LIFE, DEATH, and the LIVING DEAD in the TIME of COVID-19

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Abstract Is COVID-19 our first global zombie event? The question leads to others that fall outside the decorum of official discourse, possibly because the answers reach beyond the pale of the state. Unable to understand the nature of the threat, national leaders failed early and caught on late to the need for a globally coordinated response. Coupled with a deep resistance by states to the alienation of any degree of sovereignty to international institutions, the prospect of a global solution to the zombie question remains elusive. This essay offers an interpandemic response to the novel coronavirus that cuts across borders and against the grain. The first is *transnational*, to identify from the parallax view of Sydney and Los Angeles emergent risks that defy single-state fixes. The second is *transhistorical*, to counter efforts by China and the United States to subsume a human security crisis into the narrative of an eternal Cold War. The third is *transmedial*, to acquire new political and cultural perspectives on the pandemic through the zombie cinematic genre, including our documentary film, *Project Z: The Final Global Event*. A zombie inquiry can help us understand how COVID-19 is both disease and potential cure of late and rising empires.

Keywords COVID-19, zombie, human security, geopolitics, complex systems

After the congressional hearings, royal commissions, and press conferences are completed, the incompetence, neglect, and malfeasance of governments duly acknowledged and perhaps even a few leaders held accountable, one question is likely to go unasked: is COVID-19 our first global zombie event? Outside the decorum of official as well as academic

discourse, the question leads to others. How did a string of self-replicating RNA find such a perfect state of symbiosis, infecting and slowing but never quite killing the global economy? How did the virus find the perfect host in the most powerful state, headed by a reality-TV president with little ideology other than to stay in power, who allowed the virus to feed on complacency and disinformation as panic ensued, lives were lost, and the economy wrecked? How did an inanimate, spectral sequence of genetic code become the most powerful agent (so far) of global, cultural, and political disaster in the twenty-first century?

Unable to understand the nature and potential of the viral threat, national leaders failed early and caught on late to the need for a globally coordinated response. Coupled with a deep resistance by states to the alienation of any degree of sovereignty to international institutions, the prospect of a global fix remains elusive. In response, we offer an interpandemic perspective that cuts across borders and against the grain. The first is transnational, to identify from the parallax view of Sydney and Los Angeles emergent risks that defy single-state fixes. The second is transhistorical, to counter efforts by China and the United States to subsume a human security crisis into the narrative of an eternal Cold War. The third is transmedial, to acquire new political and cultural perspectives on the pandemic through the zombie cinematic genre, including our documentary film, *Project Z*: *The Final Global Event* (2015).

Identifying COVID-19 as a zombie global event flattens the virus, individuals, and states into a single ontology for collective survival, making it a security issue but of an ecological and a human kind. The pandemic has thrown into high relief the failure—with a few notable exceptions—of both states and international institutions to deliver on their prime directive: to keep populations safe. Indeed, in too many instances, decisions made (or more frequently, not made) by regimes at the national and international levels made matters much worse before making them any better.

Whole populations were put at risk—but not equally so. Political, economic, racial, gendered, and other demographic factors mitigated as well as elevated risk and fear factors. The COVID-19 pandemic quickly became a complex security issue that transgressed national boundaries and widened cultural divides, traduced traditional geopolitics and revealed the weakness of international institutions, and pitted the saving of lives against the necessity for a livelihood. Most vividly, COVID-19 exposed the universal vulnerability of the individual, throwing into stark relief the need to revalorize the concept of human security, first characterized in 1994 by the United Nations as "a child who did not die, a disease that did not spread, a job that was not cut, an ethnic tension that did not explode in violence, a dissident who was not silenced" (UNDP 1994).

Nation-states and international institutions, one after another, proved unable, some blatantly more so than others, to keep people safe. Indeed, contra human security, more children were dying as the virus spread and health-care systems were overburdened and food supplies became inadequate. Jobs were lost at levels not seen since the Great Depression (Lowrey 2020), and violence increased within as well as between states (*Economist* 2020; McVeigh 2020). Dissidents were silenced, including medical officials in China who first tried to raise the alarm, and infectious

disease experts in the United States who were fired or sidelined for speaking the truth (Sun and Dawsey 2020).

The challenge is to resecuritize COVID-19 without falling into the hierarchical and chauvinist traps of the states-system, in particular, those laid by the two hegemons, China and the United States, who have the most to gain in the short term (if the most to lose in the long term) by canalizing the pandemic into a national security conflict.

From Sydney

With plenty of historical precedents to draw on (from plague-ridden Athens in the fifth century BCE to the Spanish flu in 1918), as well as preparedness models for nuclear, hurricane, and biological disasters (including the 2011 US Centers for Disease Control and Prevention (CDC) plan for the zombie apocalypse [Good 2011]), COVID-19 could hardly be considered an unknown or black swan event (see below). Unlike singular incidents with a global impact, like the unexpected assassination of a national leader or a terrorist attack on a strategic center, COVID-19 developed incrementally and serially, if unevenly, with a flat-then-steep arc as the virus reproduced exponentially into an existential danger. How did we so monumentally fail not only to connect but to see the dots? Why the denial followed by panic? Perhaps we fell into the Baudrillard trap, in which pseudoscientific models, political simulacra, and wishful thinking dulled first responses and then crippled adaptive strategies. It would certainly not be the first time: the end of the Cold War, the 2008 global financial crisis, 9/11, the Iraq War, Brexit, and the unexpected election of Donald Trump come to mind.

On a personal level, this suspicion came early in the pandemic, after an

incident that took place last March at the University of Sydney. The setting was the main Quadrangle, an area overlooking the city that is usually full of Asian visitors, primarily Chinese, who come by tour buses to see the elegant Gothic Revival structure of sandstone, leaded-glass windows, and whimsical gargoyles. Enamored with *Harry Potter*, the tourists hold smartphones aloft to capture images of the building that their guides claim to have inspired Hogwarts School of Witchcraft and Wizardry (Evlin 2019). No one ever bothers to correct them.

But by late March the Quad had been depopulated by the novel coronavirus, making it easy to spot the single girl taking a selfie. She stood out in her solitude but also by her garb: black Doc Martens, black jeans, black T-shirt, accessorized by a black N95 mask. When she turned there was a jolt of déjà vu, a psychic stutter-step like the glitch in the Matrix that signals something serious is about to go down (*The Matrix*, 1999). On her shirt front was a meme that looped from World War II to *The Walking Dead* to what would soon be the eternal now of life and death in the time of coronavirus. It read, "Keep Calm and Get behind the Guy with the Crossbow."

The image struck like the lightening flash of knowledge that Walter Benjamin (1999) writes about in the *Arcades Project*: the happy tourists and the playful necromancy of wizards and witches had been displaced by the necropolitics of the zombie.[1] On that day COVID-19 showed its hand, challenging the ultimate prerogative of the sovereign state—to determine who lives, who dies—with the bare existence of the living dead.

The long roll of thunder that followed, as Benjamin put it, is our attempt to make sense of the pandemic, in particular, its

close, fitful, and not entirely metaphorical relationship of SARS-CoV-2 (the virus behind the COVID-19 disease) with zombies. For a start, both zombies and virus are the living dead, in the sense that they acquire vitality only after they find and infect a host (Villarreal 2008). First encounters are marked by denial and complacency, which can rapidly escalate into panic and fear of the other. Seeking individual security at the cost of the collective good, the most dangerous of enemies is then created: our worst possible selves, ready to do whatever is necessary to survive.

The zombie clearly has something to teach us about the virus. The zombie film holds up a mirror to realities we might prefer to bury, like deep-rooted racism (*Night of the Living Dead*), superficial lifestyles (*Dawn of the Dead*), environmental degradation (*World War Z*), and totalitarian eugenics (*Overlord*).

But in our post-truth era, in which story and world have become increasingly difficult to distinguish, the boundary between zombie zeitgeist and collective unconscious becomes further attenuated. This moment is best captured in Jim Jarmusch's recent film, *The Dead Don't Die*, by the call-and-response between Officer Ronnie Peterson, played deadpan by Adam Driver, and his partner, Cliff Robertson, played zombie-pan by Bill Murray. "This is all gonna end badly," says Ronnie. "How can you be so sure?" asks Cliff. Because, says Ronnie, "I read the script."

If the characters in a zombie film can, why can we not break the fourth wall between bad scripts and worse play-acting in the absurdist theater of what is supposed to pass as security practices? In the bizarro world of COVID-19, political confabulation, media dis/misinformation, and wishful thinking sustain the hollowed-out

authority of national leaders who improvise one script after another while thousands die.

After the denial and dithering by world leaders during the early critical weeks, most consistently by President Trump—it's "going to be fine" (February 10), "under control" (February 24), "going to disappear" (February 28), "going to go away" (March 12), and "opened up and just raring to go by Easter" (March 25)—a series of rewrites followed, ranging from ad hoc denial to the ultimate power in politics, all-out war (McCarthy 2020). President Emmanuel Macron of France fired the first salvo ("We are at war" [Erlanger 2020]), which was escalated by United Nations Secretary-General António Guterres ("The world is at war with the virus" [*RTÉ* 2020]); traduced by US President Trump with tropes, first World War II ("This is our big war" [Bennett and Berenson 2020]) and then the global war on terror ("Nothing would be worse than declaring victory before the victory is won" [Cummings 2020]); and invoked for permanent state of emergency in Hungary ("War-like state" [Walker 2020]). This view was not limited to world leaders: "It's insane," declared Kristian Andersen, a professor in the Department of Immunology and Microbiology at Scripps Research, "Almost the entire scientific field is focused on this virus now. We're talking about a warlike situation" (Kormann 2020).

When the war of spectacle morphs into the spectacle of war, new specters emerge and multiply. In his 1832 book, *On War*, the Prussian military strategist Carl von Clausewitz notes how "war gives to things exaggerated dimensions and unnatural appearance," a warning taken up today by people like Dr. Anthony Fauci (2020b), who compares the COVID-19 situation to "the fog of war." To illustrate his point,

Clausewitz (1976: 706) likens war to the interactive nature of language, noting how war "has its own grammar, but not its own logic." Clausewitz died long before geopolitical conflict gave way to "full-spectrum dominance,"[2] in which language is weaponized (Singer 2018) as an instrument of an infowar let loose like a virus by those more self-interested in the control than the well-being of a population.

What does it mean, if language is a virus (pace William Burroughs [Bridle 2014]) and the coronavirus is a language? We must still decipher the mathematic (Broad 2020) and genetic (Zimmer 2020) grammars of SARS-CoV-2 to control the pandemic by quarantine and vaccine. But we also need to understand the affective languages of war and disease—how dread, fear, and panic force-multiply the effective impact of both, not only to sicken and kill but to crash economies, threaten civil liberties, and estrange whole populations. The United States leads the way in this abject lesson.

From Los Angeles

In LA, the crisis began like a scene in *Children of Men*—with tracking shots of empty freeways, COVID-19 roadside notifications, and Zombieland-themed, ready.gov-earthquake preparedness billboards—all hovering above Tinseltown's rapidly growing homeless encampments. Quickly the empty streets of a slow-burn apocalypse flick mutated into something more spectral and terrifying in the fractal hyperreality of the infosphere (Der Derian 1998)—a complex system gone rogue.

There were the imminent warnings the Davos elite ignored in mid-January—of a "mystery virus" on the loose—as well as a decade of messages encoded in zombie films. To anyone paying attention

to on-the-ground reporting, disaster modeling, or cultural signals, a contagious globally viral event was less a black swan (Brooks 2020a; Taleb 2007) and instead an inevitable recurrent risk, amplified by accelerants like global interconnectivity (Smil 2008). It is worth recalling just how closely the COVID-19 crisis mimics the scenario (Brooks 2020b) that plays out in Max Brooks's 2006 blockbuster novel *World War Z*—which was modeled on the 2003 SARS outbreak (Brooks 2006). That an authoritarian Chinese regime would incubate the epidemic, concealing the data on airborne human-to-human transmission until it was too late should not have been surprising. Nor the futility of militarized borders to prevent rapid dissemination through a hyperconnected global society. The spring-breaker super spreaders, science denialists, conspiracy theorists, supermarket hoarders, gun stockpilers—and waves of complacency, fear, and panic—could have easily been drawn from *World War Z*'s epistolary narrative.

In the past decade, the zombie has curiously evolved from foreshadowing globally disruptive events to becoming entangled with the avant-garde of security research and preparedness. Innovators within the CDC (2011), Naval War College (Brooks 2009), and the US Army (Newton 2013) have used *World War Z* to update its own unconventional threat training exercises that range from pandemic planning to climate disasters and cyber-warfare. Notably, the SIR (susceptible infectious recovered) epidemic growth model (Blais and Witkowski 2013) popularized in these training exercises made abundantly clear the dangerous uncertainties when a transmissible airborne contagion meets a large susceptible population. Zombies raised alarms about a threat that escaped the boundaries of deterministic great power

politics and deterrence modeling—staying ahead of an epidemic requires understanding the stochastic unpredictability of networked risks (Tufekci 2020b; Mitchell 2009).

There were a few exceptions, like the Santa Fe Institute and New England Complex System Institute with a history of modeling "high dimensional chaos," that signaled early on that things would get bad, fast. But the Trump administration's blunt antiscientific dismantling of global epidemic preparedness infrastructure—including the fatal mistake to disband the National Security Council's pandemic directorate (Joyner 2018) and cut the CDC's China pandemic detection team (Taylor 2020)—turned a manageable crisis into an uncontrolled conflagration. Rather than aggressively contain a viral pathogen before it reached tipping points of exponential growth, the early White House Coronavirus Task Force press conferences resorted to American simulacrum: everything was "under control." Trump's inner circle was singularly negligent, but they were not alone. Beltway politicians and think tank technocrats had already set the stage for a disastrous COVID-19 response. Squandering a once-in-a-generation peace dividend at the end of the Cold War, then failing to adapt to the rise of new heteropolar risks (Der Derian 2005), national security experts instead revived a bipolar cold war military-industrial complex to chase the ever-elusive terror threat. Ironically, Trump leveraged a cascade of bewildering policy blunders—most notably the illusory faith in high-tech shock and awe in Iraq (Der Derian 2009)—to bootstrap his political ambitions. The inability of the security elite to adapt to emergent threats like economic meltdowns, accelerating inequality, collapsing infrastructure, climate tipping points, viral movements, cyberwar,

and pandemics fed populist outrage as well as a credulous polity's susceptibility to post-truth extremism.

A pre-Trump diagnosis of the disease, the popular culture zombie outbreak was a warning missive from a disenfranchised public that something was amiss in the US post–Cold War security apparatus as it failed to confront twenty-first-century risks. In contrast to conventional warfare, a zombie threat—like the virus—is driven by complex systems (Tufekci 2020a; Gara 2015), feedback loops (Hill 2016), quantum phase shifts (Der Derian 2013, 2019), tipping points (Carrington 2019), and accelerants (Der Derian 2017) that make predictive modeling on critical issues of life and death fraught with extreme uncertainty (Taleb and Bar-Yam 2016). The warning signs of exponentially accelerating viral risk (Norman, Bar-Yam, and Taleb 2020) fell on mostly deaf ears early in the pandemic—leaving the richest country in the world behind the curve, hapless, stockpiled with billion-dollar F-35s, border walls, and a militarized police force, yet short where it mattered most on testing agents, personal protective equipment, and functional public health. Federal unpreparedness forced states to fend for self-preservation, creating a mutually assured destruction of individual interest trumping collective security. Instead of a coordinated response to a networked threat, the Trump administration's B-movie-esque viral "whack-a-mole" strategy against an "invisible enemy" descended into a "worst case equilibria" where a negative feedback loop of selfish and spontaneous action indefinitely extended the costs and duration of the crisis (Holtz et al. 2020; Koutsoupias and Papadimitriou 1999).

As it synergized with its fragile and susceptible host, the virus revealed hidden systemic risks, social asymmetries,

and structural inequities plaguing late capitalism. Wall Street's reaction to COVID-19 demonstrated the fragility of hyperfinancialized markets in the face of emerging forms of risk. Months into the pandemic—uplifted by corporate tax cuts and chronically cheap capital post-2008—Wall Street hit all-time stock market highs as if China and Italy were not in lockdown, only to turn on a hair trigger to uncontrolled panic when the World Health Organization belatedly declared COVID-19 a global pandemic. Accelerated by algorithmic high-speed trading (Banerji and Zuckerman 2020), aggravated by hazardous corporate management (Taleb 2020), and amplified by hedge funds spiking volatility levels (as well as the profitability of complex derivatives) with panicked missives on cable TV (Franck 2020), a self-fulfilling, mutually self-destructive cascade emerged—prompting near unlimited government support to pacify market chaos. The efficient market wisdom of the crowd appeared to be displaced by manic euphoria and paranoia generated by dueling high-frequency-trading algorithms.

Observers described it as a "zombie market" (Schulze 2020)—driven by algorithmic momentum over economic reality—feeding on a mix of greed, fear, hysteria, fraud, faith in miracle vaccines, and the support of endless bailouts. The quickest economic downturn in history schizophrenically swung back to all-time market highs at unprecedented speed—with government support for financial turbulence a stark contrast with federal efforts to maintain public health, keep workers employed, and protect society's most vulnerable. The long-term costs of pursuing a financial "V-shaped recovery" without containing the virus or advancing economic welfare are yet to be seen. Nor is the resiliency of an increasingly "human out of the loop" financial system in the face of periodic disruptive events (Wilson 2012). A virus response held hostage by the chaotic gyrations of capital while disproportionately impacting people of color and essential workers living in economic precarity—in many cases one and the same—exposed the pernicious displacement of financial risk to social insecurity. The asymmetries of wealth and welfare revealed during COVID-19 helped animate the Black Lives Matter protests of social and racial injustice.

Stunningly, the chaos on Wall Street paled in comparison to the discord, conspiracy, and misinformation on social media platforms. Facebook's and Google's black-box algorithms (Pasquale 2016), optimized to elicit the basest primal reactions, created powerful snowball effects, amplifying the most insidious conspiracy theories as a resonance machine built up between the fringes of the internet and official policy. Disinformation campaigns grew in a complex feedback loop (O'Neil 2020), generated by a combination (PBS 2020) of QAnon and Infowars conspiracy theories, algorithmic cascades, and cyborg "superspreader" misinformation bots (Aral 2020). A DDOS-like (distributed denial of service) attack of doubt and confusion on public attention (Tufekci 2017) drowned out scientific voices, entrenching Trump as the tragic center of gravity during the pandemic.

As in the 2016 election, the self-propagation of algorithmic information markets and Trumpian attention hacking fused in a symbiosis, growing through recursive cycles of spectacle and distraction. The virus and its uncanny ontological doppelganger, the zombie, provide a frame to understand the risks when self-replicating machines become powerful agents weaponizing and force multiplying misinformation. The coeval emergence of artificial intelligence language models

like GPT-3 (Council 2020), "making waves for its ability to mimic writing, but [falling] short on common sense," and ever-more hyperrealistic deep-fake simulations driven by generative adversarial network artificial intelligence systems foreshadow the spectral dangers of an information landscape driven by the perverse feedback loop of machines mimicking and then influencing human deliberation. Not only should we pause to reconsider whether we are in control of the machine or embedded in it (DeLanda 1991), but we should revisit Hannah Arendt's warnings about technologically abstracted violence and tyrannical possibilities when common reality is dissembled (Arendt 1958).

Finally, as governments reached for the convenience of machines to contain the virus, algorithmic bias and feeding-forward of systemic inequality emerged as lines of protest against a future of machine driven governance and surveillance. From the faulty inferences of predictive policing and entrance exams to algorithmic vaccine distribution and racially biased facial recognition software (Raji et al. 2020), COVID-19 revealed the looming challenges to human rights, collective action, and any notion of a shared reality (Zuckerman 2020) when unauditable "weapons of math destruction" algorithmic governance systems are hastily adopted without public unaccountability (O'Neil 2017). Trump may have best expressed a virus among us, one that both helped create and will likely outlive his administration. Yet as we look to the post-COVID-19 era, we need to remember how the physical and digital virus crippled superpowers through a living dead string of code.

Interpandemic or Interwar?

What, then, has COVID-19 been trying to tell us? For a start, everything is *not* under control. We are not masters of

the virosphere, let alone the universe (or perhaps the other way around, considering there are more known viruses than observable stars). Like its zombie twin, the virus as an emergent disruptive agent exposed individuals and states who pretend to exercise sovereign control over the space and pace of the pandemic: as Dr. Anthony Fauci (2020a) made clear, "You don't make the timeline, the virus does." The global impact of the pandemic (following but dwarfing Ebola, H1N1, HIV) also alerted us to the sensitivity of the ecosphere to initial conditions, in which horseshoe bats in Wuhan caves (if the current origin story holds) triggered a globe-spanning catastrophe. To be sure, COVID-19 found a perfect host in the person and position of Donald Trump as president of the United States, but largely because of preexisting conditions of inequality, inadequate health care, and a low regard by a high percentage of the population for scientific evidence.

This should not blind us to another side of the COVID-19 story. While we might think of a virus as pernicious, paradoxically, the mitochondrion, the governing organelle of the human cell that carries our mother's DNA (that operates as RNA), is said to have entered the primordial human cell as a virus.[3] Like the virus's code of RNA, the future waits in a virtual state until it is animated by a viable host. Suspended in superpositions of life and death, beset by the uncertainties of exponential growth, and actualized by acts of observation and measurement, COVID-19 lends itself better to quantum probabilistic interpretations than classical best- or worst-case scenarios (Project Q n.d.).

Seen in this light, we might better imagine the virus not as a black-swan body snatcher but as an "inverted miracle," which the late Paul Virilio described as a fissure that catalyzes efforts to reclaim human agency amid accelerating technological

and social complexity (Der Derian 2009: 204). A parallax view of the pandemic that is transnational and transspecies can help us better prepare for the next outbreak, whether triggered by climate tipping points, expanding socioeconomic unrest, or virtual information cascades. Treating the virus as one among other waves of global risk rather than as a unique threat to state sovereignty, the interpandemic is less likely to take on the character or, worse, the actuality of an interwar.

A transhistorical perspective, in turn, offers a way out from the closed, zero-sum narratives of interwar and possibly yet another cold war. Benjamin (1969), probably one of the most incisive critics of *the* interwar, appropriates Paul Klee's painting, *Angelus Novus*, in one of his last essays, "Theses on the Philosophy of History," to find hope in the midst of catastrophe. Written on the cusp of his failed attempt to escape fascism, the essay depicts an angel with wings outspread, blown backward by a windstorm as one after another disaster piles up at his feet. It is too late to go back, to fix the broken things, to awaken the dead. Benjamin's last words—"this storm is called progress"— ring true and provide instructions for the interpandemic (258). We must turn to face what the angel cannot, not a single catastrophe but a chain of events pushing us toward a future that remains unwritten.[4]

Notes

1. "In the fields with which we are concerned, knowledge comes only in lightning flashes. The text is the long roll of thunder which follows" (Benjamin 1999: 456). See also Mbembe 2003.
2. *Wikipedia*, s.v. "full-spectrum dominance," en.wikipedia.org/wiki/Full-spectrum_dominance (accessed October 8, 2020).
3. Personal communication, John Phillip Santos, March 27, 2020.
4. This is drawn from our documentary film *Project*

Z, which ends with Laurie Anderson's "Progress," a haunted musical revision of Walter Benjamin's "Theses on the Philosophy of History"—which was performed at the Manhattan Town Hall barely two weeks after the catastrophe of 9/11.

References

Aral, Sinan. 2020. *The Hype Machine*. New York: Currency.

Arendt, Hannah, 1958. *The Human Condition*. Chicago: University of Chicago Press.

Banerji, Gunjan, and Gregory Zuckerman. 2020. "Why Are Markets So Volatile? It's Not Just the Coronavirus." *Wall Street Journal*, March 16. www.wsj.com/articles/why-are-markets-so-volatile-its-not-just-the-coronavirus-11584393165.

Benjamin, Walter. 1969. "Theses on the Philosophy of History." In *Illuminations: Essays and Reflections*, edited by Hannah Arendt, 253–64. New York: Schocken.

Benjamin, Walter. 1999. *The Arcades Project*. Cambridge, MA: Harvard University Press.

Bennett, Brian, and Tessa Berenson. 2020. "'Our Big War': As Coronavirus Spreads, Trump Refashions Himself as a Wartime President." *Time*, March 19. time.com/5806657/donald-trump-coronavirus-war-china/.

Blais, Brian, and Cait Witkowski. 2013. "Bayesian Analysis of Epidemics—Zombies, Influenza, and other Diseases" Preprint, submitted November 25. arxiv.org/abs/1311.6376.

Bridle, James. 2014. "Why William S. Burroughs Would Have Loved XSS." *Guardian*, October 5. www.theguardian.com/technology/2014/oct/05/william-s-burroughs-virus-xss-kindle-hackers.

Broad, William. 2020. "A.I. versus the Coronavirus." *New York Times*, March 26. www.nytimes.com/2020/03/26/science/ai-versus-the-coronavirus.html.

Brooks, Max. 2006. *World War Z: An Oral History of the Zombie War*. New York: Crown.

Brooks, Max. 2009. "Lecture: Max Brooks, World War Z." US Naval War College, Newport, RI, December 7. www.youtube.com/watch?v=-nGG5E04cog.

Brooks, Max. 2020a. "'All of This Panic Could Have Been Prevented': Author Max Brooks on COVID-19." Interview by Terry Gross. *Fresh Air*, March 24. www.npr.org/2020/03/24/820601571/all-of-this-panic-could-have-been-prevented-author-max-brooks-on-covid-19.

Brooks, Max. 2020b. "China Barred My Dystopian Novel about How Its System Enables Epidemics." *Washington Post*, February 27. www.washingtonpost.com/outlook/china-barred-my-dystopian-novel-about-how-its-system-enables-epidemics/2020/02/27/cc0446f0-58e5-11ea-9000-f3cffee23036_story.html.

Carrington, Damian. 2019. "Climate Emergency: World 'May Have Crossed Tipping Points.'" *Guardian*, November 27. www.theguardian.com/environment/2019/nov/27/climate-emergency-world-may-have-crossed-tipping-points.

CDC (Centers for Disease Control and Prevention). 2011. *Zombie Preparedness*. March.

Clausewitz, Carl von. 1976. *On War*. Translated by Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press.

Council, Jared. 2020. "AI Can Almost Write like a Human—And More Advances Are Coming." *Wall Street Journal*, August 11. www.wsj.com/articles/ai-can-almost-write-like-a-humanand-more-advances-are-coming-11597150800.

Cummings, William. 2020. "Trump: Coronavirus Guidelines, Set to Expire Tuesday, Will Be Extended to April 30." *USA Today*, March 29. www.usatoday.com/story/news/politics/2020/03/29/coronavirus-response-updates-pelosi-fauci/2935369001/.

DeLanda, Manuel. 1991. *War in the Age of Intelligent Machines*. New York: Zone.

Der Derian, James. 1998. "Virtually Wagging the Dog." *Theory and Event* 2, no. 1. muse.jhu.edu/article/32495.

Der Derian, James. 2005. "National Security: An Accident Waiting to Happen." *Harvard International Review* 27, no. 3: 84–83. www.jstor.org/stable/43649095.

Der Derian, James. 2009. *Virtuous War: Mapping the Military-Industrial-Media-Entertainment Network*. 2nd ed. London: Routledge.

Der Derian, James. 2013. "From War 2.0 to Quantum War: The Superpositionality of Global Violence." *Australian Journal of International Affairs* 67, no. 5: 570–85. www.tandfonline.com/doi/abs/10.1080/10357718.2013.822465.

Der Derian, James. 2017. "The Cyber Age Demands a New Understanding of War—But We'd Better Hurry." *Zocalo Public Square*, March 29. www.zocalopublicsquare.org/2017/03/29/cyber-age-demands-new-understanding-war-wed-better-hurry/ideas/nexus/.

Der Derian, James. 2019. "A Quantum of Insecurity." *New Perspectives* 27, no. 2: 13–27.

Economist. 2020. "Pandemics and War: Horseman of the Apocalypse." June 20. www.economist.com/international/2020/06/18/covid-19-raises-the-risks-of-violent-conflict.

Erlanger, Steven. 2020. "Macron Declares France 'at War' with Virus." *New York Times*, March 16. www.nytimes.com/2020/03/16/world/europe/coronavirus-france-macron-travel-ban.html.

Evlin, Lin. 2019. "The 'Magical' Reason Chinese Tourists Are Flocking to the University of Sydney." *SBS News*, updated April 3. www.sbs.com.au/news/the-magical-reason-chinese-tourists-are-flocking-to-the-university-of-sydney.

Fauci, Anthony. 2020a. "Dr. Fauci: You Don't Make the Timeline, the Virus Does." Interview. *CNN Primetime*, March 25.

Fauci, Anthony. 2020b. "On What Americans Can Do to Limit Pandemic's Harm." Interview. *PBS News Hour*, March 20.

Franck, Thomas. 2020. "Bill Ackman Warned 'Hell Is Coming' because of Virus: He Then Pocketed $2B in Bets against Markets." *CNBC*, March 25. www.cnbc.com/2020/03/25/bill-ackman-exits-market-hedges-uses-2-billion-he-made-to-buy-more-stocks-including-hilton.html.

Gara, Phillip. 2015. "Learning from Zombies: An Introduction to Project Z." *Fold*, November 9. readfold.com/read/Project_Z/learning-from-zombies-JhLiQmJW.

Good, Chris. 2011. "Why Did the CDC Develop a Plan for a Zombie Apocalypse?" *Atlantic*, May 20. www.theatlantic.com/politics/archive/2011/05/why-did-the-cdc-develop-a-plan-for-a-zombie-apocalypse/239246/.

Hill, Mike. 2016. "Norbert's Nightmares: On Zombie Wars, with a Nod to Cybernetics." Feedback: Open Humanities blog, August 15. openhumanities press.org/feedback/film/norberts-nightmares -on-zombie-wars-with-a-nod-to-cybernetics/.

Holtz, David et al. 2020. "Interdependence and the Cost of Uncoordinated Responses to COVID-19." *Proceedings of the National Academy of Sciences* 117, no. 33: 19837–43.

Joyner, James. 2018. "Bolton Dismantles White House Global Health Security Team." *Outside the Beltway*, May 11. www.outsidethebeltway.com /bolton-dismantles-white-house-global-health -security-team/.

Kormann, Carolyn. 2020. "From Bats to Human Lungs: The Evolution of the Coronavirus." *New Yorker*, March 27. www.newyorker.com/science /elements/from-bats-to-human-lungs-the -evolution-of-a-coronavirus.

Koutsoupias, Elias, and Christos Papadimitriou. 1999. "Worst-Case Equilibria." In *STACS 99: 16th Annual Symposium on Theoretical Aspects of Computer Science Trier, Germany, March 4–6, 1999 Proceedings*, edited by Christoph Meinel and Sophie Tison, 404–13. Berlin: Springer. doi.org/10.1007/3-540-49116-3_38.

Lowrey, Anne. 2020. "The Terrifying Next Phase of the Coronavirus Recession." *Atlantic*, July 15. www.theatlantic.com/ideas/archive/2020/07 /terrifying-next-phase-coronavirus-recession /614140/.

Mbembe, Achille. 2003. "Necropolitics," translated by Libby Meintjes. *Public Culture* 15, no. 1: 11–40.

McCarthy, Tom. 2020. "'It Will Disappear: The Disinformation Trump Spread about the Coronavirus Timeline." *Guardian*, April 14. www .theguardian.com/us-news/2020/apr/14/trump -coronavirus-alerts-disinformation-timeline.

McVeigh, Karen. 2020. "Protests Predicted to Surge Globally as Covid-19 Drives Unrest." *Guardian*, July 17. www.theguardian.com/global -development/2020/jul/17/protests-predicted -to-surge-globally-as-covid-19-drives-unrest.

Mitchell, Melanie. 2009. *Complexity: A Guided Tour*. Oxford: Oxford University Press.

Newton Casey. 2013. "Army Recruits Zombie Novelist Max Brooks to Prepare Troops for Disaster." *Verge*, April 12. www.theverge.com/2013/4 /12/4217692/army-recruits-zombie-novelist-max -brooks-troops-disaster-preparation.

Norman, Joseph, Yaneer Bar-Yam, and Nassim Nicholas Taleb. 2020. "Systemic Risk of a Pandemic via Novel Pathogens—Coronavirus: A Note." January 26. static1.squarespace.com /static/5b68a4e4a2772c2a206180a1/t/5e2efaa 2ff2cf27efbe8fc91/1580137123173/Systemic _Risk_of_Pandemic_via_Novel_Path.pdf.

O'Neil, Cathy. 2017. *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. New York: Broadway.

O'Neil, Cathy. 2020. "Trump Is a Machine-Learning Algorithm Gone Wrong." *Bloomberg News*, April 24. www.bloomberg.com/opinion/articles/2020 -04-24/trump-is-a-machine-learning-algorithm -gone-wrong.

Pasquale, Frank. 2016. *The Black Box Society: The Secret Algorithms That Control Money and Information*. Cambridge, MA: Harvard University Press.

PBS. 2020. "United States of Conspiracy." *Frontline*, July 28.

Project Q. N.d. www.projectqsydney.com (accessed September 30, 2020).

Raji, Inioluwa Deborah, Timnit Gebru, Margaret Mitchell, Joy Buolamwini, Lee Joonseok, and Emily Denton. 2020. "Saving Face: Investigating the Ethical Concerns of Facial Recognition Auditing." Preprint, submitted January 3. www .researchgate.net/publication/338420715 _Saving_Face_Investigating_the_Ethical _Concerns_of_Facial_Recognition_Auditing.

RTÉ. 2020. "UN Chief Warns of Record Global Recession amid 'War with a Virus.'" March 19. www.rte.ie/news/world/2020/0319/1124205 -un-chief-global-recession-of-record-dimensions -likely/.

Schulze, Elizabeth. 2020. "Economist Mohamed El-Erian Warns about the Risk of Zombie Markets." *CNBC News*, June 16. www.cnbc.com/2020 /06/16/economist-mohamed-el-erian-warns -about-the-risk-of-zombie-markets.html.

Singer, Peter W. 2018. *Likewar: The Weaponization of Social Media*. New York: Houghton Mifflin Harcourt.

Smil, Vaclav. 2008. *Global Catastrophes and Trends: The Next Fifty Years*. Cambridge, MA: MIT Press.

Sun, Lena H., and Josh Dawsey. 2020. "CDC Feels Pressure from Trump as Rift Grows over Coronavirus Response." *Washington Post*, July 9. www.washingtonpost.com/health/trump-sidelines -public-health-advisers-in-growing-rift-over -coronavirus-response/2020/07/09/ad803218 -c12a-11ea-9fdd-b7ac6b051dc8_story.html.

Taleb, Nassim Nicholas. 2007. *The Black Swan: The Impact of the Highly Improbable*. New York: Random House.

Taleb, Nassim Nicholas. 2020. "Corporate Socialism: The Government Is Bailing out Investors and Managers Not You." *Medium*, March 25. medium.com/incerto/corporate-socialism-the -government-is-bailing-out-investors-managers -not-you-3b31a67bff4a.

Taleb, Nassim Nicholas, and Yaneer Bar-Yam. 2020. "The UK's Coronavirus Policy May Sound Scientific. It Isn't." *Guardian*, March 25. www .theguardian.com/commentisfree/2020/mar/25 /uk-coronavirus-policy-scientific-dominic -cummings.

Taylor, Marisa. 2020. "U.S. Slashed CDC Staff inside China Prior to Coronavirus Outbreak." Reuters, March 25. www.reuters.com/article/us-health -coronavirus-china-cdc-exclusiv/exclusive-u-s -slashed-cdc-staff-inside-china-prior-to -coronavirus-outbreak-idUSKBN21C3N5.

Tufekci, Zeynep. 2017. *Twitter and Tear Gas: The Power and Fragility of Networked Protest*. New Haven, CT: Yale University Press.

Tufekci, Zeynep. 2020a. "It Wasn't Just Trump Who Got It Wrong: America's Coronavirus Response Failed because We Didn't Understand the Complexity of the Problem." *Atlantic*, March 24. www.theatlantic.com/technology/archive /2020/03/what-really-doomed-americas -coronavirus-response/608596/.

Tufekci, Zeynep, 2020b. "This Overlooked Variable Is the Key to the Pandemic. It's not R." *Atlantic*, October 1. www.theatlantic.com/health /archive/2020/09/k-overlooked-variable-driving -pandemic/616548/.

UNDP (United Nations Development Programme). 1994. *Human Development Report*. New York: Oxford University Press.

Villarreal, Louis P. 2008. "Are Viruses Alive?" *Scientific American*, August 8. www.scientificamerican .com/article/are-viruses-alive-2004/.

Walker, Shaun, and Jennifer Rankin. 2020. "Hungary Passes Law That Will Let Orbán Rule by Decree." *Guardian*, March 31. www.theguardian .com/world/2020/mar/30/hungary-jail-for -coronavirus-misinformation-viktor-orban.

Wilson, Eric. 2012. "Criminogenic Cyber-Capitalism: Paul Virilio, Simulation, and the Global Financial Crisis." *Critical Criminology* 20, no. 3: 249–74.

Zimmer, Carl. 2020. "Welcome to the Virosphere." *New York Times*, March 24. www.nytimes.com /2020/03/24/science/viruses-coranavirus -biology.html.

Zuckerman, Ethan. 2020. "The Amazing Disappearing Election: Donald Trump and the Coronavirus Are All-Consuming Topics." *Atlantic*, August 7. www .theatlantic.com/politics/archive/2020/08 /why-news-sounds-same/615070/.

Filmography

The Matrix. Directed by Lana Wachowski and Lily Wachowski. Los Angeles: Warner Brothers, 1999.

Project Z: The Final Global Event. Directed by James Der Derian and Phillip Gara. Providence, RI: Bullfrog Films, 2015. www.bullfrogfilms.com /catalog/pz.html.

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