Cov-2 did a fraction of the damage we feared it would when it first escaped China. But the dangers it has revealed are here to stay. The medicalization of society is not going away. Neither is our reliance on advanced technology and the power of the companies that provide it.

Fed by anger at Trump, conventional media outlets stoked the coronavirus panic. The panic was the pull. But the push came from two incredibly powerful industries, technology and health care.

Now Trump is gone. But we've set a precedent. A terrible precedent. The temptation to panic—over another coronavirus, a bad flu strain, a drug-resistant tuberculosis—will only keep growing harder to resist, unless we stop it.

We need to fight the pandemia—the hysteria about the pandemic—and stand up for the old normal.

Or before we know it, the old normal will be gone.

2

H a p py N ew Yea r

T

he first reports came hours before the end of 2019, as the world celebrated New Year's Eve.
On December 31, authorities in Wuhan, a city of ten million in

central China, announced several cases of atypical pneumonia. The origins of the disease were unknown, but it did not appear to spread from person to person, the authorities said.

Doctors in Wuhan weren't so sure.
A day earlier, Dr. Li Wenliang, an ophthalmologist, had warned other physicians on a message board that Wuhan Central Hospital had pneumonia patients who were not responding to typical treatments. The doctors and their families should "take precautions," Li wrote. He worried the disease was related to SARS, which had emerged from China almost two decades earlier. SARS—the letters stood for severe acute respiratory syndrome—killed almost 10 percent of the eight thousand people it infected before being contained in July 2003.
Li wanted his warning to stay private.
"Don't circulate this information outside of this group," he wrote. But by New Year's Day, it had leaked to Chinese chat rooms. On January 3,

police in Wuhan forced Li to sign a letter that said he had "severely disturbed the social order."[1]

But like the pneumonia cases, the rumors kept spreading. On January 6, the *New York Times* took note. "China Grapples with Mystery Pneumonia-Like Illness," its headline ran. The story reported, "Beijing is racing to identify a new illness that has sickened 59 people as it tries to calm a nervous public."[2]

Two days later, the *Times* followed up, reporting that Chinese scientists had identified the virus behind the illness. Like the first SARS, it was a coronavirus, so named for its distinctive shape. Coronaviruses consist of globes that have a "corona" of proteins spiking out in all directions, ready to attach to receptors on cells and invade them. They are ugly little beasts.

Still, scientists have generally not viewed coronaviruses as particularly dangerous, aside from SARS and another recent arrival called MERS. Most cause only cold-like symptoms in people. "The new coronavirus doesn't appear to be readily spread by humans, but researchers caution that more study is needed," the *Times* reported.[3]

By then, Chinese government officials had good reason to believe otherwise. Physicians were seeing clusters of cases that infected entire families, a strong signal that the disease could spread person to person.[4]

For the next ten days, the Chinese government and the World Health Organization (WHO) played down the seriousness of the new illness and the risk it could spread among people. On January 14, the WHO famously tweeted, "Preliminary investigations conducted by the Chinese authorities have found no clear evidence of human-to-human transmission of the novel coronavirus."[5]

As part of the United Nations, the World Health Organization is inherently political, trying to balance pressures from member states. The coronavirus pandemic turned into a political crisis almost as soon as it started.

Throughout January, China stonewalled attempts by American and other foreign physicians, scientists, and journalists to understand what was happening in Wuhan. As early as January 6, the White House offered to send experts from the Centers for Disease Control to Wuhan. The Chinese rejected the offer, along with others later in January.[6]

Only on January 28 did Beijing finally agree to accept a World Health Organization team. It took almost two weeks more before China actually allowed the team onto its soil.

Even if the WHO and China had sounded the alarm in early January, it might already have been too late. Studies of stored blood and wastewater samples would later show that the coronavirus had already jumped to the United States and Europe by December. Also, given the fact that both SARS and the swine flu of 2009 had turned out to be far less serious than initially feared, other countries might have resisted aggressive action without first-hand evidence the virus might be dangerous.

But a few extra weeks of warning could only have helped. And no one can doubt that as the virus exploded in Wuhan in mid-January, the Chinese government hid crucial information about it. The most brazen example came on January 12. Just one day after a laboratory in Shanghai sequenced the coronavirus genome and published it online, China closed the lab for "rectification."[7]

Why was China so desperate to hide information about the virus? I will return to that question near the end of this book, when I discuss the potential origins of Sars-Cov-2.

But China's censorship efforts could not hide the fact that coronavirus patients were filling hospitals in Wuhan and infecting nurses and doctors. On January 20, China acknowledged the obvious truth that human beings could pass the virus to one another.[8] Meanwhile, Chinese officials quietly told groups of Chinese expatriates to buy all the gloves, masks, and respirators they could find anywhere in the world.

"In Nagoya, Japan, volunteers drove to pharmacies and bought 520,000 masks in three days," *Bloomberg BusinessWeek* reported in September 2020.[9] By the end of February, the volunteers had shipped 2 billion masks and 500 million other pieces of protective equipment to China, worsening shortages in the United States and elsewhere.

The next shock came on January 23, when China locked down Wuhan and other cities in Hubei province, preventing at least thirty-five million people from traveling. Airports and train and bus stations were closed. Police officers and soldiers blocked roads. At the time, China had reported only five hundred cases and eighteen deaths from the coronavirus, though

journalists and scientists agreed that the figures did not match the reality on the ground.

By then the world's attention was focused on the crisis in China and whether it might be contained. In Wuhan, "anxiety and anger prevailed as worried residents crowded into hospitals,"[10] the *Times* reported.

Social media fanned the panic. Videos posted to Chinese sites and shared to Reddit and Twitter showed men welding apartment doors shut and people collapsed in the streets. One disturbing video revealed body-bagged corpses filling hospitals.[11] In a YouTube video posted on January 28, a Wuhan resident warned, "It's like living in hell, waiting for death."[12]

Sars-Cov-2 was not the first viral outbreak in the age of social media. An Ebola outbreak had received attention in 2014. But in that first month of 2020, with the new coronavirus mostly confined to China, Twitter and Facebook amplified the worldwide panic while simultaneously turning the epidemic into what felt at times like a video game: "Beat the Virus." *How many cases today? How many dead today? How quickly can the Chinese build field hospitals?* The coronavirus lacked the visceral melting-corpse horror of Ebola, but it offered the real risk of mass death—terror close enough to be thrilling, yet still safely an ocean away.

Until it wasn't. By late January, the epidemic had clearly broken out of Wuhan and Hubei province. China reported cases in megacities including Beijing and Shanghai. The Chinese government ramped up its response, quickly building field hospitals that could take patients from Wuhan's overcrowded medical centers. Police and soldiers tightened the already draconian lockdown. Almost no one was allowed outside. Even food shopping was strictly limited.[13]

Yet on January 31, when President Donald Trump announced he was banning almost all foreign nationals from traveling to the United States if they had visited China in the previous two weeks, he faced condemnation.

"WHO chief says widespread travel bans not needed to beat China virus," Reuters reported on February 3.[14] The Chinese government complained

even more loudly. “Beijing is growing increasingly angry at countries imposing harsh travel restrictions,” Bloomberg reported.[15]

In an early sign of the political and media wars to come, Democrats and journalists quickly criticized the Trump ban as useless or even counterproductive. “Health experts warn China travel ban will hinder coronavirus response,” claimed Stat News, which covers drug and biotechnology companies.[16]A Democratic member of Congress warned that a travel ban might inflame anti-Asian sentiment.[17]

These criticisms would seem quaint by mid-March, as country after country closed its borders in efforts to control the coronavirus. In fact, travel bans appear to have little chance of working unless they are applied rigorously and early in an epidemic, ideally by island nations such as New Zealand, which can more easily close their borders, or by repressive nations such as China, which can also restrict internal movement. Still, like other aggressive public health measures that were rejected until last year, the bans have become standard practice. More than a year after the epidemic began, international travel is still restricted.

The days after the travel ban marked a kind of phony war. The number of cases in China leveled off by mid-February. The expected mass breakouts in Shanghai and other megacities never happened. Cases spiked in Iran and South Korea. An outbreak aboard the *Diamond Princess* cruise ship grabbed attention. But it began to seem as though the world had somehow escaped the worst of the novel coronavirus, which on February 11 was officially titled Sars-Cov-2, a name that carefully omitted any reference to where it had first appeared.[18]

In mid-February 2020, I flew to New Zealand. A group fighting cannabis legalization there had invited me to talk about my non-fiction book *Tell Your Children*, which discusses the mental health effects of cannabis. I was somewhat worried about the trip, but not enough to cancel it (lucky me, New Zealand is a beautiful place, and if I hadn’t gone then I wouldn’t have had the chance for years). No one I met there seemed overly concerned about the coronavirus. Even when I flew back through San Francisco on

February 22, the airport seemed almost normal. Only a few people wore masks.

We were all wrong, though. Sars-Cov-2 had already hitched rides all over the world. The real action was just about to start.

3

In the Beginning

T
he Spanish flu was the first modern pandemic.

Its horrors began in the last year of World War I. It spread by railroad, automobile, and even airplane across the United States and Europe as soldiers returned home. It was unpredictable and vicious. Doctors had considered respiratory infections a disease of the elderly. The Canadian physician William Osler famously called pneumonia "the friend of the aged" because it killed quickly and relatively painlessly.[1] (Ironically, Osler himself died of pneumonia in 1919.)

But the Spanish flu mowed down not just older people but healthy children and young adults, too. They coughed so hard they broke ribs and tore muscles in a desperate effort to breathe. Their faces and bodies turned blue as they struggled for oxygen.[2]

The epidemic came in three waves, in the spring and fall of 1918 and the spring of 1919. The fall crisis was the most severe. Undertakers and coffin makers were overwhelmed. Bodies were left covered in ice as they festered, awaiting burial.[3]

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"It is simply a struggle for air until they suffocate," a doctor at an army base near Boston wrote in September 1918. "It is horrible. One can stand to see one, two, or twenty men die, but to see these poor devils dropping like flies gets on your nerves."[4]

We will never know exactly how many people the Spanish flu killed. But the best estimates are that about 50 million people died worldwide, almost 3 percent of the global population at the time. The equivalent figure today would be 220 million people. The United States escaped relatively lightly, with about 675,000 dead, less than 0.7 percent of the American population at the time. Still, that figure would be equal to about 2.2 million today.[5]

The horrors of the pandemic provoked a worldwide scientific and medical response. Doctors and researchers raced to understand why this flu was so deadly—and how to prevent it.

They even ran experiments to see if they could use phlegm from infected people to sicken healthy volunteers. In one case, the "volunteers" were actually inmates at a navy prison who had been promised pardons if they participated. Today, such an experiment would rightly be banned as unethical.[6]

Meanwhile, public health experts measured the spread of the flu, tracking cases and deaths daily. A relatively young branch of medicine, public health had emerged in the nineteenth century in response to epidemics of cholera and other diseases that ran rampant in overcrowded cities.

Two mid-nineteenth-century British scientists, John Snow and William Farr, led the way, helping create a discipline that would become known as epidemiology. Snow and Farr used statistical and mapping tools to analyze how diseases spread. In 1854, Snow famously mapped a cholera epidemic in central London and proved it was centered on a water pump on Broad Street. He convinced the city to remove the pump's handle, and the outbreak quickly ended.[7]

Around the same time, Farr showed that epidemics often rose and fell in remarkably similar patterns, no matter the underlying disease. Illnesses that spread quickly and caused exponential growth in cases and deaths tended to burn out equally fast. Later epidemiologists would call this finding Farr's Law and use it to predict the course of epidemics. Farr's Law would provide crucial clues to the path of the coronavirus epidemic—for anyone who cared to look at it.

Farr also theorized that outbreaks would seem deadlier at first then they really were. Vulnerable people would die quickly, while healthier people might struggle and be hospitalized but would ultimately recover. Thus the number of deaths relative to the number of cases would be higher at the beginning of the epidemic than later.

Along the way, Farr offered commonsense suggestions to reduce outbreaks: "The dead should no longer be buried where they are surrounded by crowded dwellings....And there is assuredly no reason why thousands of cattle, sheep, horses, animals of every kind—sometimes affected with epizootic diseases—should be gathered together."[8]

Almost two centuries later, China would *still* be ignoring this advice. It allowed "wet markets" in its crowded cities where live animals, both wild and farm-raised, were sold as food.

In the late nineteenth and early twentieth centuries, reformers known as Progressives in the United States mandated basic public health standards, such as requiring apartment buildings to have indoor plumbing. Cities became cleaner and healthier. People began to live much longer. Between 1885 and 1915, life expectancy soared from forty-one to fifty-four years, an astonishing gain in just one generation. (Had life expectancy kept increasing at the same pace since then, the average American child born now could expect to live to one hundred. Unfortunately, the gains have slowed.)

But the Spanish flu temporarily turned back the clock, killing as no plague had for many years. It tore across the East Coast and Midwest before spreading to California and even Alaska. With little federal guidance, cities and states were left to their own devices.

Local public health departments temporarily shut schools, churches, and taverns, and even restricted funeral attendance. A few cities, especially in California, recommended or required gauze masks. San Francisco enforced its rules particularly strictly. Police there arrested almost three hundred people for refusing to wear masks.[9]

Still, the epidemic seemed to wax and wane on its own. In city after city, both where public health measures were strict and where they were not, cases peaked within a few weeks after the first infection was seen, then plunged again.

Shortly after the epidemic ended in 1919, Dr. W. H. Kellogg, the executive officer of the California State Board of Health, published a "Summary of

Conclusions Reached as a Result of the Study of the Control Measures Adopted."[10]

In other words, what, if any, public health rules had been most helpful? When he compared the course of the epidemic in different cities, Kellogg found that most regulations had made little difference. He was particularly dismissive of masks.

"The very complete records at the disposal of the California State Board of Health indicate conclusively that the compulsory wearing of masks does not affect the progress of the epidemic," he wrote. Three eastern cities that had no mask rules had seen the same course of the epidemic as San Francisco. Worse, nearly all the nurses at San Francisco Hospital had been infected, even though they wore masks while treating patients. Kellogg speculated one reason mask rules might fail was that people took off their masks when they most needed them, when they were in close contact with friends.

Nor did mass closings seem to matter, Kellogg wrote. Instead, he argued that self-isolation of sick people appeared to be the most effective tactic against the flu. But governments didn't have the resources to track mildly ill people, much less make them stay home. Instead the infected had to be convinced to do so themselves. "This measure depends more on the individual citizen than the health officer."

Scientific efforts to isolate the pathogen that caused the Spanish flu were equally halting. And despite their best efforts, the scientists of the time lacked the tools to figure out how the influenza virus spread on either the cellular or environmental level. They also had no way to know why this particular strain of flu was so dangerous.

In the seventeenth century, scientists had used primitive microscopes to see bacteria—tiny living microorganisms—for the first time.[11] In the late nineteenth century, the German physician Robert Koch showed how cholera and other bacteria could spread infectious diseases from person to person. Then physicians discovered that some diseases could spread through fluids that had been strained through material with pores fine enough to catch all bacteria. They realized that the pathogens causing those infections must be even smaller than bacteria, too tiny to be filtered out. They used the word virus to describe these invisible scourges.

Slowly, scientists linked more diseases to viruses. But it was only in 1926—seven years after the Spanish flu epidemic ended—that an American doctor

named Thomas Rivers made the crucial observation that, unlike bacteria, viruses could not reproduce on their own. Instead, they needed a living host. "Viruses appear to be **obligate parasites** [emphasis added] in the sense that their reproduction is dependent on living cells," Rivers wrote. A monograph on Rivers would call his realization "probably one of the most important single statements ever made in the history of virology."[12]

Five years later, the advent of the electron microscope enabled virologists to see their tiny quarry for the first time. Viruses came in many different shapes and sizes. Some were nearly as large as small bacteria. Others were barely larger than a few clusters of atoms.

But in 1918 and 1919, scientists couldn't even see viruses, much less understand how they replicated. The seminal breakthrough from James Watson and Francis Crick, who figured out that all life depended on genetic material stored as long strands of amino acids, was a generation away.

Thus the physicians of the era had little chance to understand how the Spanish flu wreaked its havoc. About all they could do was treat symptoms such as fever and hope the infected would recover on their own.

The irony here is rich. A century later, scientists and physicians have made incredible progress in understanding how viruses survive and replicate. We have fully unlocked the genome of viruses such as influenza and the coronavirus. We know what these viruses look like, how they hide from our immune systems, how they attack our cells.

Yet we have made far less progress in understanding how viruses spread. We still don't know exactly how long an infected person is contagious, or why some people seem to be "superspreaders" while others don't spread illness at all. Further, so-called "supportive care" is still the core of our treatment for people stricken with the flu. Antivirals such as Tamiflu, developed at great expense, are only marginally effective.

Doctors sometimes joke that if patients get good medical care, they will recover from the flu in a week. Without help, they'll need seven days.

Fortunately, even without lockdowns or vaccines or year-long school closures, the Spanish flu did pass. It was forgotten surprisingly quickly.

Perhaps we shouldn't be surprised. Though fifty million dead may shock us, people a century ago were more accustomed to facing their mortality. Medicine was advancing, but women still routinely died in childbirth. Without effective antibiotics, infections could prove deadly even to the young and healthy. Political leaders were much more ruthless too, even in

democracies. European governments had just sacrificed millions of their citizens for a pointless war—without much protest even from the men being sent to the slaughter.

The decades that followed the Spanish flu saw a worldwide depression, another world war, and then the rise of nuclear arsenals with the power to destroy all human life. The twentieth century's worst epidemic became a historical footnote. Infectious diseases became less fearsome. Even before scientists learned the secrets of DNA and RNA, they had begun to craft effective vaccines against feared viral killers. The discovery of penicillin made bacterial infections far more treatable.

Still, the flu did not disappear.

In 1957, an outbreak that began in China killed about 116,000 Americans, the equivalent of 230,000 today. In 1968, what became known as the Hong Kong flu killed another 100,000 Americans. Both outbreaks received little attention. They led to no calls for masks, much less school closings, quarantines, or lockdowns.

In fact, Woodstock—the concert where hundreds of thousands of people gathered for days at a farm in Upstate New York—is just one of the many mass gatherings that took place during the Hong Kong epidemic. The contrast with our panic over the coronavirus is stunning, and proof of how much our attitude towards infectious diseases has changed in the last few years.

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All the Wrong Lessons

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fter the Hong Kong flu faded away in 1969, the United States faced no major respiratory virus epidemics for more than a generation. Scientists and governments focused on chronic diseases that burdened aging societies and were often worsened by smoking and obesity. The United States declared a mostly unsuccessful war on cancer, even as heart disease remained the nation's leading killer.

Meanwhile, a public health panic in 1976 about a possible influenza crisis backfired. Expert predictions that a "swine flu" outbreak might become another Spanish flu proved wildly wrong. A hastily made vaccine was blamed for hundreds of cases of Guillain-Barre syndrome, a neurological ailment that can lead to muscle weakness, paralysis, and even death.[1]

The next infectious disease emergency had nothing to do with influenza or any respiratory virus. In 1981, physicians in New York and Los Angeles began seeing an unusual pattern of diseases. Healthy young gay men fell ill with pneumonia and a rare cancer called Kaposi's sarcoma and died quickly. Their immune systems appeared ravaged, unable to

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cope with even simple infections. Doctors named the disease acquired immunodeficiency syndrome, or AIDS. A hunt for the virus that might cause AIDS began.

By 1983, scientists had found the culprit, which was ultimately named HIV, the human immunodeficiency virus.[2] HIV was so dangerous because it aimed directly at the immune system. It infected and destroyed T-cells, the core of our immune response, leaving the body open to attack from other pathogens.