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PANDEMIC DENIALISM: THE CASE OF COVID-19



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INTRODUCTION

Any disruptive event or phenomenon which directly affects a large segment of the world's population will likely have historical significance. That is certainly the case with COVID-19 which had primary, secondary and tertiary consequences for hundreds of millions of people over the last three years. The COVID-19 pandemic evolved into a major historical event. Yet despite its significant consequences, or perhaps because of them, some people denied the virus existed at all, chose to minimize the threat it posed, or spread misinformation about it. This article develops a typology on COVID-19 denialism so we might better understand its sources and what can be done to counter them. This typology will analyze denialism as manifested in great power competition, driven by economics, motivated by political ideology and populist movements, caused by national security imperatives, and compromised by politicized science. This article will examine the use by China and Russia of social media such as Twitter to create "epistemological chaos" in the industrialized democracies about COVID-19 to further their strategic goals and undermine public confidence in science and technology.

While many groups of people have suffered, I will focus in this introductory section primarily on three groups that have been affected by COVID-19: those who died from it; those who are immediate friends or family members of those who died from it; and those who survived COVID-19 but have experienced long-term health consequences. Scientists call these individuals "long haulers or long COVID-19 survivors." I will examine first the individuals who died from COVID-19 as mortality data has been a source of denial criticism of science. Denialists argue most of the people who died from the virus already suffered from severely compromised immune systems because of a preexisting illness or vulnerabilities such as obesity, so they did not really die from COVID-19, or they were elderly and thus close to their end anyway. (If you argue everyone is going to die anyway, then what need does society have for doctors, medicine, or hospitals? But of course, this is the kind of red herring denialists use to distract us from real data and evidence.)

Official statistics indicate that 6.33 million have died worldwide of COVID-19 as of June 2022,¹ however

this is certainly a substantial underestimate as many countries have virtually no testing capacity or public health reporting systems. Even in the wealthy industrial democracies with advanced health care systems, some people have limited access to care, refused to be tested, and died untested. A much more useful and comprehensive data set is what is called "excess mortality," which is defined by demographers and public health scientists as excess deaths above previous comparable seasonal averages. Using this measurement, total mortality (as of June 2022) may have been closer globally to twenty million people.² This would make COVID-19 the worst pandemic measured in annualized mortality rates since the Great Influenza of 1918. Denialists simply ignore the statistics, question the motives of the scientists, or dispute the accuracy of the data. But COVID-19 has not only increased mortality rates and reduced life expectancy, it has also affected the long-term health of a large portion of the population which has been infected, but survived.

Long COVID-19 represents one of the most severe primary consequences of COVID (beyond immediate deaths) because of people's bodies' overreaction to the virus, which causes permanent or semi-permanent neurological (brain functions), respiratory (lungs), and/or circulatory system (heart) damage. Some scientists believe this reaction is what has been called the cytokine response, and may be the cause of very high death rates among healthy young people between 18-30 years old during the Great Influenza. In a June 2022 article in *The Atlantic*, Dr. Benjamin Mazer extrapolates data from long COVID-19 studies in the current pandemic and estimates 56 million Americans, one in every six, suffer these consequences.³ Thus for the living, COVID-19 has severe long-term health consequences. SARS, which is a virus closely related to COVID-19, also resulted in a portion of survivors who suffered lingering health impacts. This will likely also be the case with many COVID-19 long haulers. Fifty-six million Americans with long-term damage to their bodies will have health consequences we do not yet fully understand, but these health consequences will also have serious economic outcomes.

The secondary consequence of COVID-19 has been the

permanent economic damage done to the labor force, business, and economy. The U.S. restaurant industry lost \$240 billion in sales in 2020, with many restaurants going bankrupt because of the pandemic, while others have simply not reopened.⁴ U.S. unemployment peaked in April 2020 at 14.7 percent.⁵ Between February and April 2020, the number of business owners fell by 22 percent and almost 43 percent of businesses were temporarily closed.⁶ Many workers, after staying at home to avoid the virus, decided not to return to work or changed their line of work, causing a substantial shortage of workers in some industries. Some economists argue the decision by workers to leave industry drove up wages and may be contributing to the 2022 inflationary spiral, which is the worst in 40 years in the U.S.

Denialists blame federal and state governments for the damage to the economy because of stay-at-home orders for government offices, schools and universities, and businesses. This blame, however, is misplaced. According to John Barry's research, during the 1918 pandemic the U.S. government and many states did not take draconian measures, and in fact, they ignored the pandemic because President Wilson believed intervening would create panic and damage the U.S. war effort in World War I.⁷ Additionally, Niall Ferguson writes in his book *Doom for COVID-19*, "[i]t was in large measure vanity to claim that shelter-in-place orders were crucial. Americans all across the nation seem to have adopted social distancing before the first shelter-in-place orders were issued in California, on March 16—illustrating the importance of autonomous behavioral change by citizens which often anticipated government orders."⁸ Thus, there is evidence to suggest that severe economic impact was likely regardless of government response.

One of the most significant tertiary consequences of the pandemic has been the massive increases in public debt in wealthy countries as policy-makers sought to cushion the damage to business and family income. In the case of the U.S., this increase was the largest as a proportion of the GDP since World War II.⁹ This debt increase translates into higher interest costs as a proportion of the federal budget, which may be permanent given Washington policymakers' reluctance to pay off debt.

Another tertiary effect of the pandemic has been the shock to globalization causing many corporations to "nearshore" or "re-shore" supply chains for their finished

products.¹⁰ In the name of efficiency and cost-control multi-national corporations created global supply chains to create finished products which has meant dozens of countries produce the parts needed for complex manufactured goods to be completed. This supply chain system ignored the risk that if one country could not produce a single part, the manufactured product could not be completed. COVID-19 has swept across the global economy in highly variable and unpredictable waves, which in practice meant some countries' manufacturing capacity has shut down for long periods of time, thus crippling global supply chains. Global supply chain disruptions caused by the pandemic may also be fueling the inflationary spiral.

These primary, secondary, and tertiary examples represent a small and incomplete, but not insignificant, survey of the consequences of COVID-19. The damage from COVID-19 has had cascading effects on the public many of whom are unprepared to absorb and process this avalanche of information and fallout. Instead, many turn to conspiracy theories that are much easier to understand, particularly if these theories can be explained in simple ways by social media to fit into the user's own pre-pandemic worldview.¹¹ The more severe the crisis, the greater the presence of conspiracy theories in the popular imagination.

This same tendency towards conspiracy has likely accelerated the vaccine hesitancy movement across the globe, which I will address later in this paper.



DENIALISM AS INFODEMIC AND GREAT POWER COMPETITION

The World Health Organization (WHO) started using the term “infodemic” early on to describe the avalanche of information about the pandemic overwhelming the on-line public.¹² The question remains as to what or who is responsible for pandemic conspiracy theories, outright denialism, or misinformation spread on social media such as Facebook and Twitter. Is this simply a decentralized movement or do we have evidence of advanced planning and coherent strategy about the infodemic? It is certainly the case that populist social media figures, talk show hosts, and conspiracy journalists of the populist right and left have led the way on denialism and vaccine hesitancy. Even before COVID-19, actor Robert De Niro and Robert F. Kennedy Jr., son of the late Senator Robert Kennedy, along with discredited U.K. doctor Andrew Wakefield (whose medical license was revoked in the U.K.), were at the forefront of the anti-vaccine movement in the U.S. They charged that vaccines cause autism, even though

there is no scientific evidence to support their claims.¹³ They argued that big pharmaceutical companies were making high profits at the public’s expense and were engaged in a conspiracy to suppress the truth about vaccines. The geographic center of the so-called “anti-vax” movement prior to COVID-19 was located in three cities: Berkeley, CA, Detroit, MI, and Austin, TX, which were not exactly centers of conservatism. While Kennedy, Wakefield, and De Niro represent left-wing conspiracy opinion, hard right-wing media figures, such as Alex Jones¹⁴ and Sean Hannity,¹⁵ also played a major role in denialist narratives and in fomenting the anti-vaccine movement directly associated with COVID-19 denialism.

Social media platforms, such as Twitter, have amplified the existing tendency towards conspiracy explanations. They have done this through “bots,” which are automated online accounts (ro-bots) that appear to pose as real people and allow a small group of professional hackers

to create the appearance of a mass movement.¹⁶ Social bots can be purchased for free through Github on the Dark Web through tens of thousands of codes set up especially for building social bots.¹⁷ One study on COVID-19 misinformation from early in the pandemic (Jan 1, 2020-August 21, 2020) found internet information originated from 3.03 million tweets broadcast from 3,953 bots.¹⁸ Another study found that 45% of COVID-19 misinformation came from bot originated-tweets.¹⁹

In a move to counter COVID-19 misinformation, Twitter removed 50,000 automated bot accounts originating in Russia.²⁰ Much of the activity appears to have been centrally controlled in Russia through “bot farms” or “troll farms.”²¹ According to a 2020 study posted by the U.S. Department of State, the “five pillars” of the Russian “ecosystem” of COVID-19 disinformation and propaganda come from (1) official government communications; (2) state-funded global messaging; (3) the cultivation of proxy sources; (4) the weaponization of social media; and (5) cyber-enabled disinformation.²² What is the purpose behind this organized effort to spread COVID-19 misinformation?

Far right-wing literature in Russia provides some answer to this question. *Project Russia* is a semi-official series of four books published between 2005 and 2012, and it is the closest we have to the ideology of the Russian state under Vladimir Putin. It is a far-right wing, and some scholars would argue, a neo-fascist ideology. The authors argue that Russia is not strong enough economically or militarily to confront the western democracies, which they see as Russia’s enemies, and it must use indirect means such as information technology and “social movements” to undermine democratic states and weaken public confidence in their institutions.²³ The disinformation campaign perpetrated by Russian Troll Farms to poison public discourse about the pandemic is manifestation of *Project Russia’s* strategy implemented on a mass scale to undermine the Western democracies.

In one study on vaccine hesitancy predating COVID-19, the authors found that Russian bots provided an equal number of pro-vaccine and anti-vaccine messaging while spreading six different conspiracy theories about the side effects of vaccines.²⁴ Examples of these conspiracy theories include, “they are full of mercury to poison the public,” “they contain microscopic listening devices to spy on the unknowing public,” “they are part of the ancient

illuminati conspiracy,” “the elite is trying to kill off people who they find threatening,” and “the infection is spread by the 5G Huawei network.”²⁵ While the authors did not speculate as to why the bots took both sides of the case on vaccines, perhaps the Russian disinformation campaigns may be designed to create “epistemological chaos” among the Western democracies’ publics so they no longer trust science and technology to provide solutions to policy challenges.

Chinese and Russian bots have targeted far right-wing information platforms such as Patriot.win²⁶ in Europe and the U.S., arguing that the pandemic is greatly exaggerated by the media and medical establishment and that unproven drugs such as hydroxychloroquine and ivermectin were effective against COVID-19 but were being withheld by a Big Pharma cabal.²⁷ Another study reports that Chinese, Russian, and Iranian bots spread rumors that the novel coronavirus is an American bio-weapon; that U.S. troops have spread the virus; and that a person will become sterile if they are vaccinated.²⁸ One Russian platform connected to the Ministry of Defense reported that Bill Gates invented COVID-19 to profit from vaccines he had helped develop through his philanthropy.²⁹

A RAND study of 240,000 English-language news articles found that Chinese and Russian news stories in particular promoted “dangerous conspiracy theories” that damaged public health globally.³⁰ One study by the German Marshall Fund analyzed more than 35,000 Russian, Chinese, and Iranian government and state media tweets on vaccine themes and found “Russia provided by far the most negative coverage of Western vaccines” and “with a remarkable 86% of surveyed Russian tweets mentioning Pfizer and 76% mentioning Moderna coded as negative.”³¹

The COVID-19 conspiracy theories are not limited to the English-speaking world, but also appear in Latin America where a vast electronic eco-system of Spanish language world of conspiracy theories and misinformation are poisoning the public mind through Telegram and WhatsApp.³² One article in *The New Yorker* reports that “many Spanish-language social-media pages and groups are ‘cesspools’ where disinformation thrives uncontested” about the pandemic.³³

We may conclude that social media has amplified preexisting conspiracy theories about the pandemic, sometimes denying it exists at all, understating its

severity, or misinforming readers about its source and how to deal with it. Some of this information “cesspool” is driven by great power rivalry—mainly Chinese and Russian—designed to damage public health in Western countries they see as their competitors or enemies. This misinformation weakens public confidence in democracies, in science and technology, and strengthens the worldwide far-right and far-left populist narratives that attack elites and globalization. Some misinformation is motivated by commercial rivalry, such as when China and Russia attempt to damage public confidence in

Western vaccines so people might use Chinese or Russian vaccines instead. A broad analysis of the Russian and Chinese social media misinformation campaigns contains internal contradictions. Conspiracy theories about the virus itself implicitly admit COVID-19 exists, and even concede that it is a pandemic. What these conspiracies focus on instead is changing the public’s understanding of the pandemic’s origin, nature, severity, and how to respond to it. In this sense it is not denialism, narrowly defined, but a misinformation campaign to hamper efforts to control the spread of the disease.

DENIALISM AS POLITICAL IDEOLOGY

The political ideology a person embraces irrespective of COVID-19 appears to affect one’s view of the severity and even existence of the pandemic. The classical liberal and libertarian traditions in American political philosophy have a long and respected pedigree that created a preexisting skepticism of the need for government intervention in society in any area of policy, but specifically during health crises. Thomas Jefferson was one of the earliest expositors of the libertarian or anti-federalist view of the role of government, which he argued should be small and limited. Jefferson was hardly a fringe figure in American history even if his political philosophy is counterproductive in a pandemic. Milton Friedman and Friedrich Hayek, defenders of free market capitalism, echo the classical liberal view that the government’s role should be limited in terms of markets and public spending. Both economists would likely criticize (if they were still alive) the U.S. government’s stimulus spending during the pandemic, as Hayek decried stimulus spending during the Great Depression.³⁴ The data shows libertarians and right of center voters during the COVID-19 pandemic have opposed mask and vaccine mandates, government financial support to businesses and families, government orders to close businesses, government offices, and schools to prevent disease spread, contact tracing of infected people as an intrusion into one’s privacy, vaccine mandates, and vaccine report cards to prove vaccination status of the holder.³⁵ These same people also tend to be much more suspicious of alarmist explanations of COVID-19 than any other groups.

The leading libertarian on Capitol Hill, Senator Rand Paul (R-Kentucky), who is a medical doctor, criticized virtually all federal measures to address the pandemic. One reason libertarians tend toward isolationism is the fact that foreign wars (and other catastrophes such as pandemics or the Great Depression of the 1930s) tend to increase permanently the power and size of the federal government. Thus, libertarians may understate or deny disease threats because they wish to avoid increasing the federal power and spending, although it is of course also possible to embrace the libertarian tradition and simply accept that death rates will be higher because of government inaction. In the case of COVID-19 that is not what unfolded. Instead, the opponents of mandates and federal action mutated into denying the pandemic was occurring in the first place.³⁶ The political cultures of various regions of the country have affected vaccine mandates built into state laws. Current COVID-19 immunization rates are one indication of vaccine hesitancy and implicitly of COVID-19 denialism. The current COVID-19 immunization rates are highest in the U.S. in the six New England states and lowest in the Deep South and Arkansas, which have rates between 51% and 55%. All New England states (RI, MA, ME, VT, and Conn) had rates above 80%, with the exception of New Hampshire that has a vaccination rate of 79%.³⁷

While polling data shows that proportionately more Republicans than Democrats are most reluctant to accept mandates of any kind and are most resistant to vaccination campaigns, the regional nature of these

views may be more important than party identification. Massachusetts has been at the forefront of epidemic biosecurity policy from the earliest years of the American Republic to the current pandemic. In 1810, Massachusetts was the first state to pass a law requiring the general population to be vaccinated against smallpox through local boards of health.³⁸ Beginning in 1827, to attend school, children in Boston were required to show proof of vaccination against smallpox, and in the 1850s, Massachusetts started requiring all school children, state-wide, to show proof of smallpox vaccination.³⁹ Massachusetts, unlike its current reputation as a heavily “blue” state, was one of the more reliably Republican states in the United States from Abraham Lincoln’s administration to the election of John F. Kennedy in 1960.

DENIALISM AS POPULISM

Populism is not a political ideology, but rather it is an approach or stance that strives to represent “the people.” Populist left-wing and right-wing political figures have made denialism national policy in a curious confluence of the extreme fringes of democratic discourse. On the populist right U.S. President Trump and Brazilian President Jair Bolsonaro both either denied the severity of the pandemic or, in Bolsonaro’s case, denied it existed at all.⁴² On the far left, the Presidents of Mexico, Nicaragua, and Venezuela either denied the pandemic existed or were silent on the matter. They also muzzled health agencies from their governments who were trying to help the public prepare for the crisis.⁴³ Even in Africa, a socialist president was at the forefront of the denialism movement. President John Magufuli of Tanzania, who was the leader of the Democratic Socialist Party, denied the pandemic existed⁴⁴ and then died, apparently from COVID-19.⁴⁵

What could these populist political figures possibly have in common given their very different locations on the ideological spectrum and geographic spread? First, they were elected on waves of anti-incumbent, anti-expert, and anti-establishment protests that blamed global elites for economic malaise. Second, they all traded in conspiracy theories to explain this malaise, and the scientific complexity of COVID-19 and its consequences

From the Civil War until today, Massachusetts elected twice as many Republican governors as Democratic governors. In the 28 years spanning 1990-2018, only one Democrat has been elected governor. By contrast, Texas did not require all school children to be vaccinated against the major childhood diseases until 1971⁴⁰ (by the early 1980s, all 50 states had laws requiring children to be vaccinated before entering school).⁴¹ Texas did not become a reliably Republican state until 1988 and had been previously a Democratic state in votes for President and Governor.

Thus, vaccine hesitancy and pandemic denialism predates the current COVID-19 pandemic by a century with the South most skeptical and the New England states most embracing.

lent itself to conspiracy theories. Early on when research was only beginning the search for answers about the virus, scientists gave contradictory advice on how to protect oneself from the disease, presented conflicting views on what was causing the pandemic, and disputed its dangers. Thus scientists—the supposed experts—damaged their own credibility with the public through confusing messaging, which was particularly true of CDC & NIH and the White House under both President Trump and Biden. Conspiracy theories easily and quickly crept in to fill the vacuum. For example, the scientists predicted apocalyptic mortality rates based on infectious disease modeling that turned out to be way off the mark.⁴⁶ In March of 2020, Neil Ferguson’s research team at the Imperial College London estimated by using their model of disease spread that by fall of 2020 about 2.2 million Americans would die from COVID-19 (a million had died by Spring of 2022), an estimate that was quoted by U.K. Prime Minister Boris Johnson, Dr. Anthony Fauci, and U.S. President Donald Trump.⁴⁷ Populist political leaders all share an aversion to giving the public bad news, particularly news that people do not wish to hear. Scientists did not help matters by speculating about COVID-19 at the early stages when they should have been exercising restraint in public statements until more empirical evidence could be collected.

Thus, populist denialism should be distinguished from libertarian aversion to government intervention. Libertarianism on the right merged at some point with populist denialism when public figures spoke about the

pandemic, but it originated from very different positions initially. Denialism affects national policy in other ways unrelated to political philosophy.

DENIALISM AS A NATIONAL SECURITY IMPERATIVE

Denialism has geo-strategic implications for a country's foreign and national defense policies when a country's leadership believes a wide-spread COVID-19 outbreak could render the country militarily vulnerable to external enemies—real or imagined. North Korea (henceforth the D.P.R.K., the Democratic People's Republic of Korea) is perhaps the most noteworthy example of this typology of denialism.

Early in 2020, at the very start of the COVID-19 pandemic, news reports leaked out of the D.P.R.K. that “hundreds of North Korean soldiers have reportedly died from the coronavirus—and thousands of others are being quarantined.”⁴⁸ The North Korean high command required military hospitals to report any soldiers dying of high fevers. The report itself “caused a furor in the military leadership.”⁴⁹

Despite these credible reports, the D.P.R.K. claimed that no one inside the country had been infected with the virus. They did not deny the existence of the pandemic outside the country, but they did deny that it had spread to North Korea.⁵⁰ If they had admitted the virus was spreading, they would have made the country look strategically vulnerable. The same phenomenon took place during the great North Korean famine of the 1990s where the head of state, Kim Jong Il, argued during a secret speech to the party cadres that if the U.S. and South Koreans knew how severe the famine was, they would attack North Korea.⁵¹

In order to control the virus, officials closed the border with China to all trade and transport, which virtually collapsed the already anemic D.P.R.K. economy because it was completely dependent on Chinese trade to stay afloat.⁵² This single decision likely caused a famine in 2021 even if it has been disguised from the outside world. The

famine mortality rates have also likely been much worse than any that could have resulted from the pandemic.⁵³ Determining actual conditions in the D.P.R.K. is very difficult if not impossible, and thus we can only speculate on the progress of COVID-19 inside the country.

Finally, in early 2022 North Korean Leader Kim Jong Un admitted COVID-19 had struck the country, but the government minimized the number of cases. Pyongyang did admit that 1.7 million people had a “fever,” but not that it was caused by COVID-19.⁵⁴ They made this reluctantly ambiguous admission because they were asking for international help and could not make the case for it without admitting the population was sick with an undisclosed disease. Any statistics produced by the North Korean government historically have been highly suspect, so even the 1.7 million figure may have been invented.

The very presence of COVID-19 in the D.P.R.K. was and is a national security issue that threatens the survival of the regime unless the pandemic can be stopped, or failing that, information on the severity of the crisis can be controlled from leaking out. The fact that Pyongyang closed its borders and ports to China is evidence of this paranoia. North Korea cannot feed itself from its own agricultural production, and must import grain, mostly from China, to survive.⁵⁵ Cutting off that trade would have had potentially catastrophic consequences for food security, and yet the regime in Pyongyang was so frightened by the potential national security consequences that they took this draconian measure. This is an example of denialism gone wild at least in the first three years of the pandemic.

DENIALISM AS ECONOMICS

Recent studies show Russian and Chinese bots are trying to undermine support for European and American COVID-19 vaccines and build support for their own vaccines, even if these vaccines show much lower efficacy levels.⁵⁶ Thus, vaccine hesitancy directed against specific vaccines is a cynical economic calculation. As the pandemic spread in the U.S., indeed across the world, governments began issuing shelter-in-place orders, also known as lockdowns, where people were told to stay in their homes. Government agencies, businesses, and associational life shut down. In the space of a few months Zoom went from being a marginal communications tool to becoming the lifeline technology for daily work to continue from the confines of one's home. However, many businesses could not work by Zoom because of the nature of their services, such as the food industry. Some businesses such as grocery stores had to continue to operate or the public would go hungry, or even starve, if the lockdown became universal and lasted for months. The unemployment rates rose to 14.7% at the high of the lockdown, the highest rate since unemployment data started being collected systematically in 1948, according to a Congressional Research Service report of March 12, 2021, but some industries such as hospitality services suffered unemployment rates of up to 38%.⁵⁷ Between February 20, 2020 and April 7, 2020 stock markets around the world crashed with a 34% decline. The Dow Jones average fell by 9362.90 points, a 31.7% drop between February 12 and March 16.⁵⁸

This economic devastation led some in the business community and on the hard right to deny the pandemic was occurring or state that it was being exaggerated. They opposed the lockdowns and stay-at-home orders as unnecessary. Sean Hannity, the Fox News commentator on the hard right, argued early on that COVID-19 was no different from the seasonal flu and did not require these draconian control measures that shut down the economy and restricted people's civil liberties. On March 9 Hannity said, "[t]hey're scaring the living hell out of people and I see it again like, 'Oh, let's bludgeon Trump with this new hoax.'"⁵⁹ He later backpedaled and his reporting converged with messaging by the White House and CDC about the severity of the situation. One study

showed viewers of Hannity's news program and Fox News generally died in higher numbers than the population in general implicitly because they viewed reports of the pandemic as exaggerated and did not take protective measures.⁶⁰ The comparison Hannity made between the flu and COVID-19 turned out to be nonsense. Seasonal flu mortality varies widely from year to year over the past twenty years—between 12,000 and 62,000 deaths—driven by how infectious the latest flu variant was (called the R naught factor) and how lethal. Between the two years from March 2020 (when COVID-19 mortality began being tracked in the US) to March 2022, a million deaths were recorded through the federal reporting system. It was not even remotely comparable to the flu just by simple mortality rates. Even the worst flu outbreak since the 1918 pandemic, which occurred in 1957-1958, killed about 116,000 Americans, which when extrapolated to the current U.S. population would be equal to about 230,000 deaths. When compared to an average half million annual deaths from COVID-19, it is clear that their severity is not similar.

The motivation for these inappropriate comparisons was primarily economic, but it morphed into a form of denialism. It was assumed that minimizing or denying the pandemic would reduce the pressure for stay-at-home orders and lockdowns. This assumption was misplaced at best. In fact, it was it presumptive arrogance to argue that people stayed at home only because Washington or state governments issued mandates.



DENIALISM AS POLITICIZED SCIENCE

I will conclude this article with some observations about how some scientists have politicized debates over the origins of COVID-19 by attempting to suppress investigations on the issue. In this case denialism caused controversy over the origins of the virus, and not over whether the pandemic was taking place.

Perhaps no pandemic issue has elicited more emotion and debate than the investigation into the origin of SARS-CoV-2. This is not simply an academic question; research into the origin of the disease will affect efforts to prepare for it and could implicate unmonitored science as responsible for the catastrophe. On February 19, 2020, weeks after the pandemic became public, Peter Daszak, CEO of Eco-Alliance, organized a letter signed by 27 scientists claiming that COVID-19 originated from a naturally occurring event, likely sourced at a wet market in Wuhan, and not from a lab leak (these were the two competing theories of COVID-19's source).⁶¹ A natural origin from the private sector or importation in frozen

foods was the position of the Chinese government, which had a vested interest in ascribing blame to private markets or other countries rather than to an agency of the Chinese government. Daszak and his colleagues aggressively attacked those who believed the origins of the virus sprang from an accidental lab leak, and they labeled this version of events a conspiracy theory with no evidence to support it. An accidental lab leak cannot be a conspiracy, by definition, since conspiracies must involve human agency. Accidents are accidents because they are not planned; they are unintended. The letter claimed there was overwhelming evidence that the origins of the virus came from a wet market in Wuhan. In fact there was no dispositive evidence for any of the origin theories because the Chinese government has not permitted a truly independent scientific investigation.⁶² The presumed intention of the signatories on the letter was to suppress debate over origins, which is a form of denialism if the lab leak theory is later confirmed, but it is not a denial of the

pandemic itself. In fact, many of the signers of the letter had egregious conflicts of interest, particularly Daszak himself, in that they had received funding from the U.S. government (NIH, CDC, and USAID) to work with the Chinese government at the Wuhan BSL labs to identify and experiment on dangerous pathogens. They would be complicit in causing the pandemic if the lab leak theory was later confirmed to be true.

Later in 2021, a 34-member U.N. team of international scientists (which Peter Daszak served on) were sent to China to investigate the virus's origin. The investigation was little more than a well-choreographed visit hosted by the CCP that included a two-week quarantine in a hotel. The joint China-WHO delegation concluded that the pandemic resulted from natural spillover. This conclusion was given despite the fact that there was insufficient evidence to prove that any one of theories was correct.⁶³ The Director General of WHO himself criticized the report for reaching conclusions for which there was no real evidence.

Commentators discussing the virus's origin have reported two source theories—naturally occurring and an accidental Wuhan lab release.⁶⁴ The first hypothesis was that the Wuhan Institute of Virology (WIV) complex, located on two distinct campuses in Wuhan, has several Biosafety Level 2 (BSL-2) and BSL-3 laboratories, and a new BSL-4 high containment laboratory that was opened in 2017. For context, BSL-2 labs allow work with moderately hazardous pathogens that are easily contained, while BSL-4 is the highest level of biosafety for the study of the most dangerous pathogens. WIV scientists, often in collaboration with EcoHealth Alliance, collected several thousand virus samples from bats in caves 900 miles south of the city and other locations in Southeast Asia known to harbor potentially dangerous bat coronavirus since the 2002 SARS outbreak. Samples were transported back to Wuhan where scientists identified several new SARS-related bat coronaviruses that could naturally infect human respiratory cells. Peter Daszak himself described these natural SARS-related bat coronaviruses as a clear and present danger because they could directly infect human lung cells indicating potential transmission by the respiratory route. But WIV scientists extended their studies by generating novel chimeric SARS-related coronaviruses not found in nature through risky gain-of-function engineering research and

directed evolution serial passage experiments. Their novel chimeric viruses were then tested in human lung cell cultures and humanized animal models pushing the risk envelope to estimate zoonotic spillover risk compared to natural isolates. These studies were NOT performed in the maximum BSL-4 laboratory, but rather in the lower BSL-2 and BSL-3 labs and under uncertain biosafety conditions.

Gain of function experiments are common in virology research to help understand viral-host interactions and help develop new vaccine and treatment candidates. Most of the time experiments requiring gain for function experiments can be accomplished with minimal to moderate risk. However, generating novel chimeric SARS-related coronaviruses with potential for respiratory spread is inappropriate in a lower BSL-2 laboratories and thus was a high risk, and could have led laboratory-acquired infection or laboratory leak through the of breach of containment. Biosafety oversight for U.S.-funded studies through EcoHealth Alliance at the WIV was inadequate at best.⁶⁵

The other theory is that the scientists who were searching for bat virus specimens in caves were infected by the virus and carried it back to Wuhan, or they became infected from live bats brought to Wuhan for research before any experiments on the virus had actually begun. We have reports that the bats had bitten scientists collecting them for research. In this source hypothesis, the virus had not yet been altered in gain-of-function research and, therefore, were wild viruses which, through natural mutation, had become efficient at infecting people.

The investigative news service, Results, released 900 pages of documents (which they received from a Freedom of Information appeal) from the National Institute of Health, DOD, and USAID. Some of these documents were proposals submitted for funding by the Eco-Health Alliance, of which Daszak was CEO, to Defense Advanced Research Projects Agency (DARPA), the famous Defense Department research program that funded the creation, among other things, of the Internet. Of note, the proposal to DARPA intended to insert what is called a furin cleavage site into a SARS-related coronavirus. This is important because the furin cleavage site is closely linked to a portion of the virus that binds to human ACE2 receptors and is largely responsible for SARS-

CoV-2 pathogenicity and ability to infect many different tissues in the body. A furin cleavage site has not been found naturally in any other SARS-related coronavirus to date, although it occurs in other distant coronavirus families. This is a unique molecular signature. Whether the furin cleavage site was inserted through natural recombination or directed laboratory engineering is a question of intense scientific debate. DARPA turned down the proposal to create the furin cleavage site insertion as it was gain-of-function research that the DOD does not support. More troubling was the fact that the EcoHealth Alliance proposal did not include a risk mitigation plan. We have no way to know if the work was done and funded by some other source. It is also common practice in well-funded organizations like EcoHealth Alliance and the WIV, that some or much of the work is completed before grant applications are submitted.

An article from the *South China Morning Post* in February 2020 reported that Chinese scientists Botao Xiao and Lei Ziao wrote a blog arguing that the virus was accidentally released from the Wuhan lab, and posted the blog to their university website, the South Chinese University of Technology. It was Chinese scientists, not U.S. political figures or Western journalists, who first described the source of the virus as an accidental release. The Chinese scientists' blog was taken down almost immediately, and the scientists' names were removed from the university website.

In January 2018 the U.S. Embassy in Beijing sent U.S. scientists to the Wuhan Lab on an assessment mission because the U.S. government had been providing technical support to the labs as part of NIH grants to EcoHealth Alliance. The cable they sent back to Washington on March 27, 2018, was alarming because it "warned about safety and management weaknesses" at the lab and reported there was a risk of accidental release. *The Washington Post* published a story on the cables on April 14, 2020 in a column by Josh Rogin: "[t]he first cable, which I obtained, also warns that the lab's work on bat coronaviruses and their potential human transmission represented a risk of a new SARS-like pandemic."⁶⁶ This is from a State Department cable sent to Washington in 2018.

Some of the scientists who are critics of the lab release hypotheses appear to want to avoid open criticism of the Chinese government, perhaps believing these

attacks would damage the government's credibility or out of concern that determination of a lab accident origin could suppress important life sciences research. Some scientists who have been most vocal in support of the natural spillover theory and most critical of the lab leak hypothesis appear to have little understanding or expertise in how totalitarian states like China operate, their internal political dynamics, anemic accountability systems, and their dysfunctional bureaucratic incentive structure. It is certainly the case that there is no definitive evidence for any of these theories; all of the evidence for each theory is circumstantial because the Chinese government has stonewalled or manipulated all outside investigations into the source of the pandemic. Nicholson Baker, a respected science writer from the *New York Times*, published an article in the *New York Magazine* on January 4, 2021, which broke the mainstream media wall on the Wuhan Lab leak hypothesis.⁶⁷ Baker argued that the accidental lab release was the most plausible explanation for the origin. In his thorough examination of the source of the virus, Baker discusses the fact that no evidence of any human infections in the 900-mile journey between the bat caves (where some of the closest virus' relatives appear to have originated) and central Wuhan is difficult to reconcile.⁶⁸ Why were there no other infections detected between the two critical points separated by 900 miles?

The official Chinese government explanation for the source of the virus was that it derived from a natural spillover event or importation in frozen foods for other countries.⁶⁹ Beijing announced that the virus's origin was naturally occurring, having been spread from the wet animal market (the Huanan market) 8.5 miles from the Wuhan lab.⁷⁰ In fact the wet market the Chinese government blamed for the virus was a seafood market where 95% of the food sold there was from the ocean; there is no evidence seafood in any form spreads the disease. In October 2021 an article appeared in *Nature* that reported the discovery of a highly similar coronavirus in bat caves in Laos.⁷¹ The virus taken from the caves in Laos was slightly more similar to SARS-CoV-2 than the virus taken from the caves in south China.

We now know how this twin sister virus to COVID-19 moved from Laos to Beijing without infecting anyone in between. National Institutes for Health emails made public through a Freedom of Information request by the

news service *Intercept* showed bat virus samples with highly similar RNA as SARS-CoV-2 had been collected in Laos and sent to the Wuhan Institute of Virology for analysis. The virus did not get there from wet market animals up for sale; virus samples were sent to Wuhan by scientists for study.

The Trump Administration's support for the lab release theory meant that no self-respecting liberal mainstream media outlet could take the theory seriously until several left-leaning journals investigated the matter and wrote detailed analyses supporting the lab release argument. This was followed by articles in *Newsweek*, the *Wall Street Journal*, and the *Washington Post*, which presented convincing evidence for the accidental release theory. The *Intercept* investigation of the DARPA grant proposal was published September 6, 2021.⁷²

The heavily redacted emails released by NIH under court order, raised several important questions about the work being conducted in the Wuhan lab. Perhaps the most damaging of the released NIH emails came from Kristian Anderson in early 2020 that warned that several evolutionary biologists believed SARS-CoV-2 had features that were not consistent with natural evolution, but later reversed his view, it appears, because of NIH objection. The next day, Tony Fauci, Francis Collins, Jeremy Farrar from the Wellcome Trust in the United Kingdom and some evolutionary biologists and leaders in the field of risky gain-of-function research met to discuss their concerns about COVID-19 origins. Their emails leave no doubt this small group of influential scientists from the United States, Europe, and Australia initially believed SARS-CoV-2 was more likely to have come from a lab rather than nature based on a unique molecular signature found in a key location of the viral genome, the furin cleavage site, though they later reversed their position. But how was the furin site inserted: natural evolution or accelerated evolution in a laboratory? Comments in these emails, which are still highly redacted, swirled around the possibility of risky gain of research or serial passage studies gone awry that caused laboratory acquired infections spreading to the community.

Several attempts have been made by investigative journalists and science writers to obtain unredacted NIH emails from the first nine days of February 2020 (just as the virus was sweeping across the globe). Jimmy Tobias, a freelance journalist, who wrote for *The Nation*

and *The Guardian*, received copies of these unredacted NIH emails. Nicholas Wade, former science writer for the *New York Times*, wrote an article published December 4, 2022 in the *City Journal* that analyzes these new emails. He reports that scientists who had earlier supported the lab leak hypothesis had reversed their position 180 degrees to call it a "dangerous conspiracy theory" or another called it a "crackpot theory" for reasons that have more to do with politics and not scientific evidence. Francis Collins, the Director of NIH, at the time in an email suggested that if a connection was made between NIH's support of research at the Wuhan Labs and the outbreak of the pandemic "the voices of conspiracy will quickly dominate, doing great potential harm to science and international harmony." This suggests NIH leaders were more concerned with the reputation of science and of relations between China and international system, than with gathering scientific evidence of the true origins of the virus.⁷³

Some scientists misused their expertise to deny the legitimacy of the lab leak theory and attempted to suppress debate on a crucial issue because politics and their personal interests intervened to compromise science. Some accused their opponents in the origins debate of being anti-science, when in reality many of the proponents of the lab leak theory were other scientists. This was a misuse of science for political reasons and a form of denialism.

CONCLUSION

In this article I have attempted to describe the various forms of pandemic denialism and the single common thread linking them together is a confluence of politics and interests that distort information and science. Some people denied or minimized the pandemic because they could not fathom the complexities of the virus nor could they accept the disruptions in daily life, in social habits, and damage to the economy. Some of types of denialism issued from Great Power politics and the use of cyberwarfare to weaken one's adversaries. The invention of the Internet, the rise of social media such as Facebook, Google, Twitter, and other platforms over the past three decades has facilitated disinformation campaigns on a grand scale. Both governments and the technology industry have failed to develop a national consensus on how these communications systems should self-police without depressing legitimate debate and protecting first amendment rights. Current attempts by the high-tech industry to monitor traffic on their systems has showed ideological bias, which has only made elements of the public more suspicious of their trustworthiness.

As a result, when a major crisis such as the pandemic erupted no broadly acceptable standards or mechanism were in place to stop denialism from evolving from a fringe annoyance to a mainstream "cesspool" of disinformation and outright lies. Authoritarian and totalitarian dictatorships, which earlier had been unable to suppress the wide distribution of information, found new mechanisms for controlling and manipulating information through social media that they then used to damage public confidence in institutions, particularly in democracies. At the same time the mediating function of traditional newspapers, radio, and television networks had effectively collapsed—which had themselves at times violated their own standards—as a check on disinformation, denialism, and conspiracy theories. Attempting to depoliticize the debate and construct new safeguards on the misuse of social media may be a fool's errand in the poisonous politics of the current period, but at least we should make an attempt at it.

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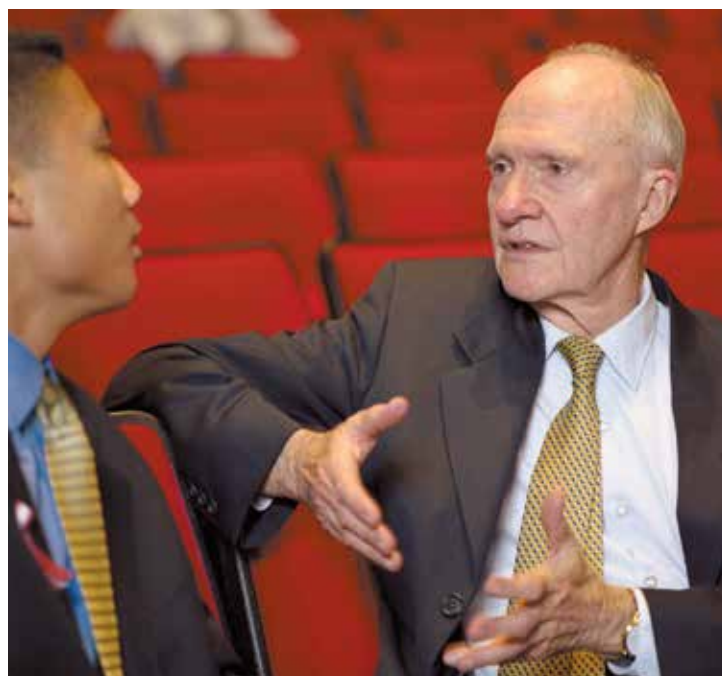
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