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An isolated airstrip in an unnamed desert

Fifty miles from the Kazakhstan-China border

0200 hours

The inaugural mission of the Night Fury

Beyond the halo of multiple floodlights, nothing but black-ink darkness. Within the halo of the floodlights, a single UAV, or Unmanned Aerial Vehicle, commonly referred to as a drone. But this was not a run-of-the-mill surveillance or armed tactical drone. This was the most advanced UAV yet to be conceived: the HoQA50 Night Fury.

Like its namesake from the kid's movie, the Night Fury was all about stealth. Its outer skin was coated with carbon black—a material that readily absorbs radar waves. Its shape and profile were that of a manta ray with a thirty-foot wingspan. The fuselage was no more than a slight convexity in the middle of the aircraft, housing a liquid hydrogen fueled jet-propulsion system that allowed it to stay aloft for two weeks and fly at altitudes higher than sixty-five thousand feet, more than twice that of commercial airliners.

The Night Fury's inaugural mission would barely test its full capabilities. Its target was three thousand kilometers away, had a population of eleven million, and covered an area of nine thousand square kilometers, or three thousand square miles. With a top speed of 220 kilometers per hour, the Fury would reach its target in thirteen hours, drop its payload in a single pass from an altitude of one thousand meters, and return to the airstrip, all without being detected. As weapons systems go, however, the Night Fury was a World War I biplane compared to the simple white powder contained within its cargo bay. Even if loaded with American Hellfire missiles, or forty-five hundred pounds of conventional ordnance, the killing power of the Fury paled in comparison to the nanometer-size virions it now carried.

Before its eradication in 1979, the smallpox virus killed more than five hundred million people. Influenza, also a viral disease, is estimated to have killed one hundred million throughout history, and if one were to ask the leading biomedical researchers studying past and present pandemics, they would tell you the next big killer will likely be a mutation of a known coronavirus—a new variant of SARS or MERS—which spread through the air and enter the body via the lungs.

In recent decades, a group of viral diseases has emerged that have captivated the social conscience. Although they've had minimal impact compared to smallpox and influenza, they kill their victims in a much more terrifying fashion. They are members of the "viral hemorrhagic fever" family and include the Ebola, Marburg, and Lassa viruses. Each of these pathogens cause multiple organ failure, internal bleeding, and hemorrhaging from mucosal membranes—eyes, mouth, and GI tract. All three are classified as biosafety level-4 pathogens, but fortunately, intimate contact between individuals is required to pass the virus, thus limiting their ability to rapidly spread beyond borders.

If the lethality of smallpox was combined with the airborne spread of influenza and the dramatic mode of death seen with the viral hemorrhagic fevers, you would have what the world will soon come to know as the Wuhan Supervirus.

There were many things to admire about the supervirus. First, its simplicity. Its creation was complex—a noninfectious strain of the coronavirus upregulated by splicing twenty-three new genes into its existing genome—but it was still just a virus, a particle consisting of a single strand of RNA inside a protein envelope. Its lifecycle was simple as well. Find a host. Enter the host's cells. Insert its RNA into the host's DNA and then wait as the host cell's machinery creates millions of new viral particles. When the host cell has completed its duties, it bursts open, releasing the newly created virions, which move on to the next cell—invade, replicate, repeat.

The second admirable quality of the supervirus was its ease of production, delivery, and propagation. The virus was easily mass-produced, grown by the ton in giant bioreactors, then purified and dried into a simple white powder. The viral powder was then exposed to two basic elements, silicon and oxygen, forming silicon dioxide, or glass—or more specifically, superfine glass known as silica nanopowder. As the name implies, the silica particles are nanometers in size, small enough to coat individual virions. This process makes the virus "smooth" and "slippery" and gives the white powder an ultrafine consistency like bath talc. It is creamy to the touch and readily dissipates into the air, quickly becoming invisible and drifting for tens if not hundreds of miles, carried on the slightest currents and slipping through the smallest openings in any surface—through cracks in walls, gaps in windowsills, down chimneys, and along ventilation ducts—behaving more like a gas than a solid. In summary, this glass-coated virus could go anywhere and everywhere. And it could sit for days, or even weeks, on any object or surface, waiting for a breeze or gust of wind or for someone to simply walk by and kick up an invisible cloud of viral particles that could then be inhaled by unknowing victims.

And the third admirable quality of the supervirus? In animal studies it had a mortality rate of 100 percent. You breathe it in, you're dead.