A ZIG, A ZAG, AND A GUESS: A LIFE MOSTLY IN THE HISTORY OF MEDICINE

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Looking through the volumes of intellectual trajectory talks, I noticed that it's customary to give them a title. So I'll call my trajectory "A Zig, a Zag, and a Guess: A Life Mostly in the History of Medicine."

In this zig and zag, I'll try to explain the unplanned pathway I took to become a historian of medicine, and why I chose to deal with infectious diseases. Then I'll deal with what I would call the "So what?" question—in other words, the question of why anyone should be concerned with the history of medicine and of infectious diseases.

In looking back and re-examining how I entered the field, I wish that I could say that it was simple, that I planned it from the outset and followed a logical career. The only problem is that a statement of that kind would be untrue. In fact, I can't say that I had a trajectory at all. I looked up the word "trajectory" and discovered that it denotes a curved line that is connected all the way. That disqualified me. I'm afraid that my path forward was often not connected at all.

What I'll be describing instead is a series of zigs and zags marked by inborn curiosity and by sheer serendipity. I also benefitted greatly from the freedom that one gets at Yale to evolve intellectually in whatever way seems interesting and productive. Over the course of a career, it was critical to have had the flexibility to move in unexpected directions both in teaching and research. To illustrate my point, I can mention a joke that on one occasion I made to my wife. At the time I had been serving for seven years as chair of the Program in History of Science and History of Medicine. What I said to her was this: "Isn't it a pity how far Yale has sunk in the world? I'm the chair of history of science and history of medicine, but I don't have a degree in history, or in science, or in medicine!"

So, my job now is to explain how that happened. My background is that I was born in Washington, DC, where I went to a school called St. Albans. I was the son of an art teacher in a public high school and a professor of classics at Howard University.

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I went to St. Albans as something of a social experiment. The reason is that I enrolled at the school in 1957 just after the *Brown v. Board of Education* decision of 1954, and at age eleven, I was the first Black person to attend a private school in the Washington, DC area. I was told officially at the time that, unless I did well at the school, they would never again admit a Black student. Of course, that was an absurd thing to tell me; it wasn't true, and I'm pretty sure that it wasn't a pedagogically helpful comment. But it may have had at least the positive effect of contributing to the seriousness of purpose with which I did my studies both at the school and later.

While attending St. Albans until graduation in 1964, I was not seriously interested in the sciences or history. I had given some thought to medicine as a career, but that ended with a summer that I spent in a medical school research laboratory as a summer intern. The project for the summer in the lab was to study the impact of artificially induced hypertension on the aortic valves of dogs. That experience led me to turn in a different direction. Surgery clearly did not lie in my future. My interests turned instead to languages and literature. My very first job, in fact, was with the State Department as an interpreter in French, and—almost by accident—my post-school education was in political science.

I did my BA degree at Harvard, where I majored in government, and then I did graduate work at Oxford, where I completed two degrees in politics. I was especially interested in political philosophy and above all in the thought of Hegel and Marx. But as part of my graduate work, I made a sobering discovery that many others have made before and since. This was the fact that a PhD doesn't actually make you a genuine authority at all. It does something different, but nonetheless important and ever so slightly subversive. Its most important lesson is to provide a transferable skill—the skill of how to go about learning and doing research on one's own.

With that thought very much in mind, my first academic job was in the history department here at Yale from 1975 to 1978. It was then that I began to elaborate a major historical research question. I never actually brought the work to fruition. But what fascinated me at the time had to do with the subject that at Yale would be called agrarian studies. I was thinking of the transformation of peasant societies into industrializing nations, and I was especially concerned with attempting to recapture the experience of those who lived through that complex process.

Since that was an overwhelmingly large topic, I intended to choose a particular case, and it seemed logical to concentrate on Italy in the nineteenth century, since I had lived there and knew the language. Since I had been granted a year of sabbatical leave from Yale, I planned to examine the human experience of rural immiseration on the land, displacement, and migration to urban, industrial centers. A major question in the field at the time was something termed the "standard of living debate," which had to do with wages, rents, prices, and debt. From my perspective, a question framed in those terms seemed inconclusive and bloodless in that it obscured the human dimension of the destruction of a way of life and the impact on communities.

While conducting research, and hoping to humanize the standard of living debate, I discovered that diseases seemed to offer a shaft of light that illuminated how societies were constructed, how human beings related to one another, and the moral priorities of authorities and citizens. I also became fascinated by a variety of social phenomena that accompanied epidemics, such as scapegoating, mass hysteria, riots, upsurges in religiosity, mass flight, assaults on doctors and hospitals—behaviors that we observed fairly recently in the Democratic Republic of the Congo and in West Africa as they fought Ebola.

As often happens, personal experiences influenced what was looming ahead as a major academic "zig." As a doctoral student in 1973, I had lived through a cholera epidemic in Naples and in Rome, and I remembered being stunned by the response of the Italian government to the crisis. Italy at the time was the seventh industrial power in the world, and it possessed a proud history as a leader in public health and medical science. So it was striking to see the minister of health go on television to tell citizens that they had no need to worry. The vibrio that causes cholera, he said, is exquisitely sensitive to acid. As a result, all that people need to do to protect themselves, he stressed, was to purchase a lemon and squeeze its juice over their raw mussels before consuming them. Then, he stated reassuringly, they would be fine.

Questions immediately began to form in my mind about the Italian state and its ethical priorities. I wondered why it was that the same minister of health and the prime minister visited the infectious diseases hospital at Naples. As it happens, much later I ended up spending quite a bit of time there as well—happily, not on its wards but in its archives. In any case, both gentlemen were pictured in the press rushing down the cholera ward at considerable speed, both of them with their hands behind their backs in a gesture that in Italian folklore is used to ward off the evil eye. I also noted that in Rome there was a great deal of popular hysteria. Romans attacked market stalls in the city, beat up vendors selling fish or vegetables, and stoned cars with Naples license plates.

All of this was new to me, and I wondered why such events were occurring. What did they mean? What did they reveal about human societies? These questions took me to begin thinking about the history of medicine. I promised you a zag, and I took it while I was teaching at London University for fifteen years.

That takes me to another question that you may be puzzling over as well. It's one thing to have an intellectual question. But how in practice was I going to go about answering it when at the time what I knew about medicine was how to spell the words "cholera" and "malaria," and almost nothing more? How do you make that transition in practice? How do you also keep your job and continue to support two daughters who had been born in the meantime?

Here my conception of the methodology of the scientific laboratory proved helpful. I imagined that the essential first step of a bench scientist is to reduce the number of variables to the minimum possible. Imitating that methodology, I thought that I

should begin my study of the history of medicine by using Italy as my starting point since I had already done some research there and felt that I knew something about the lay of the land. It seemed like a reassuring first step.

I also thought that the way to enter a new field responsibly was to start slowly and on a small scale. So I began with a local study and ended up with a book on the city of Naples and its experiences with cholera. I subsequently followed that up by expanding outward and writing a national study of Italy as a whole during its campaign from 1900 to 1960 to eradicate malaria, its leading public-health problem.

Then, having returned to Yale, I followed my new interests with a more ambitious global book with the title *Epidemics and Society: From the Black Death to the Present.* Here a decisive influence was my teaching. But first I did something else that in the long run stood me in good stead, although I would never recommend it to a student. I took a second year of sabbatical to read the *Lancet* from its founding in the early nineteenth century until World War II, concentrating on the coverage it gave to what we would now term infectious diseases. That somewhat extravagant use of time did at least give me an understanding of what the major epidemic diseases were, how they were understood and debated at the time, and how therapeutics evolved. It also, along with the medical dictionaries and textbooks that I kept ready to hand, enabled me to learn another foreign language – the one spoken by physicians. And, fortunately, I had tenure, which allowed me to take the time I needed.

As I hinted, another major influence was teaching. Today I could articulate my thoughts about the proper relationship between teaching and research in the academy. At the time, however, I followed what was just a natural inclination to want to teach what I was researching and to do research on issues that I thought would be worthwhile topics in the classroom. A decisive influence on my intellectual life was a course that I offered on the history of epidemics. Particularly after the course was made available online, I got an enormous amount of feedback from the online students, who were enormously varied. They included scientists and doctors but also truck drivers, high school pupils, and businessmen. I am deeply indebted to them for their observations, questions, and feedback.

I should also confess that the transition to the history of medicine also involved forty years of research. But then a further question arises: a transition to what? What were the results at the end? Here there are two major threads that I have long regarded as important. One was practical. I began to think that, if one chose to spend forty years studying a field, it would be good if it was of benefit for other people. And then there's the intellectual interest of the subject.

But let me start with the practical influence. Here is a story that may be useful. As I moved into the history of medicine, I also began to attend medical conferences. As it happened, the first medical conference I attended was an international conference on malaria. At the concluding plenary session of that conference, a delegate from Kenya rose to say that he had enjoyed the conference, but that he had one serious

complaint, which he conveyed by his question, "Where are the historians?" His view was that, when scientists have two or three thousand participants in a study, that is a large project. Historians instead, he argued, are accustomed to dealing with millions of people. As a result, he continued, it is important to have their input. This, of course, was music to my ears. In fact, one way of thinking of my book on the history of malaria was that it was a response to what this Kenyan delegate had said. I should add that I was also fortunate because two distinguished malariologists I met at the conference took an interest in my research and helped me to find material, including personal archives of their own.

All of that was important. It also led to my organizing, together with Dr. Rick Bucala, a professor at the School of Medicine and a researcher who was working on the development of a malaria vaccine, a conference at Yale in 2008. The conference was interdisciplinary, as we both thought that it was important to bring together people who all too often never talk to each other: clinicians, bench scientists, historians, representatives from nongovernmental organizations. The task we set ourselves was to imagine collectively what a sustainable strategy for combating malaria in Africa might look like. The result was a collection of essays called *The Global Challenge of Malaria.*

One of the outcomes of the conference was that it led three of us to form a small delegation to visit the director of the President's Malaria Initiative, Admiral Ziemer, in order to convey the main lessons that we had reached collectively in the concluding plenary session. The President's Malaria Initiative has provided major institutional support for the global campaign against the disease, and we were fortunate that Admiral Ziemer was interested in the conclusions we had reached collectively in our interdisciplinary conference. During our visit, we carefully explained that we weren't an interest group, and that we didn't have a fully developed blueprint for a successful strategy that we wanted to recommend. What we had produced instead was a "worry list" about aspects of the question of malaria in Africa that we thought weren't being fully addressed, such as the importance of sustainability, the role of vector control, the impact of climate change. As it turned out, Admiral Ziemer was very willing to consider our worries about the antimalarial strategy adopted by governments and NGOs in Africa. We had an initial conversation that lasted for several hours, and a subsequent one at a later date. That was one of the opportunities I have had in trying to find practical benefits from my research. Another opportunity developed when I engaged for a short period of time with the FBI locally here in New Haven. There, in the interest of anti-terrorism, I was asked to imagine as a historian the worst possible ways that malevolent people might find to weaponize the diseases I had been studying.

But let's also take up the question of the intellectual interest of the subject. Here I'd like to mention one of the reasons I have loved university life. It provides one of the few contexts in which the story I am about to tell could occur. After a prolonged period away, I had just returned to campus, and I was walking in front of the Beinecke Library. Suddenly I saw someone running up to me. It turned out to be a colleague, Jim Scott

from political science. He asked, "Frank, I haven't seen you in a long time. What has become clear to you in the meanwhile?" I doubt that I gave him a very coherent answer that day, but I loved the idea of living in an environment in which a question of that kind could be asked. In retrospect, I can also say that one of the major things that became clear to me was the enormous impact of epidemic diseases on human society and history.

Here I should say emphatically that I'm not a microbial determinist or what I might call a "microbial Marxist." In other words, major historical events can never be explained by a single master cause. They are invariably multifactorial and are produced by an array of factors that scholars tease out and rank. But I have long felt that health and diseases have not often found the place that they merit either in the historical literature or in the college curriculum across the country. Seldom are epidemics and medical history accorded their proper place as one of the big factors underlying the larger picture of historical change. My hypothesis has been that infectious disease are just as important in understanding major human developments as revolutions, wars, and economic crises. They have an enormous impact on political history, religion, the arts, culture, medical philosophy, science, and public health. We also know from the germ theory of disease that they have deeply affected the rituals of daily life as we should note when we don face masks, use hand sanitizer, or drink safe water.

To illustrate this point, let me mention the example of the independence of Haiti in 1803–4. In the wake of the French Revolution, Saint Domingue was swept by a massive slave rebellion. Determined to crush the revolt and restore slavery in France's most profitable colony, Napoleon sent a great armada to the Caribbean. Unfortunately for the French troops, yellow fever, transmitted by the *Aedes aegypti* mosquito, was prevalent on the island. The rebel forces, who had been transported from areas of Africa where the disease was endemic, possessed a high level of immunity to the disease. The French, however, were immunologically naïve and defenseless against the mosquitoes that greeted them from the moment they landed. Within weeks Napoleon's army was decimated, and the commander informed Paris that he was powerless because 80 percent of his troops were either dead or incapacitated. Their power broken, the French were forced to surrender, and the remnants of the fleet returned home.

The victory of the rebels led to a cascade of consequences. The most immediate and obvious was a severe blow to plantation slavery in the New World and a major step toward abolition. In a precursor to decolonization, Haiti also became the world's first independent Black republic. At the same time, deprived of the island as a base to project French power in North America, the French emperor abandoned his ambitions, leading to the Louisiana Purchase and the doubling in size of the United States.

The case of Haitian independence is a clear case of the impact of infectious disease on historical events, but the list of such examples is lengthy. The "plague of Athens," as Thucydides explained, led to the defeat of the city-state in the Peloponnesian War and the demise of Athenian democracy. Similarly, malaria played a significant part in

the fall of the Roman Empire in the fifth century through its ability to decimate agricultural production and undermine the strength of the Roman legions. Smallpox was a vital factor in the European conquest of the New World, and dysentery destroyed the French army that invaded Russia in 1812. Examples abound.

More surprising perhaps than the influence of epidemic disease on events is its deep impact on culture. In the visual arts, it is impossible to go to Venice without discovering that the cityscape that one sees from the Grand Canal is marked everywhere by the passage of bubonic plague. The Basilica of Saint Mary of Health was erected to mark the deliverance of the city from the plague epidemic of 1630. Similarly, the Scuola Grande di San Rocco is dedicated to San Rocco, the great plague saint, and its interior is dedicated to the salvation of Venice from the same visitation. In the Scuola Grande, Tintoretto, one of the greatest of Venetian painters, carried out a major cycle of plague paintings that rival the Sistine Chapel in Rome. At the same time, plague iconography played a major role in painting across Europe; plague columns proliferated in the cities of central Europe, and countless works depicted the plague saints Rocco and Sebastian.

The influence of cholera is also profound. One need only think of city planning and the retrofitting of British cities in the nineteenth century and the wholesale rebuilding of two of Europe's major cities—Paris and Naples—in part to make them cholera-proof.

Tuberculosis too left a deep artistic imprint, in accord with the manner in which it was culturally conceived as enhancing the beauty, genius, and spirituality of its victims. John Keats is emblematic in this respect, and it is illuminating to remember that *Uncle Tom's Cabin* and *The Magic Mountain* were tuberculosis novels just as *La Bohème* is a tuberculosis opera and Chekhov's plays are tuberculosis dramas with invalidism and passivity as their subtext. The disease was also portrayed by the pre-Raphaelite artists who painted tuberculous models to embody their ideal of feminine beauty as thin and deathly pale.

But as I approach the end of my talk, I'd like to reach the most recent, and ironic zig in my scholarly trajectory. Having just published my book *Epidemics and Society*, I decided in the fall of 2019 to finish a nonmedical research project that I had been pursuing on and off for many years but had never brought to fruition. This was a book on the Cold War, and I was especially interested in its impact on Italy as the country with the largest and most powerful communist party and communist trade union movement in the West. As a result, Italy was a major focus for the deployment of American strategic intervention, and Pope Pius XII was one of the most committed of all cold warriors. To the end of bringing that work to a conclusion, I set off in January 2020 for what I imagined would be period of six months' research in the Vatican archives.

As you can imagine, I arrived in Rome just as Italy was stricken with COVID-19 and became the world's second epicenter of the pandemic after China. As a historian

of epidemic diseases and of modern Italian history, I had never imagined the irony of having both of my scholarly interests coming together in such a horrific way in front of me. I can also report that I was able to demonstrate my bona fides by contracting the disease myself, fortunately in a manner that was not very serious, and by having the first-hand experience of being locked down and quarantined. Like everyone else in the world, the pandemic upended all of my plans. With the country in lockdown, and being in quarantine myself, I had no possibility of continuing my Cold War research. In its place, I found myself immersed in a sudden upsurge of interest in the historical experience of pandemic diseases. The reason was that, although physicians and public health officials were, of course, the primary figures in confronting the outbreak, there were also issues of importance to the public that they were — inevitably — not equipped to address.

Patients, of course, are primarily interested in the answers to two questions: their diagnosis and prognosis. At the height of the pandemic, however, there were other questions that caused considerable anxiety and that historians are equipped to answer. People wanted to know how and when pandemics end, why our society was experiencing such a medical disaster, whether people had ever experienced such an event in the past, which aspects of life were most likely to be profoundly affected, and what countries need to do in order to be prepared in the future.

At that moment I found that my work had a quasi-therapeutic role in psychological terms, and I abandoned research in order to deal with a seemingly endless stream of interviews about COVID-19 in historical context. In addition, the World Health Organization, for the first time, decided that history as a discipline was relevant to the task of preparedness for the future. In other words, it concluded that, although epidemiology and rapid response were critical at the time of a disease outbreak, they were analogous to a fire brigade in their time horizon. They were vital in the short term, but a different task was not that of snuffing out the conflagration, but of removing the kindling that had caught fire in the first place. For that reason, the WHO established a History Think Tank to make recommendations for longer-term preparedness, and I took part by Zoom in intensive discussions over a three-month period dealing with this issue and writing our group's report. In these various ways, I emerged with a much clearer view on the ways in which history and other nonmedical disciplines are important in practice for the contributions that they can make to the necessary preparedness of society for future pandemic challenges.