

SCIENCE DISINFORMATION IN A TIME OF PANDEMIC

Christopher Dornan

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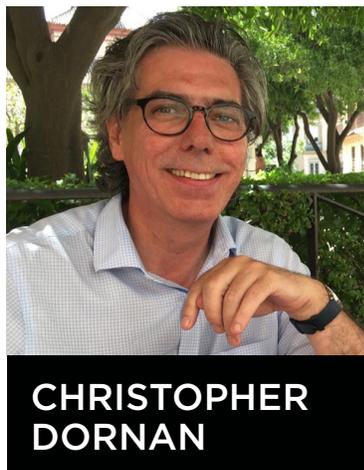


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ABOUT THE AUTHOR



Christopher Dornan teaches at Carleton University where he served for nine years as director of the School of Journalism and Communication and six years as director of the Arthur Kroeger College of Public Affairs.

He holds an M.A. in the History and Philosophy of Science from the University of Cambridge, and a Ph.D. in science communication from McGill University. He taught for two years at Cornell University before joining the faculty at Carleton in 1987.

He has worked as a reporter for the Edmonton Journal, an editor and editorial writer for the Ottawa Citizen, and a columnist for The Globe and Mail and CBC National Radio. In 2006 he was Erasmus Mundus visiting scholar at the Danish School of Journalism and the University of Århus.

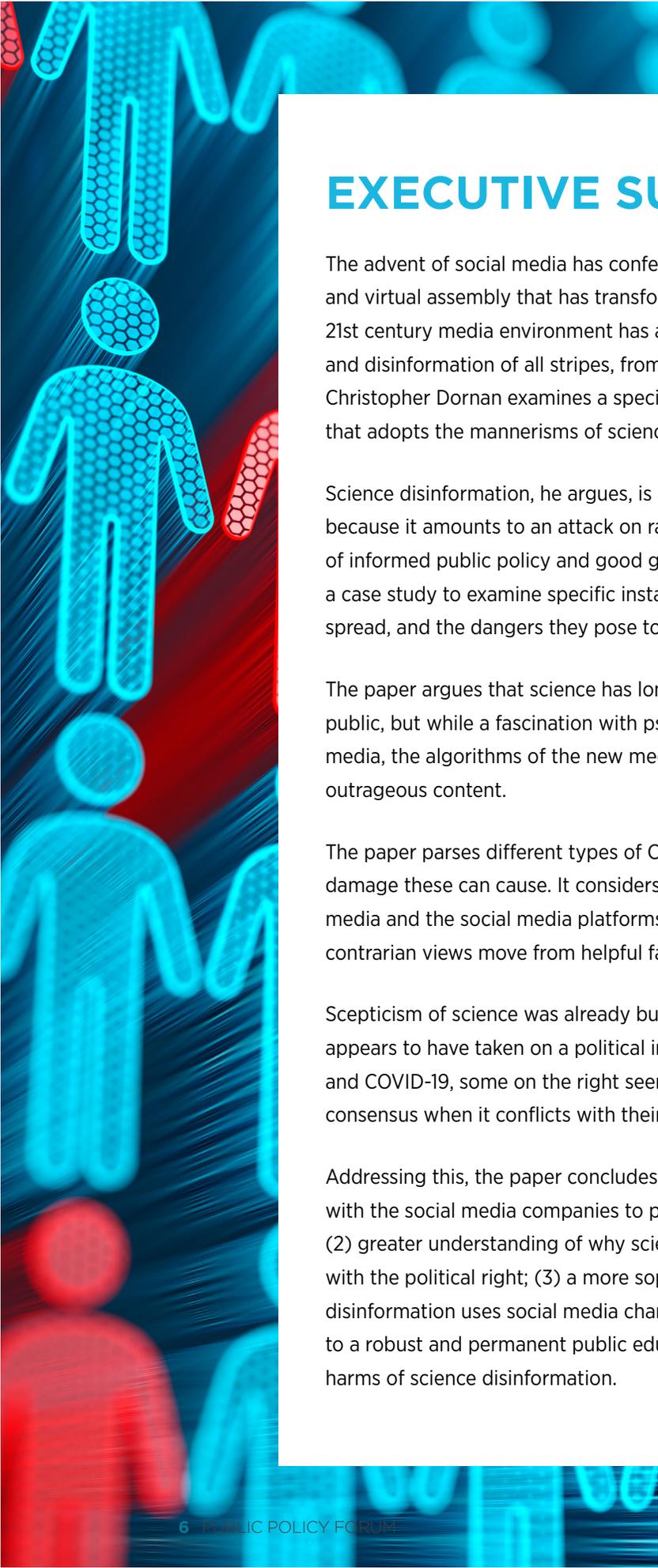
Among other venues, his academic work has appeared in *Critical Studies in Communication*, the *Media Studies Journal*, the *Canadian Medical Association Journal*, *Topia*, *Journalism Studies*, and the research reports of The Royal Commission on Electoral Reform and Party Financing.

He is the co-editor (with Jon Pammett) of *The Canadian Federal Election of 2019* (forthcoming, McGill-Queen's Press), along with six previous volumes in this series.

He was a principal writer and editor for both volumes of the 2012 government-mandated *Aerospace Review* (the Emerson Report), the Canadian Space Agency's 2014 *Space Policy Framework*, and the Public Policy Forum's 2016 report on the state of the Canadian news media, *Shattered Mirror: News, Democracy and Trust in the Digital Age*.

His latest work includes the reflection paper "[Dezinformatsiya: The Past, Present and Future of 'Fake News'](#)" (2017), written for the Canadian Commission for UNESCO, and "How to Navigate an Information Media Environment Awash in Manipulation, Falsehood, Hysteria, Vitriol, Hyper-Partisan Deceit and Pernicious Algorithms: A Guide for the Conscientious Citizen" (2019), written for the Canadian Committee for World Press Freedom and the Canadian Commission for UNESCO. Both papers can be downloaded from the Canadian Commission for UNESCO's [IdeaLab](#).

He is chair of the board of Reader's Digest Magazines (Canada).



EXECUTIVE SUMMARY

The advent of social media has conferred on the public a freedom of expression and virtual assembly that has transformed contemporary society. In doing so, the 21st century media environment has also given licence to information extremism and disinformation of all stripes, from the comical to the venomous. Here, Christopher Dornan examines a specific species of information disorder: content that adopts the mannerisms of science in order to advocate anti-science.

Science disinformation, he argues, is an especially worrying genre of falsity because it amounts to an attack on rationality, and therefore on the underpinnings of informed public policy and good governance. The COVID-19 pandemic provides a case study to examine specific instances of science disinformation, how these spread, and the dangers they pose to the public good.

The paper argues that science has long been poorly understood by the greater public, but while a fascination with pseudoscience predates the rise of social media, the algorithms of the new media environment reward ever more outrageous content.

The paper parses different types of COVID-19 disinformation with a view to the damage these can cause. It considers the responsibilities of the traditional news media and the social media platforms in a moment of crisis. When does publishing contrarian views move from helpful fair comment to public endangerment?

Scepticism of science was already building before the pandemic, but recently appears to have taken on a political inflection. On climate change, vaccination and COVID-19, some on the right seem perfectly ready to dismiss the scientific consensus when it conflicts with their political values.

Addressing this, the paper concludes, will require: (1) redoubled engagement with the social media companies to press them on their public responsibilities; (2) greater understanding of why science scepticism seems to be aligning with the political right; (3) a more sophisticated understanding of how science disinformation uses social media channels to its advantage; and (4) commitment to a robust and permanent public education campaign so as to counter the social harms of science disinformation.

SCIENCE DISINFORMATION IN A TIME OF PANDEMIC

In the early months of 2020, as the threat of COVID-19 became evident, the actions of nation states and the behaviour of entire populations took on a single purpose. One by one, as governments instituted measures to manage the contagion, they did so on the authority of science. All over the world, and for the first time in human history, the scientists were in charge of how societies would conduct themselves. Not the generals or the bankers, not the lawyers or the priests, not the industrialists or the speculators or the partisan political classes themselves, but virologists, epidemiologists, and infectious disease specialists.

The crisis was born of nature—a dangerous novel coronavirus, highly contagious, to which no one on the planet yet had immunity—but the global mobilization to address it, an unprecedented exercise in social control, was undertaken on the insistence of medical empiricists. As they monitored how the virus spread in Wuhan, its point of origin, and registered how it sickened and killed those who contracted it, they recognized it as a menace to global health. Uncontained, it would sweep the planet, infecting hundreds of millions. Unattended, it would overwhelm the capacities of both hospitals and morgues, visit misery on untold lives and wreak havoc on national economies and the social fabric.

In the absence of a biological fix—a vaccine or effective antiviral drugs—the only measures to mitigate the crisis were social: altering public space, deforming public interaction, and disrupting the routines of everyday life so as to inhibit the transmission of the microbe. The populace would have to be schooled to handwash frequently and not to touch their faces. Shaking hands—in Western societies, that most prosaic and affable greeting—would have to be made taboo overnight. Schools would be closed, public gatherings prohibited, and workplaces shut down. People would be required to sequester in their homes and distance themselves from one another on those self-rationed occasions they ventured out.

In order for these strictures to be effective, they would have to apply equally to everyone not deemed essential to the maintenance of social order (the so-called front-line workers, from medical personnel to elderly care providers, transport drivers, hydro repair crews and supermarket cashiers, who would have to take meticulous precautions so as not to catch or transmit the disease themselves) otherwise the entire population would be compromised. As John M. Barry, author of *The Great Influenza*, a history of the 1918 pandemic, pointed out three years before COVID-19 appeared, “the effectiveness of such interventions will depend on public compliance, and the public will have to trust what it is being told.”

THE TRUST CHALLENGE

If it were to be managed successfully, the world-wide emergency triggered by the coronavirus would therefore have to transcend politics. The wholesale restructuring of human conduct, even if only temporary,



Small wonder, then, that coronavirus disinformation proliferated. The engines of distrust were already in place and already primed.

could not be imposed against the will of the very people on whose behaviour the protective measures would depend. Because everyone was vulnerable to infection, and every person who became infected was contagious, everyone would have to be convinced to observe the protocols. This would require a massive campaign of public education and persuasion. National elections are also moments of massive, elaborately planned efforts to influence the actions of the population, but they are inherently and necessarily divisive: they split the citizenry along partisan lines. In the face of pandemic what was called for was a public united in a

common cause and confident in the public health authorities. This required crystal-clear messaging about what everyone had to do, together with compelling explanations of why, along with—no less important—an appeal to civic duty and a mindfulness of others. The enemies of the effort to manage the crisis were ignorance and selfishness.

As the progress of the disease changed by the day and from one locality to the next, and as the clinical understanding of how it behaved and how it attacked the body also evolved with alarming rapidity, it would be daunting enough to keep an anxious public briefed on what was reliably known, manage the social response, and maintain calm. But the health communication campaign would also have to labour against an ongoing eruption of disinformation contrived, either deliberately or inadvertently, to confuse the public. Whether malicious in design or merely misguided, disinformation aims to convince people not to believe what they are told by official sources, subject area experts or media outlets responsibly guided by corroboration and verification. The effect of disinformation is to weaken the hold of those agencies tasked with providing the public with trustworthy information, or certainly to make their job more difficult.

Disinformation vaulted to prominence during the 2016 U.S. presidential election, when outright lies circulated via social media so as to favour the candidacy of Donald Trump and discredit the responsible news media. It became apparent that information malfeasance was a species of malevolent soft power used by foreign actors, particularly the Kremlin, to undermine the Western democracies through the cunning manufacture of discontent. The purpose of disinformation was to sow confusion and distrust, exacerbate division, inflame internal hostilities and so provoke a legitimization crisis whereby essential civic institutions could no longer command sufficient public trust.

The danger posed by deliberate disinformation, particularly around elections, when the thoughts and decisions of so many are so consequential, prompted the Western nations to adopt a variety of measures to guard against the threat. As an indication of how seriously Canada took the threat, in the runup to the 2019 federal election the government created the Critical Election Incident Public Protocol, designed



to inform the public of any serious assault on the integrity of the election. It created the Security and Intelligence Threats to Elections Task Force, bringing together Canadian Security Intelligence Service, the Communications Security Establishment, the Royal Canadian Mounted Police, and Global Affairs Canada to develop awareness of threats to the electoral process, and set up the Foreign Actor Interference Investigative Team within the RCMP. It took the lead on the G7 Rapid Response Mechanism, coordinating the monitoring and analysis of threats to the G7 democracies.

The sly, insidious propaganda content of Russia's RT (formerly Russia Today) cable channel and Sputnik news agency, along with the disinformation output of Russian troll factories, are perfectly real. But if the goal is to pit angry citizens against one another, their efforts in the United States are a mere adjunct to a flourishing homegrown media ecosystem of hyper-partisan outlets dedicated to enraging their audiences against their ideological enemies—which is to say, their fellow citizens. At the apex of this empire of animosity is Fox News, for which “the facts” are a pliable medium in the service of the perpetual affirmation of a triumphalist worldview. But Fox is only the most prominent standard bearer of a strain of political vehemence that also dominates American AM talk radio and proliferates in digital “political news” sites such as Breitbart, the Gateway Pundit, the Daily Wire, InfoWars and scores of others.

Here, pseudoscience and baseless conspiracy theories entwine with political vilification. In the world these sites describe, school shootings are a hoax perpetrated by the state to provide a pretext for gun control; the weather has been weaponized by the military; the 9/11 attacks on the World Trade Center were an inside job; vaccines cause autism; climate change is a myth; condensation trails from jet aircraft are in reality chemical and biological agents being sprayed by government agencies for purposes of psychological manipulation; and a sinister “Deep State,” answerable to no one, is at work to strip the citizenry of freedom of thought and regiment their behaviour. Meanwhile, the lowermost cloisters of the Internet—subreddits, Gab, message boards and instant messengers such as 4chan, 8kun, Telegram and Discord—seethe with even more fevered claims, which from time to time bubble up into public view, shrieking for attention.

In addition to its hysterical partisanship, the chief characteristics of this sphere of public discourse are its suspicion of established authority, its rejection of supposed “expertise,” its paranoid reflex to see conspiracies at every turn, and its ready embrace of pseudoscience. Small wonder, then, that coronavirus disinformation proliferated. The engines of distrust were already in place and already primed.

THE STAKES

When untruths circulate in the political arena, it is unfortunate but not unexpected. Politics, after all, is a contest between competing worldviews, an attempt to persuade the electorate to see the facts in a certain light. The aim is to win or retain power, and political messaging is merely a means to that end. Politicians have always exaggerated, bent the truth, smeared their opponents. The worrisome feature of the 2016 U.S. election was not so much the traffic in brazen falsehoods—Pope Francis did not, for example, endorse

Donald Trump—as it was the strategic attacks on the traditional news media as themselves untrustworthy.

The effort in that regard was to undermine the legitimacy of the news media, and in doing so disparage the notion that there are facts that are knowable independent of one's political convictions. If the news media could not be trusted to provide reliable, impartial reporting then there was no way to know what to believe and no rational way to dissuade voters from believing whatever they wanted. The attack on traditional political journalism as “fake news” was an extension of the derisive dismissal of the “reality-based community” in 2004 by a senior Bush administration adviser, widely assumed to be Karl Rove. The “reality-based community” were those who based their judgements on the best available evidence and placed their faith in scientific and professional expertise—people who, the Bush adviser sneered, “believe that solutions emerge from ... judicious study of discernible reality”—in contrast to those who saw reality as a creation of political will, and who understood that what matters most is what people can be made to believe.

In the case of coronavirus disinformation, similarly, there was certainly danger in the individual falsehoods that surged through social media channels, but each erroneous claim or wild fantasy could at least be addressed and debunked. (It is not that difficult, for example, to persuade people not to drink Javex, no matter who may have suggested disinfecting the body from the inside.) The greater danger lay in the accumulation of falsehoods that not only polluted the provision of sound health information but amounted to a rejection of the counsel and reasoning of the health authorities themselves.

In a moment of collective jeopardy, the real threat was to the underpinnings of a sound public policy response to the disease. What was at stake was the sway of scientific rationalism.

PUBLIC UNDERSTANDING OF SCIENCE

Ours is a society built by science. How we live the world over—the condition of human existence—owes itself almost entirely to the methods and findings of scientific investigation, their technological application, and their industrial production. All that sustains us, all our tools and toys, comes from knowledge of the natural workings of the animate and inanimate world wrested by empirical investigation and analytical insight. And yet ours is also a society estranged from science. It would be fair to say that the public, taken as a whole, does not understand this labour of the human intellect on which so much depends. This is not just to say that members of the lay public do not grasp the arcana of specialized research fields such as quantum mechanics or molecular biology (even scientists versed in one field are typically at a loss in other disciplines). Rather, non-scientists are unclear on the nature of scientific inquiry itself, in no small part because it has been misrepresented to them.

Science is popularly understood as an avenue to certitude—to knowledge that cannot be otherwise, a means to reveal an objective reality purged of human prejudice. As astrophysicist Neil deGrasse Tyson



famously quipped in 2011 on *Real Time with Bill Maher*, responding to guests on a previous episode who did not believe in either evolution or climate change, “The good thing about science is that it’s true whether or not you believe in it.” It is a winning and clever line, and it certainly captures the notion that science is indebted to the evidence rather than to articles of faith or politics, but it nonetheless portrays science as a storehouse of incontestable truths, when in fact it is the exact opposite.

The crucial feature of scientific findings, unlike articles of faith, is precisely their fallibility. Nothing in science is ever known absolutely. Science consists of explanations of the natural world that are forever being disputed, adjusted, rewritten, overthrown. As convinced as we may be today of our scientific certainties, a century from now they will seem as partial and preliminary, or just plain wrong, as the science of a century ago appears to us. The good thing about science, then, is not that it is true, but that it is susceptible to revision. It would be more accurate to say, as the comedy troupe Firesign Theatre titled their 1974 album, “everything you know is wrong.” The findings of science are not “true”—they are sufficiently reliable as to be useful, which is not the same thing.

What makes science reliable, or as reliable as is possible, is its institutionalized procedures of contestation. Every peer review is conducted with a sceptical eye. Every advance in insight is a rebuke to a previous understanding. Science shares this in common with democratic politics: they are both noisy with perpetual disagreement.

CORONAVIRUS CONFUSION

Failure to appreciate this aspect of the scientific method invited confusion on the part of the public and dissent on the part of pundits when, over the course of spring 2020, key data on COVID-19 such as its infection rate and lethality were seemingly in dispute, while different models of how the disease might or might not progress contradicted one another. The public could be forgiven for suspecting the scientists had gotten it wrong, when in fact what the public was witnessing was the messy process of science inching toward getting it right. As Carl Bergstrom, professor of biology at the University of Washington, and co-author of the forthcoming *Calling Bullshit: The Art of Skepticism in a Data-Driven World*, told the *Guardian*, “one of the biggest things that people [in the media] could do to improve would be to recognize that scientific studies, especially in a fast-moving situation like this, are provisional. That’s the nature of science. Anything can be corrected. There’s no absolute truth there. Each model, each finding is just adding to a weight of evidence in one direction or another.”

In the late 20th century, what the public knew of the world was dominated by what used to be called the mass media. A standard complaint at the time was that the news media paid negligible attention to science, thus contributing to public alienation from it. When the media did cover science they invariably focused on “eureka” moments, portraying it as an unending series of intellectual breakthroughs. The result, communication scholar Leon Trachtman observed, was that “the public image of science tends to be one

of a methodical force, ruthless and unstoppable in its logical and rational assault on the problems that face mankind. To use C.D. Darlington's analogy, what comes across is a picture of science as a giant steamroller, 'cracking its problems one by one with even and inexorable force.'" It is a naïve and unrealistic caricature, as the global effort to understand COVID-19 has revealed.

At the same time, media critics, educators, and prominent scientists worried that a public alienated from science, and possibly therefore frightened by it, could be hostile to scientific research and technology, while also susceptible to the allure of pseudoscience. Publications such as *The Skeptical Inquirer* and public intellectuals such as Carl Sagan railed against a public fascinated with alien abductions, extrasensory perception, the healing power of crystals, past life regression, telekinesis, and poltergeist infestation—the full roster of paranormal phenomena lampooned by the Firesign Theatre in *Everything You Know is Wrong*, and what we would today call disinformation.

As generous a soul as Carl Sagan was, there was still something uncharitable about his impatience with those who had been seduced by pseudoscience. If someone believes in extraterrestrial visitors or the astral plane or that Stonehenge is a transmitter station for psychic energy, where is the harm? These beliefs may provide comfort, meaning, and mystery to the people who hold them. In a liberal democracy, what is promised is freedom of thought. Nowhere is it written that everyone's thinking has to be rational.

As for a public suspicious of science, a measure of suspicion about a social force of such consequence is surely altogether prudent. Scientific research has populated our lives with products and capabilities that are wondrous and beneficial, but the industrial application of science has also led to misfortune and damage. Plastics were a boon when they were invented more than a century ago, for example, but their overuse has come with considerable cost. Science itself claims to be apolitical, its investigations beholden to nothing but the empirical evidence, and yet the investigative agenda is clearly shot through with political import. There are still basement tinkerers, but overwhelmingly scientific research is conducted at universities, by the military or in the R&D labs of corporations. Academic research may be motivated solely by intellectual curiosity, but applied research is carried out in the interests of power and profit.

Meanwhile, the media environment of the 21st century, marked by the ascendance of the social media platforms and the eclipse of the traditional mass media, has transformed how science presents to the public even as it has provided the proponents of anti-science and pseudoscience with a global platform to expound their views and enlist adherents.

The Internet has extended the reach of established science publications such as *Scientific American*, *New Scientist* and *Discover* magazine, while also bringing into being a host of niche websites, podcasts, blogs and YouTube channels that make science their subject matter, such as *I Fucking Love Science*, *Space.com*, *Stat*, *Live Science*, *Neurologica* and *PLOS* (the Public Library of Science). But these are all sources of science coverage that cater to a minority already attentive to developments in science. Weigh this



against the popularity of a program such as *Ancient Aliens*, which retails the fiction that the architectural accomplishments of antiquity, such as the pyramids of Giza or the Mayan empire, were built with the technological assistance of superior extraterrestrial intelligence. *Ancient Aliens* is now in its 10th year on the History channel.

The series is an insult to the peoples who actually built these structures as well as to the disciplines of archeology and anthropology. Not so long ago, its argument would have been confined to the cultural margins as a bemusing example of imaginations run wild. Today, it has a prime-time slot on a continent-wide cable channel ostensibly devoted to the history of human societies. It is not only a specimen of pseudoscience but of faux journalism: it mimics the conventions of legitimate television documentary series—location shooting mixed with commentary from “expert” talking heads, all sutured together by an omniscient narrator—in order to cloak its preposterous claims in a shroud of authenticity.

It may be fun to speculate that human history is indebted to the interventions of alien life forms, just as ghost stories are fun, but if even mainstream TV happily airs programming openly contemptuous of the work of genuine scholars, imagine what circulates on social media, where attention is the metric of success, self-worth and validation. Social media reward information extremism because the emotional heat of controversy and vitriol readily generate engagement, while their algorithms steer users toward content in a similar vein. You clicked on that link about how the Earth is flat? Perhaps you will be interested in this post about how the Earth is hollow. You watched that video about how the moon landings never happened? Here’s one about how the Large Hadron Collider is an attempt to open a portal to Hell.

CROSSING INTO HARM

Social media abound in pseudoscience content, but again much of this is harmless. If someone wants to spend their time sifting through NASA images of the surface of Mars, looking for evidence of alien artefacts in the shadows of rock formations, what of it? However, social media have also allowed quite vicious constituencies to coalesce and reinforce one another, from anti-Muslim bigots to Islamic extremists; from white supremacists to incel misogynists. Here, the freedom of expression promised by liberal democracy collides with the imperative to protect against harm.

Prior to COVID-19, the most prominent use of social media to spread genuinely harmful science disinformation and mobilize against the public health authorities was the anti-vaccination movement. Immunization not only protects those who are inoculated but also protects those who cannot be, such as infants, or people whose immune systems are compromised, such as cancer patients undergoing chemotherapy. If the bulk of the population is immunized against it, a pathogen cannot find hosts, cannot spread through the community, and so never has an opportunity to come into contact with the vulnerable. Necessary levels of immunization depend on the disease: for the measles vaccine to be effective some 90 to 95% of the population must be vaccinated; for polio, a less contagious disease, the figure is 80 to 85%.

If, however, a sufficient number of people refuse to be vaccinated, the pathogen can find pathways to stay alive in the population. It can propagate; it can run rampant. The anti-vaccination movement is socially harmful because it not only places at risk those who refuse inoculation. It endangers those who, in a caring society, should be afforded the utmost protection: the very young, the infirm and the vulnerable.

Vaccine scepticism is a form of aggressive resistance to public authority, but it is of quite a different order from militancy founded in venom. Parents who refuse to vaccinate their children because they genuinely believe vaccines may cause harm are mistaken, but they are acting out of love. They are simply, though misguidedly, trying to protect their children. They are not evil. They are merely irrational.

This is what is at stake when disinformation that undercuts science circulates unchallenged. When one ignores or dismisses the findings of science, one also rejects the processes that led to those findings, and those processes are called reason. Science is not an avenue to absolute truth. It is a way of addressing and apprehending the natural world. It is a means of thinking, or, rather, a way to organize analytical thought. It sets out what counts as evidence, how that evidence should be assessed, and what conclusions are thereby justified. The anti-vaccination movement and the Ancient Aliens aficionados are irrational because they refuse to accept the best available evidence and reject the principles of sound reasoning by which the evidence is weighed and interpreted.

One can therefore act in what one believes to be a moral manner, as the vaccine sceptics do, and still be wrong, just as it is possible to grasp the facts and still behave immorally. Science may provide reliable explanations of how the natural world works, but this knowledge in itself does not dictate what should be done with it.



For example, a thorough understanding of the biological processes by which a human sperm fertilizes an egg and the resulting zygote goes on to become a fetus has almost no bearing on whether one should defend abortion as a woman's right or oppose it as a form of murder. In the case of the emergence of COVID-19, the virologists and epidemiologists could speak with confidence about the damage the disease would do and they were able to recommend measures that would manage

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its transmission so as to lessen its impact, but the decision to implement those measures was ultimately political, taken on the principle that the moral priority should be to do everything possible to save lives.

One could imagine a different society, in which other considerations might be given greater weight. Indeed, by May 2020 it was no longer necessary to imagine this hypothetical alternative society. It was showing itself to be the United States of America.

BLAME CANADA

In late January, a story surfaced that the virus that causes COVID-19 was smuggled out of Canada's National Microbiology Laboratory in Winnipeg by Chinese scientists who spirited it to the Wuhan Institute of Virology in China where it was weaponized; the virus subsequently escaped the containment facility to wreak havoc on the world. By the end of April, according to NewsGuard, a New York-based non-partisan agency that monitors the veracity of digital information and runs a Coronavirus Misinformation Tracking Centre, this was the number one COVID-19 myth circulating over the Internet.

Its origins could be traced back to July 2019 when two Chinese-born married scientists working at the National Microbiology Laboratory—one of whom, Xiangguo Qiu, had won a Governor General's Innovation Award in 2018 for her work on a treatment for Ebola—were summarily escorted from the premises, while the RCMP opened an investigation. That incident remains unresolved, but it provided the pretext for a story on an obscure Indian website, GreatGameIndia.com, which claims to be a "Journal on Geopolitics and International Relations."

Under the headline "Coronavirus Bioweapon—how China stole coronavirus from Canada and weaponized it," the story recounted that in 2012 a 60-year-old Saudi man was admitted to hospital suffering from a respiratory ailment. An Egyptian virologist supposedly identified the patient as infected with a previously unknown coronavirus and sent a sample to the Erasmus Medical Centre in Rotterdam. The Dutch then sent a sample of the virus to Dr. Frank Plummer—then scientific director of the National Microbiology Laboratory in Winnipeg—from where, according to the story, it was stolen by the Chinese scientists now under investigation. Dr. Plummer, who was a mentor to Dr. Theresa Tam, currently Canada's Chief Public Health Officer, died in February when he collapsed at a meeting at the University of Nairobi. GreatGameIndia insists he was assassinated, a week after it published its story.

NewsGuard's Gabby Deutch, writing in Wired, notes that the original story received only 1,600 likes, shares or comments on social media until it was reposted by ZeroHedge, an alt-right site that traffics in conspiracies about economic collapse and that fulminated against Hunter Biden during the 2019 impeachment proceedings against Donald Trump. The ZeroHedge story was then reposted by RedStateWatcher.com, a pro-Trump site with an even larger reach. Here in Canada, Toronto Sun columnist Tarek Fatah tweeted a link to the ZeroHedge story to his 643,000 followers. From there it went viral on

By now we are all aware of the breathtaking range of mistaken, misleading, fabricated, and outright unhinged content prompted by the pandemic.

reddit, Twitter and Facebook.

This is a textbook example of how disinformation works. Threads of truth—the Chinese scientists were indeed escorted from the most secure biocontainment facility in Canada, whose former scientific director did die in Kenya in February—are stitched together and embroidered to produce a yarn laced with intrigue and threat and suspense. This particular yarn makes conspiracists of its readers, who are invited to follow along with a complicated narrative whose ultimate message is that you are not being told the truth.

The fact that the story first made its appearance in a little-known but seemingly legitimate source—a journal of international affairs in a country half a world away, not some clickbait outlet trolling for attention—only lends it credibility. The story itself is dotted with content from reputable sources so as to bolster its authenticity: it includes a video clip from CBC's *The National* on the Chinese scientists being removed from the Winnipeg facility; a photo of Xiangguo Qiu is credited to Health Canada.

The story is then “discovered” by an American partisan site with a readership all too eager to hear that the Chinese are to blame; that the Chinese are nefarious because they stole a deadly pathogen and purposely made it more lethal, but incompetent in that they allowed the microbe to escape containment; that America's allies are untrustworthy given how easily they were duped by Chinese bio-warfare agents, and are therefore themselves threats to U.S. security. The story is then picked up and trumpeted by other partisan outlets who amplify its reach, and the repetition across multiple sources seems to offer corroboration, despite being just a mirror effect of the original fabrication being relayed and repackaged. By then the story has seized the attention of thousands of individuals, who take up the job of spreading it exponentially via social media.

Apart from the fact that it originated with GreatGameIndia, there is almost no way to determine the story's provenance. It carries no byline and GreatGameIndia ignored repeated requests for comment from NewsGuard. Are we to assume that some conspiratorially minded writer at GreatGameIndia with a hyperactive imagination pieced all this together in the genuine belief that it revealed the dark truth behind how COVID-19 began and that the world needed to be told? It is perfectly possible: the new media environment teems with elaborate conspiracy content dreamed up by obsessive minds with time on their hands. Or was this story deliberately crafted by disinformation actors, either partisan ideologues or backroom state operatives, so as to whip up outrage at the Chinese government for unleashing a global pandemic? Is GreatGameIndia a front, a phony publication created and funded for the express purpose of seeding stories like this? Is this entire episode an example of clandestine information warfare carried out in



plain view? How could we know one way or the other?

And how does one combat content like this? More specifically in this case, how should Canada react?

Terse denials from the Public Health Agency of Canada, which runs the National Microbiology Laboratory, are not likely to be noticed by those who avidly want to believe the story, but to spend time and energy aggressively refuting its claims would only reward it with greater attention.

CONSPIRACY WORLD

In any case, this was only one ember in a firestorm of coronavirus misinformation. By now we are all aware of the breathtaking range of mistaken, misleading, fabricated, and outright unhinged content prompted by the pandemic. There are those who believe it was created by Bill Gates as a pretext for a compulsory mass vaccination plan to be used as a cover to inject digital tracking devices in every living human, and so impose a worldwide caste system. Some believe COVID-19 symptoms are a form of “mass injury” caused by 5G telecommunications technology, which has weakened the population’s immune system. Others insist the pandemic is a deliberate ploy to allow the authorities to install 5G infrastructure under cover of the social isolation lockdown. Still others are convinced that there is no pandemic, that it is all a gargantuan hoax designed to impose martial law and bring liberty to an end, or to wreak havoc on the capitalist system, or to entrench the subservience of the population to a grim economic order, or to depose Donald Trump. A survey of Canadians conducted in early May by the School of Journalism and Communication at Carleton University in conjunction with Abacus Data found that more than half of respondents (57%) were confident that they could easily identify conspiracy theories and misinformation about COVID-19, even as a quarter of them believed that the virus was engineered as a bioweapon in a Chinese laboratory, 11% believed the disease was being spread to cover up the effects of 5G “radiation,” and 23% believed that hydroxychloroquine was an effective treatment for those who contract the illness. FullFact.org, an independent British fact checking organization, has compiled an exhaustive list of the various forms coronavirus disinformation and denial have taken—a palette wheel of paranoia.

Things have become so convoluted and confused that the British government was compelled to formally deny claims that its Department of Health and Social Care had set up a network of bot Twitter accounts in support of government policy as part of a covert plan to manipulate the national conversation on COVID-19. In effect, the British government had to publicly insist it was fake news that it was running fake Twitter accounts to post fake pro-government coronavirus messages. The U.S. State Department, meanwhile, issued a report concluding that China, Iran and Russia were all pushing disinformation narratives against the United States, which they clearly were. However, included as examples of this “disinformation” were claims that the U.S. was using the crisis to malign its enemies, and that the U.S. response to the pandemic had been inadequate. So, lamentable home truths were categorized as deliberate foreign lies, and a report on disinformation against the U.S. became a means to push U.S. disinformation.

To anyone with responsibility for managing public health messaging during the pandemic, the inexhaustibility of false counter-messaging could not help but be itself exhausting. Officials in the Privy Council Office, Global Affairs Canada, Health Canada and the Public Health Agency of Canada described to me the enormous effort that goes into crafting sound and reliable public information on a daily basis that stays current with ever-changing circumstances and accommodates regional differences; that must be coordinated across federal ministries and with provincial, territorial, and local health officers; and that requires liaising with foreign partners on best practices and mutual support. This involves marshalling the skills of hundreds, perhaps thousands, of conscientious public servants under strained circumstances where they are all working remotely. And yet all that is required to spread misinformation or to argue publicly against trust in the health authorities is a recalcitrant mind and a social media account.

Some forms of disinformation are comparatively easy to identify. People who are unsettled and anxious may be vulnerable to hucksters selling quack remedies and scam artists looking to gain access to banking and credit card information. While Health Canada has been monitoring for this type of criminality, the Communications Security Establishment has been taking action against fake websites that impersonate health agencies or the government itself, and that try to lure people into clicking on web links or opening email attachments that can then give access to users' personal data.

While no one would fault the authorities for taking down criminally fraudulent content, other forms of disinformation present thornier issues. Claire Wardle is the co-founder of First Draft, an American non-profit dedicated to educating journalists about reporting in an environment of information disorder, which compiles a daily digest of stories on coronavirus misinformation from around the world. She has argued that in the early days of COVID-19 the bulk of misinformation was more misguided than malevolent.

It took the form of people posting gossip and hearsay via social messaging channels: crackpot treatments such as pointing a hair dryer up one's nose, confusion about how the virus spreads and how long it can survive on surfaces, urban rumours in the form of anecdotes ("My friend's sister works in a hospital..."). "It's mostly people being terrified," Wardle said in March, "and many of them are living at home by themselves. People need community and connection, so they're turning to each other." This sort of thing should hardly be the subject of any policing action beyond gentle correction. Kate Starbird, a computer scientist at the University of Washington and co-founder of the university's Center for an Informed Public, expresses qualms about social media platforms trying to expunge this type of innocent, but misguided content: "I want to be careful about punishing people for sharing rumors or misinformation," Starbird told Science. "I don't think the platforms should do that. We see that in authoritarian states. It's so important that people feel that they can share information, and sometimes they're going to get it wrong. It's a real balance there, and there are some really hard trade-offs."



UNGIFTED AMATEURS

But what if the misinformation is genuinely harmful, or designed to undermine the measures put in place to stem the pandemic? What actions can be taken against it, by whom, and with what warrant? As the pandemic wore on, the challenges to public confidence in the health authorities moved from the margins to the mainstream, and the methods by which misinformation came to public attention evolved. “It’s the ‘influencers’ who really cause the problems that have significant impact,” Wardle told the Columbia Journalism Review in May. “If no-one shared or amplified the conspiracies, rumours and falsehoods, we wouldn’t have a disinformation problem. Those who are trying to peddle disinformation are looking to convince those with the largest ‘megaphones’ to repeat the falsehoods. This is why celebrities, online influencers and politicians are targeted with certain messages.”

In addition, much of the content muddying health communication messaging has not come from malign foreign actors or the ravings of cranks, but from presumptuous amateurs who believe they know better than the scientific community and the health authorities. For example, on March 20, Medium, the online blogging platform founded by Evan Williams, the former CEO of Twitter, published an article titled “Evidence over hysteria—COVID-19.” Freighted with graphs and data analysis, the piece argued that the political and social response to the pandemic, inflamed by the news media, was panicked, heavy handed, unnecessary and would ultimately lead to more harm than good. According to Kate Starbird the article was mentioned in only a few hundred tweets until it was recommended by Fox News personality Brit Hume to his 1.2 million Twitter followers as “definitely worth reading. Smart analysis.” In short order, the link to the article was tweeted by Fox News chief political anchor Bret Baier; conservative conspiracy theorist and political provocateur James O’Keefe; Sebastian Gorka, former Trump White House adviser; Steven Crowder, right wing YouTube personality; Kirk Herbstreit, ESPN football commentator; and Laura Ingraham of Fox News. Within 24 hours the article had been mentioned in more than 15,000 tweets and received 2.6 million views on Medium.

Although the piece found favour with outspoken conservative media celebrities who magnified its reach, it also attracted the attention of epidemiologists, infectious disease specialists and public health managers—the people it was describing as wrong-headed in how they were managing the crisis—who promptly decried its analysis as juvenile and amateurish, and its policy prescriptions as disastrous. The author, Aaron Ginn, is not a medical specialist. He is a Silicon Valley “technologist” and right-wing agitator. In the face of criticism from experts, Medium did not want to be seen to be endorsing a polemic that epidemiologists insisted was not only ignorant but dangerously so. The platform deleted the article on March 22, some 32 hours after it had been published.

And yet by de-platforming the piece, Medium inevitably made it more notorious. Free speech advocates howled that suppressing alternative views simply because—or especially because—they run counter to the prevailing consensus is anathema to the principles of liberty of expression. The editorial board of the

Wall Street Journal argued that Medium’s decision amounted to an attempt to “stamp out the free debate that helped alert Americans to the threat of the virus in the first place,” while the National Review argued that “the lockdown debate requires transparent disagreement.” Even one of the article’s most prominent critics, University of Washington biologist Carl Bergstrom, argued against censoring it: “as wholeheartedly as I disagree with the piece,” he tweeted, “I’m not all convinced that this is preferable to leaving it up and allowing open discussion.”

Of course, Medium’s decision to take the article down did not mean that it disappeared. It is currently hosted by ZeroHedge, the alt-right site that first posted the GreatGameIndia article about how COVID-19 was stolen from a Canadian lab. De-platforming can be a badge of honour among the conspiracy set: it becomes evidence that the content contains a truth the authorities are desperate to silence. GreatGameIndia, for example, claims proudly that its coronavirus theft story “has caused a major international controversy and is suppressed actively by a section of mainstream media.”

Just as the GreatGameIndia article presented itself as a piece of investigative journalism, Ginn’s Medium essay presented itself as a work of scientific analysis that just so happened to argue that the scientific experts were wrong. It adopted the trappings of science in order to promote a viewpoint fundamentally at odds with the consensus of the epidemiological community. As Richard Hofstadter observed in “The Paranoid Style in American Politics,” his keenly perceptive 1964 essay, “One of the impressive things about paranoid literature is the contrast between its fantasied conclusions and the almost touching concern for factuality it inevitably shows. It produces heroic strivings for evidence to prove that the unbelievable is the only thing that can be believed.”



When does publishing contrarian or sceptical views move from fair comment into irresponsibility, or from irresponsible to genuinely harmful?

Ginn’s article was merely the most prominent example of a type. As Jeet Heer of the Nation quipped on Twitter, “On top of everything else, there’s an epidemic of Medium posts.” A continent in lockdown gave rise to reams of analysis by smart people (or people who believe themselves to be smart) opining on matters they know very little about, a development parodied in a post published on Medium, ironically enough, the day before Ginn’s article appeared, titled “Flatten the Curve of Armchair Epidemiology,” in which the authors claimed to have diagnosed “DKE-19, a highly contagious illness threatening the response against COVID-19.” DKE-19 is named after the



Dunning-Kruger Effect, “a phenomenon where people lack the ability to understand their lack of ability... Symptoms vary, but include extreme claims, making charts, and publishing on Medium. Although most cases are mild or even entirely asymptomatic, the recent outbreak indicates that severe DKE-19 primarily affects men ages 24–36 working in tech, for reasons unknown to scientists who are unaccountably also men.”

FREE SPEECH AND RELIABLE REPORTING

The dilemma faced by Medium in the case of Ginn’s article has been playing itself out across both the traditional media and the social media companies. When does publishing contrarian or sceptical views move from fair comment into irresponsibility, or from irresponsible to genuinely harmful? On March 9, the Globe and Mail provided a platform to Dr. Richard Schabas, a retired physician who was for 10 years Ontario’s Chief Medical Officer of Health, publishing an op-ed article in which he argued against the coronavirus containment protocols put in place all over the West. “Is COVID-19 a global crisis?” he asked. “Certainly for people who can’t add.” As to the measures being implemented on the advice of medical expertise, “Quarantine,” he scoffed, “belongs back in the Middle Ages.” On March 22 he appeared on CBC News to argue, again, that Western governments were massively overreacting to the virus. Almost immediately, CBC removed links to the interview from its website, although it can still be accessed via Yahoo News Canada.

Social media companies have been notoriously loath to police the content that moves over their platforms. They have insisted they are mechanisms of social connectivity, optimized to provide people with a means of expression, and create no content themselves. Therefore, they argue, they are neither media companies nor publishers, and should no more be held accountable for how people use their technologies than the phone companies can be held liable for the conversations that flow through their wires and via their cell towers. Faced with a global emergency, however, and the prospect that their platforms could be used to inflict real-life harm, the companies became attuned to their social responsibilities in exceptional circumstances.

Facebook, Twitter and YouTube (owned by Google) all announced measures to stifle the spread of coronavirus misinformation and direct attention instead to trustworthy, official sources. Facebook, for example, launched new initiatives pushing users toward trustworthy and accurate health content while eliminating disinformation content that would lead to imminent physical harm, as per pre-existing content policies. It launched a Coronavirus (COVID-19) Information Hub to collate sound information and advice from the World Health Organization, UNICEF, and national health bodies such as the Public Health Agency of Canada. It prioritized official sources in its algorithms, so that a search for coronavirus would direct the user to a pop-up for the WHO or a link to the official PHAC page. At the same time, it moved to remove content that international and national health agencies determined would unequivocally lead to harm, such as quack cures or claims that social distancing is ineffective, and to send notifications to users who had interacted with such content before it was taken down, directing them to a WHO “mythbusters” page. Other content identified as false by Facebook’s third-party fact checkers would be flagged as such and

downgraded by the algorithms that determined what users would see in their feeds in an attempt to inhibit the spread of disinformation.

Critics complained that these measures were insufficient; that the measures could not keep up with the flood of content coursing over the platforms; that removing only material that would lead to physical harm left an ocean of egregious content still in circulation. For example, a study by University of Ottawa and Carleton University researchers published in *BMJ Global Health* examined 69 of the top YouTube videos on COVID-19 or coronavirus, and found that 27.5% of them contained misleading information, from racist statements to conspiracy theories about how the pharmaceutical companies already have a cure for the disease. Nonetheless, the move toward managing an otherwise all but unregulated sphere of social discourse marked a significant shift in the practices of the social media giants. As YouTube pointed out in response to the *BMJ* article, the study neglected to take into account how the platform has taken down thousands of videos containing coronavirus disinformation and “directed tens of billions of impressions to global and local health organizations from our home page and information panels.”

The traditional news media, meanwhile, already diminished versions of what they had once been, were further hammered financially as advertising revenue disappeared because of the lockdown, just at the moment when they were most needed, when people were looking to them for reliable information about the pandemic. Studies have shown that in moments of crisis or emergency the public turns to the news sources they most trust, and the pandemic is no exception. The spring update for the 2020 Edelman Trust Barometer shows a worldwide 7% jump in trust in traditional media—by far the most trusted information source—in the space of four months, from January to May.

“The search for reliable information related to the pandemic has driven trust in news sources to an all-time high,” the report notes. “There is a strong public demand for expert voices, as people want to hear from the most trusted sources of information on the pandemic: doctors (80%), scientists (79%) and national health officials (71%).” The report also cautions that “Concerns about fake news still loom large, with 67% of respondents worried about false and inaccurate information being spread about the virus.”

Participants at a Harvard colloquium in late April complained that U.S. media coverage of the crisis was marred by reporters with no medical or public health training. “Because many are not yet knowledgeable enough to report critically and authoritatively on the science,” wrote the *Harvard Gazette*, “they can sometimes lean too heavily on traditional journalism values like balance, novelty, and conflict. In doing so, they lift up outlier and inaccurate counterarguments and hypotheses.” We shall have to wait until after the fact to definitively assess how well the Canadian news media reported on the pandemic, but impressionistically the reporting on it in the major Canadian news media has been exemplary—professional, conscientious, and valuable. The Canadian Institute of Health Information is an independent non-profit organization that provides a range of evidence and data to inform public health policy, and as



the pandemic took hold journalists across the country turned to it in order to understand how the disease, and the attempts to manage it, were progressing. Its CEO, David O'Toole, was impressed by the quality of the questions reporters posed, whose coverage was clearly striving to be informative and accurate, displaying none of the political polarization evident in pandemic reporting elsewhere.

USEFUL CONTRARIANS

At the same time, journalism in a free society such as Canada is reflexively sceptical of political authority. Its mandate is to subject government and business to informed scrutiny on behalf of the public, and the news media employ as columnists and commentators a class of opinionaters characterized by a quick intelligence, an oppositional disposition and a talent for commanding attention. Many of these commentators, at different moments, have been quite critical of the response to the pandemic and the performance of the health authorities. They demanded to see the models and projections used to inform the official public health response, and when these were eventually released the commentators fell on them with questions and quibbles. They made great issue of Dr. Theresa Tam's supposed volte-face on the wearing of masks. More than one traded in speculation that COVID-19 originated in a Chinese biological warfare laboratory. One in particular, the founder of a national newspaper, has used his pulpit to argue repeatedly that the scale of the threat of the disease in no way justifies the emergency measures put in place—essentially the argument made by Aaron Ginn in his de-platformed Medium post and by retired Dr. Richard Schabas in his interview with the CBC that was deleted from the broadcaster's archives.

This type of public commentary is no doubt seen as inconvenient by the authorities, and in this case quite possibly counter to the public good. Some may wonder why some journalists believe it is helpful to split hairs, to pick arguments, and to advise people not to have confidence in public health officials. However, a measured response to a crisis takes into account that there will always be criticism and dissent; that the views expressed by commentators regularly express sentiments more widely shared; and that it is healthy for public policy to be questioned and to have to defend itself in the public forum. The response to the pandemic is an exercise in social regimentation such as the world has never seen since the Second World War. It would be more worrying if the edicts of the authorities were not accompanied by questions and quibbles. History is one long string of supreme authorities mobilizing entire populations in will and spirit, and being wrong about it, from the siege of Troy to the First World War. Just because a government insists it knows what it is doing is no guarantee that it does. Exhibit: the Boris Johnson government of the United Kingdom.

FACTS AND VALUES

In mid-April, Dominic LeBlanc, President of the Privy Council, mused aloud that the Canadian government was considering legislation that would make it an offence to knowingly spread false information that could lead to harm. Clearly, the government was monitoring the protests in the U.S., where armed demonstrators were storming legislatures to demand an end to the emergency measures. Legal mechanisms to police public speech are always fraught, especially in societies that prize freedom of expression, but one aspect of LeBlanc's comment suggested the measure would be singularly ineffective even if it were enacted. The aim, supposedly, was to prohibit knowingly spreading false information, but the imminent danger is not from malcontents and miscreants who spread lies fully aware they are lies. It is from zealots who spread untruths they genuinely believe.

Consider the pseudo-documentary *Plandemic*, which debuted in early May, a slick 26-minute vehicle promoting the most outrageous coronavirus conspiracy theories that was promptly banned from Facebook and YouTube, which only fed its mystique. Like *Ancient Aliens*, it employs polished documentary production techniques to sell its viewers an exciting package of nonsense from start to finish. But are the filmmakers, or the film's subject, the anti-vaccination activist Judy Mikovits, knowingly spreading falsehoods, or are they genuinely convinced the malevolent world they describe, in which the pandemic is an elaborate plot, is real? Are they calculating fraudsters or perfectly sincere in their paranoia?

By late April, to our immediate south, we seemed to be witnessing the triumph of delusional thinking and disinformation over reason and fact. The American response to the pandemic, fragmented from the start, was disintegrating as mutinous constituencies violated protocols of social isolation and some states abandoned lockdowns against the counsel of the epidemiologists. The population had been told by their medical authorities that normal human interaction had to pause, otherwise the virus would spread in such a way that no one would be safe. So many Americans heard that message and either refused to believe it or did not care. And who could blame them, given what they were also being told from the highest political office in their land, from Fox News, and from the hyperventilated news sites?

Claire Wardle of First Draft was worried about "influencers" amplifying misinformation, but the biggest influencer of them all was the primary source of untruths and fantasies. The virus would not be a problem. The virus would just disappear. The virus was being handled perfectly. The world was looking on in admiration at how the U.S. was managing the disease. The virus could be defeated by hydroxychloroquine, by ultraviolet light, by somehow introducing disinfectant bleach into the body.

The U.S. revolt against the tyranny of the virologists was a matter of values over facts, or perhaps the elevation of certain values over others despite the facts. When the world initially enacted protocols of social isolation, it did so on an understanding of how deadly COVID-19 could be and on the principle that every precaution should be taken to save as many lives as possible: an understanding of the facts married to a governing value.



Even though by mid-April the U.S. had recorded the largest number of deaths from the pandemic of any nation, a significant proportion of the American population had been convinced that the disease simply was not as serious as had been supposed, and therefore the lockdown protocols were unwarranted. Even if it were as serious as the virologists insisted, it did not follow that every precaution should be taken against it, particularly if those precautions infringed on individual liberties, made life unpleasant or plunged the economy into ruin. Freedom, prosperity, and the pursuit of happiness trumped collective wellbeing.

To a non-American, it may be difficult to understand why so many in the U.S. would be so willing to accept the suffering and death of so many of their fellow citizens, and even expose themselves to the risk of COVID-19, rather than suspend their normal lifestyles even temporarily. But, then, most non-Americans cannot comprehend why the U.S. tolerates school massacres and 39,000 deaths a year by gunshot, orders of magnitude more per capita than any other nation on the planet. Charlie Warzel of the New York Times wondered whether his country might be on its way to normalizing coronavirus fatalities the way it has gun violence: just another cost of American exceptionalism. As he was told by Dr. Megan Ranney, an emergency physician and Brown University professor, the anti-lockdown protesters “moved the reopening debate from a conversation about health and science to a conversation about liberty. They’ve redefined the debate so it’s no longer about weighing risks and benefits and instead it’s this politicized narrative.”

If, in a free society, an effective response to the pandemic had to transcend politics in order to recruit the support of the entire population, the society that thinks of itself as the freest that exists, and has ever existed, proved itself unable to do so.



THE MAN IN THE MASK

On April 13, Joshua Bickel, a photojournalist for the Columbus Dispatch, snapped a photograph emblematic of the American pandemic. He was at the state legislature, livestreaming the governor’s daily coronavirus briefing, while a group of about 100 demonstrated outside, demanding an end to Ohio’s social isolation strictures. When the protestors began to bang on the windows, Bickel captured an image of them pressed up against the glass, their faces etched with anger, their mouths wide open in mid-scream. In the foreground, there are three people: the woman in the centre holds an American flag; the woman on the left is Melissa Ackison, a Republican candidate for the Ohio Senate; the man on the right wears a Trump baseball cap. The image became a social media meme almost immediately, given how uncannily the shot resembled a production still from a zombie movie, the undead mindlessly throwing themselves against defensive fortifications

thrown up by the uninfected. All but overlooked in the photograph is the man just behind the woman in the centre, his face partly obscured by the American flag. He is wearing a Guy Fawkes mask, of the type featured in the graphic novel *V for Vendetta*, and the subsequent 2005 feature film.

79% of Canadians agreed with the statement “It is more important to minimize avoidable illness and death than to reopen the economy too quickly.”

As stay-at-home and social distancing orders crumbled in the U.S., it appeared the country’s response to the pandemic split along partisan fault lines, with Democrats inclined to observe the recommendations of the public health authorities in the interests of a common good, and Republicans, encouraged by a president making repeated calls to “REOPEN OUR COUNTRY!,” all too eager to pointedly overthrow them in the name of personal liberty. The man in the Guy Fawkes mask is a reminder that it is not quite so straightforward a binary opposition. The mask—a stylized symbol of a ringleader of the Catholic gunpowder plot to blow up the British House of Lords in 1605—was taken up by the Occupy movement, the Anonymous hacktivist group, and a range of other anti-

establishment militants. It is a symbol of the political left, just as the Trump baseball cap is a marker of the political right. And yet two opposing wings of the political spectrum could find themselves in common cause, in opposition to a class of technocrats advocating social measures to stop the spread of sickness. One sees the same thing in the anti-vaccination movement: a Hodge Podge of political extremes, from arch conservatism to libertarianism, united in a deep distrust of central authority and the science that underpins its policies. Opposition to 5G mobile technology, similarly, has made for the strangest of bedfellows. When the telecommunication company EE announced it would be conducting 5G trials at the 2019 Glastonbury music festival, FullFact reported, the move was opposed by the Green Party majority on the Glastonbury city council at the same time as climate change deniers told festival goers they had paid to become human lab rats.

The tactics of those agitating for an end to coronavirus social isolation protocols, particularly in Michigan, Ohio and Wisconsin—gathering in rallies, openly carrying weapons, recording and uploading heated encounters with shop clerks when refusing to wear masks—were designed to capture the attention of the news media and social media alike, and so spread the message of civil disobedience. The opposite—citizens dutifully avoiding social contact or keeping their distance while outdoors—does not lend itself to arresting images or firebrand calls to action. But by late April, survey findings in both the U.S. and Canada revealed broad support for social isolation measures, indicating that the vocal protests were representative of a small minority only.

A Business Insider poll conducted April 28-29 found that some 76% of Americans either supported or



strongly supported maintaining social isolation, and favoured lifting restrictions only when it was deemed safe to do so. Similarly, a survey conducted in early May by researchers at the Carleton University School of Journalism and Communication, in conjunction with Abacus Data, showed that 79% of Canadians agreed with the statement “It is more important to minimize avoidable illness and death than to reopen the economy too quickly.” The survey also confirmed other Canadian polling data showing consistently high levels of trust and satisfaction in public health officers. Some 80% of respondents believed that the ultimate authority for deciding when to ease or lift social isolation measures should rest with public health officials. Here, marked differences emerged between Canadian and American attitudes. A Leger online poll conducted April 24-26 in conjunction with the Association for Canadian Studies found that 84% of Canadians expressed trust in their public health authorities as opposed to 71% of Americans who expressed trust in theirs.

However, when Leger asked Canadians whether a vaccine for COVID-19 should be made mandatory, 60% agreed while 40% said vaccination should be voluntary. (Americans split evenly on the question, 50% on each side.) One should be careful not to read too much into a response to a hypothetical question—a vaccine does not yet exist, and many people who would willingly be inoculated may hesitate to do so until they are assured that the vaccine, particularly if it were rushed into production, is entirely safe. Nonetheless, Christian Bourque, Leger Executive Vice President, noted that the response to the question cleaved along partisan lines. Respondents on the left were more likely to argue for mandatory vaccination while those on the right were more inclined to prioritize personal liberty.

Notwithstanding public confidence in the health authorities in a time of pandemic, evidence from before COVID-19 indicated that a sizeable and growing constituency of Canadians were dubious of scientific inquiry and findings. A 2019 Ipsos multi-nation survey commissioned by 3M found that 32% of Canadian respondents were sceptical of science, up from 25% in 2018. Almost half of Canadians surveyed—44%—considered scientists “elitists.” Other findings suggest that this sharp decline in public confidence in science is both recent and registers along political divisions. In 2014, EKOS reports, Liberal and Conservative supporters both trusted science in almost equal measure. By 2019, Conservative high confidence in science had fallen by 22% (from 64 to 42) while Conservative scepticism of science had doubled (from 14 to 30%).

These divergent views on science, so sharply drawn over the span of a few years, were entangled with attitudes toward the single issue prior to COVID-19 on which the worldwide scientific community spoke unanimously and with escalating alarm: planetary warming and the threat to human life posed by human industry. For those who accepted and trusted the scientific consensus, climate change was a menace to collective wellbeing that had to be meaningfully addressed, even at the cost of economic disruption. For those whose priorities were prosperity, comfort and convenience—along with the wellbeing of a fossil fuel industry that had made possible such prosperity, comfort and convenience—the scientific consensus on climate change was hysterical, a fear-mongering exaggeration. If it were allowed to drive public policy, it would have catastrophic economic consequences. And so, if one were committed to a worldview that

made prosperity the paramount priority—or a certain understanding of what prosperity entailed—one was obliged to discount and dismiss not only the findings of the climatologists but by extension the scientific enterprise itself. “The massive partisan divide on climate change was not nearly as acute not that long ago,” according to EKOS chairman Frank Graves. “A modest 12 point gap in 2015 has exploded to a 46 point gap in four years.”

Public attitudes toward science now appear to be politically inflected in ways that are worrying, if one values science as a source of reliable and useful knowledge, and as yet poorly understood. To a rationalist, public policy must be based on a sure grasp of the best available evidence. The rejection of scientific authority is a threat to the sound administration and governance of human affairs, because it amounts to a refusal to accept the real. Moreover, there is nothing inherent in science that means it should be accepted by progressives but rejected by conservatives. There should be—and are—conservative scientists and liberal scientists, just as there are conservative dentists and carpenters and musicians, and liberal dentists and carpenters and musicians. To be a rationalist should not determine one’s political values. Responding effectively to the prevalence of science disinformation and irrationalism will not only require coming to grips with why science is viewed distrustfully by so many, but why attitudes toward science have taken on a political colouration. Absent such an understanding, it may not be possible to have a true dialogue with those in the thrall of anti-vaccination arguments, or convinced the threat of COVID-19 has been overblown, or unpersuaded by the scientific consensus on global warming. The two camps run the risk of talking past one another.

At the same time, the political dimensions of attitudes toward science complicate matters for the major social media platforms. They have shown themselves willing to remove content that can cause real-world harm, but in the name of liberty of expression they are quite unwilling to otherwise police the traffic in falsity. Just because something is not true is no cause to expunge it from the social media record. In a free society people are entitled to believe all manner of nonsense. Nor will the social media platforms regulate what they consider political speech. And if the disavowal of science is a trait of a particular political constituency, what latitude might the social media platforms have to stifle its expression?

Imagine a scenario in which a safe, effective COVID-19 vaccine becomes available, and the health of everyone depends on almost everyone being inoculated. Against this, the anti-vaccination community mobilizes via social media to obstinately and irrationally resist mandatory immunization, mounting a campaign to undermine public confidence in the vaccine and urging fellow citizens to mutiny against the health authorities. What measures might governments take to counter this sort of insurrection? Even if the social media platforms removed anti-vaccination content as fast as it was generated and circulated, on the grounds that advocating against inoculation was a form of perpetrating social harm, would that in itself resolve the problem? Likely not, since the sentiments and suspicions that led to the anti-vaccination movement in the first place would still persist.



Ideally, one wants to engineer circumstances so that this scenario never comes to pass. Instead, we might hope to contain the anti-vaccination movement as a rump of unpersuadable fanatics whose entreaties fall on deaf ears because the greater public understands what is at stake and has confidence in the people and institutions who devised and tested the coronavirus vaccine to keep us all safe. But that would require, first, the recognition that science disinformation can be a type of social harm (because it disparages rationalism and works to delegitimize agencies created to serve the public good) and, second, commitment to a robust, ongoing campaign of public education to address this harm by countering false content and buoying public trust in science where that trust is warranted.

THE FOREVER WAR

The lesson of the information environment and the pandemic thus far, for Canada and elsewhere, is that there are real dangers in allowing science disinformation to circulate unchallenged. These are dangers not just to public understanding of the facts, but to reason itself and therefore to order, good government, and the common good. A Yahoo News/YouGov survey of Americans conducted May 20-21 found that 44% of Republicans, and fully 50% of Fox News viewers, actually believe that Bill Gates is plotting to use a COVID-19 vaccine to inject microchips into the global population. There is no way to outright prevent irrationalism and pseudoscience and paranoia from using the platforms of social communication to find an audience, and no way to prevent unscrupulous political interests from inciting irrationalism and pseudoscience and paranoia for their own cynical purposes, but if they are not answered they gain an unearned advantage. Nor does simply declaiming the virtues of science amount to engaging with those inclined to distrust or dismiss it.

In a paper published in *Nature* on May 13, researchers at George Washington University mapped conversations conducted over Facebook about vaccination during the 2019 measles outbreak. These conversations, involving 100 million people, were conducted by and between three camps: those in favour of vaccination, those opposed, and about 50 million undecideds (for example, a school parents group where vaccination was a topic of discussion, but no consensus had yet emerged). While the pro-vaccination camp was numerically the largest, there were three times as many anti-vaccination groups as pro-vaccination, and these were the fastest growing. If this trend were to continue, the researchers claim that within a decade anti-vaccination views would be in the majority on Facebook.

As well, the Facebook groups advocating vaccination were mostly clustered together, as though talking to themselves rather than the undecideds, whereas the anti-vaccination activists were highly entangled with those who were undecided. “This means,” the researchers observe, “that the pro-vaccination clusters ... may remain ignorant of the main conflict and have the wrong impression that they are winning.”

The anti-vaccination advocates also displayed a sophisticated understanding of techniques of social media persuasion and behaved as though they were engaged in a political campaign, which in fact they were. (If there were any doubt of that, in mid-May researchers at Carnegie Mellon University reported that, of 200 million tweets discussing



COVID-19 since January, 45% were likely generated by bots. “We do know that it looks like it’s a propaganda machine,” said Kathleen Carley, a Carnegie Mellon professor of computer science.) While the pro-vaccination camp delivered a single, monotone message—vaccines are safe—the vaccine sceptics used different messages to target different types of undecideds. As Kevin Roose of the New York Times described their tactics, “yoga mums” might be engaged with holistic health remedies that seeded doubt about vaccination while conservatives might be targeted with messages stressing the dangers of government-mandated forced inoculation. “They are savvy media manipulators,” Roose observed, “effective communicators and experienced at exploiting the weaknesses of social media platforms,” and the effort to counter disinformation advocacy will have to be just as persistent and as calculated. “To recover from this pandemic, we need to mobilize a pro-vaccine movement that is as devoted, as internet-savvy and as compelling as the anti-vaccine movement is for its adherents. We need to do it quickly, with all the creativity and urgency of the scientists who are developing the vaccine itself.”

Kathryn Hill is Executive Director of MediaSmarts, a not-for-profit media literacy initiative commissioned by the Ministry of Canadian Heritage to produce a public service ad campaign on COVID-19, she points out that not so long ago it hardly occurred to anyone that it might be necessary to populate search engines with content explaining that the Earth is a globe, but not doing so ceded the social media terrain to flat Earth fanatics. Similarly, Renée DiResta, research manager of the Stanford University Internet Observatory, notes that “One of the real issues with getting authoritative information today is that what’s surfaced is essentially determined by whoever runs the best marketing campaign.”

Addressing the social harm of science disinformation, then, will require at least four actions.

1. First, there will have to be ongoing conversations with the social media companies about their responsibilities to the public good. The social media platforms themselves are not the source of malinformation, but they are the vector by which it commands attention, enlists adherents, and spreads.
2. Second, we will require a much firmer understanding of the political dimensions of science scepticism and susceptibility to pseudoscience. Why has distrust and disenchantment with science aligned with specific wavebands on the political spectrum, and with what consequences?
3. Third, we will need to develop a much more sophisticated understanding of how disinformation moves over social media channels so as to know where and how best to address it, along with how best to engage with members of the public.
4. Finally, we must accept that answering and overcoming pernicious disinformation will require an ongoing campaign of public education supported by the social media platforms and informed by the considerations above. The dangers of science disinformation to collective wellbeing, as we have seen during the first stage of the pandemic, are too great to allow it to spread uninhibited and unanswered.

From now on, if we value reason and scientific understanding, we must recognize that we are in a propaganda war, and it is permanent.

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Interviews

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- Kevin Chan, Head of Public Policy, Facebook Canada
- Alexis Conrad, seconded as Assistant Deputy Minister, Social, COVID-19 Secretariat at Health Canada
- Gallit Dobner, Director, Centre for International Global Policy, Global Affairs Canada
- Marketa Geislerova, Deputy Director, Global Affairs Canada
- Kathryn Hill, Executive Director, MediaSmarts
- Jennifer Hollington, Assistant Deputy Minister, Communications and Public Affairs, Health Canada and the Public Health Agency of Canada
- Ken MacKillop, Assistant Secretary to the Cabinet, Communications and Consultations, Privy Council Office
- David O'Toole, CEO, Canadian Institute for Health Information
- Adnan Raja, Global Affairs Canada

