



Vacca: Imagining Vaccination

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ESSAY



ABSTRACT

This article places the development and technology behind the COVID-19 vaccine at the intersections of globalization, capitalism, biopolitics, and our relationship with the natural world. Consideration of these intersections suggest how they shape our ideological understanding of vaccines.

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For what does man really know about himself? If only he could ever see himself perfectly, as if displayed in an illuminated showcase! Does not nature keep nearly everything secret from him, even about his own body, in order to hold him fast under the spell of a proud, delusionary consciousness, unmindful of the windings of his entrails, the swift flow of his bloodstream, the intricate quiverings of his tissues! She threw away the key; and woe to the fateful curiosity that ever succeeded in peering through a crack out of the room of consciousness and downward, suddenly realizing that man is based on a lack of mercy, insatiable greed, murder, on the indifference that stems from ignorance, as it were clinging to a tiger's back in dreams.¹

Friedrich Nietzsche

INTO 2021

The year 2021 begins. Most of the world—and certainly the entirety of what we can skeptically call the developed world—is still firmly in the grip of the COVID-19 pandemic which has already lasted nearly a year. This pandemic, for all kinds of different political, economic and cultural reasons, has turned out to be more than a match for our flimsy, careless and inconsistent human defences; it kept on—and keeps on—coming at us in new waves and surges and with new variants and new challenges, infecting millions and millions around the world, and having so far ended the lives of nearly three million of us. The numbers are still rising and so 2021 does not open, in other words, with any reasonable expectation that the pandemic is over, nor soon will be.

But of course at the start of 2021 there was a new optimism in the air. The latter months of 2020 were dominated by breathless news of all the newly formulated vaccines that were becoming available—vaccines that were being rushed through their scientific trials by medical researchers in both the public and private spheres, and quickly ushered through the standard regulatory processes of various countries. No less an authority than the Director General of the World Health Organization (WHO) announced in December that “although the path ahead remains treacherous, we can begin to dream about the end of the pandemic.”² Even the Mr. Rogers of the Trump Administration’s COVID-19 task force, Dr. Anthony Fauci, entertained the possibility of the US returning to some kind of “normality” if “we can get the overwhelming proportion of the population vaccinated by let’s say the end of the second, the beginning of the third quarter.”³

Everything depends, then, on the vaccines and their proper distribution and administration. At the start of January 2021, there were seven different vaccines available around the world under specific emergency use authorizations. A couple of months later, that number had risen to twelve. By mid-March, over 350 million people around the world had been given at least a first dose of one vaccine or another. Meanwhile several hundred other vaccines were still in development, undergoing trials or awaiting authorizations, and many of them were very close to being deployable. So, all of this is enough, it would seem, to warrant a certain sense of optimism that, even if exact time estimates vary, the pandemic can be largely tamed in 2021 by what would be the largest medical mobilization we have ever seen—one that essentially has the goal of vaccinating as many of the world’s population as possible in the shortest possible time.

Even early in 2021 there were, of course, plenty of well documented horror stories concerning the supply and distribution of the vaccines. And yet, with all those many millions of vaccine doses in the pipeline (and even if their distribution did not match the efficient and speedy manner of their development), and after nearly a year of frustrating COVID-19 restrictions for so many of us around the world, it’s not surprising that the new vaccines immediately and widely came to be seen as a kind of panacea that would wipe away not just the virus, but equally all the political, economic, and social problems commensal with the pandemic. For many, the vaccines constituted a kind of magic wand that, as we waved it, would simply return us post haste, as Fauci says, to some kind of “normality.”

1 Nietzsche et al, *Nietzsche on Rhetoric and Language*, 247.

2 Tal Axelrod, “WHO chief says world ‘can begin to dream’ about end of pandemic.” *The Hill*. December 5, 2020. <https://thehill.com/policy/international/528889-who-chief-says-world-can-begin-to-dream-about-the-end-of-the-pandemic>.

3 Noah Higgins-Dunn and Berkeley Lovelace Jr, “Dr. Fauci says U.S. could return to normal by mid-fall if most people get Covid vaccine.” *CNBC*. December 16, 2020. <https://www.cnn.com/2020/12/16/dr-fauci-says-us-could-return-to-normal-by-mid-fall-if-most-people-get-covid-vaccine.html>.

More than that, the vaccines have been adopted as the central agents in all kinds of urgent political arguments. I will leave aside for another essay the various discourse of the anti-vaxxers around the world: their politics would obviously dictate their opposition to COVID-19 vaccinations but pre-exist them and are not confined to them. More crucially, as soon as the virus first hit the US in February 2020, President Donald Trump essentially threw the whole burden of US pandemic policy onto the vaccines, whose development under the auspices of Operation Warp Speed he then used to justify and vindicate every other action and inaction of his administration. Trump's refusal in 2020 to fully and consistently support *any* measure to curb or prevent the pandemic, even while beset by staggering numbers of confirmed cases and citizen deaths, will readily stand as the principal reason that about a quarter of the world's COVID-19 cases, and about 20% of the deaths, have occurred in the US.

The vaccines that have come to save us have also been put to other kinds of political and rhetorical work, of course. A recent issue of the left journal, *Jacobin*, made the astonishing suggestion that we should “Thank Socialism for the Vaccine....Blame Capitalism for Its Distribution.”⁴ The article claims that the vaccine is the result of years of publicly funded research, which private pharmaceutical companies have seized and taken credit for. Distribution of the vaccines has been botched in many respects—though in the USA perhaps less by the many capitalist enterprises to whom it was entrusted. Even if the second part of the *Jacobin* byline were true, it is clear to most on the left that a multi-billion dollar state subsidy kickstarted a competition amongst private pharmaceutical corporations for a vaccine.

Not to be outdone in terms of dubious vaccine claims, the Koch Foundation's libertarian Cato Institute recently published an article on their website exploiting the vaccines in order to sound off a few belated cheers for the processes of free-market globalization. Somewhat contrary to *Jacobin*'s position (but perhaps closer to reality in some ways), Scott Lincicome makes the claim that “every part of the vaccines—from corporate leadership to investment to research and development to production and distribution—depends on ‘globalization’ *and* would suffer from government attempts to block it.”⁵ This kind of pro-globalization cheerleading immediately sounds a shade anachronistic: after all, the allure of globalization has surely been tarnished somewhat after the last few Trumpian years and, indeed, after decades of criticism regarding the benefits of globalization. But the larger problem, of course, is that the coronavirus itself, the ensuing pandemic, and its global effects are all arguably the consequences, precisely, of globalization itself in the first place. The virus itself is first facilitated by way of ever increasing tensions between the natural environment and global capital's agricultural practices (including the exploitation of non-domesticated animals). And the speedy spread of the virus around the world has been facilitated by the multiple pathways, hectic trade routes, flooded air routes, and multiple and lengthy supply chains necessary to globalization. So the move to make globalization a positive force in the vaccination process ignores its role in enabling the spread of the pandemic in the first place.

SIT-REP

No doubt contentious claims such as those made by the Cato Institute and those in *Jacobin* will multiply and abound as the vaccines set about doing their work. In that context, it's perhaps worth reminding ourselves of exactly where we are as we begin to introduce these anti-COVID-19 vaccines into the arms of billions of people.

Vaccines have for centuries been needed because of the damaging and fatal effects of various naturally occurring diseases on human beings. But the coronavirus that has caused the current pandemic is the tangible result of interventions by humans in the natural environment. Arguably the most extreme and significant of those interventions have taken place over a very short time—just a few decades of what we call globalization. In whatever ways one prefers to define globalization, there can be no doubt at this point that with its endless and ever increasing transportation of individuals and commodities all over and around the planet, globalization

4 Leigh Phillips, “Thank Socialism for the Vaccine. Blame Capitalism for Its Distribution.” *Jacobin*. December 22, 2020. <https://jacobinmag.com/2020/12/socialism-vaccine-capitalism-distribution>.

5 Scott Lincicome, “The COVID Vaccines Are a Triumph of Globalization.” *CATO Institute*. December 8, 2020. <https://www.cato.org/publications/commentary/covid-vaccines-are-triumph-globalization>.

has literally produced the rapid expansion of the virus. John Bellamy Foster and Intan Suwandi have laid out the extensive connections amongst globalization (along with the longer term processes of capitalist accumulation), the environmental havoc wreaked upon the planetary metabolism, and the emergence of new diseases and pathogens. Drawing on the work of heterodox epidemiologists like Rob Wallace, they show how “chains of global exploitation and expropriation have destabilized not only ecologies but the relations between species, creating a toxic brew of pathogens.” For Foster and Suwandi, COVID-19 is essentially a waste product of capitalism’s processes. COVID-19 and a host of other new pathogens are “toxic residues of the capitalist production system, traceable to agribusiness commodity chains as part of a globalized food regime.”⁶

COVID-19 and multiple similar viruses are thus the result of several decades of globalization and specifically of the kinds of neoliberal policies—local, national and global—which have concomitantly encouraged the worst kind of intensive farming, the disruption of wildlife movement patterns, the perversion of fish routes and the overfishing and pollution of the oceans, the derangement of bird migratory paths, the burning of forests, the destruction of wetlands and other seminal environments such as coral reefs, the growth of deserts, and so on. All those factors also contribute to climate change and thus function as a kind of accelerator on all of the effects of human interventions. In short, globalization produces an ecological world which directly encourages diseases.

Foster and Suwandi stress that COVID-19 is not some rare, one-off event, but a constitutive component of the crisis of capitalist accumulation in the era of globalization. Capitalist disruption of the complex ecological relation between the human and the rest of the natural world has facilitated a whole series of diseases and viruses, of which COVID-19 is only the latest in a long line. Indeed, COVID-19 is the seventh coronavirus known to have affected human beings: alongside diseases such as swine flu, ebola, and multiple other non-coronavirus diseases, we have seen SARS, MERS, and multiple coronavirus variants. COVID-19’s place in the genealogy of pathogens is underscored by its more technically correct appellation, SARS-CoV-2. There is no reason at all to think that, once our vaccines have worked, COVID-19 will be the last of these diseases. As Mike Ryan of the WHO has pointed out, COVID-19 is not even necessarily the most spectacular: “This pandemic has been very severe.... It has affected every corner of this planet. But this is not necessarily the big one.”⁷

Our current virus is also one in an increasingly threatening and lengthy line of zoonotic diseases (diseases that can be transmitted from animals to humans). Even though early on there were spectacular stories about pangolins as the carriers, with COVID-19 the most widely accepted explanation is that bats were animal-to-human carriers—the first scientific papers on this virus certainly saw it as transmitted by bats.⁸ Scholarly discourses about whether the bat origin narratives also carry anti-Asian sentiments are ongoing. In any case, three quarters of new and emerging human infectious diseases have generally come from animals. Even if the many conspiracy theories about the virus being released from Chinese labs were true, COVID-19 transmission would still have been zoonotic.

This particular virus is also anthroponotic—that is, it can travel from humans to animals. There have been numerous reports of zoo animals and domestic animals that have caught the virus, but the most spectacular case led to the slaughter of the entire farmed mink population of Denmark.⁹ Those millions of mink continued to be an ecological threat even after slaughter since their carcasses rotted and leached into Denmark’s groundwater.

This is the world of globalization into which our new vaccines are arriving. It’s a world produced by our own actions and our own carelessness, a diseased ecology that is in permanent distress

6 John Bellamy Foster and Intran Suwandi, “COVID-19 and Catastrophe Capitalism.” *Monthly Review*. June 1, 2020. <https://monthlyreview.org/2020/06/01/covid-19-and-catastrophe-capitalism/>.

7 Miriam Berger, “Covid-19 ;not necessarily the biggest one,’ WHO warns.” *The Washington Post*. December 29, 2020. <https://www.washingtonpost.com/world/2020/12/29/coronavirus-2020-the-big-one-who-pandemics/>.

8 Hong Zhou et al. “A Novel Bat Coronavirus Closely Related to SARS-CoV-2 Contains Natural Insertions at the S1/S2 Cleavage Site of the Spike Protein.” *Current Biology* 30, no. 11 (June 8, 2020): 2196–2203.e3. <https://doi.org/10.1016/j.cub.2020.05.023>.

9 David Quammen, “ And Then the Gorillas Started Coughing.” *The New York Times*. February 19, 2021. <https://www.nytimes.com/2021/02/19/opinion/covid-symptoms-gorillas.html>.

and that consequently is breeding spillover pathogens in a forbidding and seemingly ineluctable series. As Rob Wallace has argued tirelessly over the last decades,

...by its global expansion alone, commodity agriculture serves as both propulsion for and nexus through which pathogens of diverse origins migrate from the most remote reservoirs to the most international of population centers. It is here, and along the way, where novel pathogens infiltrate agriculture's gated communities. The lengthier the associated supply chains and the greater the extent of adjunct deforestation, the more diverse (and exotic) the zoonotic pathogens that enter the food chain.¹⁰

It is by now no secret that we have not responded well to the rise and proliferation of these pathogens, viruses and diseases. There are, for sake of argument, three areas where pragmatic responses could have or should have been formulated: global and regional organizations such as the United Nations and the World Health Organization; individual nation states or organizations like the European Union, along with their institutional public health structures; and private industries. In their own unique ways, each has failed over the last few decades.

In the first case, transnational organizations have been the most significant defense that we have had. But their success is always dependent upon the funding (ever decreasing) and the goodwill of nation states, and their activities very rarely escape the influence of politics. Perhaps even more importantly, they tend to have no actual power, but rather become not much more than advisory bodies whose information and knowledge is often tendentiously re-circulated to suit specific national situations. That is the lesson from the Trump Administration's treatment of the WHO during the pandemic, who conducted an all-out PR assault on the WHO and led the US to curtail its contributions. Even with a full financial contribution from the US, the WHO operates on an annual budget of roughly \$6 billion for all of its operations—this is about half of what the Trump Administration put into the corporate development of vaccines. The paltry level of funding for world health projects and planning leads inevitably to the neglect and degradation of healthcare and its infrastructure in the most vulnerable areas, and this in turn increases both the likelihood and the severity of communicable disease.

At the level of the nation state, most of the “advanced” nations of the North have passed the last several decades in increasingly severe and increasingly normalized states of austerity, where public spending on the public good is essentially treated as a cancer and is therefore excised. There is nowhere this is more clear than in the US where, over the last twenty or thirty years, successive administrations have cut public funding and abandoned responsibility for long term health projects or health infrastructure. The process has by no means been confined to the Trump Administration, but in terms of the US response to the pandemic, it is clear that it was directly and deliberately disabled by Trump's budget cuts. Under the predatory budget eye of John Bolton, the administration defunded, for example, many of the operations of the Centers for Disease Control (especially its international efforts).

One of Trump's and Bolton's most debilitating decisions was to totally curtail the Emerging Pandemic Threats (EPT) program that had been established in 2009 by the Obama Administration. The EPT had the specific mandate of preparing against exactly the kind of threat that COVID-19 has duly and inevitably represented:

...the early detection of new disease threats; enhanced ‘national-level’ preparedness and response capacities for their effective control; and a reduction in the risk of disease emergence by minimizing those practices and behaviors that trigger the spillover, amplification, and spread of new pathogens from animal reservoirs to humans.¹¹

Whilst that kind of purblind budget cutting was particularly remarkable under Trump, it merely echoes the deliberate defunding and attenuation of socially directed pandemic response, including the development of possible vaccines, by various “developed” countries, always under the sway of neoliberal arithmetical reasoning.¹²

10 Wallace. *Dead Epidemiologist*, 50–51.

11 USAID “Emerging Pandemic Threats Program – EPT-2 2014–2016.” Accessed July 6, 2021. <https://www.usaid.gov/sites/default/files/documents/1864/EPT2-Narrative-508.pdf>.

12 The new ‘Introduction’ in Mike Davis's *The Monster Enters* (2020) gives a detailed and frightening version of the US narrative. John Bolton's role as hatchet-man for the Trump administration in regard to health programs produced a sordid kind of irony when, after his firing by Trump, Bolton frequently appeared as a media pundit criticizing the administration's handling of the pandemic.

Austerity cuts for public health funding and the neoliberal abandonment of responsibility for longer term planning—which is what vaccine development represents—are often accompanied by claims that these things should be the domain of private enterprise rather than a public charge. But nothing obliges Big Pharma to take up the task, and indeed, the private health industry has consistently not done so. The political economy of the pharmaceutical industry, where nothing is funded that cannot be immediately or quickly turned to a profit, is an object lesson in how global capitalism does or does not work. Research on diseases that are not already active—and vaccines for those diseases— is perfectly possible to undertake; but it is also perfectly unprofitable, or at least unprofitable in the short term.

The neglect of vaccine development and of any kind of long term health vision has thus been the norm for the pharmaceutical corporations, for whom vaccines ideally are only reactionary and opportunistic. Even the story of the new mRNA vaccines is punctuated by the difficulties and travails of research funding. At this juncture, we might expect this story to be touted as a glorious moment in history, but the truth is somewhat different. Seminal work on mRNA has in fact been going on for several decades (not so much for vaccine purposes, but as part of the search for cures for various diseases, including cancer), but it has suffered severe underfunding and inconsistent support from academic institutions and private pharmaceutical companies (which are often very closely tied to each other). One of the most important researchers in this story, Katerina Karikó, made several important discoveries about mRNA, but spent decades in and out of work and with inconsistent and inadequate funding.¹³

So this indeed is where we are now, and it could be said that in this context of neglect, paying to develop vaccines against COVID-19 is like having to do very expensive repairs on your house because you've done no maintenance for years. The biggest and earliest such payment, beginning in March 2020, has been the Trump Administration's investment in Operation Warp Speed, a public subsidization of a huge competition amongst capitalist corporations in a race to find vaccines. Trump's obsession with vaccines essentially turned them into the entirety of US policy, to the exclusion of just about any other anti-COVID measures or precautions.

With the exception of a few nationalized (including several Chinese) corporations, all the pharmaceutical developers of new vaccines are commercial companies. Often, they are corporate giants with household names and track records, like Pfizer and Johnson & Johnson (and ironically in several cases companies that Trump was simultaneously vilifying for their excessive drug prices). Operation Warp Speed dangled a total of eleven billion dollars of public money in front of these companies in various packages. The money offered was in fact relatively modest by their standards (Moderna for instance took about \$2.5 billion, while its current market capitalization is around \$60 billion). The small amounts of money did not dissuade the companies from getting to work, and the results were that Pfizer and Moderna came out with mRNA vaccines late in 2020, quickly followed by Astra-Zeneca's adenovirus vaccine, and then in 2021 Johnson & Johnson's viral vector vaccine. Those four vaccines have remained the predominant ones up until May 2021, although there are other vaccines in use globally (all produced in China, Russia or India).¹⁴

This model—that of a capitalism that can afford to establish, fund and support this kind of competition (very far from *Jacobin's* vapid idea of socialism) has predictably been of not much use to the so-called developing world. The fate of the populations of the developing world faced with COVID-19 infection was from the beginning relegated to an afterthought in the development of the vaccines. The Big Pharma research companies of the North did little to negotiate with or donate any potential vaccine to the South. When the Pfizer vaccine arrived, for instance, it was discovered that the company had made no supply deals in the South at all. The tendency for Northern nations to keep vaccine supplies to themselves threw up a whole series of ugly images—from Trump trying to corner the market in vaccines, to the EU and Britain

13 For details about Karikó, who finally found her feet at Pfizer's partner corporation BioNTech, see newspaper articles Julia Kollewe, "Covid vaccine technology pioneer: 'I never doubted it would work.'" November 22, 2020. (<https://www.theguardian.com/science/2020/nov/21/covid-vaccine-technology-pioneer-i-never-doubted-it-would-work>); and Nuño Domínguez, La madre de la vacuna contra la covid: 'En verano podremos, probablemente, volver a la vida normal.' El País. December 27, 2020. (<https://elpais.com/ciencia/2020-12-26/la-madre-de-la-vacuna-contra-la-covid-en-verano-podremos-probablemente-volver-a-la-vida-normal.html>).

14 Pfizer officially did not take money from Operation Warp Speed for research and development, but it did contract to sell \$2 billion worth of vaccine to the US government.

fighting over supplies, to the disarray besetting the worldwide vaccination project of COVAX. The current sordid global grab of vaccines and its unseemly results became possible because of years of neoliberal austerity programs, followed by the neglect of vaccine research on the part of the corporations whose coffers are now filled with public money.

The huge amount of money dangled in front of corporations to make a vaccine was never going to be matched by funds to supply, distribute and administer the products. Against the \$11 billion spent on development, a mere fraction—just \$340 million—was set aside for distribution in the US.¹⁵ And most Northern nations have had both supply and distribution problems of one kind or another since the first months of 2021. Even beyond the lack of state funding, other problems have arisen: supply problems, new variations in the virus, political quarrels at both the national and international levels, and even fears for the safety of some of the vaccine brands. Even while vaccines are still being rolled out, problems abound and the roll-out has been much slower than it might have been, even in Northern nations. Indeed, although vaccination rates are improving, and although it is proven that vaccinations are able to slow down infection rates, even in the North we're still in the position of relying upon what are essentially tertiary forms of defense against the virus—masks, physical distancing and so on. And yet, the vaccines are still heralded as our salvation as we look for immunity.

IMMUNITY

In the Wellcome Collection in London, there is an admirable etching by the French satirist, François Depeuille, from around 1800, entitled “The Origin of the Vaccine” (**Figure 1**). The work depicts the normally expected kinds of social and commercial interaction around what was then the brand new phenomenon of a vaccine against smallpox. The scene features a milkmaid who is being examined by a doctor, and a businessman being offered the vaccine by someone who arguably looks like Edward Jenner, the man widely accepted to have initiated vaccinations. For my purposes here, the animated activities and commercial transactions of the humans in the etching are less important than something else—the simple imposing mass of the cow in the center of the picture. Posed as both the cause of the milkmaid's disease on one side, and as the cure for the disease on the other side, the cow, the *vacca*, stands impassively, patiently even, and remains central and immovable.



Figure 1 “A milk maid shows her cowpoxed hand to a physician, while a farmer or surgeon offers to a dandy inoculation with cowpox that he has taken from a cow.” Coloured etching, ca. 1800. CC BY 4.0 <<https://creativecommons.org/licenses/by/4.0/>>, via Wikimedia Commons.

15 Jessie Hellmann, “State, local officials plead for vaccine distribution funds.” December 5, 2020. <https://thehill.com/policy/healthcare/528866-state-local-officials-plead-for-vaccine-distribution-funds>.

Until 2021, the standard perception of vaccination was much the same as it is depicted here. The vaccine was a product generated from the very problem that necessitated it, so to speak. To inject the natural germ itself into the body helps to protect the body from the germ. Although the thing put into the body is essentially toxic, it is put there to immunize the body. The word itself, vaccination, is etymologically derived from the Latin *vacca* (cow), since Jenner performed his vaccinations against smallpox with the help of the pox from the cow. Here we can not fail to be reminded of the logic of the *pharmakon* in Plato's *Phaedrus*: there, the *pharmakon* is the figure for something that is both the poison and the cure. The procedure of vaccination always resonated with the logic of the *pharmakon* in that sense, and was therefore always a kind of illogical or counter-intuitive procedure, permanently forcing us to recall the double edged character of pharmaceutical practice. For most of the history of vaccination, from Jenner himself right up to today, the efficacy of the vaccine derived from the use of the disease itself, against itself. The truth of vaccination is, then, in the figure of this *vacca*, a permanent reminder of the ambiguous and fragile co-dependency between our attempts to preserve ourselves and the sheer fact of the natural world. This is of course a co-dependent link that as humans we have always manipulated imperiously and normally cruelly, but it is a link that has been crucial to our survival and our health and it has enabled us to vouchsafe certain kinds of immunity.

In recent years, a variety of biopolitical theorists have built up a considerable discourse around the notions of immunity and immunization generally. In this rather large subset of biopolitical theory, medical notions of immunity are generally taken as a heuristic yet operative metaphor for any of the several parts of the body politic (political, philosophical, legal, administrative, etc). Much of this work can be traced to important explorations and speculations that took place in the wake of the onset of HIV/AIDS and following claims initially laid out by Michel Foucault (whilst often veering somewhat from Foucault's specific concerns and intentions). The texture of such work was inspired after the events of 9/11 and in light of the extreme self-defense strategies and tactics adopted at that time by the US.

Whilst much of this biopolitical theory is attached to the name of Giorgio Agamben, perhaps the most exemplary work is that of Roberto Esposito, especially in his book, *Immunitas: The Protection and Negation of Life*, where he explains his sense of the logic of immunity as the essential political and individual logic of our time. Esposito exploits the etymological signification of the term immunity to underscore first of all its military provenance (from the Latin *munir*, to arm oneself), but also to note its use as a designation of privilege and of exemption—the immune person owes nothing to anyone. Therefore, in this metaphorical understanding the term immunity becomes the opposite of a conception of community. Like many theorists of biopolitics, Esposito sees this logic of immunity as tendentious, always leading to a closed system of oppressive control, marked by the inhibition of community.

In a similar vein but perhaps more sceptically, Ed Cohen has made the argument that the notion of immunity is the “apotheosis of both modern medicine and the modern body because immunity defensively renders the organism distinct from the vital contexts in which it necessarily exists, locating both nature and culture inside it.”¹⁶ The vitalistic metaphors that biopolitical theory uses underline the extent to which this theory is humanist in its fundamental methodology. That is, like Cohen in the quotation above, the theory sees human life as defined altogether in its individual/political dialectic, or in the relationship between the living organism and its polis or political life.

Certainly that “locating [of] both nature and culture inside it” allows the concept of immunity its explanatory power. No doubt we understand the process whereby allowing a small piece of opposition or toxicity into our body or body politic can be used to help preserve that body. But on the other hand, it is precisely by locating nature inside our immune bodies that the problems arise. The immune body (or the “immunological self” as Esposito calls it) is fully occupied in managing the dialectic of individual and community.¹⁷ To locate the natural world inside the

16 Cohen, *A Body Worth Defending*, 14. Cohen more recently deploys the immunity/community doublet in an interesting way in relation to Covid-19 in “A Cure for COVID-19 Will Take More Than Personal Immunity.”

17 Esposito's way of describing the immunological self underlines the nature of this dialectic. The term refers, he says, “to a contradiction by which identity is simultaneously affirmed and altered at the same time: it is established in the form of its own alteration...the immunological self would thus be that which is more individual and that which is more shared. By overlaying these two divergent meanings onto one figure, what we get is the unique profile of a shared individuality or a sharing of individuality. It is perhaps in this chiasm that the enigma of immunity still lies preserved.” *Immunitas*, 177.

immune body is in effect to swallow it up, or perhaps simply to control and dominate it. Or worse, it can be a way to deny it or elide it altogether. This is because in the dialectical logic of the immune/commune body there is no longer an outside—certainly not an outside for which the immunological subject will vouch or take responsibility. The farthest extent of human responsibility in biopolitical theory is to community.

So, it is the importance of that outside that this present essay wants to argue for, by way of our placid figure of the cow, the *vacca*. A great deal of our *actual* (historically experienced) immunity has been produced by way of the practice of vaccination, but this is a word that doesn't quite resonate with any of those civic, political, legalistic tropes that biopolitical theory plays with. It exceeds in some way the vitalistic metaphors upon which biopolitical theory depends. The point I want to make here is that the moment at which such vitalistic tropes might have been maieutic (say, the aftermath of 9/11), however weak their logical (or rather analogical) foundation, that moment might have passed. The imperious waving away of the boundaries between the natural world and the individual body is brought back to reality in the word 'vaccine'. As a word, vaccinate stands apart. One might say it is a kind of remainder, left after the dialectic of immunity and community has taken over. It belongs to that biopolitical register that depends upon the logic of the *pharmakon*, and yet it survives it. Its belonging is on display in the word itself and in all the old depictions of Edward Jenner's first vaccinations, taken of course from the *vacca*, the cow.

A lot has been made, and rightly, of the fact that the headline-grabbing covid vaccinations are not traditional vaccines. For several decades, the promise of mRNA technology has been in the development of cures for various diseases, including cancers. Its possible use for vaccines was not much mooted in the literature until COVID-19; research into mRNA vaccines had come well within the corporate pharmaceutical reluctance to invest in products designed to solve no obvious or actually existing problem. With this pandemic we have turned a corner in vaccine science. Instead of using a version of the disease, this vaccine is different. It is a high-tech vaccine that, how it is often described, is analogous to computer technology. The new vaccines are platforms which just need data to be entered. The first effective anti-COVID-19 vaccines, from Pfizer and Moderna, depend upon mRNA technology. Other vaccines, such as the adenovirus do not deliver mRNA information so directly as the Pfizer and Moderna ones, but they still differ from old style vaccines in that they do not introduce a version of the disease into the body, even if they might use viruses from other animals such as chimpanzees to deliver the vaccine.

With the mRNA vaccine we enter into a different realm of logic where we no longer use or rely upon nature for our immunity, and so a new metaphorical register is required for this type of vaccine. No longer will the pharmakonical metaphor work, nor the immunology metaphors of Esposito and other biopolitical theorists, since that dialectic of harm and preservation is no longer recognized by mRNA technology. Inevitably, the metaphor that arises is computational. The metaphor that most comprehensively explains these new viruses is found in the discourse of the contemporary computer, with its apps, its codes, its algorithms and, most importantly, its programming.

The computer metaphor has already been fully adopted into the vernacular. Popular journalists like Sanjay Gupta regularly use the analogy of a computer app to explain to his CNN audiences how the vaccines work. Mainstream news reports describe the vaccines as 'programmed,' and we are encouraged to think of them as artifacts of code. The frequent response to the increasing threat of COVID-19 variants is to suggest that current vaccines simply need to be reprogrammed or re-coded in order to deal with them. This is a new kind of vaccination, a new technology. Instead of introducing the *vacca*, the poison/cure, into the body, we now introduce sterile code. With these new vaccines, we must give over our vaccine imaginary to the Apollonian, neoliberal language of the computer and its concomitant language of efficiency of production (the development and action of these vaccines give new dimensions to the capitalist phenomena of flexible production and just-in-time production). And our new magic wand is so magical that all it needs when faced with a new virus or a variant is to be reprogrammed—a new bit of code will be designed to quickly sort out the next problem. This high-tech vaccine, far removed from any *vacca*, joins our world where the dominant technology of everything is now the computer as it rules atoms, genes, language, organizations, and now bodies and their immunity.

Of course, one danger of the new vaccines is that we might fall under the spell of what Leo Marx once spoke of as the “technological sublime” which is now embodied in these digital technologies. The technological sublime “arises from an intoxicated feeling of unlimited possibility” and the promise of endless progress.¹⁸ The rhetoric of the technological sublime elevates technology with an almost religious fervor even while ignoring the consequences of the development of the technology in the first place. We seem to be at that point with the new vaccines where the political economy of their development underscores the failures of public health systems and planning in the Northern nations, the inequality in the world system between the Northern nations and the global South, and many other aspects mentioned here. Equally, the consequences of our new vaccines are still to be discovered. One factor that has so far received almost no public attention is the environmental issues that surely must be raised by the sheer volume of used needles and vials that are a residue of the process of vaccinating billions of people. Here, Foster’s point that COVID-19 itself is a waste product of capitalist processes can perhaps be expanded to illuminate the continuing cycle of waste production.

Esposito claims that “certainly, immunitary systems are necessary. No individual or social body can do without them, but when they grow without limit they wind up pushing the entire organism towards an explosion or an implosion,”¹⁹ or to some apocalyptic scenario. That is his fear, deeply rooted in the imaginary of the pharmakonical dialectic. But Esposito’s position ignores a perpetually feasible, or rather omni-present alternative. That is to say, perhaps the entire organism (body or body politic) will be pushed instead towards a state of *pacification*, of numbness, a rhapsodic but insensate conviction of salvation and safety, a kind of stasis.

As the vaccines are rolling off the production lines, and despite their less than optimal clinical trials, and with our having really very little sense of long-term effects or efficacy, they still wield this numbing power. For the Trump Administration, of course, there was never any point in focusing on anything *but* the vaccines, because they would solve the whole pandemic problem in a heartbeat. The same absolutism was heard from Esposito too: “As long as there is no vaccine, we will have to live with the virus out of necessity.”²⁰ And even for most of us hoping that it won’t be too long before it’s our turn to have the needle in our shoulder, and trusting that everyone else around us would feel similarly, the vaccines seem to present the same kind of nuclear prospect. Salvation by vaccine. This new model form of vaccine, then, the mRNA mechanism, is totally suited to our contemporary moment of crisis, absolutely in line with our modern clamour for immediate effect, for instant gratification. The mRNA vaccine exists at that bewitched crossroads that Adorno and Benjamin discussed —where positivism and magic meet.

So, I have been using the word *vacca* in this little essay really just as a codeword to remind us that until now, until COVID-19 and the advent of the new vaccines, our imaginary (or more exactly, our *ideological*) relation to the natural environment was complexly conceived—dialectical and commensal as far as diseases, preventions and cures are concerned. I have perhaps been repeating in a different register a point made by Juan Miguel Igea who points out that the conceptual model of immunity that underpins all actual scientific research today is very different from the older meanings of immunity embedded (etymologically) in the word:

Today scientists understand immunity more as an ecology than as a quality or action of the body [...] The immune system is [...] an intricate network of cells and proteins that not only takes care of the internal harmony of the host but also integrates it in its rich and diverse environment.²¹

This is a view that goes in the opposite direction compared to the biopolitical view that sees immunity as a process of including the environment inside the body (at the cost, as I’ve suggested, of eliding it). And it goes almost without saying that this is also a very different conception than the panacea view, or the technologic-sublime view, of ‘immunity’. Instead of embracing either of these imaginaries, we should bring ourselves to the task of redefining our immunity by not forgetting the old meanings that are embedded in our language and thought.

18 Marx, *The Machine in the Garden*. 198.

19 Esposito, *Immunitas*. 113.

20 Esposito, “The Biopolitics of Immunity in Times of COVID-19.”

21 Igea, “From the Old Immunitas to the Modern Immunity: Do We Need a New Name for the Immune System?” 63.

Vacca is there to remind us of where we came from, of our own historicity, of how for all the theoretical bio-politics of immunity, and for all the technological messianism, the fact remains that we have always had a pharmaceutical—or should I say pharmakonical—relation to the very world that threatens us and have been able to find within that world the means of our own preservation. I don't put that forward as a necessarily or unfailingly noble notion. Particularly with regard to the animals—the wildlife or the domesticated stock—that we use and that arbitrarily help us draw the lines between ourselves and the natural world, we have been unstintingly brutal and domineering. But even if those lines are in need of being redrawn, they are essential for understanding our life.

So it seems worth considering, for a moment at least, what could be the consequences of the breaking, the eradication, or even just the attenuation of the connection that *vacca* designates. One danger is the techno-optimism lure. It seems to me that we must avoid allowing ourselves to bask in the charmed air of victory, of having beaten the pandemic, of being done with all this. That's because the natural world still hasn't finished producing these viral threats...and that's in its turn of course because we still haven't finished forcing it to do so. Indeed, the way that the everyday habits of global capitalism have been naturalized (exactly) makes it hard to imagine how we could stop denaturalizing (exactly) the natural world. And so it seems all the more likely that we will be repeatedly attacked by it and through it. In other words, if we are still actively manufacturing what Mike Davis calls "the structures of disease emergence," then the future in that sense is necessarily bleak. As Davis suggests, to stop this we would need to see the kinds of "revolutionary reforms in agriculture and urban living that no large capitalist or state-capitalist country would ever willingly undertake."²² Or to put the matter in terms of Rob Wallace's question, "Can we fundamentally adjust the modes by which we appropriate nature?"²³

What is at stake in this moment of the pandemic and its potential submission to our new vaccines is the prospect of politicizing or re-politicizing our life itself. We have a moment of opportunity when, by refusing to imagine our life as divorced from the natural world, but equally refusing to submit our life to the liberal fear scenarios and fantasies of the biopoliticians, we can regain control of the politics of life through the understanding that to re-establish the dialectic of the human world and the non-human world is to protect both. To maintain the connection of our life to the natural world is to maintain our sense of responsibility to the natural world and also to admit our responsibility *for* that world.

Vacca!

COMPETING INTERESTS

The author has no competing interests to declare.

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