

## The Plague Year

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### 1. “An Evolving Situation”

There are three moments in the yearlong catastrophe of the [COVID-19](#) pandemic when events might have turned out differently. The first occurred on January 3, 2020, when Robert Redfield, the director of the Centers for Disease Control and Prevention, spoke with George Fu Gao, the head of the Chinese Center for Disease Control and Prevention, which was modelled on the American institution. Redfield had just received a report about an unexplained respiratory virus emerging in the city of Wuhan.

The field of public health had long been haunted by the prospect of a widespread respiratory-illness outbreak like [the 1918 influenza pandemic](#), so Redfield was concerned. Gao, when pressed, assured him that there was no evidence of human-to-human transmission. At the time, the theory was that each case had arisen from animals in a “wet” market where exotic game was sold. When Redfield learned that, among twenty-seven reported cases, there were several family clusters, he observed that it was unlikely that each person had been infected, simultaneously, by a caged civet cat or a raccoon dog. He offered to send a C.D.C. team to Wuhan to investigate, but Gao said that he wasn’t authorized to accept such assistance. Redfield made a formal request to the Chinese government and assembled two dozen specialists, but no invitation arrived. A few days later, in another conversation with Redfield, Gao started to cry and said, “I think we’re too late.”

Perhaps Gao had just been made aware that the virus had been circulating in China at least since November. Certainly, Redfield didn’t know that the virus was already present in California, Oregon, and Washington, and would be spreading in Massachusetts, Wisconsin, Iowa, Connecticut, Michigan, and Rhode Island within the next two weeks—well before America’s first official case was detected.

Redfield is convinced that, had C.D.C. specialists visited China in early January, they would have learned exactly what the world was facing. The new pathogen was a coronavirus, and as such it was thought to be only modestly contagious, like its cousin the *SARS* virus. This assumption was wrong. The virus in Wuhan turned out to be far more infectious, and it spread largely by asymptomatic transmission. “That whole idea that you were going to diagnose cases based on symptoms, isolate them, and contact-trace around them was not going to work,” Redfield told me recently. “You’re going to be missing fifty per cent of the cases. We didn’t appreciate that until late February.” The first mistake had been made, and the second was soon to happen.

Matthew Pottinger was getting nervous. He is one of the few survivors of [Donald Trump](#)’s White House, perhaps because he is hard to categorize. Fluent in Mandarin, he spent seven years in China, reporting for Reuters and the *Wall Street Journal*. He left journalism at the age of thirty-two and joined the Marines, a decision that confounded everyone who knew him. In Afghanistan, he co-wrote an influential paper with Lieutenant General [Michael Flynn](#) on improving military intelligence. When Trump named Flynn his national-security adviser, Flynn chose Pottinger as the Asia director. Scandal removed Flynn from his job almost overnight, but Pottinger stayed, serving five subsequent national-security chiefs. In September, 2019, Trump appointed him deputy national-security adviser. In a very noisy Administration, he had quietly become one of the most influential people shaping American foreign policy.

At the *Journal*, Pottinger had covered the 2003 *sars* outbreak. The Chinese hid the news, and, when rumors arose, authorities minimized the severity of the disease, though the fatality rate was approximately ten per cent. Authorities at the [World Health Organization](#) were eventually allowed to visit Beijing hospitals, but infected patients were reportedly loaded into ambulances or checked into hotels until the inspectors left the country. By then, *sars* was spreading to Hong Kong, Hanoi, Singapore, Taiwan, Manila, Ulaanbaatar, Toronto, and San Francisco. It ultimately reached some thirty countries. Because of heroic efforts on the part of public-health officials—and because *sars* spread slowly—it was contained eight months after it emerged.

The National Security Council addresses global developments and offers the President options for responding. Last winter, Pottinger was struck by the disparity between official accounts of the novel coronavirus in China, which scarcely mentioned the disease, and Chinese social media, which was aflame with rumors and anecdotes. Someone posted a photograph of a sign outside a Wuhan hospital saying that the E.R. was closed, because staff were infected. Another report said that crematoriums were overwhelmed.

On January 14th, the N.S.C. convened an interagency meeting to discuss the virus. Early that morning, the W.H.O.—relying on China’s assurances—tweeted that there was no evidence of human-to-human transmission. The N.S.C. recommended that screeners take the temperatures of any passengers arriving from Wuhan.

The next day, President Trump signed the first phase of a U.S.-China trade deal, declaring, “Together, we are righting the wrongs of the past and delivering a future of economic justice and security for American workers, farmers, and families.” He called China’s President, [Xi Jinping](#), “a very, very good friend.”



Matt Pottinger, the deputy national-security adviser, championed masks early. Photo illustration by Tyler Comrie; photograph by Natalie Keyssar for The New Yorker

On January 20th, the first case was identified in the U.S. On a Voice of America broadcast, [Dr. Anthony Fauci](#), the head of the National Institute of Allergy and Infectious Diseases, said, "This is a thirty-five-year-old young man who works here in the United States, who visited Wuhan." Trump, who was at the World Economic Forum, in Davos, Switzerland, dismissed the threat, saying, "It's one person coming in from China. It's going to be just fine."

On January 23, 2020, all the members of the U.S. Senate gathered for the second day of opening arguments in President Trump's impeachment trial. It was an empty exercise with a foreordained result. [Mitch McConnell](#), the Majority Leader, had already said that he would steamroll Democratic attempts to introduce witnesses or new evidence. "We have the votes," he decreed.

The trial posed difficulties for the four Democratic senators still running for President. As soon as the proceedings recessed, on Friday evenings, the candidates raced off to campaign for the weekend. One of them, [Amy Klobuchar](#), of Minnesota, recalled, "I was doing planetariums in small towns at midnight." Then it was back to Washington, to listen to an argument that one side would clearly win. In the midst of this deadened theatre, McConnell announced, "In the morning, there will be a coronavirus briefing for all members at ten-thirty." This was the first mention of *COVID* in Congress.

The briefing took place on January 24th, in the hearing room of the Health, Education, Labor, and Pensions Committee, which Lamar Alexander, Republican of Tennessee, chaired. Patty Murray is the ranking Democratic member. A former preschool teacher, she has been a senator for twenty-seven years. Her father managed a five-and-dime until he developed multiple sclerosis and was unable to work. Murray was fifteen. The family went on welfare. She knows how illness can upend people economically, and how government can help.

A few days earlier, she had heard about the first confirmed *COVID* case in the U.S.—the man had travelled from Wuhan to Washington, her state. Murray contacted local public-health officials, who seemed to be doing everything right: the man was hospitalized, and health officials were tracing a few possible contacts. Suddenly, they were tracking dozens of people. Murray said to herself, "Wow, this is kinda scary. And this is in my back yard."

But in the outbreak's early days, when decisiveness mattered most, few other politicians were paying attention. It had been a century since the previous great pandemic, which found its way from the trenches of the [First World War](#) to tropical jungles and Eskimo villages. Back then, scientists scarcely knew what a virus was. In the twenty-first century, infectious disease seemed like a nuisance, not like a mortal threat. This lack of concern was reflected in the diminished budgets given to institutions that once had led the world in countering disease and keeping Americans healthy. Hospitals closed; stockpiles of emergency equipment weren't replenished. The spectre of an unknown virus arising in China gave certain public-health officials nightmares, but it wasn't on the agenda of most American policymakers.

About twenty senators showed up to hear Anthony Fauci and Robert Redfield speak at an hour-long briefing. The health authorities were reassuring. Redfield said, "We are prepared for this."

That day, Pottinger convened forty-two people, including N.S.C. staffers and Cabinet-level officials, for a meeting. China had just announced [a lockdown](#) of Wuhan, a city of eleven million, which could mean only that sustained human-to-human transmission was occurring. Indeed, Pottinger's staff reported that another city, Huanggang, was also locked down. The previous day, the State Department had heightened its travel advisory for passengers to the Wuhan region, and the meeting's attendees debated how to implement another precaution: sending all passengers coming from Wuhan to five U.S. airports, where they could be given a health screening before entry.

The next day, Pottinger attended a Chinese New Year party on Capitol Hill. Old diplomatic hands, émigrés, and Chinese dissidents relayed stories about the outbreak from friends and family members. People were frightened. It sounded like *sars* all over again.

Pottinger went home and dug up files from his reporting days, looking for phone numbers of former sources, including Chinese doctors. He then called his brother, Paul, an infectious-disease doctor in Seattle. Paul had been reading about the new virus on Listservs, but had assumed that, like *sars*, it would be "a flash in the pan."

If flights from China were halted, Matt asked, could America have more time to prepare?

Paul was hesitant. Like most public-health practitioners, he held that travel bans often have unintended consequences. They stigmatize countries contending with contagion. Doctors and medical equipment must be able to move around. And, by the time restrictions are put in place, the disease has usually infiltrated the border anyway, making the whole exercise pointless. But Matt spoke with resolve. Little was known about the virus *except* for the fact that it was spreading like wildfire, embers flying from city to city.

Paul told Matt to do whatever he could to slow the virus's advance, giving the U.S. a chance to establish testing and contact-tracing protocols, which could keep the outbreak under control. Otherwise, the year ahead might be calamitous.

No one realized how widely the disease had already seeded itself. Fauci told a radio interviewer that *COVID* wasn't something Americans needed to "be worried or frightened by," but he added that it was "an evolving situation."

## 2. The Trickster

In October, 2019, the first Global Health Security Index appeared, a sober report of a world largely unprepared to deal with a pandemic. "Unfortunately, political will for accelerating health security is caught in a perpetual cycle of panic and neglect," the authors [observed](#). "No country is fully prepared." Yet one country stood above all others in terms of readiness: the United States.

During the transition to the Trump Administration, the Obama White House handed off [a sixty-nine-page document](#) called the Playbook for Early Response to High-Consequence Emerging Infectious Disease Threats and Biological Incidents. A meticulous guide for combatting a "pathogen of pandemic potential," it contains a directory of government resources to consult the moment things start going haywire.

Among the most dangerous pathogens are the respiratory viruses, including orthopoxviruses (such as smallpox), novel influenzas, and coronaviruses. With domestic outbreaks, the playbook specifies that, "while States hold significant power and responsibility related to public-health response outside of a declared Public Health Emergency, the American public will look to the U.S. Government for action." The playbook outlines the conditions under which various federal agencies should become involved. Questions about the severity and the contagiousness of a disease should be directed to the Department of Health and Human Services, the Federal Emergency Management Agency, and the Environmental Protection Agency. How robust is contact tracing? Is clinical care in the region scalable if cases explode? There are many such questions, with decisions proposed and agencies assigned. Appendices describe such entities as the Pentagon's Military Aeromedical Evacuation team, which can be assembled to transport patients. Health and Human Services can call upon a Disaster Mortuary Operational Response Team, which includes medical examiners, pathologists, and dental assistants.

The Trump Administration jettisoned the Obama playbook. In 2019, H.H.S. conducted Crimson Contagion, a simulation examining the government's ability to contain a pandemic. Among the participants were the Pentagon, the N.S.C., hospitals, local and regional health-care departments, the American Red Cross, and twelve state governments. The scenario envisioned an international group of tourists visiting China who become infected with a novel influenza and spread it worldwide. There's no vaccine; antiviral drugs are ineffective.

The Crimson Contagion exercise inspired little confidence that the government was prepared to handle such a crisis. Federal agencies couldn't tell who was in charge; states grew frustrated in their attempts to secure enough resources. During the simulation, some cities defied a C.D.C. recommendation to close schools. Government policies, the report concluded, were inadequate and "often in conflict." The Public Health Emergency Fund and the Strategic National Stockpile were dangerously depleted; N95 masks and other medical essentials were in short supply, and domestic manufacturing capacity was insufficient. Congress was briefed on the findings but they were never made public. By the time *COVID* arrived, no meaningful changes had been made to address these shortcomings.

"I just love infectious diseases," John Brooks, the chief medical officer of the *COVID* response team at the C.D.C., admitted to me. "I know diseases are terrible—they kill people. But something about them just grabs me."

Each generation has its own struggle with disease. In 1939, Brooks's mother, Joan Bertrand Brooks, developed polio. Her legs were covered with surgical scars, and her right leg was noticeably shorter than her left. "She spoke about that experience often—how she was teased, stigmatized, or blatantly discriminated against," Brooks recalled.

For Brooks, who is gay, the disease of his generation was [H.I.V./AIDS](#). He grew up near the Dupont Circle neighborhood of Washington, D.C., which had a large gay population, and watched men he knew disappear: "Guys would get thin and develop lesions and then be gone. It was scary." Science offered no solution, and that was on Brooks's mind when he decided to become a doctor. The day he was accepted at Harvard Medical School, he and his mother went to lunch to celebrate. "Afterward, we dropped into a ten-dollar palm reader, who said she saw me marrying a tall Swedish woman and owning a jet with which I flew around the world with our three children," he told me. "We had a good laugh. I should have asked for a refund."

In 2015, Brooks became the chief medical officer of the H.I.V./AIDS division at the C.D.C. Every H.I.V. researcher has been humbled by the various manifestations of this disease. "At every turn, there was something different," Brooks said. "All these opportunistic infections show up. What in the world is this all about? Very cool." The experience of studying H.I.V. helped prepare him for the myriad tricks that *COVID* would present.

The C.D.C. was founded in 1946, as the Communicable Disease Center. Atlanta was chosen as its home because the city was in the heart of what was called "the malaria zone." Five years later, America was declared malaria-free. The C.D.C.'s mission expanded to attack other diseases: typhus, polio, rabies. In 1981, the organization, by then renamed the Centers for Disease Control, reported the first known cases of *AIDS*, in Los Angeles. Until this year, the C.D.C. maintained a reputation as the gold standard for public health, operating above politics and proving repeatedly the value of enlightened government and the necessity of science for the furthering of civilization. During the twentieth century, the life span of Americans increased by thirty years, largely because of advances in public health, especially vaccination.

The C.D.C. campus now resembles a midsize college, with more buildings under construction, including a high-containment facility for the world's most dangerous diseases. Lab animals—mice, ferrets, monkeys—inhabit cages inside Biosafety Level 4 chambers. Humans move around them like deep-sea divers in inflated suits, tethered to an overhead airflow system.

The Emergency Operations Center is a large, bright room, with tiered rows of wooden desks facing a wall of video screens. The place exudes a mixture of urgency and professional calm. On one side of the room, operators triage incoming phone calls. In 2014, during the [Ebola](#) crisis, Brooks received a call from Clay Jenkins, a county judge in Dallas. A Liberian citizen visiting the city, Thomas Eric Duncan, had contracted the disease. Jenkins wanted advice about how to safely approach Duncan's fiancée and her family members. On a monitor, Brooks could see the fiancée's apartment complex, shot from above by cameras on helicopters. Brooks told Jenkins that he could safely enter the apartment as long as the family had no symptoms: it would be an important public gesture for him to choose compassion over fear. Brooks watched footage of Jenkins escorting the family out of the complex. (Thomas Duncan eventually died; two nurses who had cared for him were infected but survived.)

Brooks was working on the *COVID* response team with Greg Armstrong, a fellow-epidemiologist. Armstrong oversaw the Advanced Molecular Detection program, which is part of the C.D.C.'s center for emerging and zoonotic infectious diseases. (Zoonotic diseases come from animals, as coronaviruses typically do.) Humanity's encroachment into formerly wild regions, coupled with climate change, which has forced animals out of traditional habitats, has engendered many new diseases in humans, including Ebola and [Zika](#). At first, *SARS-CoV-2*—as the new virus was being called—presented itself as a less mortal coronavirus, like the common cold, spreading rapidly and sometimes asymptotically. In fact, *SARS-CoV-2* was more like polio. Most polio infections are asymptomatic or very mild—fever and headaches. But some are deadly. The polio cases that doctors actually see are about one in every two hundred infections. Stealth transmission is why polio has been so hard to eradicate.

Armstrong was in Salt Lake City, conducting a training session, when he noticed an article on the Web site of *The New England Journal of Medicine*: "[Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia](#)." The article was one of the first to describe the virus's spread among humans, a development that didn't surprise Armstrong: "Anybody with

any epidemiology experience could tell you it was human-to-human transmission." Then he noticed Table 1, "Characteristics of Patients," which noted the original source of their infection. Of the Chinese known to have contracted the virus before January 1st, twenty-six per cent had no exposure either to the Wuhan wet market or to people with apparent respiratory symptoms. In subsequent weeks, the number of people with no obvious source of infection surpassed seventy per cent. Armstrong realized that, unlike with *sars* or *mers*—other coronavirus diseases—many infections of *SARS-CoV-2* were probably asymptomatic or mild. Contact tracing, isolation, and quarantine would likely not be enough. These details were buried in Table 1.

Other reports began to emerge about possible asymptomatic spread. Although *SARS-CoV-2* was genetically related to the *sars* and *MERS* viruses, it was apparently unlike them in two key ways: people could be contagious before developing symptoms, and some infected people would never manifest illness. In late February, University of Texas scientists, led by Lauren Ancel Meyers, [reported](#) that it could have a "negative serial interval," meaning that some infected people showed symptoms *before* the person who had given it to them.

The C.D.C.'s early guidance documents didn't mention that possibility, because the evidence of asymptomatic spread was deemed insufficient. "In the beginning, for every mathematical analysis that indicated a shorter serial interval than incubation period, others reported no difference," Brooks said. "When the science changed, we changed. And our recommendations changed, too." But, by that time, the C.D.C. had been muzzled by the Trump Administration.

"There are three things this virus is doing that blow me away," Brooks told me. "The first is that it directly infects the endothelial cells that line our blood vessels. I'm not aware of any other human respiratory viruses that do this. This causes a lot of havoc." Endothelial cells normally help protect the body from infection. When *SARS-CoV-2* invades them, their powerful chemical contents get dumped into the bloodstream, resulting in inflammation elsewhere in the body. The rupture of individual endothelial cells coarsens the lining in the blood vessels, creating breaks and rough spots that cause turbulent blood flow.

The second surprise was hypercoagulability—patients had a pronounced tendency to develop blood clots. This reminded Brooks of Michael Crichton's 1969 novel, "[The Andromeda Strain](#)," in which a pathogen causes instant clotting, striking down victims in mid-stride. "This is different," Brooks said. "You're getting these things called pulmonary embolisms, which are nasty. A clot forms—it travels to the lung, damaging the tissues, blocking blood flow, and creating pressures that can lead to heart problems." More puzzling was evidence that clots sometimes formed in the lungs, leading to acute respiratory distress. Brooks referred to an early report documenting autopsies of victims. Nearly all had pulmonary thromboses; until the autopsy, nobody had suspected that the clots were even present, let alone the probable cause of death.

"The last one is this hyperimmune response," Brooks said. Most infectious diseases kill people by triggering an excessive immune-system response; *COVID*, like pneumonia, can unleash white blood cells that flood the lungs with fluid, putting the patient at risk of drowning. But *COVID* is unusual in the variety of ways that it causes the body to malfunction. Some patients require kidney dialysis or suffer liver damage. The disease can affect the brain and other parts of the nervous system, causing delirium, strokes, and lasting nerve damage. *COVID* could also do strange things to the heart. Hospitals began admitting patients with signs of cardiac arrest—chest pains, trouble breathing—and preparing emergency coronary catheterizations. "But their coronary vessels are clean," Brooks said. "There's no blockage." Instead, an immune reaction had inflamed the heart muscle, a condition called myocarditis. "There's not a lot you can do but hope they get through it." A [German study](#) of a hundred recovered *COVID* patients with the average age of forty-nine found that twenty-two had lasting cardiac problems, including scarring of the heart muscle.

Even after Brooks thought that *COVID* had no more tricks to play, another aftereffect confounded him: "You get over the illness, you're feeling better, and it comes back to bite you again." In adults, it might just be a rash. But some children develop a multi-organ inflammatory syndrome. Brooks said, "They have conjunctivitis, their eyes get real red, they have abdominal pain, and then they can go on to experience cardiovascular collapse."

### 3. Spike

When I was around six, I woke up one morning and couldn't get out of bed: I was paralyzed from the waist down. It was during the polio era, in the early fifties, before there was a cure. I remember the alarm in my mother's eyes. Our family doctor made a house call. He sat on the edge of the bed, and took my temperature and pulse; there was little else he could do. The terror of polio haunted children and parents everywhere.

I was lucky. After a day or so, I could move my legs again. I was never certain what had caused my brief paralysis, but the memory was searing. Soon after the polio vaccine, invented by Jonas Salk, became available, in 1955, I was inoculated, along with millions of other children.

So I had a personal interest when I entered Building 40 of the main campus of the National Institutes of Health, in Bethesda, Maryland, which houses the National Institute of Allergy and Infectious Diseases. Dr. Barney S. Graham, the deputy director of the Vaccine Research Center and the chief of the Viral Pathogenesis Laboratory and Translational Science Core, works on the second floor. He studies how viruses cause disease, and he designs vaccines.

The first thing you notice about Graham is that there's a lot of him: he's six feet five, with a gray goatee and a laconic manner. Graham's boss at *niaid*, Anthony Fauci, told me, "He understands vaccinology better than anybody I know."

Bookshelves in Graham's office hold colorful 3-D printouts of viruses that he has worked with, including Ebola, Zika, and influenza. While I was researching "[The End of October](#)," a novel that I published earlier this year, about a deadly pandemic, Graham helped me design a fictional virus, and then concocted a vaccine for it. As we collaborated, I came to understand that researchers like Graham are essentially puzzle solvers. This past year, he solved one of the most consequential puzzles in modern science. He is the chief architect of the first *COVID* vaccines authorized for emergency use. Manufactured by Moderna and Pfizer, they differ only in their delivery systems.

On Graham's wall is a map of Kansas, where he grew up. His father was a dentist and his mother was a teacher. For part of his childhood, they lived on a hog farm. Barney and his brother did much of the farming. Working with the animals, he learned a lot about veterinary medicine. At Rice University, he majored in biology. He earned a medical degree at the University of Kansas, where he met his wife, Cynthia Turner-Graham, a psychiatrist. In 1978, on an infectious-disease rotation in medical school, he spent time at the N.I.H., where he first encountered Fauci. "Cynthia noticed when I came back how excited I was," Graham recalled. "People were willing to battle each other's ideas. She thought I would end up here."

First, he and Cynthia had to complete residencies. They wanted to be in the same town, a problem many professional couples face, but additionally complicated in their case because Cynthia is Black. She suggested Nashville: he could apply to Vanderbilt School of Medicine and she to Meharry Medical College, a historically Black institution. Tennessee had only recently repealed a ban on interracial marriage.

Driving back to Kansas from Maryland on Christmas Eve, Graham stopped in at Vanderbilt. To his surprise, the director of the residency program, Thomas Brittingham, was in his office and willing to meet with him immediately. When the interview was over, Graham told Brittingham, "I know this is the South. I'm going to marry a Black woman, and if that makes a difference I can't come here." Brittingham said, "Close the door." He welcomed Graham on the spot. Cynthia was accepted at Meharry, and so they moved to Nashville.

By 1982, Graham had become the chief resident at Nashville General Hospital. That year, he saw a patient suffering from five simultaneous infections, including cryptococcal meningitis and herpes simplex. It was a mystery: most infections are solitary events. The medical staff was terrified. Graham realized that he was treating Tennessee's first *AIDS* patient. "We kept him alive for three weeks," he said.

Millions of lives would be changed, and so many ended, by this remorseless, elusive disease. Immunology, then a fledgling field, was transformed by the battle. "It took us a couple years just to figure out that H.I.V. was a virus," Graham said. He started running vaccine trials. "It was not till the mid-nineties that we had decent treatments. There were some really hard years. Almost everyone died."

In 2000, the N.I.H. recruited Graham to create a vaccine-evaluation clinic. He insisted on keeping a research lab. With space for two dozen scientists, his lab focusses on vaccines for three categories of respiratory viruses: influenza, coronaviruses, and a highly contagious virus called respiratory syncytial virus (RSV), which ended up playing a key role in the development of a *COVID* vaccine.

RSV causes wheezing pneumonia in children, and sends more kids under five years old to the hospital than any other disease. One of the last childhood infectious diseases without a vaccine, RSV also kills about as many of the elderly as seasonal influenza. It's wildly infectious. In order to stop its spread in a hospital pediatric ward, staff must wear gloves, masks, and goggles; if any of these items is omitted, RSV will surge. Like *COVID*, it is dispersed through particle droplets and contaminated surfaces. In the nineteen-sixties, a clinical trial of a potential RSV vaccine made children sicker and led to two deaths—a syndrome called vaccine-enhanced disease. Graham spent much of two decades trying to solve the riddle of what causes RSV, but the technology he needed was still being developed.

In 2008, he had a stroke of luck. Jason McLellan, a postdoc studying H.I.V., had been squeezed out of a structural-biology lab upstairs. H.I.V. has proved invulnerable to a vaccine solution, despite extraordinary technological advances and elegant new theories for designing one. "I thought, Let's try things out on a more tractable virus," McLellan recalled. "Barney thought RSV would be perfect for a structure-based vaccine."



Dr. Jason McLellan is a structural biologist whose work with Barney Graham opened a new front in the war against infectious disease. The first COVID vaccine to be granted an Emergency Use Authorization by the F.D.A. uses the modified protein that Graham and McLellan designed. Photo illustration by Tyler Comrie; photograph by Nikola Tamindzic for The New Yorker

A vaccine trains the immune system to recognize a virus in order to counter it. Using imaging technology, structural biologists can intuit the contours of a virus and its proteins, then reproduce those structures to make more effective vaccines. McLellan said of his field, "From the structure, we can determine function—it's similar to how seeing a car, with four wheels and doors, implies something about its function to transport people."

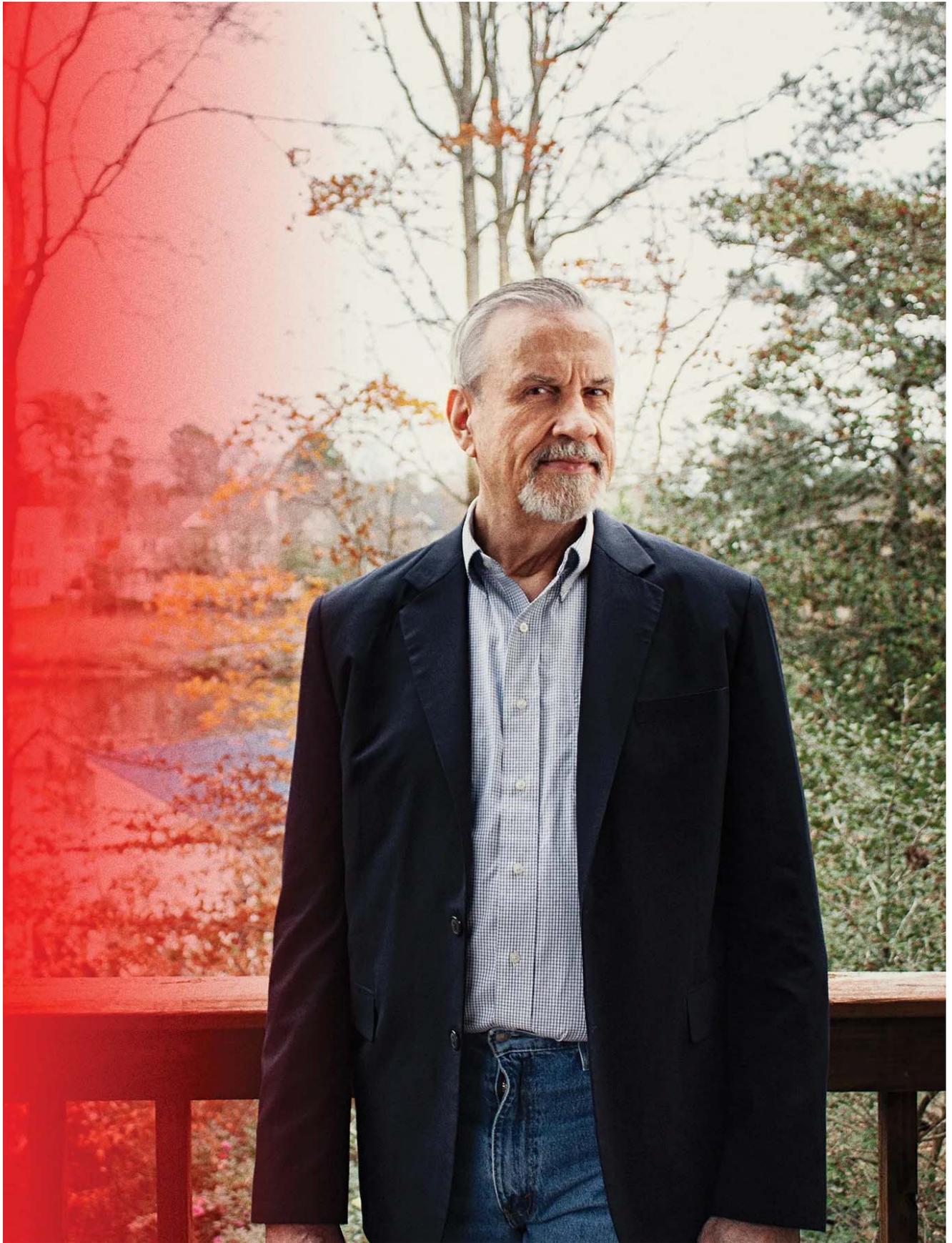
The surface of an RSV particle features a protein, designated F. On the top of the protein, a spot called an epitope serves as a landing pad for antibodies, allowing the virus to be neutralized. But

something extraordinary happens when the virus invades a cell. The F protein swells like an erection, burying the epitope and effectively hiding it from antibodies. Somehow, McLellan had to keep the F protein from getting an erection.

Until recently, one of the main imaging tools used by vaccinologists, the cryogenic electron microscope, wasn't powerful enough to visualize viral proteins, which are incredibly tiny. "The whole field was referred to as blobology," McLellan said. As a work-around, he developed expertise in X-ray crystallography. With this method, a virus, or even just a protein on a virus, is crystallized, then hit with an X-ray beam that creates a scatter pattern, like a shotgun blast; the structure of the crystallized object can be determined from the distribution of electrons. McLellan showed me an "atomistic interpretation" of the F protein on the RSV virus—the visualization looked like a pile of Cheetos. It required a leap of imagination, but inside that murky world Graham and McLellan and their team manipulated the F protein, essentially by cloning it and inserting mutations that kept it strapped down. McLellan said, "There's a lot of art to it."

In 2013, Graham and McLellan published "[Structure-Based Design of a Fusion Glycoprotein Vaccine for Respiratory Syncytial Virus](#)," in *Science*, demonstrating how they had stabilized the F protein in order to use it as an antigen—the part of a vaccine that sparks an immune response. Antibodies could now attack the F protein, vanquishing the virus. Graham and McLellan calculated that their vaccine could be given to a pregnant woman and provide enough antibodies to her baby to last for its first six months—the critical period. The paper opened a new front in the war against infectious disease. In a subsequent paper in *Science*, the team declared that it had established "clinical proof of concept for structure-based vaccine design," portending "an era of precision vaccinology." The RSV vaccine is now in Phase III human trials.

In 2012, the *mers* coronavirus emerged in Saudi Arabia. It was extremely dangerous to work with: a third of infected people died. Ominously, it was the second novel coronavirus in ten years. Coronaviruses have been infecting humans for as long as eight centuries, but before *sars* and *mers* they caused only the common cold. It's possible that, in the distant past, cold viruses were as deadly as *COVID*, and that humans developed resistance over time.



Dr. Barney S. Graham, the chief architect of the first authorized COVID vaccines. Photo illustration by Tyler Comrie; photograph by Nikola Tamindzic for The New Yorker

Like RSV, coronaviruses have a protein that elongates when invading a cell. "It looks like a spike, so we just call it Spike," Graham said. Spike was large, flexible, and encased in sugars, which made it difficult to crystallize, so X-ray crystallography wasn't an option. Fortunately, around 2013, what McLellan calls a "resolution revolution" in cryogenic electron microscopy allowed scientists to visualize microbes down to one ten-billionth of a metre. Finally, vaccinologists could truly see what they were doing.

Using these high-powered lenses, Graham and McLellan modified the *mers* spike protein, creating a vaccine. It worked well in mice. They were on the way to making a version for humans, but, after *mers* had killed hundreds of people, it petered out as an immediate threat to humans—and the research funding petered out, too. Graham was dismayed, realizing that such a reaction was shortsighted, but he knew that his energies hadn't been wasted. About two dozen virus families are known to infect humans, and the weapon that Graham's lab had developed to conquer RSV

and *mers* might be transferrable to many of them.

What was the best way to deliver a modified protein? Graham knew that Moderna, a biotech startup in Cambridge, Massachusetts, had encoded a modified protein on strips of genetic material known as messenger RNA. The company had never brought a vaccine to market, concentrating instead on providing treatments for rare disorders that aren't profitable enough to interest Big Pharma. But Moderna's messenger-RNA platform was potent.

In mice, Graham had proved the effectiveness of a structure-based vaccine for *mers* and also for Nipah, a particularly fatal virus. In 2017, Graham arranged a demonstration project for pandemic preparedness, with *mers* and Nipah serving as prototypes for a human vaccine using Moderna's messenger-RNA platform. Almost three years later, as he was preparing to begin human trials for the Nipah vaccine, he heard the news from Wuhan.

Graham called McLellan, who happened to be in Park City, Utah, getting snowboard boots heat-molded to his feet. McLellan had become a star in structural biology, and was recruited to the University of Texas at Austin, where he had access to cryogenic electron microscopes. It took someone who knew Graham well to detect the urgency in his voice. He suspected that China's cases of atypical pneumonia were caused by a new coronavirus, and he was trying to obtain the genomic sequence. It was a chance to test their concept in a real-world situation. Would McLellan and his team like to get "back in the saddle" and help him create a vaccine?

"Of course," McLellan said.

"We got the sequences Friday night, the tenth of January," Graham told me. They had been posted online by the Chinese. "We woke up on the eleventh and started designing proteins."

Nine days later, the coronavirus officially arrived in America.

Within a day after Graham and McLellan downloaded the sequence for SARS-CoV-2, they had designed the modified proteins. The key accelerating factor was that they already knew how to alter the spike proteins of other coronaviruses. On January 13th, they turned their scheme over to Moderna, for manufacturing. Six weeks later, Moderna began shipping vials of vaccine for clinical trials. The development process was "an all-time record," Graham told me. Typically, it takes years, if not decades, to go from formulating a vaccine to making a product ready to be tested: the process privileges safety and cost over speed.

Graham had to make several crucial decisions while designing the vaccine, including where to start encoding the spike-protein sequence on the messenger RNA. Making bad choices could render the vaccine less effective—or worthless. He solicited advice from colleagues. Everyone said that the final decisions were up to him—nobody had more experience in designing vaccines. He made his choices. Then, after Moderna had already begun the manufacturing process, the company sent back some preliminary data that made him fear he'd botched the job.

Graham panicked. Given his usual composure, Cynthia, his wife, was alarmed. "It was a crisis of confidence that I just never see in him," she said. So much depended on the prompt development of a safe and effective vaccine. Graham's lab was off to a fast start. If his vaccine worked, millions of lives might be spared. If it failed or was delayed, it would be Graham's fault.

After the vaccine was tested in animals, it became clear that Graham's design choices had been sound. The first human trial began on March 16th. A week later, Moderna began scaling up production to a million doses per month.

#### 4. "It's more like 1918"

Since 2016, Dr. Rick Bright has run the Biomedical Advanced Research and Development Authority. A division of H.H.S., the authority is responsible for medical countermeasures in the event of bioterrorism or a pandemic. According to a whistle-blower complaint, on January 22nd Bright received an e-mail from Mike Bowen, an executive at the Texas-based firm Prestige Ameritech, the country's largest maker of surgical masks. Bowen wrote that he had four "like new" N95 manufacturing lines, which weren't in use. He added, "Reactivating these machines would be very difficult and very expensive but could be achieved in a dire situation and with government help." In another message, Bowen wrote, "We are the last major domestic mask company. . . . My phones are ringing non-stop, so I don't need government business. I'm just letting you know that I can help you preserve our infrastructure if things ever get really bad. I'm a patriot first, businessman second."

Bright had already been worried about the likely shortage of personal protective equipment in the Strategic National Stockpile. He also felt that not enough was being done to develop diagnostics for the virus from Wuhan. On January 23rd, at an H.H.S. leadership meeting with Secretary Alex Azar, he warned that the "virus might already be here—we just don't have the tests to know." Many Trump Administration officials seemed determined to ignore scientists who shared bad news.

On January 25th, Bowen wrote Bright again, saying that his company was getting "lots of requests from China and Hong Kong" for masks—a stunning piece of intelligence. About half the masks used in the U.S. come from China; if that supply stopped, Bowen said, American hospitals would run out. Bright continued pushing for immediate action on masks, but he found H.H.S. to be unresponsive. On January 27th, Bowen wrote, "I think we're in deep shit. The world."

The same day, at the White House, Matt Pottinger convened an interagency meeting of Cabinet officers and deputies. Attendees fell into four camps. There was the public-health establishment—Redfield, Fauci, Azar—data-driven people who, at the moment, had no data. Another group—the acting White House chief of staff, Mick Mulvaney, along with officials from the Office of Management and Budget and the Transportation Department—was preoccupied with the economic damage that would result if drastic steps were taken. A State Department faction was concerned mainly with logistical issues, such as extracting Americans from Wuhan. Finally, there was Pottinger, who saw the virus not just as a medical and economic challenge but also as a national-security threat. He wanted dramatic action now.

For three weeks, the U.S. had been trying unsuccessfully to send medical experts to China. The public-health contingent didn't want to make decisions about quarantines or travel bans without definitive intelligence, but the Chinese wouldn't supply it. When Pottinger presented a proposal to curtail travel from China, the economic advisers derided it as overkill. Travel bans upended trade—a serious consideration with China, which, in addition to P.P.E., manufactured much of the vital medicine that the U.S. relied on. Predictably, the public-health representatives were resistant, too: travel bans slowed down emergency assistance, and viruses found ways to propagate no matter what. Moreover, at least fourteen thousand passengers from China were arriving in the U.S. every day: there was no way to quarantine them all. These arguments would join other public-health verities that were eventually overturned by the pandemic. Countries that imposed travel bans with strict quarantines, such as Vietnam and New Zealand, kept the contagion at a manageable level.

The State Department's evacuation of Americans, particularly diplomatic staff in Wuhan, outraged the Chinese; Tedros Adhanom Ghebreyesus, the director-general of the W.H.O., said that the U.S. was overreacting. In part to placate the Chinese, the 747s that were sent to collect Americans were filled with eighteen tons of P.P.E., including masks, gowns, and gauze. It was a decision that many came to regret—especially when inferior substitutes were later sold back to the U.S., at colossal markups.

The morning after the meeting, Pottinger spoke to a doctor in China who was treating patients. People were getting infected and there was no way to know how and where it happened—a stage of contagion called community spread.

Pottinger asked, "Is this going to be as bad as *sars*?"

"Don't think 2003—it's more like 1918," the doctor said. That flu lasted two years, and killed between forty and a hundred million people.

On January 28th, the national-security adviser, Robert O'Brien, brought Pottinger into the Oval Office, where the President was getting his daily intelligence briefing. According to contemporaneous notes from someone present at this meeting, the briefer mentioned the virus, but didn't present it as the top threat. O'Brien warned the President, "This will be the biggest national-security threat you will face." Trump asked if the outbreak posed as big a danger as *sars*, and the briefer responded that it wasn't clear yet.

Pottinger leaped to his feet and recounted what he'd heard from his sources—most shockingly, that more than half the disease's spread was attributed to asymptomatic carriers. Yet, every day, thousands of people were flying from China to the U.S.

"Should we shut down travel?" Trump asked.

"Yes," Pottinger advised.

Pottinger left the Oval Office and walked to the Situation Room, where a newly formed Coronavirus Task Force was meeting. People were annoyed with him. "It would be unusual for an asymptomatic person to drive the epidemic in a respiratory disorder," Fauci said. That certainly had been true of *sars*. He still wanted U.S. scientists to report from China, in order to get more data. Redfield, of the C.D.C., considered it too early for disruptive actions. He said that there were only a handful of cases outside China, and that in the U.S. the pathogen wasn't moving that fast. The public-health contingent was united. "Let the data guide us," they advised.

Pottinger pointed out that the Chinese continued to block such efforts: "We're not getting data that's dependable!"

The economic advisers, meanwhile, were frantic—a travel ban would kill the airline industry and shut down the global supply chain. Larry Kudlow, the President's chief economic adviser, had been questioning the seriousness of the situation. He couldn't square the apocalyptic forecasts with the stock market. "Is all the money dumb?" he wondered. "Everyone's asleep at the switch? I just have a hard time believing that." (Kudlow doesn't recall making this statement.)

Pottinger, sensing that he'd need backup, had brought along Peter Navarro, an abrasive economic adviser who had been part of the trade negotiations with China. Many White House officials considered Navarro to be a crackpot, but he was known to be one of the President's favorites because he advocated tariff wars and other nationalist measures. Navarro warned the group, "We have got to seal the borders now. This is a black-swan event, and you're rolling the dice with your gradualist approach."

Within minutes, Navarro was at odds with everyone in the room. He pointed out that the new virus was spreading faster than the seasonal flu or *sars*. The possible economic costs and loss of life were staggering. Azar argued that a travel ban would be an overreaction. No progress was made in that meeting, but Navarro was so strident that Mulvaney barred him from future sessions.

Then data surfaced that shifted the argument. In mid-January, a Chicago woman returned from a trip to China. Within a week, she was hospitalized with COVID. On January 30th, her husband, who hadn't been to China, tested positive. Fauci, Redfield, and others in the public-health contingent changed their minds: human-to-human transmission was clearly happening in America.

Trump was told the news. The timing couldn't have been worse for him. The bitter trade war he had initiated with China had reached a tentative pause. Since then, he had been praising Xi Jinping's handling of the contagion, despite evidence of a coverup. A travel ban would reopen wounds. Nevertheless, Trump agreed to announce one the next day.

It was a bold gesture, but incomplete. The Administration blocked non-Americans coming from China, but U.S. citizens, residents, and their family members were free to enter. A two-week quarantine was imposed on travellers coming from the Wuhan region, but, unlike Taiwan, Australia, Hong Kong, and New Zealand, which rigidly enforced quarantines, the U.S. did little to enforce its rules, and the leaks soon became apparent.

## 5. Flattening the Curve

In 1989, Dr. Howard Markel was in graduate school at Johns Hopkins, specializing in both pediatrics and the history of medicine. He had just lost his wife to cancer, a month after their first anniversary. Markel began volunteering at a local AIDS clinic. He found that helping men his own age who were facing their mortality, or their partner's, was immensely consoling—"the most spiritually uplifting work I did in my entire clinical career."

Birx and Fauci pushed Trump to shut down European travel: "Every seed case you prevent is a cluster of cases you prevent." Photo illustration by Tyler Comrie; source Jabin Botsford / The Washington Post / Getty

Markel's patients often asked him, "Doc, do you think I'll be quarantined because I have H.I.V.?" He'd reply that it wasn't appropriate for the disease. But, realizing that these men feared being shut away, like victims of leprosy, he began studying "the uses and misuses of quarantine." His first book was about two epidemics in New York City in 1892, one of typhus and one of cholera, in which Jewish immigrants were blamed for the outbreak and many were sent to quarantine islands.

In the early two-thousands, Markel studied "escape" communities that had essentially closed their doors during the 1918 flu pandemic—among them Gunnison, Colorado, and a school for the blind in Pittsburgh. All had survived the contagion virtually unscathed. In 2006, Markel continued his work on the 1918 flu with Martin Cetron, who now directs the Division of Global Migration and Quarantine, at the C.D.C. For an initiative undertaken by the George W. Bush Administration, Cetron and Markel were asked to help identify the best way to manage the early waves of a pandemic that had no vaccine or treatments. They considered school closures, public-gathering bans, business shutdowns—traditional tools of public health. Markel assembled a dozen researchers—"the Manhattan Project for historians," he jokes—who combed through more than a hundred archives.

In 1918, Americans faced the same confounding choices as today. Twenty-five cities closed their schools once; fourteen did so twice, and Kansas City three times. More than half the cities were "double-humped"—suffering two waves of the flu. "They raised the bar too early because the natives got restless," Markel, who is now a professor at the University of Michigan, told me. "They each acted as their own control group. When the measures were on, the cases went down. When the measures were off, the cases went up." After Philadelphia permitted a Liberty Loans parade, there was a huge uptick in cases. St. Louis, by contrast, cancelled all parades, and local officials broadcast a unified message. The city's health commissioner published an op-ed alerting citizens to the threat, immediately closing entertainment venues and banning public gatherings. St. Louis's death rate was half of Philadelphia's. By quickly imposing several nonpharmaceutical interventions, a city could dramatically lower the peak of infection—on a graph, it would look more like a rainbow than like a skyscraper. Markel compared each intervention to a slice of Swiss cheese; one layer by itself was too riddled with holes to be effective, but multiple layers made a profound difference. "Early, layered, and long" was the formula.

JAMA published [the study](#) in 2007. The authors declared, "We found no example of a city that had a second peak of influenza while the first set of nonpharmaceutical interventions were still in effect." In the century since 1918, technology has transformed so much, but the tools for curbing a novel pandemic haven't changed. Masks, social distancing, and frequent hand washing remain the only reliable ways to limit contagion until treatments or vaccines emerge.

One night, Markel and Cetron were in Atlanta, talking over their study, and they ordered Thai food. When their dinner arrived, Markel opened his Styrofoam container: instead of a fluffy mound of noodles, he gazed on a level, gelatinous mass. "Look," Markel said. "They've flattened the curve, just like we're trying to do." A slogan was born.

## 6. The Lost February

By January 20th, ten days after the Chinese posted the genetic sequence of SARS-CoV-2, the C.D.C. had created a diagnostic test for it. Secretary Azar reportedly boasted to Trump that it was "the fastest we've ever created a test" and promised to have more than a million tests ready within weeks. (Azar denies this.) But the F.D.A. couldn't authorize it until February 4th. And then everything really went to pieces.

The testing fiasco marked the second failed opportunity America had to control the contagion. The C.D.C. decided to manufacture test kits and distribute them to public-health labs, under the Food and Drug Administration's Emergency Use Authorization provision. According to Redfield, the C.D.C. published the blueprint for its test, and encouraged the labs to ask the F.D.A. for permission to create their own tests. But Scott Becker, the C.E.O. of the Association of Public Health Laboratories, told me that the labs weren't made aware of any change in protocol. They kept waiting for the C.D.C. to supply tests, as it had done previously.

At a Coronavirus Task Force meeting, Redfield announced that the C.D.C. would send a limited number of test kits to five "sentinel cities." Pottinger was stunned: why not send them everywhere? He learned that the C.D.C. makes tests, but not at scale. For that, you have to go to a company like Roche or Abbott—molecular-testing powerhouses that have the experience and the capacity to manufacture millions of tests a month. The C.D.C., Pottinger realized, was "like a microbrewery—they're not Anheuser-Busch."

At the time, Azar, a former top executive at the pharmaceutical firm Eli Lilly, led the Coronavirus Task Force. He agreed with Pottinger that test kits needed to be broadly distributed, yet nothing changed. Everyone on the task force understood the magnitude of the crisis; they attended meetings every weekday, with conference calls on weekends. North Korea and Iran didn't receive such concentrated attention. Yet the Administration was simply not accomplishing tasks crucial to limiting the pandemic. There was a telling disparity between what Azar said in private, or in the task-force meetings, and what he told the President. He was hammering Redfield and the C.D.C. on testing delays while assuring Trump that the crisis was under control.

A bottleneck of constraints imposed by the C.D.C. meant that testing was initially limited to symptomatic patients who had come from China or had been in close contact with an infected person. Even health-care workers who'd developed COVID-like symptoms while treating patients had trouble getting tests, because the C.D.C.'s capacity was so limited.

Pottinger kept in frequent touch with his brother, Paul, the infectious-disease doctor in Seattle.

"You getting enough test kits?" Matt asked him.

"We use none of the C.D.C. kits," Paul responded. "They have been way too slow in coming." They also hadn't been approved for screening asymptomatic patients. Seattle doctors had instead devised a "homemade" diagnostic platform, but their testing capacity was "way less than demand." Paul was frantically setting up triage procedures—guessing which cases were COVID, and trying to sequester those patients, in order to prevent them from infecting everyone at the hospital.

But there was an even bigger problem.

Microbiologists are acutely aware of the danger of contamination. Viral DNA can linger for hours or days on surfaces, adulterating testing materials. C.D.C. scientists wipe down their instruments every day. Chin-Yih Ou, a Taiwanese microbiologist who retired from the C.D.C. in 2014, told me that while he was creating a test for H.I.V. in infants he refused to let janitors into his lab, mopping the floor himself. In some labs, the last person to leave at night turns on ultraviolet lamps, to kill DNA that might be on the floor or a lab bench. A new pathogen is like an improvised bomb: one wrong decision can be fatal.

The development of the C.D.C.'s test kits was overseen by Stephen Lindstrom, a microbiologist from Saskatchewan, who was known for his ability to function under pressure. C.D.C. scientists began working sixteen-hour days. The C.D.C.'s Biotechnology Core Facility is in charge of producing the components used to detect such pathogens as flu, H.I.V., and SARS. To save time, Lindstrom asked the Core Facility to produce both the components and a template of a coronavirus fragment, which would be used to generate the positive control for the C.D.C. test. But, just as the kits were being boxed up to be mailed, a last-minute quality-control procedure found a problem that could cause the tests to fail thirty-three per cent of the time. A decision was made—perhaps by Lindstrom, perhaps by his superiors—to send the kits anyway. According to [ProPublica](#), Lindstrom told colleagues, "This is either going to make me or break me." (The C.D.C. did not make Lindstrom available for comment.)

Almost immediately, public-health labs realized that something was wrong with the kits. The labs are required to do a negative control on the test—for instance, using sterile water—and the tests kept showing false positives.

The C.D.C. test kit had three sets of primers and probes, which are tiny bits of nucleic acid that find a segment of RNA in the virus and replicate it until it gets to a detectable level. Two were aimed at SARS-CoV-2 and a third would detect any coronavirus, in case the virus mutated. The third component failed. Public-health labs figured this out quickly. On their behalf, Scott Becker communicated with the C.D.C. on February 9th, seeking permission to use the test without the third component. "I got radio silence," he told me. Later, he learned that an internal C.D.C. review showed that it hadn't passed the quality-control check before the test kit was sent out. "That was a gut punch," Becker said.

In 2009, Matt Pottinger was in Kabul, in his final deployment as a marine. While walking through a tunnel connected to the U.S. Embassy, he passed a young woman, and then suddenly wheeled around. Her name was Yen Duong. She was working with the Afghan government on improving its H.I.V. testing. "It was, like, seven o'clock at night," Yen remembers. "He came up to me and asked if I knew where so-and-so's office was. I was thinking that 'I'm pretty sure so-and-so's office is closed right now. It was just a ploy to talk.'" Matt and Yen married in 2014.

They have lived very different American lives. He grew up in Massachusetts. His parents divorced when he was young, and he lived mostly with his mother and stepfather. His father, J. Stanley Pottinger, was a lawyer in the Nixon Administration. Matt had an ear for languages, and majored in Mandarin and Japanese at the University of Massachusetts, Amherst, and that is how he found his way to China as a reporter.

Yen was six months old when her family left Vietnam, in 1979, in a boat that her father had secretly built in his sugar factory. At sea, the Duong family—sixty-eight in all—were shot at. A storm nearly capsized the vessel. Pirates robbed them. Finally, the family reached a refugee camp in Indonesia. Six months later, the Duongs were sponsored by four American churches on Long Island, and ended up living in the Hamptons. Yen's mother cleaned houses and took in sewing, and then found a job in a bakery. Her father painted houses and worked in construction. Eventually, they saved enough money to send Yen to boarding school.

Yen, drawn to science, fell in love with studying viruses. She got a doctorate in pharmacology at the University of California, Davis. In 2007, she became a virologist at the C.D.C., where she developed the global-standard test to measure H.I.V. incidence. None of this would have happened if the family had stayed in Vietnam, if the boat had sunk in the storm, if the pirates had murdered them, or if they hadn't been taken in by Americans who wanted to help them achieve the opportunities that freedom allowed.

Yen Pottinger, who is now a senior laboratory adviser at Columbia University, told her husband what she thought had gone awry with the test kits. Once the Chinese had posted online the genetic sequence for the virus, Yen explained to Matt, primers would have been easy to design. "It's a pretty standard task," she told him. But SARS-CoV-2 is an RNA virus, which is "sticky"—tending to cling to any surface. Contamination was the only plausible explanation for the test kit's failure. Perhaps a trace amount of the virus template had found its way into the primers and

probes. "Contamination has felled many a great scientist," she said, which is why a pristine lab environment is essential.

On February 10th, the F.D.A. learned that ten labs working with C.D.C. test kits were reporting failures. The C.D.C. assured the F.D.A. that it could quickly fix the problem with the third component. The Trump Administration—in particular, Azar—insisted on continuing with the C.D.C. test kits. Although F.D.A. rules generally require that any procedure granted an Emergency Use Authorization be used exactly as designed, the agency could have allowed public-health labs to use the C.D.C. test kits without the third component, as they were pleading for. The test kits largely worked, even without it, but the F.D.A. says that it didn't have the data from the C.D.C. to justify that simple solution. The C.D.C. wanted to stick with its original design. Moreover, university scientists, hospital researchers, and commercial labs were eager to develop their own tests, but they were hampered by the bureaucratic challenge of obtaining an Emergency Use Authorization.

On February 12th, the C.D.C. estimated that it would take a week to remanufacture the third component. Six days later, Redfield informed Azar that doing so might take until mid-March. By February 21st, only seven labs in the country could verify that the test worked. Redfield admitted that he had no idea when new test kits might be ready.

On Saturday, February 22nd, the F.D.A. sent Dr. Timothy Stenzel, the director of the Office of In Vitro Diagnostics and Radiological Health, to the C.D.C. to investigate what had gone wrong with the test. When he arrived, there was no one there to receive him, and he was turned away. The next day, he was allowed in the building but forbidden to enter any labs. It was still the weekend. Stenzel made some calls. After he was finally permitted to visit the labs where the test kits were manufactured, he spotted a problem: in one lab, researchers were analyzing patient samples in the same room where testing ingredients were assembled. The tests are so sensitive that even a person walking into the room without changing her lab coat might carry viral material on her clothing that would confound the test. According to [the Wall Street Journal](#), an F.D.A. official described the C.D.C. lab as "filthy." It was the lowest point in the history of a proud institution.

According to an internal F.D.A. account, C.D.C. staff "indicated to Dr. Stenzel that Dr. Stephen Lindstrom—who oversaw a different lab in the manufacturing process—directed them to allow positive and negative control materials to occupy the same physical space of the lab, even though this is a violation of their written protocols." The clear remedy was to hand over part of the test's manufacture to two outside contractors. Within a week, tens of thousands of tests were available. But America never made up for the lost February.

I recently asked Redfield, a round-faced man with a white Amish-style beard, how the contamination had occurred and if anyone had been held accountable for the corrupted kits. He replied, vaguely, "One of the newer individuals hadn't followed protocol." It also could have been a design flaw that mangled results. Both mistakes might have happened, he conceded. "I wasn't happy when we did our own internal review," he said, and acknowledged that the C.D.C. shouldn't have mass-produced the test kits: "We're not a manufacturing facility." He insisted, "At no moment in time was a COVID test not available to public-health labs. You just had to send it to C.D.C." But the C.D.C. couldn't process tens of thousands of tests.

The C.D.C. wasn't entirely responsible for the delay. The F.D.A. might have authorized a version of the test kit without the problematic third component, and loosened the reins on tests developed by other labs. Not until February 26th did the F.D.A. permit public-health labs to use the C.D.C. test kit without the third component. Only on February 29th could other labs proceed with their own tests.

Secretary Azar held the F.D.A. responsible for the absence of alternative tests. A senior Administration official told me, "Instead of being more flexible, the F.D.A. became more regulatory. The F.D.A. effectively outlawed every other COVID test in America." Stephen Hahn, the F.D.A.'s commissioner, says, "That's just not correct," and notes that more than three hundred tests are currently authorized. But there was only one other test by the end of February. Whether the delay was caused mainly by the C.D.C. or the F.D.A., Azar oversaw both agencies.

Without the test kits, contact tracing was stymied; without contact tracing, there was no obstacle in the contagion's path. America never once had enough reliable tests distributed across the nation, with results available within two days. By contrast, [South Korea](#), thanks to universal public insurance and lessons learned from a 2015 outbreak of MERS, provided free, rapid testing and invested heavily in contact tracing, which was instrumental in shutting down chains of infection. The country has recorded some fifty thousand cases of COVID. The U.S. now reports more than four times that number per day.

## 7. "This is Coming to You"

"One day, it's like a miracle, it will disappear," the President told the American people on February 27th. At the time, there were only fifteen known cases of COVID in the U.S., and nearly all involved travellers or people close to them.

As Trump made his promise, a hundred and seventy-five employees of the biotech firm Biogen were heading home from a conference held at a Marriott in Boston. The attendees, many of whom had travelled from other states or foreign countries, had gathered for two days in banquet rooms, shared crowded elevators, and worked out in the gym. Soon, many fell ill.

Researchers affiliated with Massachusetts General Hospital and the Broad Institute of M.I.T. and Harvard believe that *sars-CoV-2* was probably introduced to the conference by a single individual. About a hundred people associated with the conference eventually tested positive. The viral strain that they contracted had unusual mutations, allowing researchers to track its spread. In [a recent study](#) published in *Science*, the researchers reported that the Biogen outbreak may have been responsible for three hundred thousand cases in the U.S. alone.

During the study's initial stages, in February and March, the researchers were discomfited by the implications of their data. "The rapidity and degree of spread suggested it wasn't a series of one-to-one-to-one transmissions," Dr. Jacob Lemieux, a lead author, told me. Rather, it was "one-to-many transmission events." That raised the question of airborne transmission. "At the time, the idea was heretical," Lemieux said. "We were afraid to consider it, because it implied a whole different approach to infection control—one in which masks played a central role, especially indoors. But the W.H.O. had repeatedly proclaimed that large respiratory droplets—as from a sneeze or a cough—drove the spread. This wasn't based on data about the new virus, Lemieux said: "It was received wisdom based on how previous respiratory viruses had behaved. The global public-health infrastructure has egg on its face. There's a component of human nature that, until you get burned, you don't know how hot the fire is."

Vaccines were in development around the world, but Pottinger was hearing that they wouldn't be available for eighteen months at the earliest. Even that would be a record. A vaccine must be subjected to three trials of increasing size, to determine safety, effectiveness, and proper dosage. Pharmaceutical companies then invest in production, ramping up from thousands of doses to millions.

Pottinger and Navarro, the China-trade adviser, advocated for a way to radically shorten the time frame: companies would be paid to manufacture vaccine candidates that were still in trials and might never be used. If any ended up being successful, Americans could be inoculated in less than a year.

At the end of February, Navarro wrote a memo proposing a three-billion-dollar supplemental budget appropriation to cover the cost of an accelerated vaccine process, P.P.E. for frontline workers, and effective therapeutics. Azar recognized the need for a major budget supplement, but after he met with Mulvaney, Trump's acting chief of staff, he declared that eight hundred million dollars was enough for now.

Pottinger was apoplectic. The Administration was in denial. There were now more cases outside China than within. Italy and Iran were exploding. And yet Mulvaney and the Office of Management and Budget insisted on viewing the contagion as a kind of nasty influenza that could only be endured. At home, Pottinger fumed to Yen that eight hundred million dollars was half the sum needed just to support vaccine development through Phase III trials.

"Call Debi," Yen suggested.

Debi was Deborah Birx, the U.S. global AIDS coordinator. In the mid-eighties, as an Army doctor, Birx studied immunology and AIDS at Fauci's clinic. They walked the hallways together, watching their patients die. Birx then moved to Walter Reed Army Medical Center, where she worked on an H.I.V./AIDS vaccine. At Walter Reed, Birx worked with Redfield. From 2005 to 2014, she led the C.D.C.'s Division of Global H.I.V./AIDS (making her Yen Pottinger's boss). Birx was known to be effective and data-driven, but also autocratic. Yen described her as "super dedicated," adding, "She has stamina and she's demanding, and that pisses people off." That's exactly the person Pottinger was looking for.

Birx was in Johannesburg when Pottinger called and asked her to join the Coronavirus Task Force, as its coordinator. She was ambivalent. When she had started her job at the C.D.C., some African countries had H.I.V.-infection rates as high as forty per cent. Through the steady application of public-health measures and the committed collaboration of African governments, the virus's spread had been vastly reduced. What if she turned her attention and the numbers skyrocketed? Then again, COVID would likely run rampant through the same immune-compromised population she was devoted to protecting. She went to Washington.

As March approached, Secretary Azar had to defend his supplemental budget request before a Senate appropriations subcommittee. Earlier, the senators had been briefed that a grave coronavirus outbreak in the U.S. was likely. Patty Murray, the Democrat from Washington State, was on the committee. "You've had a month now to prepare," she said. "Is our country ready?"

"Our country is preparing every day," Azar responded.

"You sent over a supplemental that wasn't clear to me at all," Murray said. She listed actions that Azar had said were necessary. None were listed in the budget on the table. "Did you stockpile any of these critical supplies that we are told we need—masks, protective suits, ventilators, anything?"

"We do have in the Strategic National Stockpile ventilators, we have masks, we have—"

"Enough?"

"Of course not, or we wouldn't be asking for a supplemental," Azar said.

"I didn't see any numbers in your request," Murray said.

Azar said that the details were being worked out. Murray persisted: "I'm very concerned about this Administration's attitude. We're not stockpiling those things right now that we know we might possibly need." She concluded, "We are way behind the eight ball."

On February 27th, the C.D.C. began allowing tests for people who hadn't been to China or in close contact with someone known to be infected. The next day, doctors in Washington State tested two people from a nursing home, in the Seattle suburb of Kirkland, that was overrun with pneumonia. Both tested positive. America's blindfold was finally coming off.

Trump, however, continued offering false assurances. "We're testing everybody that we need to test," he proclaimed. "We're finding very little problem."

When the call comes to ventilate a COVID patient, a doctor explained, "it's already a situation where somebody is dying." Photo illustration by Tyler Comrie; source Go Nakamura /

Getty

On February 29th, Washington's governor, [Jay Inslee](#), reported that someone in his state had died of *COVID*. It was the first official death from the disease in the U.S., although it was later established that two Californians had died from it weeks earlier. Many others may have as well.

Inslee declared a state of emergency. One of Senator Murray's relatives had been in the Kirkland facility a few years earlier. "I knew how many people came in and out of it, visitors and staff," she told me. She said to herself, "Wow, this contagious virus, it can't have just stayed in a nursing home." Soon, friends of Murray's got sick. She urged them to get tested, but they said, "I've asked my doctor, I've asked the public-health people in the county, I've called the state health people—*nobody* has these tests." Her state was in turmoil. In Senate hearings and briefings, though, she sensed a lack of coordination and urgency.

The Democratic caucus went on a retreat in Baltimore. Murray received a text from her daughter, whose children attended school near the nursing home. "They closed the schools," her daughter said. She added, "Kids are sick, teachers are sick. This is really frightening."

Murray told her colleagues, "My daughter's school closed. This is coming to you."

## 8. "Just Stay Calm"

While this was happening, I was in Houston, in rehearsals for a play I'd written about the 1978 Camp David summit. [Oskar Eustis](#), of New York's Public Theatre, was directing. I have a memory of the preview performances which later came back to me, charged with significance. The actors were performing in the round, and slanted lighting illuminated their faces against the shadowy figures of audience members across the way. When one actor expostulated, bursts of saliva flew from his mouth. Some droplets arced and tumbled, but evanescent particles lingered, forming a dim cloud. At the time, I found this dramatic, adding to the forcefulness of the character. Later, I thought, This is what a superspreader looks like.

I have no idea how Eustis got sick. But when he abruptly flew back to New York and missed opening night, on February 20th, I knew that something was wrong. Texas was thought to be outside the danger zone that month, but retrospective modelling suggested that the virus likely had been infecting at least ten people a day since the middle of the month. The same was true for New York, California, Washington, Illinois, and Florida. By the end of February, there was probable local transmission in thirty-eight states.

The virus continued hitchhiking with passengers coming from other hot spots. Between December and March, there were thirty-two hundred direct flights from China to the U.S., many of them landing in New York. More consequentially, sixty per cent of flights from Italy to the U.S. landed in the New York area. Some of these passengers carried a more contagious mutation of SARS-CoV-2. On March 10th, Italy entered lockdown, and the next day the W.H.O. finally declared a pandemic. By that time, there were more than a hundred thousand cases in a hundred and fourteen countries.

"Just stay calm," Trump remarked. "It will go away."

Weeks had passed from the point when containment was possible. On February 25th, Nancy Messonnier, a senior director at the C.D.C., warned, "We will see community spread in this country. It's not so much a question of if this will happen anymore but rather more a question of exactly when." Without vaccines or treatments, communities needed to rely on such measures as school closures, social distancing, teleworking, and delaying elective surgeries. People should expect missed work and loss of income. Parents needed a child-care plan. "I understand this whole situation may seem overwhelming," she said. "But these are things that people need to start thinking about now."

A steep drop in the stock market followed Messonnier's blunt assessment. The President, who had encouraged Americans to judge his performance by market indicators, was enraged. The next time Messonnier spoke in public, she was quick to praise Trump, saying that the country had acted "incredibly quickly."

Amy Klobuchar dropped out of the Presidential race on March 2nd and flew to Dallas to endorse [Joe Biden](#). The stage was filled with supporters. As the crowd cried, "Let's go, Joe!," she embraced Biden. But as she did so she said to herself, "Joe Biden shouldn't get *COVID*." She warned his advisers to begin taking greater precautions.

On the first Friday in March, she attended a Biden rally in Detroit. That night, employees in the Wayne County sheriff's office gathered for an annual party at Bert's, a soul-food and jazz venue. Most of the officers were Black; some had retired. At the time, there were no known cases of *COVID* in Michigan. Three weeks later, seven of the attendees had *COVID*, and dozens more in the sheriff's office were ill. By the end of March, three law-enforcement officials had died.

At the rally, Klobuchar noticed that people had become more careful. "I put on gloves," she said. "We didn't know about masks at the time."

Democratic rallies soon came to a halt.

[Bellevue Hospital](#), on First Avenue in Manhattan, is "the grande dame of America's public hospitals," the historian David Oshinsky told me. Since it opened, as an almshouse, in the eighteenth century, nobody has been turned away, whether the patient can afford treatment or not. Bellevue has endured epidemics of cholera and yellow fever, diseases that sent untold thousands to their graves in the [potters' fields](#) that are now Washington Square and Bryant Park. In the nineteen-eighties, Bellevue treated more *AIDS* patients than any other American hospital.

In 1983, Nate Link began an internship at Bellevue, and almost immediately pricked himself, by accident, with a contaminated needle. He thought it was a death sentence, but he escaped infection. The work was both harrowing and thrilling. "I felt like I was in the epicenter of the universe," he told me. He is now Bellevue's chief medical officer.

During the 2014 Ebola outbreak in Africa, Link and his colleagues knew that, if Ebola spread to New York, the patients would end up at Bellevue. The hospital built an Ebola unit and a dedicated laboratory, training hundreds of staff and storing additional personal protective equipment. The instant they finished their preparations, a patient appeared. He survived. Bellevue then sent emissaries across the country to help hospitals prepare special facilities, develop protocols, and train their staffs for novel infections. Had it not been for the foresight of Link and his colleagues, America would be far less prepared for the *COVID* onslaught.

Once the coronavirus emerged, Bellevue's special-pathogens team began preparing a protocol. "We thought we'd get one or two cases, just like Ebola," Link recalled. But by early March the hospital was admitting a stream of patients with fever and unexplained respiratory problems. They were labelled P.U.I.: patients under investigation. Tests weren't available. "We had this sense that there was this invisible force out there," Link recalled. He believes that the city already had tens of thousands of cases, but, "without testing, there was just no way to know—it was a sneak attack." When the city reported its first positive case, on March 1st, only thirty-two tests had been conducted. Asymptomatic carriers and people with mild symptoms slipped through the nets. The testing guidelines almost seemed designed to undercut the spread.

On March 10th, Eustis, the theatre director, walked half a mile from his home, in Brooklyn, to an emergency clinic on Amity Street. His muscles ached. Twice he had to stop and catch his breath, sitting for a while on a fire hydrant. He was too exhausted to be afraid.

His vital signs showed dangerously low potassium levels, and his heart kept skipping beats. An ambulance ferried him to a Brooklyn hospital. An antibody test eventually showed that he had the coronavirus. Despite his condition, there was no room for Eustis. He was placed on a gurney with an I.V. potassium drip and left in a corridor overnight. He soiled himself, but nobody came to change him. He was given no food for thirty-six hours. The *COVID* surge had begun.

On March 11th, Dr. Barron Lerner was at his office in Bellevue. The hospital had begun implementing triage at the front desk for patients with respiratory problems. That morning, at a staff conference, doctors were told, "If you're talking to a patient you think might have *COVID*, you excuse yourself from the room. You say, 'O.K., I need to leave now. A nurse is going to come in and give you a mask.'"

Lerner met with a regular patient, an Asian immigrant who didn't speak English. Bellevue maintains a staff of a hundred translators, and one of them connected to a dual telephone system. "About ten days ago, she had a fever," the translator told Lerner. "Then she was coughing, and she's been really short of breath since then."

"I thought, I can't believe this just happened," Lerner recalled. "I was probably the first staff member to be exposed." He was sent home and told to monitor his temperature. He and his wife began sleeping in separate bedrooms. Five days later, the fever struck.

Meanwhile, Eustis was released after four days, still shaky. Upon returning home, he immediately went to bed. He turned out to have "long haul" *COVID*. "It comes in waves," he told me. "I'm struggling with extreme fatigue and continued muscle pain." Working wasn't an option in any case: every theatre in New York had gone dark.

## 9. The Doom Loop

Vice-President [Mike Pence](#) was now in charge of the task force, but Azar remained a member. Meetings were often full of acrimony. [Olivia Troye](#), a former homeland-security adviser to Pence, told me, "I can't even begin to describe all these insane factions in the White House. I often thought, if these people could focus more on doing what's right for the country rather than trying to take each other down, we'd be in a much different place." Fauci, she recalled, was considered too "outspoken and blunt" with the media, which led such Trump Administration officials as [Jared Kushner](#) and Peter Navarro to complain that he was "out of control." Troye summed up the Administration's prevailing view of Bix crisply: "They hate her." At task-force briefings, Bix typically presented a slide deck, and Troye once caught White House staff members rolling their eyes. Marc Short, Pence's chief of staff, remarked, "How long is she going to instill fear in America?"

On March 11th, members of the Coronavirus Task Force crowded into the Oval Office, where they were joined by Kushner, Ivanka Trump, Secretary of State [Mike Pompeo](#), and a dozen others. According to the official who kept contemporaneous notes, Bix and Fauci pushed for shutting down European travel. "Every seed case you prevent is a cluster of cases you prevent," Bix explained. Redfield and Azar had swung around to the idea that cutting off European travel might buy time, but [Steven Mnuchin](#), the Treasury Secretary, heatedly insisted that doing so would cripple the U.S. economy and trigger a global depression. The markets would crater. "Forget about ballgames!" he said, pointedly adding, "Forget about campaign rallies!"

After an hour, the President had another obligation, and he asked Pence to keep the discussion going. The group adjourned to the Cabinet Room. Mnuchin argued that there must be ways to curb viral spread without banning travel. The elderly were at high risk—why not sequester the most vulnerable?

"It's twenty-five per cent of the population!" Robert O'Brien, the national-security adviser, observed. "You're not going to be able to stick them all in hotels."

Fauci had recently warned the group that the outbreak was going to get far worse, saying, "There's no place in America where it's business as usual. By the time you mitigate today, we're three weeks late." Colleges were sending students home, further contributing to the spread.

Another member of the task force noted that, in a bad flu season, sixty thousand Americans might die. What was the difference?

"This is *twenty* times that," Pottinger argued. "This is two per cent dead, where the flu is .1 per cent."

"If we just let this thing ride, there could be two million dead," Birx said. "If we take action, we can keep the death toll at a hundred and fifty to two hundred and fifty thousand." It was surreal hearing such numbers laid out so nakedly.

Mnuchin demanded data. He felt that the U.S. just had to live with the virus. It wasn't worth sacrificing the airlines, the cruise ships, the hotels. "This is going to bankrupt everyone," he said. "Boeing won't sell a single jet."

"You keep asking me for my data," Birx said, sharply. "What data do *you* have? Does it take into account hundreds of thousands of dead Americans?" In the end, her side won.

At U.Va.'s hospital, where Dr. Ebony Hilton works, staffers prepared their wills. Photo illustration by Tyler Comrie; photograph by Nikola Tamindzic for The New Yorker

That evening, in an unusually formal speech from the White House, the President announced that he was suspending travel from Europe for the next month. "We are marshalling the full power of the federal government and the private sector to protect the American people," he promised. He had also signed a bill providing \$8.3 billion to help the C.D.C. and other government agencies fight the virus. He highlighted the danger the elderly faced and urged nursing homes to suspend unnecessary visits. He advised social distancing and not shaking hands—practices that he hadn't yet adopted himself.

Trump's speech included his usual distortions. He claimed that insurance companies had agreed to "waive all co-payments for coronavirus treatments," though they'd agreed only to waive fees for tests. But, for perhaps the first time, he was presenting himself as a unifier—as a take-charge Consoler-in-Chief. If he had continued playing that role, America would have had a different experience with the contagion.

Glenn Hubbard is a conservative economist who served as the chairman of President [George W. Bush's](#) Council of Economic Advisers. Soon after the pandemic began, he became involved in discussions in Washington about how to handle the financial impact. Hubbard told me, "I and other economists had been worried about a doom loop—a cycle of negative economic feedback. When the pandemic hit, the world suffered a supply shock: trade was disrupted, factories and stores closed. If workers didn't start earning again soon, the supply shock could turn into a demand shock, and that would further weaken supply, which would increase unemployment and further diminish demand. A doom loop."

In mid-March, Hubbard spoke with the Republican senators [Marco Rubio](#), of Florida; [Susan Collins](#), of Maine; and Roy Blunt, of Missouri. The N.B.A. had just suspended its season. Economic forecasts were terrifying. The senators were getting panicked reports from business owners back home.

Only Collins had been in office during the 2008 financial crisis, when Congress had passed a seven-hundred-billion-dollar bill to bail out troubled assets—the outer limit of what these conservatives had ever imagined spending. Now they were talking about trillions. Enlarging the deficit and expanding the federal government's reach were anathema to the Republican caucus; to some members, it smacked of socialism. Rubio indicated that he would never support such spending in normal times.

"You need to do something," Hubbard warned. "We've been having a debate for decades now about the size of government. The more interesting debate is the *scope* of government." He spoke of the first Republican President, Abraham Lincoln: "He decided to do the Homestead Act, land-grant colleges, and to lay the foundation for the transcontinental railroad. If Lincoln, in the middle of the Civil War, had the idea of using government as a battering ram for opportunity, why can't we do that today? Instead of focussing on how big government is, think about what you want it to do."

Rubio, who is the chairman of the Small Business Committee, thought about the restaurants, the travel companies, the hair salons—all of them service businesses "with the least ability to survive." The action that Congress was contemplating was heresy from a fiscal-conservative perspective, but the alternative—failing businesses, deepening poverty, boundless unemployment—was worse.

Action was necessary, the senators agreed. As it turned out, there was a surprising logistical problem: the Treasury Department had previously bailed out corporations and given checks to individuals, but it wasn't clear how to give assistance to small businesses. Collins was working on a loan-forgiveness program, and Rubio was trying to figure out how to create a new loan program through the Small Business Administration's existing network of lenders. "That's when the Paycheck Protection Program arose as an idea," Rubio told me. Loans taken out to keep people on the payroll could be forgiven, offering employees assurance that their jobs would still be there when the clouds cleared.

The Democrats were fully on board, and Congress soon approved three hundred and fifty billion dollars' worth of forgivable loans to small businesses. The over-all relief package was even larger. Chris Coons, a Democratic senator from Delaware, told me, "We went from 'We don't know what to do' to nine hundred pages and \$2.2 trillion in about ten days. I've never seen anything like it."

Hubbard said, "Nothing like a big shock to help people become more bipartisan."

## 10. Reinforcements Arrive

On March 12th, Amy Klobuchar was back in Minnesota. Her husband, John Bessler, who teaches law at the University of Baltimore, remained in Washington. He awoke that morning feeling ill. "He was going to take my place at my constituent breakfast in D.C.," Klobuchar recalled. "It was when he would have been most contagious, as we now know. There would have been around fifty people, in a small room. And then he was going to a faculty meeting—about sixty people, in a small room. Then he was going to get on an airplane and fly to Minnesota, with a bunch of people packed in. I was having some minor surgery at Mayo, and he was going to come there! He really would have had quite a day of infecting people." They had no idea how he'd caught the virus. He was fifty-two and, until then, in excellent health.

Bessler stayed home, and steadily grew worse. For more than a week, Klobuchar kept calling, anxiously asking what his temperature was. Their only thermometer was in centigrade, so Klobuchar had to Google the conversion. Each time, it exceeded a hundred degrees. Hearing that he was short of breath, she urged him to see a doctor, worrying that "it was one of those cases where people are underestimating how sick they are, and then they die the next day." After Bessler coughed up blood, he went to the hospital to get tested. He had severe pneumonia. Doctors kept telling Klobuchar, "The oxygen is getting worse." She couldn't visit him, making the ordeal even more frightening.

Bessler spent five days in the hospital. He recuperated, and was back in the couple's D.C. apartment when his test finally came back positive.

Dr. Lerner's *COVID* case was mild. He returned to work at Bellevue after twelve days, on March 23rd. The city had become weirdly quiet: First Avenue resembled an abandoned set on a studio back lot. During his absence, a tent had been erected in the courtyard, for screening patients. Everyone now wore a mask.

Non-*COVID* patients in intensive care were shuttled to the postoperative surgical unit, which was available because all surgeries had been cancelled. This freed up fifty-six I.C.U. beds. Workers installed *hepa* filters in each room, creating negative pressure that prevented infected air from escaping. Offices were turned into more patient units; as soon as carpenters walked out of a converted room, a patient was wheeled in. Twenty-five more spaces for ventilator patients were added in the E.R. When all the beds filled, the I.C.U. cubicles were doubled up. Lerner, still recovering, tended to his patients through [televisits](#), taking hour-long naps as Bellevue whirled around him.

In mid-March, Bellevue had its first *COVID* death: a middle-aged patient with no preexisting conditions, who had been hospitalized for two weeks. Dr. Amit Uppal, the director of critical care, recalled, "Among our staff, we just looked at each other and said, 'O.K., here we go.' And from there it just exponentially ramped up."

Uppal, the son of Indian immigrants, grew up in Northern California and did his medical training at Ohio State. He was drawn to Bellevue because he wanted to serve the disadvantaged, but also because of the staff—"people that could work anywhere in the country and chose to defend this population." Uppal wanted to specialize in critical care so that he could handle the most extreme diseases. He was prepared to face the knotty ethical dilemmas at the limits of medical knowledge.

Part of the mission at Bellevue is helping patients die well. "It provides you a rare perspective on your own life," Uppal said. "Many laypeople who don't do medicine, and aren't exposed to end-of-life issues, may not have the opportunity to reflect on what's really important to them until the end of their own life." But *COVID* seemed cruelly designed to frustrate the rituals of death.

Just as Bellevue's first patients began dying, the hospital was flooded with new admissions. The I.C.U.'s typical mortality rate was far lower than *COVID*'s, so even critical-care staff like Uppal were unsettled. Such doctors knew how to click into emergency mode. Before *COVID*, that might last thirty or forty minutes—say, with a heart-attack patient. After a bus wreck or a mass-casualty event, emergency mode could last a full day. With *COVID*, it lasted weeks on end.

During rounds, Uppal passed each of the I.C.U.'s fifty-six cubicles. The patients were all on ventilators, the distinctive gasping sound unvaried. I.V. lines extended outside each cubicle, so attendants didn't have to enter to administer medication. In the antiseptic gloom, the patients appeared identical. It was too easy to overlook their humanity. Uppal forced himself to examine their charts. He needed to recapture "what made them unique."

Overwhelmed hospitals in New York's outer boroughs transferred more than six hundred patients to Bellevue, knowing that nobody would be turned away. The E.R. became a hot zone where many people coming off the street required immediate intubation. Before *COVID*, the E.R. was always jammed, and nobody wore P.P.E. Nate Link told me, "When *COVID* hit, we made a promise to ourselves that we would not let the emergency rooms back up, and that we would keep them pristine." Staffers had to remain swathed in P.P.E., Link said, adding, "In the end, only fifteen per cent of the staff in the emergency department tested positive. That's lower than the hospital in general. It's even a bit less than the city average. The message is that P.P.E. works."

Some doctors needed new roles to play. Orthopedic surgeons began devoting their shifts to turning patients—"proning"—to facilitate breathing. Ophthalmologists helped in the I.C.U.; general surgeons treated non-*COVID* patients. "Everybody found a niche," Link said. "We were a completely different hospital for three months."

More than twenty thousand New Yorkers died from *COVID* in the spring. As the numbers mounted, Link noticed that employees were practicing "psychological distancing." He said, "Our staff had never seen so much death. Normally, a patient dying would be such a big deal, but, when you start having a dozen patients die in a day, you have to get numb to that, or you can't really cope." This emotional remove was shattered when the first staff member died: a popular nurse, Ernesto (Audie) De Leon, who'd worked at Bellevue for thirty-three years. Link said, "His death was followed by a *COVID*-style 'wake,' as many of his colleagues approached his I.C.U. cubicle in full P.P.E., put their hands on the glass door, and read Scripture, prayed, and wept. Because of the infection-control restrictions, staff consoled each other without touching or hugging. It was very unnatural."

When Bellevue's doctors were at their lowest ebb, reinforcements arrived: hospital workers from other states flooded into New York to help. According to Governor [Andrew Cuomo](#), thirty thousand people responded to the city's call for aid. It was a rare glimpse of national unity. "Half the people in the I.C.U. had Southern accents," Link told me. "That's what saved us."

## 11. The No-Plan Plan

In mid-March, America began shutting down. The Coronavirus Task Force urged Americans to work from home. Education would be virtual. Travel and shopping would stop. Restaurants and bars would close. The goal was to break the transmission of the virus for fifteen days and “flatten the curve.” Trump’s impatience flared. At a press briefing, he said of the virus, “It’s something we have *tremendous* control over.” Fauci corrected him, observing that the worst was ahead, and noting, “It is how we respond to that challenge that’s going to determine what the ultimate end point is.”

Trump held a conference call with governors. “We’re backing you a hundred per cent,” he said. Then he said, “Also, though, respirators, ventilators, all the equipment—try getting it yourselves.”

Most governors had assumed that, as in the event of a hurricane or a forest fire, the federal government would rush to help. Storehouses of emergency equipment would be opened. The governors, faced with perilous shortages of ventilators, N95 masks, and nasal swabs, expected Trump to invoke the Defense Production Act, forcing private industry to produce whatever was needed. Surely, there was a national plan.

Governor Inslee, of Washington, was flabbergasted when he realized that Trump didn’t intend to mobilize the federal government. Inslee told him, “That would be equivalent to Franklin Delano Roosevelt, on December 8, 1941, saying, ‘Good luck, Connecticut, *you go build the battleships.*’”

Trump responded, “We’re just the backup.”

“I don’t want you to be the backup quarterback,” Inslee said. “We need you to be Tom Brady here.”

[Larry Hogan](#), the Republican governor of Maryland, was incensed. “You’re actively setting us up!” he told Trump.

Matt Pottinger’s brother, Paul, kept sending desperate e-mails from Seattle. He had heard about medical workers fashioning P.P.E. out of materials from the Home Depot. Industrial tape and marine-grade vinyl were being turned into face shields. Garbage bags were serving as surgical gowns. A local health official wrote him, “We are currently drafting up guidelines for how to make homemade masks from cloth and I’ve asked other innovators in the community to see if they can figure out if we can do ANYTHING that would be better than nothing.” Matt wrote to Paul, “Help is on the way, but it probably won’t be in time—so start tearing up bedsheets and turning them into lab coats, raid the Salvation Army for garments, wrap bras around your faces in place of facemasks if you have to.”

The Strategic National Stockpile existed for such emergencies, but Secretary Azar had recently testified to the Senate that it had only twelve million N95 masks—a fraction of what was needed. The storehouse had once held more than a hundred million masks, but many were used during the 2009 H1N1 flu pandemic, and the supply wasn’t replenished.

After Trump made clear that the states were on their own, Ned Lamont, the gregarious governor of Connecticut, called other governors in his region: Phil Murphy, of New Jersey; Charlie Baker, of Massachusetts; Gina Raimondo, of Rhode Island; and Cuomo. The states needed to act together, Lamont said. “If I close down bars and Andrew keeps them open, that doesn’t solve any problems,” he said. “Everybody’s going to go down there to drink, and bring back the infection.”

The governors were daunted by the task facing them. Lamont imagined furious constituents: “You’re going to close down the schools? My God!” Acting in concert provided political cover and a sense of solidarity.

The governors closed gyms, restaurants, and bars at the same time. Lamont, Murphy, and Cuomo prohibited gatherings exceeding fifty people. Baker and Raimondo limited them to twenty-five. Cuomo announced, “If you were hoping to have a graduation party, you can’t do it in the state of New York, you can’t go do it in the state of New Jersey, and you can’t do it in the state of Connecticut.”

Governors discovered that the Trump Administration was sabotaging their efforts to protect citizens. Charlie Baker arranged to buy three million N95 masks from China, but federal authorities seized them at the Port of New York, paying the supplier a premium. In another group call with Trump, Baker, a Republican, complained, “We took seriously the push you made not to rely on the stockpile. I got to tell you, we lost to the Feds. . . . I’ve got a feeling that, if somebody has to sell to you or me, I’m going to lose every one of those.”

“Price is always a component,” Trump replied coldly.

Baker quietly secured a cache of 1.2 million masks from China, and enlisted the help of Robert Kraft, the owner of the New England Patriots, who used the team plane to fly the shipment to Logan Airport, where it was received by the Massachusetts National Guard and spirited away.

At a briefing, Cuomo fumed, “You have fifty states competing to buy the same item. We all wind up bidding up each other.” He threw up his hands. “What sense does this make? The federal government—*fema*—should have been the purchasing agent.”

Gina Raimondo pressed *FEMA*, saying, “Can we tap into our national stockpile?” After days of giving her the runaround, the agency promised that a truckful of P.P.E. was on its way. At 9 P.M., she got a text saying that the truck had arrived. Raimondo [told Politico](#), “I called my director of health. ‘Great news, the truck is finally here!’ She says, ‘Governor, it’s an empty truck.’ They sent an empty truck.”

Inslee told me, “Only eleven per cent of the P.P.E. we’ve obtained has come from the federal government.”

Governors who got more had to show obeisance to Trump. [Gavin Newsom](#), of California, praised the President fulsomely after being promised a shipment of swabs. Around this time, a reporter asked Trump, “You’ve suggested that some of these governors are not doing everything they need to do. What more, in this time of a national emergency, should these governors be doing?”

“Simple,” Trump said. “I want them to be *appreciative*.”

In the spring, Trump pressed the F.D.A. to fast-track authorization of a malaria treatment, [hydroxychloroquine](#), for *COVID* patients. [Fox News](#) touted the drug as a “game changer.” [Tucker Carlson](#) and Laura Ingraham aired breathless interviews with Gregory Rigano, who had co-written a “paper”—a self-published Google Doc—calling the drug an effective treatment. Rigano, a lawyer, had recently started blockchain funds that aimed to “cheat death” and “end Alzheimer’s.” Between March 23rd and April 6th, hydroxychloroquine was mentioned on Fox News nearly three hundred times. White House officials, including Peter Navarro, heavily promoted it.

At a task-force briefing, Fauci was asked if hydroxychloroquine curbed the coronavirus. “The answer is no,” he said.

The President glowered and stepped toward the mike. “I’m a big fan,” he said.

Three months later, the F.D.A. withdrew its authorization. The drug was ineffective and caused “serious cardiac adverse events” and other side effects, including kidney disorders and death. When hydroxychloroquine was paired with azithromycin—a combination that Trump had publicly championed—patients were twice as likely to suffer cardiac arrest as those who took neither drug.

Fox News stopped hyping hydroxychloroquine, but Trump still wanted a quick fix. While cases in New York were doubling every three days, and doctors were treating patients in tents in Central Park, he declared that he wanted America “raring to go” by Easter.

Over all, the case fatality rate for *COVID* is two per cent. But for people over seventy-five the risk of death is hundreds of times greater than it is for those under thirty. The devaluation of elderly lives was evident in the low standard of care in many nursing homes, where forty per cent of U.S. deaths have occurred, despite accounting for only eight per cent of cases. In March, two hundred and thirty-five military veterans were living at the Soldiers’ Home in Holyoke, Massachusetts. Some had served in the Second World War. Now they were captives to a system that was failing to protect them.

According to [an independent investigation](#) commissioned by the state, family members and workers had long complained about understaffing, in part because of a 2015 hiring freeze ordered by Governor Baker. On March 17th, a veteran who had been showing symptoms for weeks was tested for *COVID*. He lived in one of two dementia units; he wasn’t isolated, not even after his test came back positive, four days later. Contagion took hold, and overburdened employees made the fateful decision to combine the two units, with beds placed in tight rows. Many disoriented veterans climbed into the wrong beds, accelerating the spread. A recreational therapist said that she felt as if she were leading her patients “to their death.”

On Friday, March 20th, Michael Miller, who is retired from the Army National Guard, got a call from his two sisters, Linda McKee and Susan Perez. “They’re not thinking Dad’s gonna make it through the night,” they said. Their father, James L. Miller, was ninety-six, and had been at the Soldiers’ Home since 2015. The siblings drove to the facility. Only one family member could enter at a time. Mike went in while his sisters waited in the car. His father “looked like a corpse,” he recalled. “He had been in that state of decay for a week, and nobody called us.”

Jim Miller had landed at Normandy Beach on D Day. He had helped liberate a concentration camp near Nordhausen, Germany. After mustering out, he became a postal worker and a firefighter. He was a taciturn man who had rarely discussed his military service with his children.

Now this quiet old veteran was dying in the midst of bedlam. “Men were just wandering around,” Mike said. “They were in various states of dress. There was a curtain drawn for my dad—other veterans would open the curtain and stand there. And these gentlemen I knew. They meant no disrespect.” A man on a nearby bed was “just moaning—he couldn’t breathe. He ended up passing away that night.”

Staffers couldn’t offer the dying residents anything but “comfort measures”—morphine under the tongue. Jim was so dehydrated that he couldn’t swallow. “Give him an I.V.!” Mike pleaded. But staffers weren’t authorized to do this; nor could they transport him to a hospital. Mike moistened his dad’s mouth with a foam swab. Nurses broke down, Mike recalled: “They loved my dad. But they couldn’t do anything.” He never saw any administrators.

Mike returned each day as his sisters kept vigil in the parking lot. On Saturday, they witnessed the arrival of a refrigerated truck that had been sent to store bodies. On Monday, Jim Miller passed away. Before it was all over, at least seventy-five other veterans had died.

## 12. Little Africa

In the *COVID* world, everyone is in disguise. When Dr. Ebony Hilton enters a room, patients see wide-set, lively eyes above her surgical mask. Her hair and body are hidden by a bonnet and a

gown. Her accent marks her as a Southerner. She calls herself a "country girl," which is at odds with her assured manner. When the call comes to intubate a *COVID* patient, "it's already a situation where somebody is dying," she told me. "The only reason I'm placing this breathing tube is because your body is shutting down, so if I don't touch you you're dead." She added, "If I do touch you, I could die."

Hilton, who is thirty-eight, is a professor and an anesthesiologist at the University of Virginia School of Medicine, in Charlottesville. U.Va.'s hospital has some six hundred beds, but at night Hilton often works alone: "I'm literally the only anesthesiologist attending for the entire hospital. At that moment, I can't shut down, I can't go to my room and let fear stop me." She continued, "I don't think any of us have slowed down to think that this could be the one that gets me sick. You don't have time to consider options A, B, C, and D. You've got to gown up and go."

One day in early March, Hilton got a page. A patient was septic, meaning that an infection had entered her bloodstream and was raging through her body. Her kidneys were starting to fail. Ordinarily, doctors would suspect bacteria as the cause, but the infection's spread had been alarmingly rapid, and the symptoms matched what doctors were reporting about *COVID* patients in China and Italy. Many health-care workers had noted the speed with which the infection killed when it made its move.

Hilton entered the room, wearing an N95 mask. The patient had no blood pressure; without intervention, her oxygen-starved brain would start dying within seconds. The procedure for intubation requires a pillow to be placed under the patient's shoulder blades, so that the head is tilted back in the "sniffing position." Hilton made sure that the patient was oxygenated and given a sedative and a muscle relaxant; then she pried her mouth open, pushed her tongue aside, and inserted a laryngoscope—a curved blade attached to a handle, which looks like the head of a walking cane. The device lifts the epiglottis, exposing the vocal cords. If the vocal cords don't readily appear, pressure on the larynx can bring them into view. Hilton slowly inserted a plastic tube through the narrow portal between the vocal cords, down into the trachea. Once the tube was secured, the patient was connected to a ventilator.

That was probably Hilton's first *COVID* patient, but there was no way to know. Virginia had barely any tests in early March.

Hilton comes from a community near Spartanburg, South Carolina, called Little Africa. After the Civil War, Simpson Foster, a formerly enslaved man, and a Cherokee named Emanuel Waddell founded the community as an agrarian refuge. "It's tiny," Hilton said. "We don't have a red light. We only have my great uncle Hobbs's store—he keeps snacks and stuff for us."

Little Africa is in the foothills of the Blue Ridge Mountains. "When you're sitting on the porch, you can see the skyline of the peaks," Ebony's mother, Mary Hilton, told me. "We have doctors, lawyers, judges—we have so many professions coming out of the Little Africa community, because we put so much emphasis on education, taking care of each other," she said. "Eb is coming from a very powerful place."

When Ebony was eight, her little sister asked Mary if they could have a brother. Mary was caught by surprise but answered honestly: her first child had been a boy. "I was seventeen," she recalled. "I had never heard of an ob-gyn. We always went to the clinic." She went alone; her mother was picking cotton. Mary suspects that, during a pregnancy exam, a technician punctured her amniotic sac. The boy was born prematurely and died after three days. "I told Eb that story, not knowing it would change her life," Mary said. The moment Ebony heard it, she announced that she was going into medicine. Her resolve must have been evident: right then, Mary began calling her Dr. Hilton.

Not long ago, Ebony and her sisters, Brandi and Kyndran, placed a tombstone for the brother they never knew. They erected it in the churchyard of the New Bedford Baptist Church, in Little Africa. "He was a fighter," Ebony told me. "He tried to beat the odds. So I try to finish out that mission for him."

Hilton's image of her future was formed by watching "Dr. Quinn, Medicine Woman." She attended the Medical University of South Carolina, intending to become an obstetrician-gynecologist. "One night, when I was on my OB rotation, there was a lady having a seizure—she actually had eclampsia—and this guy ran into the room and started shouting orders, like, 'I'm going to do the A-line,' 'You start a magnesium.' I leaned over and asked, 'Who is that guy?' One of the OBs said, 'Oh, that's the anesthesia resident.'" Hilton told herself, "I want to be the person that, when there's utter chaos, you know what to do."

In 2013, she became the first Black female anesthesiologist to be hired by the Medical University of South Carolina, which opened in 1824. U.Va. hired her in 2018. "Growing up in medicine, what I've come to realize is that, should I have a child, it would actually be at more risk of dying than my mom's child was," she said. She cited a [Duke University study](#) that correlated race and education levels: "If you look at white women with my same level of degrees, my child is five to seven times more likely to die before his first birthday than theirs. It's been that way historically for Black women. Our numbers haven't really changed, as far as health outcomes, since slavery times."

Many minorities suffer from co-morbidities. "That's where the social determinants of health kick in," Hilton said. Asthma and chronic respiratory disease can be the result of air pollution—say, from an industrial plant in a low-income neighborhood. "If you're in a gated community, you don't see smoke billowing out of these industries, because you have the money and power to influence the policymakers to say, 'You can't put that here.'" Heart failure, obesity, and diabetes are tied to whether or not there are nearby restaurants and grocery stores with healthy options. She pointed out that, in South Carolina, one in every five counties doesn't have a hospital; eleven counties don't have any ob-gyns.

The moment the first American *COVID* death was announced, in February, Hilton said, she "started doing a tweetstorm to C.D.C. and W.H.O., saying, 'We know racial health disparities exist, and they existed before *COVID*—and we know where this will end up.'" She demanded, "Tell us who you're testing and who you're not." The C.D.C. didn't release comprehensive data until July, after [the \*Times\* sued for it](#). The country, it turned out, was experiencing wildly different pandemics. For every ten thousand Americans, there were thirty-eight coronavirus cases. But, for whites, the number was twenty-three; for Blacks, it was sixty-two; for Hispanics, it was seventy-three. At Hilton's hospital, seven of the first ten *COVID* fatalities were people of color.

The President said that he'd asked officials to "slow the testing down"—impeding data collection to make him look better. Photo illustration by Tyler Comrie; source Jim Wilson / The New York Times / Redux

Hilton and her colleagues went to minority communities in and around Charlottesville to provide testing at churches and shopping centers. "Minorities are less likely to be tested, which means they might go back home, where they have the capability to infect their entire community," she said. People of color are more likely to be exposed because so many are essential workers. "Only one in five African-Americans can work remotely," she said. "Only one in six Hispanics can."

Staffers at U.Va.'s hospital prepared their wills. Hilton realized that she would be spending long hours away from her dog, Barkley, so she bought a puppy—"a dog for my dog"—that she named Bentley. "They barely get along," she admitted. Hilton's neighbor, a nurse in the *COVID* unit, has two children, and feared exposing them. The woman began living in her basement.

One of the hardest moments at Hilton's hospital came when Lorna Breen, a forty-nine-year-old doctor, was admitted to the psych unit. Her father, Philip Breen, is a retired trauma surgeon; her mother, Rosemary Breen, had been a nurse on the ward where Lorna was admitted. Lorna had been living in Manhattan, overseeing the E.R. at NewYork-Presbyterian Allen Hospital.

When *COVID* inundated New York, Lorna Breen, an emergency-room physician, worked twelve-hour shifts that often blurred into eighteen. So many doctors fell ill that, at one point, she supervised the E.R.s in two hospitals simultaneously. Photograph courtesy Jennifer Feist

When *COVID* inundated New York, she worked twelve-hour shifts that often blurred into eighteen. She barely slept. Within a week, Breen caught *COVID* herself. She sweated it out in her apartment while managing her department remotely. After her fever broke, she returned to work, on April 1st.

Breen was defined by her vitality. She was a salsa dancer and a cellist in an amateur orchestra. She ran marathons; she drove a Porsche convertible; in her spare time, she was pursuing an M.B.A. "She never left the party," her sister, Jennifer Feist, told me.

Breen told Feist that a trauma nurse was walking through the E.R. triaging patients based on how blue their faces were. So many doctors in New York fell ill that, at one point, Breen supervised the E.R.s in two hospitals simultaneously. It became too much. As her father put it later, Breen was "like a horse that had pulled too heavy a load and couldn't go a step further and just went down."

Breen called her sister one morning and said that she couldn't get out of a chair. "She was catatonic," Feist told me. "*COVID* broke her brain."

Feist and her husband, Corey, decided that Breen needed to come home to Virginia. A friend in Connecticut drove Lorna to Philadelphia; another friend took her to Baltimore. Feist was waiting on the side of the road to drive her to Charlottesville.

During the eleven days that Breen spent in U.Va.'s hospital, she was terrified that her career was over. Licensing boards, she knew, might flag evidence of mental illness. Before *COVID*, Breen had never had a trace of instability. Feist and her husband, both attorneys, assured her that she wouldn't lose her license. Breen seemed to improve: she even tried to do her M.B.A. homework on her phone. Feist took Breen home with her on the last Saturday in April. The next day, Breen killed herself.

The pandemic has added immeasurable stress to a public-health workforce already suffering from burnout. Feist told me, "She got crushed because she was trying to help other people. She got crushed by a nation that was not ready for this. We should have been prepared for this. We should have had some sort of plan."

### 13. The Mission of Wall Street

[Goldman Sachs](#) is a controversial name in high finance. Its influence pervades American economic policy. Three of the twelve presidents of the Federal Reserve have worked there. Steven Mnuchin, the Treasury Secretary, is a Goldman alum. The company's many critics see it as the pinnacle of avarice. They hold it responsible for contributing to the vast income disparities in America and see its alumni as manipulating government policy to further enrich the wealthy. But, in the upper chambers of power, Goldman's culture of success is revered.

In the first quarter of 2020, the Goldman view of the economy was exuberant. Jan Hatzius, its chief economist, told me, "We had come fully out of the deep downturn post-2008." Unemployment was near historically low levels; wages were creeping up. Sure, median incomes hadn't risen substantially since the seventies; the gap between the rich and the poor appeared unbridgeable. But those weren't Goldman problems. The company exists to make wealthy clients wealthier.

When the Wuhan outbreak began, the economic risk to America seemed low. Previous pandemics, such as H1N1 and *SARS*, had negligible economic impact on the U.S. On February 12th, with *COVID* already rooted in this country, the Dow Jones closed at 29,551—a record high at the time. Three weeks later, Hatzius said, "we began the deepest contraction in the global economy on record."

Hatzius compiled data for quarterly Goldman G.D.P. forecasts. Normally, he said, "you estimate the ups and downs of a business cycle by, say, relating people's propensity to spend on consumer goods to their labor income or tax changes, or the effect of interest-rate changes on the willingness or ability to buy homes." This situation was different. "It wasn't the case that people didn't have the money to go to restaurants—they *couldn't* go to restaurants." Airlines stopped flying. Car production ceased. Entire sectors had to be subtracted from the economy: "It was more arithmetic than econometrics."

On March 27th, the *Times* ran an apocalyptic headline: “*job losses soar; u.s. virus cases top world.*” Curiously, by that time, the Dow had reversed its plunge and begun a long climb that was strikingly at odds with the actual economy. In November, it once again reached record highs.

Steve Strongin is a senior adviser at Goldman. Sixty-two, he wears rimless glasses that lend him the aspect of a nineteenth-century European intellectual: Ibsen without the sideburns. “Markets very often get talked about as though they’re some kind of giant casino,” he told me. “But they actually have a deep economic function, which is to move capital, both equity and debt, from businesses that no longer serve a purpose to businesses we need today.”

The market’s initial reaction, Strongin said, was “Somehow we are going to freeze in place, the virus will pass, and then we’ll unfreeze.” During that phase, Wall Street’s function was to provide liquidity as clients turned to preservation strategies—raising cash, drawing on lines of credit—while waiting out the contagion. But the pandemic settled in like a dinner guest who wouldn’t leave and was eating everything in the pantry.

“The moment when everybody was forced to reassess the severity and longevity of the crisis is when people realized that asymptomatic carriers were important,” Strongin said. “That meant that all the prior controls were going to fail.” Thousands of businesses would close. Nobody alive had seen a catastrophe of such scale. The rules had to change. The pandemic was a historic disrupter, forcing a shift from short-term to long-term thinking. Strongin, who once wrote a [paper](#) called “The Survivor’s Guide to Disruption,” said, “Once that realization came into place, you saw the rush to opportunity.”

Investors pivoted to a consolidation phase: going with the winners. The market recovery was led by five stocks—[Facebook](#), [Apple](#), [Microsoft](#), [Google](#), and [Amazon](#)—accounting for more than twenty per cent of the S. & P. However, “the Darwinian reality of capitalism is not about this brilliant insight into the five winners,” Strongin said. “It’s about taking money away from the fifty thousand losers. It’s the core of the economic system—we don’t prop up failures.”

The most useful thing the government can do, he said, is help people start new small businesses: “The current split between the stock market and the employment numbers is a flashing warning that the economy and the people are not the same. If we don’t spend real money, the pain will be very real, and the political consequences dangerous at best.”

## 14. The Man without a Mask

The third and final chance to contain the infection—masks—was the easiest, the cheapest, and perhaps the most effective. But the Administration, and the country, failed to meet the challenge.

On March 4th, as Matt Pottinger was driving to the White House, he was on the phone with a doctor in China. Taking notes on the back of an envelope while navigating traffic, he was hearing valuable new information about how the virus was being contained in China. The doctor mentioned the antiviral drug remdesivir—which was just emerging as a possible therapy in the U.S.—and emphasized that masks were extremely effective with *COVID*, more so than with influenza. “It’s great to carry around your own hand sanitizer,” the doctor said. “But masks are going to win the day.”

Still on the phone when he parked his stick-shift Audi, on West Executive Avenue, next to the West Wing, Pottinger forgot to put on the parking brake. As he rushed toward his office, the car rolled backward, narrowly missing the Vice-President’s limo, before coming to rest against a tree.

While the Secret Service examined the errant Audi, Pottinger kept thinking about masks. America’s pandemic response had already been handicapped by China’s withholding of information about human-to-human and asymptomatic transmission. The testing imbroglio would set the country back for months. But masks offered a ready solution.

Deborah Birx had told Pottinger that, whereas mask wearing is part of Asian culture, Americans couldn’t be counted on to comply. Pottinger began to see America’s public-health establishment as an impediment. The Surgeon General, Jerome Adams, had tweeted, “*STOP BUYING MASKS!* They are *NOT* effective in preventing general public from catching #Coronavirus.” Such messages were partly aimed at preventing the hoarding of hospital-grade masks, but they dissuaded people from adopting all forms of face covering. In those early days, the U.S. medical establishment looked at *SARS-CoV-2* and flatly applied the algorithm for *sars*: sick people should wear masks, but for others they weren’t necessary. Redfield, of the C.D.C., told me, “We didn’t understand until mid-March that many people with *COVID* weren’t symptomatic but were highly infectious.”

Pottinger, however, thought it was evident that, wherever a large majority of people wore masks, contagion was stopped “dead in its tracks.” Hong Kong was one of the world’s densest cities, but there was no community spread of the virus there, because nearly everyone wore masks. Taiwan, which was manufacturing ten million masks per day for a population of twenty-three million, was almost untouched. Both places neighbored China, the epicenter. Pottinger’s views stirred up surprisingly rigid responses from the public-health contingent. In Pottinger’s opinion, when Redfield, Fauci, Birx, and Hahn spoke, it could sound like groupthink, echoing the way that their public messaging was strictly coordinated.

Nobody in the White House wore a mask until Pottinger donned one, in mid-March. Entering the West Wing, he felt as if he were wearing a clown nose. People gawked. Trump asked if he was ill. Pottinger replied, “I just don’t want to be a footnote in history—the guy who knocked off a President with *COVID*.”

Many N.S.C. staffers work in the Situation Room, monitoring news and global developments. They are crammed together like workers in a call center. Pottinger asked the staff virologist to teach everyone how to mask up. Some people were annoyed. Masks had become a political litmus test, with many conservatives condemning mask mandates as infringements on liberty, and to wear one in Trump’s White House seemed borderline treasonous. Pottinger was shocked to learn that, in any case, the White House had no ready supply of masks.

He called an official in Taiwan and asked for guidance about controlling the virus. Masks, he was told again. Soon after that call, Taiwan’s President donated half a million masks to the U.S., via diplomatic pouch. Pottinger took thirty-six hundred, for the N.S.C. staff and the White House medical unit, and sent the rest to the national stockpile.

In early April, new studies showed substantial reductions in transmission when masks were worn. Pottinger put copies of the studies into binders for key task-force members. A [Chinese study](#) reported on an infected traveller who took two long bus rides. He began coughing on the first ride, then bought a face mask before boarding a minibus. Five passengers on the first ride were infected, and no one on the second. Another study failed to detect any viral particles in aerosol or droplets from subjects wearing surgical masks.

On April 3rd, the C.D.C. finally proclaimed that masks were vital weapons. It was the last opportunity to do something meaningful to curb the pandemic.

The C.D.C.’s sudden reversal, Redfield admitted to me, was awkward: “When you have to change the message, the second message doesn’t always stick.” Worse, when the President announced the new mask advisory, he stressed, “This is voluntary,” adding, “I don’t think I’m going to be doing it.”

Trump is a notorious germophobe. He hates shaking hands and recoils when anyone near him sneezes. He once chastised Mick Mulvaney, on camera in the Oval Office, “If you’re going to cough, please leave the room.” Years before *COVID*, Trump told Howard Stern that he had a hand-washing obsession, which “could be a psychological problem.” It’s one of the only frailties he acknowledges. He seems fascinated by his horror of contamination.

How could such a man refuse to wear a mask in a pandemic? It wasn’t just Trump, of course: the people around him followed his example. Pence visited the Mayo Clinic without a mask, violating hospital policy. Many Republican legislators shunned masks even after members of their caucus became infected. It wasn’t just Republicans, but Democrats were twice as likely to say that masks should always be worn. It wasn’t just men, but women were more in favor of masks. It wasn’t just white people, but they were much more averse to mask wearing than Blacks and Latinos were. If you name each of the groups least likely to wear a mask, the result roughly correlates with the average Trump voter.

Some anti-maskers called the coronavirus a hoax; others believed that it wasn’t all that dangerous. But the image of the maskless President spoke to people, especially his base. He appeared defiant, masculine, invulnerable. He knew that the virus was dangerous—“more deadly than even your strenuous flus,” as he [told Bob Woodward](#), in a February interview that surfaced months later. Yet he dared the virus to touch him, like Lear raging against the storm.

Tens of millions of Americans emulated the President’s bravado, and the unchecked virus prolonged unemployment, upended efforts to reopen the economy, and caused many more fatalities. “I’m not buying a fucking mask,” Richard Rose, a thirty-seven-year-old Army veteran from Ohio, posted on Facebook. “I’ve made it this far by not buying into that damn hype.” He tested positive on July 1st and died three days later. There are many similar stories.

It’s dispiriting to think that, had such a simple precaution been broadly implemented from the start, America could have avoided so much suffering, death, impoverishment, and grief. The starkest example occurred in Kansas, when the governor issued an executive order to wear masks in public but allowed counties to opt out. It was as if Kansas were performing a clinical trial on itself. Within two months, infections in mask-wearing counties had fallen by six per cent; elsewhere, infections rose a hundred per cent.

Of course, wearing a mask was a much smaller burden than self-isolating. Although CNN repeatedly ran alarming footage of people who refused to stop going to bars or malls, a far greater number of Americans had listened to the experts, sequestering themselves for months, at tremendous financial and emotional cost. My wife and I live in Austin, and, as the quarantine dragged on, we forced ourselves to take an occasional drive, partly to keep our car battery alive. We’d snake through vacant streets downtown, grimly taking note of which businesses had boarded up since the previous drive.

One April afternoon, I went for a jog on a school track near my home. A group of young women were running time trials in the hundred-metre dash. They were the fastest people I had ever seen. Occasionally, as I came around a curve, I’d pull even with one of the women just as she was taking off. It was like Wile E. Coyote eating the Road Runner’s dust.

“What school do you guys run for?” I asked one of them, who was cooling off.

“Oh, it’s not a school,” she said. “We’re Olympians.”

Instead of competing in Tokyo, here they were, on a middle-school track in Austin, isolating together and trying to maintain peak condition as they waited for the rescheduled Games. So many dreams have been deferred or abandoned.

## 15. “I Can’t Breathe”

The corpse on the autopsy bench was a middle-aged Black man with *COVID-19*. Six feet four and two hundred and twenty-three pounds, he had suffered from many of the co-morbidities that Ebony Hilton had described to me. The medical examiner identified signs of heart disease and hypertension. The autopsy noted the presence of fentanyl and methamphetamine, which could be considered co-morbidities, although they didn’t really factor into this case. The cause of death was a police officer’s knee on the neck. The victim was [George Floyd](#).

On a video seen worldwide, four Minneapolis policemen killed Floyd as he was handcuffed and lying face down in the street. It was Memorial Day. One cop stood watch as two knelt on Floyd’s

back and held his legs while the fourth, Derek Michael Chauvin, pressed his knee into Floyd's neck for more than nine minutes.

At a time when health officials were begging people to stay home and avoid groups, [protests arose in Minneapolis](#), then spread across America. They called to mind the Liberty Loans parades in 1918—the ones that had served as potent vectors for the killer flu. Nevertheless, thirteen hundred public-health officials signed a letter supporting the demonstrations.

Hilton joined a protest in Charlottesville on June 7th. Hundreds of people marched to the rotunda at the University of Virginia, carrying [Black Lives Matter](#) signs and placards saying "Let My People Breathe." I asked Hilton if she was worried about the mass gatherings. She said that she expected a rise in infections. Then she added, "For Black men, one in every thousand is at risk of dying in his lifetime from an encounter with a police officer. If you think about that number, that's what leads Black people to say it's worth me dying and going out to this protest and saying enough is enough. Police brutality is almost like a pandemic, a generational pandemic. It's a feeling—I'm going to die anyway, so I might as well risk this virus that I can't see, to speak about the virus of systemic racism that I can see."

Surprisingly, the marches did not appear to be significant drivers of transmission. "We tested thousands of people," Michael Osterholm, the director of the Center for Infectious Disease Research and Policy, at the University of Minnesota, said. "We saw no appreciable impact." One study found lower rates of infection among marchers than in their surrounding communities. Epidemiologists concluded that mask wearing and being outdoors protected the protesters. Moreover, demonstrators were on the move. Osterholm said that people in stationary crowds are more likely to become infected. In other words, joining a protest march is inherently less dangerous than attending a political rally.

## 16. Thelma and Louise

The President hadn't gathered with supporters since March, and was eager to dive back into the pool of adulation. An event was scheduled for June 20th. "It's going to be a hell of a night," he promised. He tweeted, "Almost One Million people request tickets for the Saturday Night Rally in Tulsa, Oklahoma!"

Only sixty-two hundred showed up. Trump was enraged by the dismal turnout but delivered his usual blustery speech. Because Oklahoma had just seen a record increase in *COVID* cases, attendees were required to release the Trump campaign from responsibility for any exposure. Just before Trump went onstage, two Secret Service officers and six campaign staffers tested positive.

In the audience was [Herman Cain](#), the former C.E.O. of Godfather's Pizza and an erstwhile Presidential candidate, who had become one of Trump's most prominent Black supporters. Like nearly everyone else, he was unmasked. He flew home to Atlanta the next day, feeling exhausted—"from his travels," his daughter, Melanie Cain Gallo, believed. It was Father's Day, and she stopped by to give him a gift. They embraced. She had seen a photograph of him at the rally and wondered why he hadn't worn a mask. Cain had preached the virtue of social distancing and hand washing on "The Herman Cain Show," a Web series that he hosted, and he had usually worn a mask in public. He told her that everyone entering the Tulsa auditorium had passed a fever check—an insufficient gauge.

Gallo worked with her dad all week on his show. By Friday, they were both feeling ill, but Cain filmed another episode. Flanked by the American flag and a painting of Ronald Reagan, he looked well, his eyes rheumy. He quoted a newspaper headline: "*U.S. DEATH RATE FALLS FOR THIRD DAY IN A ROW.*" Other newscasts had hyped rising case counts, he complained, adding, "They never get to the death rate is *falling.*"

On Monday, both were sick enough to go to a clinic for a test. Cain was feeling weak, so he waited by the car while Gallo stood in a long line. Suddenly, he passed out. An E.M.S. truck took him to the E.R. "They checked him out and said he was fine," Gallo recalled. They returned to the testing clinic. Both were positive.

Her case was mild. On July 1st, Cain was hospitalized. That day, he tweeted an article about a forthcoming Trump rally at Mt. Rushmore. "Masks will not be mandatory," Cain tweeted, adding approvingly, "*PEOPLE ARE FED UP!*" It was a defiant nod to Trump's base. Cain died on July 30th. He was seventy-four.

For some public-health officials, Deborah Birx had become an object of scorn. "She's been a disaster," a former head of the C.D.C. told me. The Yale epidemiologist Gregg Gonsalves tweeted, "Dr. Birx, what the hell are you doing? What happened to you? Your HIV colleagues are ashamed." Birx was accused of enabling an incompetent and mendacious President. The mortified look on her face at the press briefing when he suggested injecting disinfectant or using powerful light—"inside the body, which you can do either through the skin or in some other way"—became a meme, underscoring how much Trump had compromised scientists. The public didn't know what she was saying in private.

Birx confided to colleagues that she'd lost confidence in the C.D.C. She disparaged the agency's hospital reports on *COVID*, which relied on models, not hard data. A C.D.C. staffer told *Science* that compiling precise totals daily in a pandemic was impossible. But hospitals quickly complied after Birx said that supplies of remdesivir could be portioned out only to hospitals that provided inpatient *COVID* data.

In August, Dr. Scott Atlas, a neuroradiologist, a fellow at Stanford University's Hoover Institution, and a Fox News regular, joined the task force. He was adamant that children should return to school—as was the American Academy of Pediatrics, which urged a "safe return" to schools in the fall, warning of learning deficits, physical or sexual abuse at home, and depression. That was a debate worth having, but most of Atlas's views on *COVID* seemed reckless. He insisted that masks did little to stop the spread, and he advocated creating "herd immunity" by allowing the virus to be passed freely among people at lower risk. Herd immunity is gained when roughly seventy per cent of a population has effective antibodies to the disease, through either infection or vaccination.

Once Atlas got to the White House, Trump stopped speaking to other health advisers. Herd immunity could be achieved by doing nothing at all, which became the President's unspoken policy. Atlas encouraged Trump and others to believe that the pandemic was waning. "His voice is really very welcome combatting some of the nonsense that comes out of Fauci," Stephen Moore, a White House economic adviser, reportedly said. (The White House denies that "the President, the White House, or anyone in the Administration has pursued or advocated for a strategy of achieving herd immunity.")

Birx and Atlas had it out in the Oval Office, in front of Trump. Birx accused Atlas of costing American lives with his unfounded theories. Atlas cursed her. Birx, who spent twenty-eight years in the Army, gave it right back. Atlas said that young, asymptomatic people shouldn't be tested, adding, "She just wants to lock them down and not let them live their lives." They kept shouting at each other, but Trump was undisturbed and didn't take either side. "It's all reality TV to him," one of Birx's colleagues said.

After the confrontation, Birx demanded that Pence remove Atlas, but Pence declined. The task force began to dissolve after Atlas took a seat.

When Birx was working in Africa, she and her chief epidemiologist, Irum Zaidi, had met with Presidents and village elders across the continent, learning the value of personal diplomacy. The two scientists decided to take an American road trip together. The contagion had moved from the coasts to the heartland. In June, when the virus suddenly gripped Texas, Birx and Zaidi travelled to Dallas to meet with Governor Greg Abbott. Abbott's dithering response to the pandemic had led to attacks by Democrats—who noted that the death rate soared when he lifted restrictions too soon—and by Republicans, who called him a tyrant for imposing any restrictions at all. At a press conference, Birx urged Texans to mask up, especially young people. "If they're interacting with their parents and grandparents, they should wear a mask," she said. "No one wants to pass the virus to others." She praised Abbott for closing bars, knowing that he was being pressured to fully open the economy. Abbott soon issued a mask mandate.

Zaidi grew up in Atlanta, and her father was a C.D.C. statistician. On vacations, they took long car trips, a passion passed along to Zaidi. She loves to drive—fast. As they were leaving Dallas, a state trooper pulled her over. She'd been doing a hundred and ten.

"Little lady, what's the hurry?" he asked.

Zaidi explained that they'd just met Governor Abbott, and New Mexico's governor was next. "Surely you recognize Dr. Birx," she said.

The trooper let them off.

Soon after their visit to New Mexico, Governor Michelle Lujan Grisham announced a hundred-dollar fine for going maskless in public. Birx and Zaidi proceeded to Arizona and met with Governor Doug Ducey. Birx explained that even a small increase in the percentage of positivity—going from 3.5 to five per cent—could spark an unmanageable crisis. Ducey soon declared, "If you want to participate in *any* good or service in Arizona, you're going to wear a mask."

Birx and Zaidi racked up twenty-five thousand miles as they crossed the country eight times, visiting forty-three states, many more than once. They saw the rural areas and the cities, red America and blue America. They drove past cotton farms and soybean fields, but they also saw derelict oil rigs and abandoned factories, remnants of a vanishing industrial age. There were gleaming cities, bold and glassy, with construction cranes crowning the skyline, and broken towns, tumbling in decay, with all the promise bled out of them.

The women, who got regular *COVID* tests, established their own protocols. They cleaned rental cars and motel rooms with Clorox Wipes. In the morning, early, they'd pick up coffee and pastries at Starbucks. Lunch was often peanut butter spread on bread with a plastic knife. Dinner was served at a drive-through window. Baristas and gas-station attendants were useful informants of community outbreaks and served as indicators of local mask compliance. Birx and Zaidi met mayors and community organizers; they visited hospitals and nursing homes; they turned H.I.V. activists into *COVID* activists. In Atlanta, they urged officials to test migrants working on chicken farms. They visited more than thirty universities. Those which conducted mandatory weekly testing of students had positivity rates below one per cent; at schools where only symptomatic people were tested, positivity rates were twelve to fifteen per cent. Republican and Democratic governors made the same complaint: many people wouldn't listen as long as Trump refused to set an example.

One of the most effective governors Birx and Zaidi encountered was Jim Justice, of West Virginia. He issued a mask mandate, and in press briefings he read out the names of West Virginians who had died of *COVID*. He urged residents to "be great, loving neighbors." The state developed a plan to safely reopen schools by constantly assessing the level of risk in every county and presenting these data on a color-coded map. "It's something that every county and every state can do," Birx said. "West Virginia represents exactly what we want to see across the country—a commonsense approach based on the data."

A pandemic lays bare a society's frailties. Birx and Zaidi saw a nation that was suffering from ill health even before *COVID* attacked, where forty per cent of adults are obese, nearly half have cardiovascular disease, and one in thirteen has asthma. They visited reservations and met with Native Americans, who have been particularly ravaged by *COVID*. The Salt River Pima-Maricopa Indian Community, in Arizona, gave Birx a mask inscribed with the Salt River tribe's shield. When North Dakota recorded the nation's highest rate of infection, Birx met with the governor, Doug Burgum, and with local, state, and tribal officials. Birx scolded them: "This is the *least* use of masks that we have seen in retail establishments of any place we have been." She added, "It starts with the community, and the community deciding that it's important for their children to be in school, the community deciding that it's important not to infect the nursing-home staff who are caring for their residents." Burgum eventually agreed to a mask mandate. In South Dakota, Governor Kristi Noem couldn't find the time to meet with Birx.

For nearly six months, Birx corralled politicians, hospital executives, and public-health officials, often bringing such leaders together for the first time. She took charts and slides from state to

state, promoting a simple, consistent message about masks, social distancing, transparency, and responsible leadership. She was the only federal official doing so.

One day in October, Birx and Zaidi were eating lunch at a roadside stop in Utah, beside the Bonneville Salt Flats, where land speed records are often set. The salt stretched out like a frozen sea.

They'd rented a blue Jeep Wrangler. "We have to go off-road, for just a minute," Zaidi said. Birx gazed at the great white emptiness. "As long as you don't hit anybody," she said.

## 17. Dark Shadows

I asked Dr. Fauci about the global-preparedness study calling America the nation best prepared for a pandemic. What happened? He emitted a despairing laugh and said, "We never got back to baseline"—the point when the contagion had been reduced enough to allow contact tracing to minimize spread. "It could be the fact that we didn't have a uniform strategy," he went on. "It could be our own culture right now, of people not wanting to be told what to do. The guidelines say 'Don't go to bars. Wear a mask.' And you look at the pictures in the newspaper and on TV and you see large crowds of mostly young people, not wearing masks."

Fauci, who has led *niaid* through six Administrations, has never seen this level of distrust and anger in the country. "Political divisiveness doesn't lend itself to having a coordinated, cooperative, collaborative response against a common enemy," he said. "There is also this pushback in society against anything authoritative, and scientists are perceived as being authority, so that's the reason I believe we have an anti-science trend, which leads to an anti-vaccine trend." Even with an effective vaccine—or several of them—social resistance could delay the longed-for herd immunity.

I asked Fauci if he'd been threatened. "Oh, my goodness," he said. "Harassing my wife and my children. It's really despicable. It's this dark-Web group of people who are ultra-ultra-ultra-far-right crazies. They somehow got the phone numbers of my children, they've tracked them where they work, they've harassed them with texts, some threatening, some obscene. We have gotten multiple death threats, my wife and I." He sighed and said, "It is what it is."

"Buy ammunition, ladies and gentlemen, because it's going to be hard to get," Michael Caputo warned, in a rambling Facebook Live event on September 13th. Caputo is an Assistant Secretary of Health and Human Services, and focusses on public affairs. He controls the flow of information from America's public-health establishment: the C.D.C., the F.D.A., and the N.I.H. Trump appointed Caputo to the post in April, when *COVID* was out of control; competence and transparency were needed to restore public trust. Caputo had no public-health expertise, and he claimed that his best friend was the notorious political operative [Roger Stone](#).

Evidently, all the President wanted Caputo to do was reinforce his message that the virus wasn't as dangerous as scientists claimed, and that the crisis was under control. Caputo presided over interventions by H.H.S. that meddled with the C.D.C.'s guidelines—apparently, to get case numbers down and stanch the flow of bad news. Trump asked Caputo to lead a campaign to "defeat despair," which encouraged celebrities to endorse the Administration's laissez-faire approach. To fund the campaign, Caputo snatched three hundred million dollars from the C.D.C.'s budget.

Meanwhile, his science adviser, Paul Alexander, a part-time professor at a Canadian university, pushed an alternative plan: herd immunity. "It only comes about allowing the non-high risk groups to expose themselves to the virus," Alexander wrote to Caputo, in an e-mail [obtained by Politico](#). "We want them infected."

Caputo's efforts met with resistance from Fauci and others, and he felt under siege. In the Facebook video, he was unshaven, sitting outside his house in Buffalo. "There are scientists working for this government who do not want America to get better," he said. "It must be all bad news from now until the election." He stared into space. "This is war. Joe Biden is *not going to concede*. The [Antifa](#) attacks, the murders that have happened, the rallies that have turned into violence—this is all practice."

Such embattled thoughts were shared by Adam Fox. A powerfully built man with a trim brown beard and a square face, he helped lead a militia called the Michigan Three Percenters—a reference to their belief that only three per cent of American colonists took up arms against Britain in the Revolutionary War.

In a strip mall in Grand Rapids, a shop called the Vac Shack sells and services vacuum cleaners. Fox, a former employee, had been kicked out of his girlfriend's house and was homeless. The shop's owner let Fox sleep in the basement. That's where he allegedly began plotting to kidnap Gretchen Whitmer, Michigan's governor, who had [enforced tough lockdown measures](#).

In June, at a gun-rights rally in Lansing, Fox met with members of a militia, the Wolverine Watchmen, who planned to kill police officers. They were infuriated by Whitmer's *COVID* restrictions, but, even before the pandemic, they'd been prone to anger. "I'm sick of being robbed and enslaved by the state," one of the conspirators complained, after receiving a ticket for driving without a license.

Fox allegedly told the Watchmen that he was recruiting for an operation targeting the state capitol. He needed two hundred men to storm the building and abduct politicians, including Whitmer, whom Fox called a "tyrant bitch." Although the plotters were mostly unemployed or in low-paying jobs, they spent thousands of dollars on a Taser and night-vision goggles, and were planning to spend thousands more on explosives. They were plainly inspired by Trump's disparaging of Whitmer for shutting down her state. "*liberate michigan!*" the President had once tweeted.

The F.B.I. learned of the scheme, and arrested the conspirators in October. In a statement, Whitmer singled out Trump, who, in a recent debate with Biden, had refused to explicitly condemn right-wing, white-supremacist violence. "Words matter," she said. "When our leaders meet with and encourage domestic terrorists, they legitimize their actions and they are complicit."

Trump tweeted that "My Justice Department and Federal Law Enforcement" had foiled the plot, adding, "Rather than say thank you, she calls me a White Supremacist." He commanded Whitmer, "Open up your state."

On Michael Caputo's Facebook video, he sighed deeply. "I don't like being alone in Washington," he said. "The shadows on the ceiling in my apartment, there alone, those shadows are so long."

Soon afterward, he went on medical leave.

Eight days after the death of Supreme Court Justice Ruth Bader Ginsburg, Donald Trump formally nominated a successor, Amy Coney Barrett, in a ceremony at the White House. More than a dozen guests later tested positive, along with the President and the First Lady. Photo illustration by Tyler Comrie; photograph by Alex Brandon / AP

## 18. The Rose Garden Cluster

On September 26th, eight days after the death of Supreme Court Justice [Ruth Bader Ginsburg](#), Trump nominated her successor, [Amy Coney Barrett](#), in a White House ceremony. The Reverend John Jenkins, the president of the University of Notre Dame, where Barrett had taught law, recalled, "We were required to wear a mask at entry and, after going through security, were immediately taken to a room and administered a nasal swab for a *COVID* test." Once a negative result came back, guests could remove their masks. "I assumed that we could trust the White House health protocols," Jenkins said. He regretted his decision: "I unwittingly allowed myself to be swept up very publicly into the image of a White House that sometimes seemed to disregard scientific evidence and minimize the threat of the pandemic."

Guests were ushered to the Rose Garden, where there were two hundred assigned seats. Barrett spoke briefly. "Movement conservatives were very happy," Mike Lee, the Republican senator from Utah, recalled. Friends who hadn't seen one another for months reunited, he said, which "added to the jovial atmosphere." Afterward, dozens gathered in the Diplomatic Reception Room to meet the Barrett family.

That day, seven hundred and sixty-nine American deaths from *COVID* were recorded—down from [the spring peak](#), on April 15th, of twenty-seven hundred and fifty-two. Despite the absence of miracle drugs, the death rate for hospitalized patients had fallen significantly. In part, this was because the average age of patients was lower, but the improved chances of survival were also the result of flattening the curve, which gave doctors and scientists the time to devise more effective treatments, such as proning. The infection rate, however, was harder to slow. The number of cases per day, which had topped seventy-five thousand in mid-July, had faded a bit in the late summer, but it was again rounding upward. After months of being more careful, Americans had apparently let down their guard.

The White House refused to say when the President had last been tested before the Rose Garden event. He had just made multiple campaign stops, in Florida, Georgia, and Virginia. More than a dozen guests—including Reverend Jenkins, Senator Lee, the former New Jersey governor [Chris Christie](#), and the former Presidential adviser [Kellyanne Conway](#)—soon tested positive. Without knowing Trump's testing history, no one can say when he contracted the disease or how many people he might have infected. The full extent of the Rose Garden cluster will never be known. Fauci labelled it a superspreader event.

Despite his germophobia, Trump is proud of his immune system, boasting on multiple occasions that he never gets the flu. But *COVID* hit him hard. [According to New York](#), he told a confidant, "I could be one of the diers." A friend from the real-estate world, Stanley Chera, had died from it. "He went to the hospital, he calls me up," Trump recounted after Chera's death. "He goes, 'I tested positive.' I said, 'Well, what are you going to do?' He said, 'I'm going to the hospital. I'll call you tomorrow.' He didn't call." [Vanity Fair reported](#) that Trump developed heart palpitations. He asked aides, "Am I going out like Stan Chera?"

Hospitals are often portals to the graveyard, and that has been especially true during the pandemic. But Trump, who received a series of cutting-edge therapies, including monoclonal antibodies, was ready to return to the White House after three days. [According to the Times](#), he considered hobbling out of the hospital and then yanking open his shirt to reveal a Superman logo. In the event, he saved his drama for the moment he stood again on the Truman Balcony and ripped off his surgical mask.

"Don't be afraid of *COVID*," he tweeted afterward. "Don't let it dominate your life."

## 19. Survivors

After Amy Klobuchar dropped out of the Presidential race, she was on Biden's shortlist for his running mate. George Floyd's death put an end to that. She had begun her career twenty years earlier as the district attorney in Minneapolis, earning a reputation for being tough on crime but light on police misconduct. On June 18th, she asked Biden to take her name off his list and urged him to select a woman of color as his running mate.

That day, she learned that her ninety-two-year-old father, Jim Klobuchar, had *COVID*. He was a retired newspaper columnist, and known to everyone in Minneapolis, especially cops and bartenders. Full of adventure, he was also often full of alcohol. When Amy was a young lawyer, her father was arrested for drunk driving. In a closed hearing, she encouraged him to take responsibility and plead guilty. He did so, and finally got sober. Now this vigorous old man, so troubled and so beloved, had *COVID*—and Alzheimer's. When Klobuchar visited him, at an assisted-living facility, they were separated by a window, and she believed that it would be her final glimpse of him alive. He recognized her, but couldn't understand why they had to remain

separated. He sang to her: "Happy Days Are Here Again." He has since recovered.

Among the many awful legacies that *COVID* will leave, one blessing is that our understanding of coronaviruses, and the tools to counter them, has been transformed. Much of that progress will be because of Barney Graham, Jason McLellan, and other scientists who have spent their careers building to this moment.

There has never been such an enormous, worldwide scientific effort so intently focussed on a single disease. More than two hundred vaccines are in various stages of development. On December 11th, the F.D.A. granted its first Emergency Use Authorization for a *COVID* vaccine. Created by Pfizer, in partnership with the German firm BioNTech, it uses the modified protein that Graham and McLellan designed. In its third and final human trial, it was deemed ninety-five per cent effective. Giant quantities of the vaccine had been prepared in advance of F.D.A. approval. "Our goal is more than a billion doses by the end of 2021," Philip Dormitzer, Pfizer's chief scientific officer for viral vaccines, told me. The first employee at U.Va.'s hospital to get the Pfizer inoculation was Ebony Hilton.

[Operation Warp Speed](#), the government initiative to accelerate vaccine development, may prove to be the Administration's most notable success in the pandemic.

Moderna's vaccine secured approval next. Its formulation proved to be 94.1 per cent effective in preventing infection and, so far, it has been a hundred per cent effective in preventing serious disease. Graham is happy that he chose to work with Moderna. In 2016, his lab developed a vaccine for Zika, a new virus that caused birth defects. His department did everything itself: "We developed the construct, we made the DNA, we did Phase I clinical trials, and then we developed the regulatory apparatus to take it into Central and South America and the Caribbean, to test it for efficacy." The effort nearly broke the staff. Moderna was an ideal partner for the *COVID* project, Graham told me. Its messenger-RNA vector was far more potent than the DNA vaccine that Graham's lab had been using.

In another major development, Eli Lilly recently received an Emergency Use Authorization for a monoclonal antibody that is also based on the spike protein that Graham and McLellan designed. It is similar to the treatment that President Trump received when he contracted *COVID*.

Graham had been in his home office, in Rockville, Maryland, when he got a call telling him that the Pfizer vaccine was breathtakingly effective—far better than could have been hoped for. "It was just hard to imagine," he told me. He walked into the kitchen to share the news with his wife. Their son and grandchildren were visiting. "I told Cynthia, 'It's working.' I could barely get the words out. Then I just had to go back into my study, because I had this major relief. All that had been built up over those ten months just came out." He sat at his desk and wept. His family gathered around him. He hadn't cried that hard since his father died.

Graham and his colleagues will not become rich from their creation: intellectual-property royalties will go to the federal government. Yet he feels amply rewarded. "Almost every aspect of my life has come together in this outbreak," he told me. "The work on enhanced disease, the work on RSV structure, the work on coronavirus and pandemic preparedness, along with all the things I learned and experienced about racial issues in this country. It feels like some kind of destiny."

More than a thousand health-care workers have died while taking care of *COVID* patients. Nurses are the most likely to perish, as they spend the most time with patients. On June 29th, Bellevue held a ceremony to memorialize lost comrades. Staff members gathered in a garden facing First Avenue to plant seven cherry trees in their honor.

As the coronavirus withdrew from Bellevue, it left perplexity behind. Why did death rates decline? Had face masks diminished the viral loads transmitted to infected people? Nate Link thinks that therapeutic treatments such as remdesivir have been helpful. Remdesivir cuts mortality by seventy per cent in patients on low levels of oxygen, though it has no impact on people on ventilators. Amit Uppal told me that the hospital has improved at managing *COVID*. "We now understand the potential courses of the disease," he said. Doctors have become more skilled at assessing who requires a ventilator, who might be stabilized with oxygen, who needs blood-thinning medication. Then again, the main factor behind superior outcomes may be that patients now tend to be younger.

When a patient is discharged, the event offers a rare moment for the staff to celebrate. On August 4th, a beaming Chris Rogan, twenty-nine years old, was wheeled by his wife, Crystal, through a ganlet of cheering health-care workers, in scrubs and masks. There were balloons and bouquets. After so much death, a miracle had occurred.

Rogan was an account manager for a health-insurance firm in midtown. Crystal was a teaching assistant. In late March, he developed a low-grade fever and stomach discomfort, but he wasn't coughing. His doctor said that he probably had the flu. Rogan grew increasingly lethargic. He developed pneumonia. An ambulance took him to Metropolitan Hospital, on the Upper East Side. He still felt O.K., even when his oxygen level fell to sixty-four per cent. An hour after he checked in, he couldn't breathe. He was placed in a medically induced coma and intubated for nine days. During that time, the ventilator clogged and Rogan's heart stopped for three minutes. When he was brought back to consciousness, a doctor asked, "Did you see anything while you were dead?"

"No," Rogan said. "I don't even remember being resuscitated."

He began experiencing what hospital staffers told him was I.C.U. psychosis. He told Crystal that he'd been stabbed as a child. He began conversing with God. Just before he was intubated again, on April 15th, he felt certain that he would die in the hospital. He didn't wake up for sixty-one days.

During that time, he was transferred to Bellevue, which was better equipped to handle him.

It's a mistake to think that a patient in a coma is totally unaware. Rogan swam in and out of near-consciousness. When his doctor came in, he tried to talk to him: "Why am I awake? Why can't I move?" He couldn't sleep, because his eyes were partly open. "It's like being buried alive," he told me.

His tenth wedding anniversary passed. Sometimes he heard Crystal's voice on video chat. "I hear you," he'd say, but she couldn't hear him. "I feel the tube down my throat, tell them to take me off the vent." A machine kept pumping oxygen into his lungs: *psht! psht! psht!* The sound pounded in his head. He would dream that he had left the hospital, then wake to find himself still there, the ventilator pumping away. "It was fucking torture," he said.

He developed internal bleeding. Clots formed in his legs. He told God that he didn't want to die—that he had too much left to do. God assured him that he was going to make it.

Crystal was charged with making choices for Rogan's care. The hardest one was the decision to amputate his right leg. It took three days to get him stable enough to perform the operation, which had to be done at his bedside, because he was too fragile to move. The doctors performed a guillotine amputation, just below the knee. Eight days later, they had to take off the knee.

Rogan doesn't remember any of that. Some days, he is elated to be alive; other times, he asks himself, "What kind of quality of life is this?" Whether or not it was I.C.U. psychosis, he's clung to the experience of talking with God.

When he emerged from the coma, he couldn't move his arms, but now his right hand is functional. After several weeks of rehab, he can walk a bit with a prosthetic leg.

When he fell ill, there were only a hundred and fifty thousand cases in the U.S. When he left the hospital, there were more than four million.

The death toll kept mounting, surpassing three hundred thousand at year's end. Some victims were famous. The playwright [Terrence McNally](#) was one of the first. The virus also killed Charley Pride, the first Black singer in the Country Music Hall of Fame, and Tom Seaver, one of the greatest pitchers in baseball history. Eighty per cent of fatalities have been in people aged sixty-five or older, and most victims are male. It's been strange to find myself in the vulnerable population. I'm a year younger than Trump, so his adventure with *COVID* was of considerable interest to me. If I get ill, I'm not likely to receive the kind of treatment the President did, but I'm in better physical condition, despite a bout of cancer. My wife, though, has compromised lungs. Even before the coronavirus put a target on our age group, mortality was much on my mind. Sometimes I'm dumbstruck by how long I've lived; when I'm filling out a form on the Internet, and I come to a drop-down menu for year of birth, the years fly by, past the loss of parents and friends, past wars and assassinations, past Presidential Administrations.

On September 9th, our grandchild Gioia was born. She is the dearest creature. We stare into each other's eyes in wonder. Even in this intimate moment, though, the menace of contagion is present: we are more likely to infect the people we love than anyone else. Deborah Birx has recalled that, in 1918, her grandmother, aged eleven, brought the flu home from school to her mother, who died of it. "I can tell you, my grandmother lived with that for eighty-eight years," she said.

Even before [the election](#), Matt and Yen Pottinger had decided that they were tired of Washington. He was burned out on the task force, which had drifted into irrelevance as the Administration embraced magical thinking. They drove west, looking for a new place to live, and settled on a ski town in Utah. Matt will join Yen there once he wraps up his job in Washington.

Pottinger's White House experience has made him acutely aware of what he calls "the fading art of leadership." It's not a failure of one party or another; it's more of a generational decline of good judgment. "The elites think it's all about expertise," he said. It's important to have experts, but they aren't always right: they can be "hampered by their own orthodoxies, their own egos, their own narrow approach to the world." Pottinger went on, "You need broad-minded leaders who know how to hold people accountable, who know how to delegate, who know a good chain of command, and know how to make hard judgments."

At the end of October, before returning to D.C., Pottinger went on a trail ride in the Wasatch Range. As it happened, Birx was in Salt Lake City. Utah had just hit a record number of new cases. On the ride, an alarm sounded on Pottinger's cell phone in the saddlebag. It was an alert: "Almost every single county is a high transmission area. Hospitals are nearly overwhelmed. By public health order, masks are required in high transmission areas."

Pottinger said to himself, "Debi must have met with the governor."

*Covid* has been hard on Little Africa. "Some of our church members have passed, and quite a few of our friends," Mary Hilton, Ebony's mother, told me recently. "We just buried one yesterday. They're dropping everywhere. It's so scary." A cousin is in the hospital.

"One out of eight hundred Black Americans who were alive in January is now dead," Hilton told me. "There would be another twenty thousand alive if they died at the same rate as Caucasians." She added, "If I can just get my immediate family through this year alive, we will have succeeded." She and two colleagues have written a letter to the Congressional Black Caucus proposing the creation of a federal Department of Equity, to address the practices that have led to such disparate health outcomes.

Infected people keep showing up at U.Va.'s hospital at a dismaying pace. Hilton recently attended the hospital's first lung transplant for a *COVID* patient. He survived. Lately, more young people, including children, have populated the *COVID* wards. Hospitals and clinics all over the country have been struggling financially, and many health-care workers, including Hilton, have taken pay cuts.

Thanksgiving in Little Africa is usually a giant family reunion. Everyone comes home. There's one street where practically every house belongs to someone in Hilton's family; people eat turkey in one house and dessert in another. Hilton hasn't seen her family for ten months. She spent Thanksgiving alone in Charlottesville, with her dogs.

Thanksgiving was Deborah Bix's first day off in months. She and her husband have a house in Washington, D.C., and her daughter's family lives in nearby Potomac, Maryland. During the pandemic, they have been a pod. Recently, Bix bought another house, in Delaware, and after Thanksgiving she, her husband, and her daughter's family spent the weekend there.

Her access to the President had been cut off since the summer, and, with that, her ability to influence policy. She had become a lightning rod for the Administration's policies. Then, in December, a news report revealed that she had travelled over the Thanksgiving weekend, counter to the C.D.C.'s recommendation. She was plunged into a cold bath of Schadenfreude. Old photographs resurfaced online, making it look as if she were currently attending Christmas parties.

Bix indicated that she might soon leave government service.

## 20. Surrender

Austin bills itself as the "Live Music Capital of the World," but the bars and dance halls are largely closed. Threadgill's, the roadhouse where Janis Joplin got her start, is being torn down. The clubs on Sixth Street, Austin's answer to Bourbon Street, haven't been open for months. A band I play in has performed in many of them, but for the past several years we had a regular gig at the Skylark Lounge, a shack tucked behind an auto-body shop. Johnny LaTouf runs the place with his ex-wife, Mary. It's been shut since March 15th.

"All small businesses have been affected, but music venues around the country were already in a struggle," Johnny told me. He's had to let go his ten employees—including three family members. That's only part of the damage. "When the musicians get laid off and the bands disperse and go their separate ways, then you've actually broken up *their* business." He added, "COVID killed off more than people with preexisting conditions. Lots of businesses have preexisting conditions."

Lavelle White, born in 1929, was still singing the blues at Skylark until the doors closed. "Some of our greater musicians are older, because it takes a lifetime to master the craft," Johnny said. Skylark was a mixing bowl where younger musicians learned from their elders. "Now that pathway is broken."

When Congress passed the CARES Act, which included money to support small businesses, local bars were not a priority. "There's no money," Johnny said Wells Fargo told him. He helps several older musicians with groceries, but he doesn't know how many in that crowd will ever return. Some have died from COVID.

Two qualities determine success or failure in dealing with the COVID contagion. One is experience. Some places that had been seared by past diseases applied those lessons to the current pandemic. Vietnam, Taiwan, and Hong Kong had been touched by *sars*. Saudi Arabia has done better than many countries, perhaps because of its history with *mers* (and the fact that many women routinely wear facial coverings). Africa has a surprisingly low infection rate. The continent's younger demographic has helped, but it is also likely that South Africa's experience with H.I.V./AIDS, and the struggle of other African countries with Ebola, have schooled the continent in the mortal danger of ignoring medical advice.

The other quality is leadership. Nations and states that have done relatively well during this crisis have been led by strong, compassionate, decisive leaders who speak candidly with their constituents. In Vermont, Governor Phil Scott, a Republican, closed the state early, and reopened cautiously, keeping the number of cases and the death toll low. "This should be the model for the country," Fauci told state leaders, in September. If the national fatality rate were the same as Vermont's, some two hundred and fifty thousand Americans would still be alive. Granted, Vermont has fewer than a million people, but so does South Dakota, which was topping a thousand cases a day in November. Scott ordered a statewide shutdown in March, which caused an immediate economic contraction. Governor Noem opposed mandates of any sort, betting that South Dakotans would act in their best interests while keeping the economy afloat. Vermont's economy has recovered, with an unemployment rate of 3.2 per cent—nearly the same as South Dakota's. But South Dakota has seen twelve times as many deaths.

In Michigan, the state's chief medical officer, Joneigh Khaldun, is a Black emergency-room doctor. "She was one of the first to look at the demographics of COVID and highlight that we have a real racial disparity here," Governor Whitmer told me. "Fourteen per cent of our population is Black, as were forty per cent of the early deaths." The state launched an aggressive outreach to Black communities. By August, the rates of both cases and fatalities for Blacks were the same as—or lower than—those for whites. The vast differences in outcomes among the states underscore the absence of a national plan. The U.S. accounts for a fifth of the world's COVID deaths, despite having only four per cent of the population.

In August, the Pew Research Center surveyed people from fourteen advanced countries to see how they viewed the world during the pandemic. Ninety-five per cent of Danish respondents said that their country had handled the crisis capably. In Australia, the figure was ninety-four per cent. The U.S. and the U.K. were the only countries where a majority believed otherwise. In Denmark, seventy-two per cent said that the country has become more unified since the contagion emerged. Eighteen per cent of Americans felt this way.

On March 16th, Trump issued nationwide guidelines for closing schools, shutting down bars and restaurants, and limiting unnecessary travel and social gatherings. But that day marked a turning point. In his conversation with governors, he abandoned any effort to coalesce a national plan, and his Administration began undercutting governors' attempts to acquire P.P.E. Then, on April 3rd, Trump undermined the C.D.C.'s guidance on wearing masks: "You don't have to do it. *Im* choosing not to do it. But some people may want to do it."

Trump, by his words and his example, became not a leader but a saboteur. He subverted his health agencies by installing political operatives who meddled with the science and suppressed the truth. His crowded, unmasked political rallies were reckless acts of effrontery. In his Tulsa speech, he said that he'd asked his health officials to "slow the testing down"—impeding data collection just to make his Administration look better. When the inevitable happened, and he contracted the disease, he almost certainly spread it. Every guest at the Barrett reception tested negative for the virus before entering. Trump may well have been the superspreader at the Rose Garden event.

The President could have tried to bring the country together. In the press conference where he said that he wouldn't wear a mask, he praised the efforts of the Democratic governors of New York and New Jersey; he expressed sympathy for Michiganders, who were "getting hit very, very hard." He announced federal efforts to aid New York City. "America is engaged in a historic battle to safeguard the lives of our citizens," he said. "Our greatest weapon is the discipline and determination of every citizen to stay at home and stay healthy." The man who said those words might have been the President the country needed. But he was not that man.

He campaigned against Biden, but mainly he campaigned against the disease. "When the year started, he appeared unbeatable," Senator Lee told me. "My Democratic colleagues were discouraged about their chances. By the end of the impeachment trial, when we began hearing about the virus, we were not sure it would be a big deal. But it put an end to one of the things the President is best at—those big rallies." When Trump finally resumed them, defying medical advice, his fury was volcanic. "People are tired of hearing Fauci and all these idiots," he grumbled on October 19th, when the number of new cases exceeded sixty-five thousand. "COVID, COVID, COVID, COVID, COVID, COVID," he said at a rally in North Carolina, five days later. "We're doing great. Our numbers are incredible." That day, nearly eighty thousand new cases were reported, overshadowing the highest levels of the summer. In Omaha, on October 27th, he said of COVID, "I'm here, right? . . . I had it." Hospitalizations were up forty-six per cent that month. He ignored the fever sweeping through the Mountain West and the Great Plains—Trump country. His slogan was both cynical and fatuous: "If I can get better, *anybody* can get better."

Infections often rose in counties where Trump held a rally. The surge in infections and deaths mocked his assertions that we were "rounding the turn." The disease stalked him; it encircled him. On October 25th, Trump's chief of staff, Mark Meadows, declared, "We are not going to control the pandemic." The Administration had given up.

COVID couldn't kill Donald Trump, but it could defeat him.

Five days before the election, Biden spoke at a drive-in rally in Tampa. "So much suffering, so much loss," he said. "Donald Trump has waved the white flag, abandoned our families, and surrendered to the virus." Honking cars punctuated his remarks. That day, new confirmed cases topped ninety thousand.

The next day, Fauci said, "All the stars are aligned in the wrong place as you go into the fall and winter season, with people congregating at home indoors. You could not possibly be positioned more poorly."

Halloween night in Austin was beautiful, graced with a blue moon. My wife and I set out a bowl of chocolate bars and Dum Dums, but there were scarcely any trick-or-treaters. As dusk settled over the city, when our neighborhood would normally be filled with fairies and vampires, a deer galloped down the street.

## 21. "GET HERE NOW"

America is full of strivers whose dreams seem just out of reach. Iris Meda was one of them. She had a big smile but sad eyes. She grew up in Harlem, the oldest of six children. Her mother was a domestic who was home only one day a week; her stepfather was a longshoreman. Meda's first bed was an ironing board.

Iris Meda had retired in January, after nearly four decades as a nurse, but couldn't stand being idle during the crisis. Photograph courtesy Selene Meda-Schlamm

For most of her childhood, she was the family caretaker, walking her siblings to school before she went herself. Like many of her high-school friends, she dropped out after a bout of depression. She married and had two daughters. Meda eventually got a G.E.D. and surprised herself by graduating at the top of her class from Bronx Community College. In 1984, she earned a nursing degree from City College. Medicine fascinated her. She would go home and talk about watching a surgeon massage a patient's heart. She was drawn to those who were wounded or hurting—people who felt that the world wasn't big enough for them. For years, she was a nurse at the Rikers Island jail. She cared about the prisoners, and they knew it. When her husband was transferred to Dallas, she gave notice, and on her last day the inmates clapped her out. "She was always looking for an underdog to pull up, because she was an underdog," her daughter, Selene Meda-Schlamm, said.

Meda retired in January, after two years in the North Texas Job Corps. She had been in charge of on-site care, meaning that she was on call nights and weekends, and when she turned seventy she decided that she'd had enough. She and Selene had big plans. Meda wanted to travel; she wanted to ride in a convertible for the first time; she talked about writing a book. "In March, it all came to a screeching halt," Selene told me. Her mother was still a proud New Yorker, so she spent a lot of time in front of the TV watching Dr. Fauci and Governor Cuomo. "Her knowledge of science kept her ahead of the news reports," Selene said. Meda, having worked in nursing homes, hospitals, and jails, knew that COVID would be devastating for people who were confined, and for those who took care of them.

Meda couldn't stand being idle during the crisis. "She wanted to teach," Selene said. "She wanted to encourage younger nurses to continue their education. She wanted them to reach their full potential in a way she'd had enough." Meda successfully applied for a job at Collin College, in Allen, Texas. At the time, courses were being offered virtually, and Meda imagined that she would be teaching online in the fall. When the semester began, she learned that many classes were in-person. According to the local NPR station, the college's president, H. Neil Matkin, had made his views of the virus known in an e-mail to trustees: "The effects of this pandemic have been blown utterly out of proportion across our nation."

Meda hoped to be in a large classroom where students could be widely spaced, but she was assigned to teach a lab for a nurse's-aide course. There was no social distancing. On October 2nd, a student was coughing and sneezing, complaining of allergies. That day, Trump announced that he had COVID. Meda was repulsed when he insisted on taking a car ride to wave at his supporters outside the hospital, with Secret Service agents in the car with him. Meda texted Selene. "He's putting all those people at risk just for a photo."

On October 7th, Meda learned that the student had tested positive. The college chose to continue in-person classes even after one student died. By this time, Trump was out of the hospital, saying he felt "better than twenty years ago."

Meda became feverish on October 12th. Two days later, she tested positive and went to the E.R., but her oxygen level was not low enough for her to be admitted. On October 17th, Selene took her mom back to the hospital. Meda was seriously ill, but the staff, worried about *COVID*, kept her waiting outside, slumped over on a bench in the E.R. drive-through. When the triage nurse finally waved Meda in, Selene wasn't permitted to join her, because she had been exposed. Meda's oxygen level was now so low that she couldn't speak. Selene didn't see her again for thirty days.

During that period, Meda was able to speak only once on the phone. Most days, she texted with Selene. One day, she asked Selene to call a nurse who she thought was doing an excellent job. "She's having a hard day," Meda texted. She worried about her students and wondered if anyone else had caught the virus. (None showed symptoms.)

The disease progressed inexorably. Selene could tell that doctors were doing everything they could, but her mother's lungs wouldn't rebound. Selene wondered if things would be turning out differently had her mother received treatment earlier.

On November 14th, Selene got a call advising that her mother's blood pressure was plummeting. "Based on how she's declining, how long do we have?" Selene asked, thinking that she would pick up her father, so that he could say goodbye. "A couple hours," the doctor said. Ten minutes later, a nurse called and said, "Get here now."

"They put me in a helmet," Selene recalled. "There was a plastic flap that closed around my neck. Inside the helmet there was a fan at the top that blew air down, so that any air that got in would be flushed away. And they put a gown on me, and double gloves, and they let me go in and say goodbye to her. That was the biggest shock, to see her, and to see how she looked. She was twice her size, because she was swollen from steroids. Her tongue was swollen and hanging out the side of her mouth because she was on the ventilator—she'd been intubated. They had to brace her head to keep it straight on the pillow, and they had tape around her mouth to keep the tube in. I'll never forget it. But I think the thing that will haunt me is the smell. It's like the smell of decay, like she had already started to die.

"The thing that made it so hard to see that was to juxtapose it against President Trump out there, saying he felt like he was twenty-eight years old again and he never felt better. So how could the same thing that did this to her, how could someone ever take it for granted that this was nothing, you have nothing to be afraid of?"

Selene gathered her mother in her arms as the machines went silent.

My wife and I voted early, in a drop-off location in Travis County, where ninety-seven per cent of eligible voters were registered. It was a new way of voting—swift, efficient, and rather exhilarating. And yet the vote came amid a crescendo of bad news. The week before November 3rd, the country added half a million new *COVID* cases, reaching record highs in half the states. The stock market had its worst week since the swan dive in March. Eight million Americans had fallen into poverty since the summer. At least five members of Vice-President Pence's staff had been infected with *COVID*, as the virus continued to roam the White House.

In Texas, as in many Republican states, there were naked attempts to suppress the vote. Governor Abbott restricted the number of drop-off sites to one per county, including in Harris County, which has more than four million people. The attorney general, Ken Paxton, went to court to block the enforcement of a mask requirement at the polls, endangering voters as well as poll workers, who tend to be older. For the election, Abbott readied a thousand National Guard troops in major Texas cities, in anticipation of violence. Store owners in Dallas boarded up their windows, like beach communities awaiting a hurricane.

But there was no violence in Texas on Election Day. Voting is a simple act, and an act of faith. It is a pledge of allegiance to the future of the country. Across America, people waited in long lines to vote—despite the disease, despite attempts to discredit or invalidate their vote, despite postal delays, despite Russian or Iranian meddling, despite warnings from the White House that the President would not go quietly if he lost. They voted as if their country depended on it. ♦