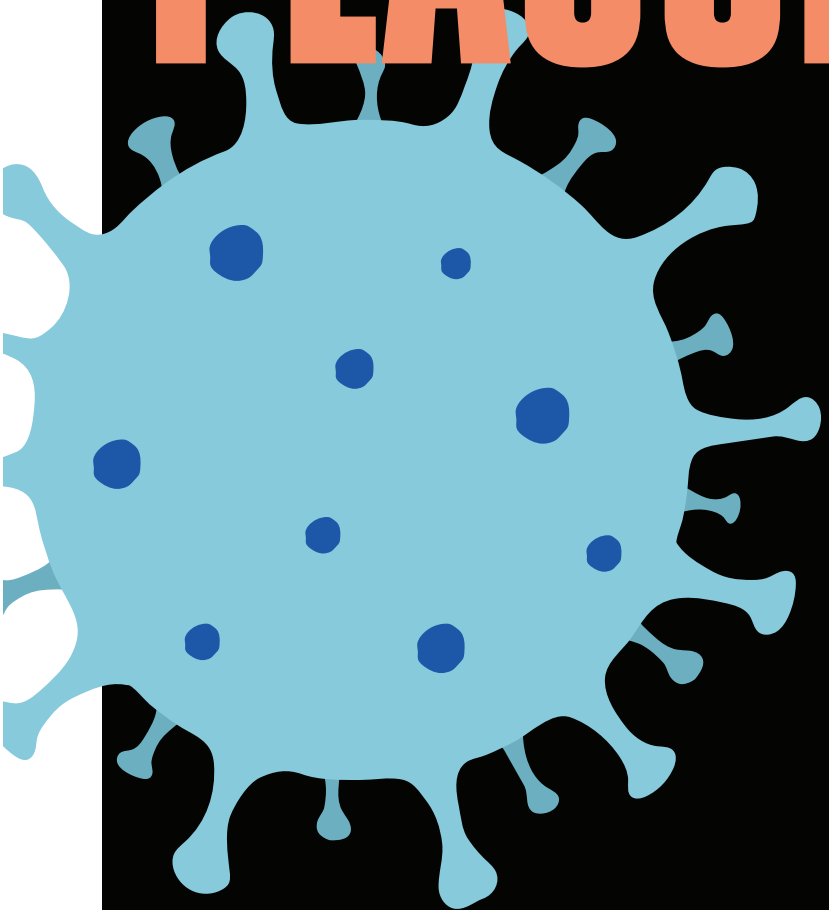
OUR HUMBLING PLAGUE



BY DANIEL J. BRESSLER, MD, FACP

FROM ALBERT CAMUS' 1947 NOVEL *THE PLAGUE:* "But what does it mean, the plague? It's life, that's all."

The word "plague" comes from the Greek word *plaga*, meaning a "strike" or "blow." By the 14th century, it had come to acquire its current meaning of pestilence or calamity. By the 16th century it came to be associated with what we now call the bubonic plague, the highly contagious and highly lethal disease caused by *Yersinia pestis*, a gram-negative coccobacillus. The word "bubonic" refers to the fact that most sufferers develop "bubos" or swollen inguinal lymph nodes, with *bubo* being the Greek word for "groin." Bubonic plague is a zoonotic infection of wild and domestic animals, with humans considered so-called "incidental hosts" in that they do not participate in the disease's natural life cycle. The vector species is the rat flea and most human cases come from the bite of those fleas.

Bubonic plague has been with humans for several thousand years. *Yersinia pestis* DNA has been isolated from the teeth of human skeletons from Europe and Asia dating back 5,000 years. Molecular clock estimates suggest that the bacteria acquired the genetic changes that allowed it to become highly virulent about 3,000 years ago.

The consequences of plague pandemics have dramatically changed the course of human history. The Plague of Justinian in the 6th century is thought to have played a major role in weakening the Byzantine Empire. Bubonic plague of the 14th century (known as The Black Death) is estimated to have killed 30–50% of the European population. Earlier plagues have been associated with the decline of Classical Greece and disruptions in Roman rule. The

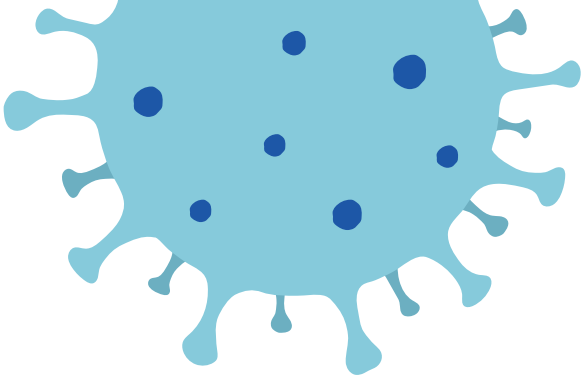
third and last plague pandemic started in 1866 in China, eventually killing more than 12 million people worldwide — most of them in India. The disease remains endemic but with a low incidence worldwide, including in the U.S. Southwest.

In 1947 the French-Algerian writer Albert Camus published *The Plague* about Oran, a fictional town in North Africa that was overwhelmed by an infection whose description matches that of bubonic plague. The book, considered one of several masterpieces that won for Camus the Nobel Prize in literature in 1957, takes us on the town's descent into lockdown, loss, and surreality, a journey seen through the eyes of the physician protagonist, Dr. Rieux. He notes the various approaches that his fellow townspeople use to respond to the progressive devastation: denial, sensual indulgence, religious immersion, and numbness. The hardest thing for the citizens of Oran to deal with, besides the immediate threat of illness and the grief, was the disorientation caused by a loss of any sense of the future. "How hard it must be to live only with what one knows and what one remembers, cut off from what one hopes for," reflects Rieux. After many months, the lockdowns and injections work, the plague recedes, and the town comes back to life, celebrating and grieving. Rieux's closest friend, Tarrou, who finally perishes from the disease, proposes that, even more important than heroism, the goal of a life well lived is to use what strength you have to be a healer and to never lose your compassion for your fellow human beings whatever their foibles and follies. "After a short silence the doctor raised himself a little in his chair and asked if Tarrou had an idea of the path to follow for attaining peace. 'Yes,' he replied. 'The path of sympathy.'"

During my internal medicine residency in the early '80s, the subspecialty of Infectious Diseases was relatively unpopular as a professional aspiration. Most ID consults were rote and, from a practical perspective, the field seemed to offer few job prospects outside of academia. The idea that infectious diseases would be increasingly controlled and eliminated — just as smallpox had been in 1977 — was not far-fetched. How silly and hubristic such a view seems in retrospect. Toward the end of my residency, we first began admitting young men with *Pneumocystis carinii* (now called *jirovecii*) pneumonia, esophageal candidiasis, and Kaposi's sarcoma. The arrival of the disease we now know as AIDS was a stark reminder of microbial opportunism. Since that time, the medical and social world have been rocked by one infection-related crisis after another. Widespread aggressive use of antibiotics has led to MDROS (multiple drug resistant organisms) even at our best hospitals. Rumors and disinformation have led to declining vaccination rates and increases in vaccine-preventable diseases in both rich and poor countries. Resurgent rates of drug-resistant TB, syphilis, and gonorrhea have followed in tracks laid down by poverty, sexual exploitation, and injectable drug use. And influenza pandemics have continued to wash over the world, with the most recent version, the H1N1/09 ("swine flu"), causing an estimated 280,000 deaths worldwide and "only" 12,000 in the U.S.

In *The Mirage of Health* published in 1959, microbiologist Rene Dubos warned against utopian medical imagination that proposed a future society free from disease and distress. From his study of both soil microbes and his later attention to psychosocial factors in health, Dubos anticipated much of the subsequent research regarding the interplay between human health and built environment. Among other cautions, he advised us to acknowledge the ongoing ecological relationship between human health and the non-human natural world. Nature, along with many other traits, was opportunistic and fickle. For this reason, his fundamental thesis as captured in the title was that freedom from disease is a pleasant but deceiving mirage. "All our moves toward progress have necessary but sometimes unpredictable downsides … [and] wherever human beings are concerned, trend is not destiny," he writes. This current pandemic has taught us that in spades. It turns out that human progress is not a missile nor even a ratchet moving monotonically toward better and better outcomes. Rather, it is most accurately imagined as a scatter diagram with the best fit line that is up and to the right, but with many individual data points well off the trend. Optimistic, technology-focused futurists have failed to take into account nature's own say in the matter. Whatever brilliant new techniques we bring to the game, nature always bats last.

As I'm writing this in late April 2020, the bubonic plague caused by *Y. pestis* seems like a quaint historic relic in light of the zoonotic viral pandemic that has so wracked our society and our planet over the past four



months. COVID-19, caused by another zoonotic organism, the novel coronavirus SARS-CoV-2, appears to be endemic and non-pathogenic in bats. As we've learned, the disease is transmitted principally human-to-human by droplets, is mostly asymptomatic but in a minority of infected patients causes a unique irreversible systemic illness and death. As has been said, the disease doesn't choose who to infect but does choose who to kill, with vulnerability principally related to age, as well as cardiometabolic and immune factors. Without effective prophylactic or therapeutic medications, societies have resorted to some version of the travel and physical restrictions that are in many ways modern adaptations of those used by our ancestors when plague struck. COVID-19 — both despite and because of our modern inventions and conveniences, our travel, our dense cities, our science, our efficient supply chains, and our experimental virology — is our humbling plague.

I live and practice medicine in the middle of San Diego County, which is 3,000 miles and 12,000 COVID deaths away from New York City. None of my primary care patients have been hospitalized or had documented symptomatic infections. But I don't mean to be serving up happy talk. Although there have only been 124 documented COVID-19 deaths in San Diego County as of April 30, the impact of the virus on our local colleagues, hospitals, and economy has been immeasurable. Our vaunted medical and economic machine has been brought to its knees. Our supply chains have not been able to provide front-line healthcare workers with essential equipment. Our medical experts have not been able to give clear advice on either prevention or treatment. Our government mouthpieces have given us contradictory and chaotic guidance. I am humbled because I know I could have done no better had I been controlling simultaneously the gears of business, medicine, or government. The information we were all getting was confusing and the best way forward unknown. I am humbled just as I am thinking about my patients with pain syndromes caught between limited therapeutic options and government bureaucracy; or counseling my patients with end-stage cancer or heart disease when they are offered yet another expensive pill or procedure by yet another specialist; or when picturing anyone in our society who is poor, depressed, and desperate — virus or no virus.

I have no doubt that we will eventually control COVID-19 using the tools of modern biology and medicine. I am left to wonder, though, if after the recovery will we aim no higher than to get back to some version of "business as usual." I hope not. Paul Romer, the 2018 Nobel Laureate in economics, famously quipped, "A crisis is a terrible thing to waste." Will the tens of thousands of American lives and hundreds of thousands of human lives merely be a stepping stone to more advanced diagnostics, antivirals, vaccines, and virtual office visits? I hope it will be that and much more.

I hope it will be a true humbling also in the spiritual sense: a loss that leads toward a confrontation with purpose and meaning. I hope this humbling plague reminds all of us of our mortality, fragility, and fellowship. For it is only from that place of humility and connection that we can ask fundamental questions about what we want from our medical care system and our government. I hope that we will be inspired by this humbling tragedy to take up the great task of using our Promethean powers to do more than simply accelerate the technological juggernaut that emphasizes means over ends, billable procedures over therapeutic conversations, and profits over kindness. We can ask ourselves the spiritual question of what we want to do during our brief stay on Earth and act to create a healthcare system, as Camus' Dr. Rieux would direct us, based on healing and sympathy. In this way, we can transform the human and economic tragedy of our humbling COVID-19 plague into an opportunity to embrace and protect our common humanity. SDP

Dr. Bressler, SDCMS-CMA member since 1988, is chair of the Biomedical Ethics Committee at Scripps Mercy Hospital and a longtime contributing writer to San Diego Physician.