

Flu: The Story of the Great Influenza Pandemic of 1918 and the Search for the Virus That Caused It

Gina Kolata

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I thought I was watching my father die. Daddy Jack had retired at the age of 70 from his position as Administrative Assistant to the Executive Director of the Oklahoma City Chamber of Commerce. He and my mother had built a summer home in Colorado, and my young family and I had fallen into the happy habit of spending 2 weeks with them each year while they escaped the heat of the Oklahoma summer.

One July night in 1968, my mother roused us with a cry from the next room. Dad was thrashing from side to side, eyes closed, jaw clenched. I tried to restrain him: his strength repeatedly threw me off the bed. The seizure went on for perhaps fifteen seconds; he then became quiescent; his breathing slowed until it seemed about to stop. Yet his heart rate was normal; his eye pupils reactive.

We were 35 miles from the nearest hospital. An ambulance had been dispatched; all we could do was watch him and wait.

As the ambulance pulled in and the medics scrambled out, Dad suddenly opened his eyes, looked around at the gathered family, and said, "What *are* you looking at?"

We were looking at the echo of Dad's fight fifty years before against the 1918 "Spanish flu" or "Flanders fever," two of the inaccurate names attached to this world-wide pandemic that killed between 40 and 100 million in the space of a few weeks and dropped the U.S. life expectancy for that year from 51 to 39 years. Dr. Ralph Smith of Oklahoma City diagnosed Dad's grand mal seizure as the result of a brain lesion produced by the high fever that accompanied his infection in 1918, together with the decrease in brain circulation that comes with advancing years.

But we thought this was a fluke, a special case with my father, certainly not the effect of something historic and important. Gina Kolata's new book, *Flu*, gives a much fuller picture to the horrors of the epidemic, and leaves me with a renewed sense of the way in which history can leave its stamp. It also places our current pandemic, Acquired Immune Deficiency Syndrome, in a perspective that makes its potential impact on our lives even more horrifying.

In a sense, we are lucky with HIV-1: it is a virus whose spread can be controlled by precautionary steps that are well known and within the grasp of individuals. By contrast, the 1918 flu passed silently throughout the country, infecting some 28 percent of the entire population, killing its victims within 3 days of the first onset of symptoms. Yet, despite the fact that millions more died in one year from that disease than from any of the wars in this country, before or since, the 1918 flu became a horror that was collectively forgotten, only recently being chronicled by historians.

Kolata's book reports her study of this disease and how it has affected us over almost 80 years. For, while that strain of influenza has not, apparently, occurred again, a number of individuals have been preoccupied for nearly 8 decades with the identification of the guilty virus, development of an inoculation against it, and developing social and governmental policies to deal with it should it ever recur. The disease, fear of it, and its puzzles have been with us for much of those 8 decades, yet few Americans have been aware of its ubiquitous presence.

In her first chapters, Kolata conveys the horror of this pandemic in several ways. She describes its explosive spread and gives its pathology in stark terms: "It was twenty-five times more deadly than ordinary influenzas. This flu killed 2.5 percent of its victims... And since a fifth of the world's population got the flu that year, including 28 percent of Americans, the number of deaths was stunning. So many died, in fact, that the average life span in the United States fell by twelve years in 1918 (dropping from 51 to 39 years)."

"Within a month after the flu arrived in Philadelphia, nearly 11,000 people died from the disease." At Fort Devens, dead bodies were "stacked about the

morgue like cord wood." "Katherine Anne Porter ... nearly died of the flu herself. Her fiancé was killed by the illness. She wrote a novella about her experience, *Pale Horse, Pale Rider*..."

Thomas Wolfe's novel, *Look Homeward, Angel*, contains a chapter that tells the story of his brother's death: "...Ben's thin lips were lifted, in a constant grimace of torture and strangulation, above his white somehow dead-looking teeth, as inch by inch he gasped, a thread of air into his lungs. And the sound of this gasping—loud, hoarse, rapid, unbelievable, filling the room, and orchestrating every moment in it—gave to the scene its final note of horror." Up to 90% of Alaskan villagers were killed off in just a few days, creating a horde of orphans wailing and waiting for overwhelmed rescuers to bury their parents in the permafrost hardened churchyards.

Much of Kolata's book deals with the search for the virus and a way of preventing its infection of the healthy. In many respects, this is an exploration of how science is done: how it depends on dominant paradigm conceptions, how individuals seek to overcome fruitless paradigms with desperately creative ideas, but above all, how science, when done properly, is always testing its conclusions and subjecting them to the stern tests of attempts to replicate and attempts to falsify. The work is also a testament to the folly of doing science under the pressure of political pressure, and to the ease with which humans, even scientifically-trained humans, commit the fallacy of *post hoc, ergo propter hoc* (after the fact, therefore because of the fact).

The latter are shown in Kolata's treatment of the 1976 Swine flu vaccination effort. An outbreak of flu at Fort Dix, New Jersey, prompted public health officials under the Gerald Ford administration to undertake a rapid development of a vaccine with which to immunize the entire country. The belief was strong that this could be a recurrence of the 1918 flu, and, under the slogan, "Better a vaccine without an epidemic than an epidemic without a vaccine," a national campaign to immunize all Americans against swine flu was undertaken. "The first Americans were immunized on October 1. Ten days later, the first deaths occurred." The media pounced in an orgy of *propter hoc* ascription errors, ascribing every death

within weeks of receiving a flu shot to the vaccine. President Ford and his family got their shots on television. Public jitters continued, but by mid December, 40 million adults had received the shots.

But post hoc reasoning continued, augmented by an error of recollection by a Minnesota physician. Thinking he remembered an association of Guillain-Barré syndrome and swine flu vaccine from a medical education tape, the doctor reported a case of the syndrome in a patient who had gotten the flu shot to the Centers for Disease control. Several more diagnoses surfaced in Minnesota, Alabama, and New Jersey, and the CDC initiated an investigation.

The problem, as Kolata shows, is that same sort of problem that prompts double blind studies. Physicians who had been prompted to look out for such cases began diagnosing the syndrome with frequency, despite the disease being poorly described with no set criteria. Physicians began thinking Guillain-Barré whenever they encountered a patient with weakness in the legs, and asking such patients whether they had had a flu shot. The vaccination campaign was stopped, both because of these reported associations and because not a single case of swine flu had been reported outside of Fort Dix.

The penultimate irony of this story came when the medical education tape was unearthed during an investigation of the whole affair. It was of a lecture by Dr. Paul F. Wehrle. He had said, "Problems with diseases that may be confused or incorrectly interpreted as induced by influenza vaccine I think will occupy a lot of our time and a lot of our attention.... I can assure you . . . that if someone is developing this Guillain-Barré syndrome] and receives the influenza vaccine within about thirty days of the time of onset of that illness, this influenza vaccine will be

blamed either for initiating it or making it worse." This tape, mis-remembered by the Minnesota physician, created an epidemic of association where, once cooler heads began to prevail, there was none.

The final chapters of Kolata's book explore efforts to isolate samples of the original 1918 flu virus from either samples that had been preserved in tissue collections of the National Museum of Health and Medicine at the Armed Forces Institute of Pathology, or samples taken from the corpses of Alaskan and Norwegian victims of the pandemic of 1918 that remained frozen in their graves under permafrost. Several efforts at the recovery of these cadaver samples are detailed with the reporter's attention to the biographies and motivations of the researchers who undertook their location.

Amidst these chapters is one devoted to the Hong Kong bird flu incident of 1997, during which a suspected link between bird viruses, swine viruses, and human viruses led to the killing of 1.2 million chickens in Hong Kong, Kowloon Island, and the New Territories. This massive, preventive effort may or may not have nipped a pandemic in the bud; some have called it a "dress rehearsal" for the next major worldwide pandemic.

In her last pages, Kolata sums up the efforts of eight decades of scientists' efforts: "In a sense, it is the ultimate frustration. Scientists have captured the mass murderer, the 1918 flu virus. But they still do not know its murder weapon... do not yet know how the murder was committed." Yet, she is reassuring: "it may not matter as much if the weapon is found. Medicine has armed doctors with tools that were not available in 1918 to fight a killer influenza strain. Now there are antibiotics that can thwart pneumonia-causing bacteria that swarmed into the lungs of flu victims who were too ill to

fight back.... And there are now drugs that can temper some influenza infections, possibly softening the blows of a killer flu." She ends though with a caution: "it is hard to be complacent.... Perhaps, as we grow almost smug about influenza, that most quotidian of infections, a new plague is now gathering deadly force. Except this time we stand armed with a better understanding of the past to better survive the next pandemic."

That understanding, born of Kolata's evident belief that those who are ignorant of the past are doomed to repeat it, was the reason for this book: to remind us that the most deadly plague ever to hit the human race during recorded history occurred in this century, that influenza killed more Americans in a few months of 1918 than died in battle in World War I, World War II, the Korean War, and the Vietnam War, and "killed more humans than any other disease in a period of similar duration in the history of the world."

I found myself reflecting as I finished Kolata's book that my father's fortune in surviving the 1918 flu was a factor in my existence, for he had by then become engaged to my mother. And as I sat down to write this review, I noted that, in Canada, an outbreak of E. Coli in the drinking water of a small town in Ontario has killed five, put nine others in critical condition, and caused hundreds to become ill. The book has left me with both an appreciation for the work done quietly by the microbiologists of the world, and also with a renewed sense that our future health requires eternal vigilance against these ubiquitous enemies.

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