

a n o x i c  
b o d i e s



On the Airborne

On Symbiosis, Zoonosis

On the Machinic and Biological

~ Carrying, Exchanging and

Transmissions

On Cleaning & Cleansing

On Anoxic Bodies



anoxic bodies is a collection of meditations, poems and short essays by Dr. Victoria Sharples. It accompanies a series of works, of the same name, made using: soap, water, germ and virucidal solution, hand-sanitiser, hermetically-sealed plastic substrates, osha root, astragalus, eucalyptus, and saliva. These function as material compositions to call on, as to signify, cellular envelopes and structures.

In part a response to the SARS-CoV-2 virus, this publication pulls from, and unpacks, discourses surrounding: human and non-human bodily relationality; socio-economics; telecommunication technologies; carrying and exchange; social bubbles, cleaning and cleansing; medicinal plants and the airborne. This work follows the rubric of mail art and New Materialism.

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On the Airborne

*carried through the air on unseen currents; held by molecular patterns and gaseous forms, only to be seen through the swell of particles as we sway and fold into each other again.*

What is carried through the air has called for more attention; socially, politically, economically, and spiritually; across health-care industries, educational structures and relative to our ecological place within the biosphere. The smallest of submicroscopic particles, measuring approximately  $\approx 0.1 \mu\text{m}$ , have seemingly caused the international movement of human and non-human bodies to pause

~ for a while ~

across space.

And we, in response, have attempted to slow this unseen tide; the waves of which have been evidenced through the reproduction of cells; the sharing of technological information; the ‘passing-away’ of peoples; and systemic inoculation programmes carried out on continental scales.

Blue-collar workers, armed with suds and virucidal solutions (as invisible as the aerosols they spray), labour to neutralise the pestilence. And plastic partitions have been put up to separate populations and classes alike. And while

immunisation efforts have been operative, and appointed to many, vaccination apartheid has caused others to take on water, while attempting to stay on the surface

~ as to take in air.

There are also parallels across viral and tele-communicative ecologies which need to be addressed. There are material, immaterial, macroscopic and microscopic systems of exchange taking place across the infinitesimal and international milieu. There is a sharing of matter ~ of transmigrating forms, shipped PPE and postal packages; written statistics, radio reports and networked speculations; avian transfigurations, mammalian strands and human genealogies; resource allocations, international partnerships and tracing surveillance; internet searches, QR codes and R-numbers; epitaphs, virtual funerals and social bubbles; hand-washing, nasal mucus and salivary substances. The 'infra-thin'<sup>1</sup> space between the sender and receiver; the nose and mouth of two separate bodies.

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<sup>1</sup> These infinitesimal differences I attribute to the Duchampian 'infra-thin' (*l'inframince*); a neologism, named by the artist Marcel Duchamp, which is beyond scientific representationalism, signifying: 'that point at which one can just barely begin to perceive a threshold between two states' (Dworkin, 2015:17). Through a collection of examples, however, we understand this term: Wi-Fi is infrathin connectivity, the soap that slips, the residual result of any action, decomposition.

*It is something of an osmotic event, which permeates organisms and seeps in silent.*

*Air sacs become fluid-filled, pouring away from the endothelial membrane, throughout the bronchial tree and filigree network of alveoli.*

*The trachea bifurcates into smaller, separate airways ~ the exchanging place of supply and demand, and the gentle give of the chest as we take-in oxygen and expel-out carbon-dioxide.*

*In effusion, the pleura ruffles and what is fluid passes through the tissue.*



*Matter is shared, carried and passed between touched-surfaces, hands-held, breaths-taken and saliva-shared ~ a symbiosis, a zoonosis.*

*A fine secreted mist, as many as 40,000 droplets, each measuring around  $\approx 0.5\text{--}12\ \mu\text{m}$  in diameter exude from the body at speeds of 100 metres per second (m/s). These are infective in close contact or through participatory fomites ~ that is, actively-passive objects and materials such as faucets, face-cloths and keyboards.*

*The particles in our mobiles and microchipped-computers communicate this endemic ecology, as memes are spread as analogous as the biological transmission.*

*We are permeable and porous; machinic and organic; genomic and algorithmic. That which is imperceptible is airborne, now. And, while this is a wet testimony ~ I am far from the open water.*

## On Symbiosis, Zoonosis

It is of significance to note here that viruses, contagions and germatic matter often become problematic when there is an ecological imbalance. This is possibly resultant of poor hygiene and sanitation facilities; pollution; poverty; governmental policy; international movement; temperature changes; the thawing of permafrost; overpopulated cities; large-scale deforestation programmes; wet-market economics; contaminated water sites and zoonotic events: where human and non-human species, unfamiliar ~ yet ~ to one another, share pathogens, whether bacterial, viral or parasitic. In these conditions, viruses accelerate and can cause systemic harm.

In the case of the causative virus, SARS-CoV-2, the speculated site and source has been named as the Huanan Seafood Wholesale Market in Wuhan, China.

This is a space of fluid permeation: where fish writhe around in shallow basins; where solid water softens and gives way; where the innards of animals seep out onto planular surfaces; where perishables are cooled in transit and then re-heated in the sun; where market stalls are hosed-down after their closure and their residue runs in the street. This is a place where pathogens trade alongside the human economy: a reservoir of viral and fiscal activity.

That is to say, there is a ‘pooling-together’ of ~ our ~ bodies, not as singular forms but as many secretive and ‘intra-active’<sup>2</sup> symbionts: human and non-human; animal and herbal; biotic and abiotic; waterborne and airborne; alive and deceased; active and passive; internal and external.

*We are of air of water of carbon of atoms of  
volumes of cells of plasma of microbes of enzymes  
of bacteria of molecules of parasites of pathogens  
of germs of inhalations of exhalations of  
perspirations of minerals of chemicals of tissues of  
melanin of fibres of acids of alkali of nuclei of  
networks of codes of import of export of statistics  
of information of spirits of substance of aether.*

It has been suggested, for example, that bats and pangolins may have functioned as animal intermediaries for the zoonotic transfer; although like the speculated site, nothing

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<sup>2</sup> In Karen Barad’s publication *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (2007), the neologism ‘intra-action’ is introduced. In this, the Baradian concept is used in place of the usual ‘interaction’ ~ which assumes that there are separate distinct agencies that precede their interaction, while ‘intra-action’ recognizes that agencies do not precede, but rather come to be within ‘intra-activity’ (33). That is, phenomena are not relata-in-themselves but relata-within-relations. They are exchanging and diffracting and working inseparably. Barad’s ‘Posthumanist Performativity’ (2003), also undermines the metaphysics of individualism.



normally ‘transmitted ‘horizontally’ as exogenous [exterior] viruses which can spread [outside and] inside the body and also from person to person. However, such viruses can also sometimes infect germ cells; they are then passed down ‘vertically’ from generation to generation’ (156).

*I am my family’s name in lipid languages I am  
unable to utter; in phonemes and numerical units,  
polymers and stratigraphic postcodes ~*

*where I am composed of ancestral and celestial  
sequences, microcosmic macrocosms; lunar maria  
and tidal pulls. Made of fossils and mortar,  
chromosomal nebulae and the weathered  
descendants of this convolution. We are an ancient  
archive of each-others source and mouth, the  
mountains to the sea ~ as I push slit along the  
riverbed as foundational as our amniotic sac; and  
carry the sediment of my passage to the earthen  
bank. They are within us ~ as intra-active  
architects of our home ecology.*

As Mölling puts it: ‘We are an ecosystem, teaming inside and outside our body with bacteria, viruses, archaea, and fungi, all living in a close community. We cannot remove them with soap and water – and we should not try to, because we belong together’ (123). As divisive as this statement may seem today, it is, I would suggest, a needed discourse; one which may even be healing in some way as

we begin to return to that which we recall as ‘normal’ over the coming weeks, months and years.

In 2011 and 2013, scientists ~ as reported in the journal: *Science* ~ founded and named the ‘microbiome’ as a system which houses all our microorganisms: our bacteria, viruses, archaea and fungi; but also our antigens, phages, yeast, micro-animals, eukaryotes and protists etc. They found that while human bodies comprise  $10^{13}$  cells in sum, we host  $10^{14}$  microbes ~ signifying that about 10% of human cells are actually what we could call ‘our own’, and microbes supply more genes responsible for human subsistence than humans do themselves. That is, as suggested by Mölling, the ‘microbiome’ may be our second genome and viruses and fungi may be our third and fourth (2017:124–125).

As a form composed of aggregated matter what then, could we ask, constitutes the singular ‘I’?

What is it to be ‘human’?

This, I am unable to answer ~

But, if microbes have been existent for more than three-billion years, before the arrival of *us*, surely *we* are the product of *their* native flora; guests which *they* accommodate. This premise is something I hold to be accurate, and provides an account which defies the precept of human autonomy as free from the virome.

They will ~ as they have before ~ exceeded us; whereas we are dependent on our microbial caretakers for our continued survival (126). In simple words: ‘we would become sick *without* viruses [...] we would not exist’ (2017:112–113).

With shared aims, the writings of ecological scholar Donna Haraway also unbalance the precept that humans are separate from our non-human components<sup>3</sup>. In ‘We Have Never Been Human’ (2008), for example, they recall: ‘To be one is always to become with many [...] when ‘I’ die, all these [...] symbionts will take over and use whatever is left of ‘my’ body, if only for a while, since ‘we’ are necessary to one another [...]’ (3–4). This is further substantiated in ‘Sympoiesis’ (2016) where Haraway notes: ‘Critters – human and not – become-with each other, compose and decompose each other, in every scale and register of time [...]’ (97). As human bodies are composed of about 60% wet matter ~ our form is open to discussion.

As hydro-scholar Astrida Neimanis outlines in ‘Figuring Bodies of Water’ (2017): ‘Our wet matters are in [a]

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<sup>3</sup> Haraway’s publications: ‘Sympoiesis: Symbiogenesis and the Lively Arts...’ (2016), ‘Tentacular Thinking: Anthropocene, Capitalocene, Cthulucene’ (2016), and *When Species Meet* (2008), unpack the ontological assumption of (non)human separation, and put forward a new premise which speaks to symbiogenesis, togetherness and ‘becoming-with’ one another as co-companions, along with the reduction of human authority, power and precedence.

constant process of intake, transformation, and exchange [...] bodies of water undo the idea that bodies are necessarily or only human [...] We are literally implicated in other [...] bodies that materially course through us, replenish us, and draw upon our own bodies as their wells' (2-3).

In fact, our freshwater, saline and marshy beginnings tell us of this biological imperative. We hear accounts of sacred waters in spiritual passages; hydrological cycles; gilled-ancestors and early tetrapods; seminal plasma and ovarian follicles; hyperthermophilic flues; and ancient archaeobacteria. While these are somewhat speculative foundations ~ and should be diffractively read ~ it would be erroneous to suggest that water has no place within our shared and ongoing genesis. Biota: fungi, plants and animals are all dependent on their need for water and its Earthly presence. This also goes for humans and single-celled organisms such as slime moulds and protocists, and monera such as bacteria and blue-green algae which are the simplest of all biological forms on Earth (2017:110). We carry water with us, as part of us ~ it feeds oxygen into our cells and hydrates our lungs allowing for easy breathing.

In acknowledgement of this, we must then, I would suggest, recognise our inseparability, relationality and therefore our responsibility as we filter through one another within the contemporary present. In particular, I am aware of our



place within shared ~ respiratory ~ spaces and across situ  
which may secrete.

As the artist JJ Chan puts it in ‘Performing Porosity...’  
(2021): ‘to understand that [...] our flesh is water, and our  
minds are water, is to acknowledge our commons in the  
puddle [...] A puddle of water is a locale that holds these  
ontological and material temporalities and all their possible  
constellations [...] (131).

It is perhaps needed then, like Chan, that we become more  
attentive of our unavoidable wet and porous bodies ~ and  
anticipate how easy it is for them to spill and overflow  
through one another (2021:131). Haraway’s concept of  
‘sympoiesis’ ~ a word which explicates this osmotic turn ~  
is again of use here: the neologism gives shape to an almost  
permeable process; something membrane-like that incites  
the condition of a shared-residuality. It also speaks to the  
premise of our commonality. As both a comfort and a  
warning, then: ‘Agencies’ ~ Haraway writes ~ ‘mutually  
contaminate one another, interfering with one another’s  
being [...]. Body to body, our saturated surfaces moisten as  
they go on to become another’s breath [...]’ (2016:132).

*We glug from perspiration, and pores in rocks;  
from evaporated fresh-water, aquatic and oceanic  
bodies. Aspirated fish and algae blooms are fed by  
the hydrosphere as salt flats, rice paddies, ponds  
and planes are dried and flooded and swallowed by  
the harvests.*

*We also share with other bodies through saliva and  
sweat, weeping and urination, labour and  
reproduction, transfusion and lactation in the  
liquescent vessels which we call 'ourselves'.*

*In other places, keratin scales furl as ~ us ~ tall  
mammals buy and sell for the betterment of human  
ails.*

*Collected guano is sold as medicinal produce, while histoplasmosis caused by fungal spores settle into the fissures of our lungs ~ like the caves we mine in.*

*And, animals are poached and skinned and bled and eaten and excreted to fertilise soil from which we grow and lay bodies to rest.*

*I grieve for the loss of people ~ and for the virus in this (non) human wake. Together, we are both casualties and causalities; the affliction and afflicted; a suicide-viricide to end the hereditary line.*

On the Machinic and Biological

~ Carrying, Exchanging and Transmissions . . .

*We bodies, host genomic languages,  
viral messages and programmed  
sequences. We are many ~ compositions  
and microbial companions ~ passed in  
parcels, in 'enveloped cells', and by  
the ever growing populous. We  
circulate together in the microbiome,  
and spread across the moving ~ along  
the airways and electromagnetic waves.*

*We are*

*all going*

*V I R A L*

*V I R A L*

*V I R A L*

*V I R A L*

*V I R A L*

*V I R A L*

*V I R A L*



The earliest academic seminar on self-replicating computer programmes was given in 1949 by mathematician John von Neumann at the University of Illinois on the ‘Theory of Self-Reproducing Automata’. In this, Von Neuman theoretically showed how computer programmes could be coded to reproduce themselves; something which came to be named the Von Neumann Universal Constructor: a self-replicating machine in a cellular automata structure (Gupta, 2021:79). Following his passing in 1957, his seminars were published in a volume, under the same name, by the University of Illinois Press (UIP), after completion and editing by his colleague Arthur Walter Burks in 1966.

In the abstract of *Von Neumann’s Self-Reproducing Automata* (1969), Burks prefaces the publication with a statement which not only sets-up Von Neumann as the theoretical founder of the original computer virus, but as the ‘farther’ of computer virology (Gupta, 2021). It further underscored many aspects of Von Neumann’s work as attending to machinic and biological systems. That is, Von Neumann’s ‘Theory of Self-Reproducing Automata’ gave way to similarities of cells and neural pathways in the human body, and early computing machines, and further postulated that computer programmes may be able to act in a similar way to biological viruses. Of this publication, Burks offers a summary:

‘A complete informal description of the cellular system is presented including an explanation of the realization of

logical components, the design of computer organs, the construction, destruction and movement of organs by sequences of internally originated pulses, universal computation and construction, and self-reproduction. Connections between Von Neumann's automaton research and his work on computer design are brought out, and the significance of cellular arrays for biological research discussed' (1969:III).

In the opening chapter '*Kinematic Self-Reproduction*', Burks reports how Von Neumann once observed how science had previously paid attention to energy, power and movement, whereas in the coming years it would need to be more attentive to problems concerning information, programming, the processing of matter, communication, control and the government of systems. As Burks put it: 'digital computers provide an excellent opportunity for studies of this kind, and Von Neumann started a theory of automata based on them. He wished this theory to deal with the control, informational, and logical aspects of both man-made automata (such as digital and analog computers) and natural systems (such as cells, nervous systems, and brains)' (1). Simply put, it could be suggested that Von Neumann and Burks predicted the many intricacies of our biotechnological present.

We define a computer 'virus' as a program that can 'infect' other programs by modifying them to include a possibly evolved copy of itself. With the

infection property, a virus can spread throughout a computer system or network using the authorizations of every user using it to infect their programs. Every program that gets infected may also act as a virus and thus the infection grows.<sup>4</sup>

Not unlike biological viruses, computer viruses go through cycles: dormancy, propagation, activation and effect. In the preliminary ‘inactive’ phase, the virus sits idle, waiting to be turned-on by an event. In ‘propagation’, the virus makes a copy of itself and places this copy in another system or programme on the disk. Each infected programme will have a genetic-twin which will also partake in the effort of reproduction. In ‘activation’, the virus is instructed to turn-on. And, in the final phase ~ the function the virus was programmed to perform ~ takes effect. This may be as harmless as a message appearing on the screen, or the ruin of all programmes, files and data (Stalling; Brown, 2012:183). The intrinsic aim of the virus is to spread and grow ~ and to take part in its programmed application.

As put by techno-scholar Stephen Turner: like many bodily systems, ‘technologies of transmission have their conatus – ‘an innate inclination of a thing to continue to exist and enhance itself’ – hence a technical ‘intent’ and drive

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<sup>4</sup> The words of computer scientist Fred Cohan ~ the first person to define the term ‘computer virus’ as outlined in the paper ‘Computer Viruses: Theory and Experiments’ (1987:23).



towards their own non-human expansion' (2019). While computer bugs, worms and viruses, recognised as malware and adware, are often wry in name, some mark and attest to active bacteria, such as Cholera: the waterborne vibrio cholerae microbe; viruses, such as HIV-AIDS (human immunodeficiency virus-acquired immune deficiency syndrome); or the nuclei particles of radioactive matter ~ which can alter structural cellular tissues.<sup>5</sup>

There is even a strain of computer virus currently circulating with the name: 'COVID-19.exe.'

The presence of 'animal' and 'spiritual' names further upholds the assumption of the non-human as separate from the human. And yet ~ as previously addressed ~ there are

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<sup>5</sup> *Creeper, Elk cloner, (c)Brain, WinVir, Boza, Win32.Cabanas, SCA virus, Great Worm, Nimda, SQL Slammer, Stuxnet, CryptoLockers, Conficker, Downup, Kido, Tinba, Welchia, Shlayer, MyDoom, Storm Worm, Sasser, Netsky, ILOVEYOU, Code red, Melissa, Zeus, Blaster, Commwarrior-A, MEMZ, Plug X, ANIMAL, Ping-Pong, Cascade, Jerusalem Virus, Byte Bandit, CyberAIDS, Festering Hate, Ghostball, Form, Michelangelo Virus, OneHalf, Laroux, Staog, Ply, Chernobyl, Happy99, ExploreZip, Cholera Worm, Kak Worm, Pikachu Virus, Sadmind Worm, Sircam, Klez, MyLife, Greybird, Sapphire Worm, ProRat, SoBig Worm, Swen, Sober Worm, AgoBot, Bolgimo, Bagle, Witty Worm, Caribe, Nuclear Rat, Vundo, Bifrost, Santy, Zlob, Nyxem, OSX/Leap-A, Brontok, Warezov, Mocmex, Torpig, Koopface, Bohmini.A, Kenzero, Daprosy Worm, Psyb0t, Here You Have, SpyEye, Duqu, Flame, Shmoon, Regim, BASHLITE, Locky, Mirani, Petya, Titanium, COVID-19.exe.*

parallels across the machinic and organic apropos the genomic and algorhythmic. Our conatus, for example, is arguably found in the urge to add to ~ as to continue ~ our species through the practice of natal reproduction. This, however, is the same for bacteria through the process of binary fission, or viruses through their replication. The ability of viruses to reproduce in the ‘virtual ecology of the computer’ (Doyle, 2003:28), sets aside the assumed separation of organisms and machines as independent from humans, and calls for a synthesis of hardware, software and ‘wetware’<sup>6</sup> ~ a locus in which cells transmit information across electrical, chemical and biological signals: a volume of immeasurable tissues and connected neurons.

Computer viruses are purposefully coded to spread across hosting programmes, and the space in which these matters meet is also familiar: through the interface of electromagnetic waves, airborne currents, wet bodies, and

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<sup>6</sup> ‘Wetware is the name that computer scientists and engineers give to the human brain and nervous system, to contrast them with computer hardware and software. Rudy Rucker, a popular science writer, novelist, and mathematician in the Department of Mathematics and Computer Science at San Jose State University, coined the term to serve as the title of a 1988 novel in which he defined ‘wetware’ as referring to ‘all [the brain’s] sparks and tastes and tangles, all its stimulus/response patterns-the whole biocybernetic software of [the] mind.’ (Rudy Rucker’s *Wetware* (1988:66) as cited in Riskin (2003:97).

CELLULAR NETWORKS ~ in all their nuance and signification.

Barad, for example, calls attention to the imperceptibility of airborne transmissions, and the inseparability of human and non-human bodies relative to machinic and technological apparatus. In particular, they ask: where does the body of technology end and 'I' begin? Or, relative to COVID-19, at what point does the virus become at one with me, or I become at one with the virus ~ either through biological transmission or through the sharing of matter relative to SARS-CoV-2 on the internet. That is, at what point does my hand-held phone become an extension of my body, or a prosthesis through which I may transmit content and cerebral matter using immaterial networks.

In *Meeting the Universe Halfway* (2007), Barad asks:

Is the outside boundary of the apparatus coincident with the visual terminus of the instrumentation? What if an infrared interface (i.e., a wireless connection) exists between the measuring instrument and a computer that collects the data? Does the apparatus include the computer? Is the printer attached to the computer part of the apparatus? Is the paper that is fed into the printer? Is the person who feeds in the paper? How about the person who reads the marks on the paper? [...] What precisely constitutes the limits of the apparatus that gives meaning to certain concepts at the exclusion of others? (142–143).

Indeed, as put by Mölling, ‘Everyone has [their] own microbiome, like a personal PIN code’ (2017:123). The same of which can be said for our fingerprints and thumbprints ~ which are used to access our digital devices. Here, transmission not only occurs through the exchange of our mucosalivary matters ~ but occurs through accelerated content-sharing on the internet.

Today, memes and microscopic particles, used in computer software, are circulated and shared ~ communicating and emulating the virulent ecology. The use of data to communicate with people and places exterior from our home situ has grown throughout the pandemic and changed the ways in which we interface with tele-communication technologies once again. Our internet access and network usage has been an almost necessary resource to search for: infection rates; current tier systems; R-numbers; mortality and fatality-figures; incubation and isolation periods; medical advice; statistics reports; public services; vaccination appointments; daily news coverage; health information; facemasks and prevention guidelines; the collection of prescriptions; legal legislations; governmental regulations; regional and national restrictions; and exit strategies. We have also needed smartphones to scan quick response (QR) codes, and to download hand-held software applications to accompany rapid lateral flow tests (LFDs) ~ and to relay the results.

Likewise, we have been ‘sending-away’ for polymerase chain reaction tests (PCRs), which are posted and returned through couriers. These devices have been needed to: schedule walk-in appointments to access COVID-19 assessment sites, and for exchanging information about possible positive exposures and close-contact cases ~ leading to what has been called: the ‘PINGDEMIC’. Here, the biological and machinic are again inseparable ~ informing one another ~ as is electronic mail, courier services like the Royal Mail, and the use of tracing applications like the NHS Test and Trace service. As we track our 3D parcels on our 2D screens ~ our phones, laptops, tablets and computers ~ we are further being registered by the authorities through GPS, cell towers and our personal interactions saved in expansive surveillance databases. And, while we have been advised to ‘STAY HOME – STAY SAFE’ we are ~ at the same time ~ arguably more susceptible to online harm in the form of computer scams, fake news and misinformation.<sup>7</sup>

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<sup>7</sup> Here, I call attention to anti-masker’s activities; the supposition of the ‘COVID-HOAX’; the fear that inoculation programmes are a way controlling populations through micro-processing technologies (activated by 5G radiowaves); anti-vaxxer’s repudiation; the allegation that the Wuhan Institute of Virology accidentally released SARS-CoV-2, or that the virus was deliberately circulated as a biological form of terrorism. And, the conspiracy that 5G technologies transmit the virus, or that 5G radiation lowers people’s biological immunity. In simple terms, I argue, the ‘strains’ of speculation have spread as fast as the virus itself (Tuters; Knight; Ahmed; Downing, 2020).

A survey reported on the UK Parliament website: ‘COVID-19 and the digital divide’ (2020) found that 1 in 5 respondents received unsolicited correspondence related to SARS-CoV-2, which they thought may be a financial scam. In the years of digital banking, online shopping, and ‘contact-free’ payment methods ~ notably used for COVID ‘safe’ transactions ~ it is easier to intercept security systems and signals to access personal information. Contactless cards, for example, which have been used throughout as a ‘germ-free’ alternative, use radio frequency identification (RFID) to transmit data, which can be stored to produce cloned cards.

It has also been widely reported that COVID-19-related scams have increased across 2019, 2020 and 2021 ~ with scammers registering website URLs to replicate: GOV.UK, local GP practices, NHS.uk, and WHO ~ the World Health Organisation ~ with the aim of collecting data and personal information for unauthorised practices. On the one hand, people on the underside of the ‘digital divide’<sup>8</sup> ~ those rurally and remotely-based; those from poorer socioeconomic households; the elderly; disabled; those without regular incomes; secure access to broadband and

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<sup>8</sup> The term ‘digital divide’ speaks to informational segregation: the exclusion or inclusion of people in the current Information-Digital Age. That is, people who have access and the ability (or digital literacy) to use ~ to their benefit ~ telecommunication technologies, and those who do not because of, for example, age, disability, income, religion etc.

educational resources; women; children; and those from the BAME community ~ are perhaps more vulnerable to opportunistic scammers (along with the biological virus). Whereas, groups who are more connected and digitally literate, are perhaps more concerned with online security and the sharing of sensitive information. That is, how their data is stored, used and accessed by the authorities.

Remote working has also allowed for new access points for harmful activities to occur on the internet. While many have been supplied with secure laptops for home-working, many prefer to work on their less well-protected home PCs (Nuttall, 2020). Unsafe Wi-Fi connections, and the use of numerous digital programmes ~ WhatsApp, Zoom, Facetime, Skype, Slack and Microsoft Teams ~ have also seemingly contributed to the ease of scamming operations ~ and the spread of computer viruses.

Articles and newspaper headlines call attention to this timely development with provocative headings such as: 'Hackers Use Coronavirus to Spread Computer Virus' (Cuthbertson, 2020); 'The PC viruses carried by Covid-19' (Nuttall, 2020); and 'Coronavirus May Infect Your Computer' (PenPublishing, 2021), saturating the internet ~ possibly to warn users of the virtual-causative virus. Or, to function as click-bait.

There are many similarities apropos the way SARS-CoV-2 spreads, and how computer viruses are exchanged between programmes.

Here, the airborne is a space of possibilities; a volume which is form, content and carrier of transmissions; a mass which affords the condition of spreading and exchange; a reservoir of nodes, cells and networked structures; an insubstantial field of wireless and wave-like particles; an opening which spans time, space and socio-geographic constellations; a pervasive accretion which is together accessible and averse; a pestiferous zone which parallels the swath of growing globalisations; and a digital interface where we are face-to-face on the other side of electromagnetic and oceanic bodies. That is, as put by telecommunications theorist Erik Born in 'A Little History of the Wireless Icon' (2015): 'Like ships passing in the night,' ~ much alike those who have been in close-contact with positive cases ~ 'the members of a wireless network are not to be found at the end of a cable, but rather at unknown coordinates in the electromagnetic ocean.' As waves are sent out carrying information, they diffract to receivers, routers and receptors ~ who are then subject to further transmission.

*V I R A L*

*V I R A L*

*V I R A L*

*V I R A L*





## On Cleaning & Cleansing

*What is the difference between cleaning and cleansing; the clean and unclean, the cleansed and uncleaned?*

*There is much to do with class here.*

There is something about ‘social space’ and ‘social viruses’ which I have been thinking about ~ and how this relates to perceptions of ‘cleanliness’. The political philosopher, Jacques Rancière calls attention to such ‘social’ subsets in *The Politics of Aesthetics* (2011). Here, associations are made between bodies which govern and are governed, seen and unseen, audible and inaudible, clean and unclean – what he calls: ‘the partition of the sensible’ (3). That is, the correlation between privilege and perceptibility ~ the assumed powerful, clean and vocal; the unprivileged and imperceptible ~ assumed passive, unclean and mute.

This partition is tied to: social structures; the spaces we occupy; our occupations; financial accounts; ableism; the colour of our skin; place of birth; the age we hold; our sexual preferences; gender identities; and spiritual-religious practices.<sup>9</sup>

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<sup>9</sup> Social theorist Nirmal Puwar further refers to such separation in *Space Invaders: Race, Gender and Bodies Out of Place* (2004).

While many have been able to practice safe social-distancing (as a privileged exercise) throughout the spread of the causative virus, some spaces have been unable to be avoided by others. That is, many front-line hands ~ nurses, carers, factory workers, couriers, transportation personnel and cleaners ~ have been unable to socially-distance, because of their occupation. In simple terms, there have been people who have not only been unable to distance themselves from ‘social spaces’, but unable to negate spaces of labour. In the vocabulary of Rancière, there is a ‘partition’ or separation here between those furloughed, remote-working, and ‘put to work’ ~ in potentially harmful spaces. Here, I refer back to the hegemony of socio-political and economic relations concerning (in)accessibility and the use of ‘digital spaces’ ~ on the underside of the ‘digital divide’.

As summarised by sociologist Henri Lefebvre in *The Production of Space* (1991), ‘space is neither a ‘subject’ nor an ‘object’ but rather a social reality – that is to say, a set of relations and forms’ (116). These interrelations are inseparable from: social practices; economic structures; populations; demographics; and exchanging networks. In the chapter ‘Social Space’ (1991), Lefebvre proceeds: ‘Instances of this [spatial relationality] are [apparent in] the worldwide networks of communication, exchange and information. It is important to note that such newly developed networks do not eradicate from their social context those earlier ones, superimposed upon one another

over the years, which constitute the various markets: local, regional, national and international markets; the market in commodities, the money or capital market, the labour market, and the market in works, symbols and signs; and lastly – the most recently created – the market in spaces themselves’ (86).

In agreement, for the use of digital spaces, we recognise the need to pay for the connective service of the internet. In our present condition ~ where access to the internet is not free ~ The World Wide Web is not only a space for sharing and togetherness, but a space of social exclusion.<sup>10</sup>

The same of which can be said for social spaces, which presuppose their use and function; making and construction, within wider spatial networks. In particular, social spaces presuppose a condition of ‘sociability’ ~ and the ability to partake in closely-tied social practices. For some, however, unfair spatial arrangements (subsets, spacings-out and partitions), across partial groups and demographics (classes, families, and ethnicities), do not sanction social interaction ~ and are causative of undue separation (117).

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<sup>10</sup> It is significant to note that while many people *can* afford internet access, with more services transferring online, free internet access should be a basic human right. ‘Free Internet’ arguments have had more airtime throughout SARS-CoV-2, where people have needed to work at home and children attend school remotely.

Of this exclusion, Lefebvre postulates a 'pathology of space' ~ one of 'ailing neighbourhoods' (99).

This wording is suggestive of some 'putative 'sickness' of society' (99) ~ which is, I would suggest, becoming more apparent within the endemic reproduction of SARS-CoV-2. In particular, I refer to the spreading of the virus in heavily and over-populated spaces (industry, financial capitals and harbours), and countries (India, Bangladesh, Haiti, Colombia etc.) ~ which are perhaps more susceptible to poverty and reduced and stretched infrastructures. I am also, however, referring to the slow but continued spread of partisan dialogues, and activities which have surfaced with the viral strain: nationalism, xenophobia, ableism, classism, racism and ageism etc.). This separation is problematic ~ upholding a system of violence, and the pestilence causing vulnerable people to become further distanced from: 1) privileged fractions, and 2) the resources they hold. In short, this 'social distancing' is analogous with the widening of (un)shared spaces, (un)shared funds and (un)common ground.

Here, the premise of 'social distancing' signifies something else ~ a familiar yet reductive account of 'us' and 'them' ~ a partition and segregation which is, I would argue, evidenced in our contemporality, and amplified by SARS-CoV-2. It is seen in our perception and handling of low-paid (and seemingly dispensable and sacrificial) front-line employees; vaccination apartheid; inaccurate and censored

news reporting; and the coverage and erasure of many country's epidemiologic needs.

As reported by 'Our World In Data' (2021), for example, '1.3% of people in low-income countries have received at least one dose' of a COVID-19 vaccine. The vaccine reserve by and for rich countries will allow most of the human populous to go unvaccinated until 2022, and in many places until 2024 (Safi, 2021). This delay and unfair approach may also allow for the hurried approval of unsafe inoculation programmes, the increase of viral mutations, and the postponement of global immunity (Ghosh, 2021). It will also pause economic recovery and our financial security on account of fear ~ a condition which will further harm the poor the most. It must surely be recognised that the virus can only be immunised, if immunised everywhere ~ 'no one is safe, until everyone is safe' (COVAX) ~ that is, we need fair standards and co-ordinated efforts.

COVAX ~ (the COVID-19 Vaccines Global Access Facility), which is co-led by Gavi (the Vaccine Alliance), CEPI (the Coalition for Epidemic Preparedness Innovations), and WHO, in partnership with UNICEF (the United Nations International Children's Emergency Fund) ~ was founded to put an end to the unfair stockpiling of vaccinations by rich countries to allow equitable access for the poor. And yet, as put by economist Jayati Ghosh in 'Vaccine apartheid: global inequities in Covid-19 vaccine production and distribution' (2021), 'the facility remains

underfunded, and, even worse, it has not been able to purchase the vaccines required for free distribution to poor countries as planned.’

Three features are noted in Ghosh’s report: ‘blatant vaccine grabs by rich countries; protection of patent rights by governments in advanced countries, which prevents wider vaccine production; and the use of vaccine distribution to promote both nationalism and diplomatic ‘soft power’ (2021). This again correlates to ‘Our World In Data’ statistics where poorer countries have received smaller shares in vaccination distribution and have registered lower immunisation numbers.

United Kingdom 60.16%

India 8.92%

Thailand 7.46%

South Africa 7.08%

Pakistan 5.73%

Iran 3.75%

Bangladesh 3.46%

Egypt 2.11%

Vietnam 1.44%

Nigeria 0.69%

Tanzania 0.18%

Share of people fully vaccinated against COVID-19.<sup>11</sup>

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<sup>11</sup> Statistics from ‘Our World In Data’. Retrieved: August 17, 2021. Available: (<https://ourworldindata.org/covid-vaccinations>).

That is, the ‘every-country-for-itself’ approach is not only partial ~ but is furthering systemic and international harm

~ for all.

As noted by social researcher Isaac Yeboah Addo, in almost every continent, there have also been reports of violence and COVID-19-related hate against people of colour, and immigrants (2020). This has taken many forms, from micro-aggressions to the exclusion of people from certain spaces ~ on account of their perceived (un)cleanliness.<sup>12</sup>

Instead of acting as an equaliser, given that SARS-CoV-2 can spread across borders ~ and affect anyone ~ some policy responses have allowed for asymmetric effects (Devakumar, et al, 2020). In particular, inflammatory responses have disproportionately harmed: people of colour; immigrants; undocumented peoples; people from lower socioeconomic communities; those with partial health-care access; people who work in public-facing occupations; have restricted civil protection; and those based in resource-poor environments (Devakumar, et al, 2020).

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<sup>12</sup> In 2020, a seafood restaurant in Seoul, South Korea, displayed a sign, reading: ‘No Chinese allowed’ (Bae, et al. 2020). This case is not isolated, with many accounts reported in the article: ‘Outbreaks of xenophobia in west as coronavirus spreads’ (2020).



This was not helped by when the ~ then ~ President of the United States, Donald Trump tweeted about SARS-CoV-2 on March 16, 2020, calling it ‘The Chinese Virus’ ~ associating potential health concerns to sanitation, foreign policy and trade negotiations (Scott, 2020). This iterates a putative genealogy which arguably spans from the ‘Chinese Exclusion Act’ of 1882, which prohibited Chinese immigrants and labourers working in the US ~ to ‘ease’ national fears of civic unemployment and racial (im)purity.

This seems significant in considering the earliest etymological source of the word ‘pure’ (from Sanskrit) ~ as signifying ‘cleanliness’ (Berthold, 2010:18).

Indeed, as put by socio-philosophy scholar Dana Berthold in ‘Cleanliness, Class, and Color Caste’ (2010), the precept of purity is closely tied to class and colourism ~ the labourer perceived as dark-skinned and unclean, while a ‘hygienic’ appearance suggestive of a higher social standing ~ in part because it accounts for capital expenditure (19). They continue: ‘Some might argue that cleanliness is an aesthetic having much more to do with class than with race. But we can see from the history of these ideals that the two have been inseparable in America’ (19). Again, COVID-19 ~ with Trump’s support ~ has amplified animosity and fear towards ‘uncleanliness’, and Chinese people in the form of sinophobia ~ sentiments of hatred for China, and perceived Chinese people (Hornton, 2020).

Sinophobia carries harmful historical associations ~ inseparable from socio-political, economic and medical discourses. It is also inseparable from the condition of assumed sacrosanctity. In particular, there are suggestions, and problematic alliances, in relation to: immigration; the fear of germs; and contagious ‘foreign’ bodies ~ which Trump has markedly contributed to.

On June 20, 2020, for example, the ex-President called SARS-CoV-2 the ‘Wuhan Virus’ and ~ at a political rally in Tulsa ~ referred to the causative virus as the ‘Kung Flu’. Transcribed from a video recording posted of the rally by journalist Jessica Q. Chen, Trump commented: ‘it has more names than any disease in history. I can name kung flu. I can name 19 different versions of names’ (2020).

This slur goes against WHO standards to avoid signifying or attaching either people, places or ethnicities to new found viral strains ~ as this can propagate and normalise hate (2020). Data released under the US ‘Freedom of Information Act’ (1966) corroborates this, showing that there was swell of xenophobic attacks against Chinese, East Asian and South-East Asian people following Trump’s tweet ~ there were 261 hate crimes against Asian people in April, 323 in May, and 395 in June 2020 (Xun, 2021).

These figures are, however, exclusive of un-reported incidents, with the probability of cases being much higher than testified.

As noted by Trump, SARS-CoV-2 *has* had many names ~ a ‘foreign’ one adding to harmful and racist discourses.

While the premise of ‘hygiene’ is always not problematic, thoughts of perceived ‘(un)cleanliness’ ~ as unpacked above ~ are relative in their signification of social and racial classifications. As put by Berthold, ‘in order to get beyond subtle racist conditioning[s], we should be wary of the residue’ (2010:18) ~ that is, erroneous principles surrounding the sanitisation of perceived ‘uncleanliness’, and how these principles can seep into thoughts of ‘social sanitation’; the exclusion of people on account of their class and skin-colour; racial hygiene; persecution; and ethnic cleansing.<sup>13</sup>

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<sup>13</sup> Nazi Germany, for example, carried out ‘health-based’ policies which began with the sterilisation and euthanasia of ‘genetically compromised’ peoples, and ended with the Holocaust of European Jews. Following similar principles ~ and operating under a pretence of health and hygiene practices ~ the ‘conversion’ of LBGTTIA+ peoples through unethical ‘therapies’ with the aim of, for example, ‘healing’ them from same-sex attractions. I would also suggest that conversion therapies are inseparable from HIV-AIDS fears ~ which are founded on inaccurate and uneducated assumptions. Here, the reductive dichotomy of cleanliness ~ set against the language of uncleanliness ~ propagates social exclusion for LBGTTIA+ and HIV-positive communities ~ with the erroneous question being posed: ‘are you clean?’ (Joe, et al, 2018).

These partisan discourses can further be seen in ‘skin-bleaching’ practices, which are pervasive across Asia, Africa, the Middle East and the Americas ~ and evidence ~ in the words of Berthold ~ the systemic ‘residue’ of colonialism and the African diaspora (Pollock, et al, 2021).

These practices include the use of topical and internal ‘cleansers’ ~ bleaching creams, tablets, and injections which, in 2020 (following SARS-CoV-2), have a market value of \$8.6 billion. As put by ‘bleaching syndrome’ scholar Ronald E. Hall ~ \$2.3 billion was spent on skin-lightening products the U.S alone in 2020, and the market is predicted to reach \$12.3 billion by 2027. With China being the second-largest economy on Earth, the skin-lightening market is forecast to grow at a CAGR (compound annual growth rate) of 8% to reach \$2.5 billion by 2027 (Hall, 2021).

This seems significant in considering COVID-19-related sinophobia, and hate acts against people of colour throughout 2019, 2020 and 2021.

The contentious use of these practices also seems pertinent ~ and painfully apt ~ in consideration of Trump’s press conference at The White House on April 23, 2020 ~ where the ~ then ~ President suggested the use of disinfectants and UV light to ‘clean’ bodies which are carrying the virus.

Almost in conversation with himself, while appearing in front of the global press, Trump commented:

So, supposing we hit the body with a tremendous – whether it’s ultraviolet or just very powerful light – and I think you said that that hasn’t been checked, but you’re going to test it. And then I said, supposing you brought the light inside the body, which you can do either through the skin or in some other way, and I think you said you’re going to test that, too. It sounds interesting. And then I see the disinfectant, where it knocks it out in a minute [...] And is there a way we can do something like that, by injection inside or almost a cleaning. Because you see it gets in the lungs.<sup>14</sup>

This was met with panic by the CDC (Centers for Disease Control and Prevention), and promptly criticised by medical practitioners: pulmonologists, toxicologists, and emergency physicians internationally. Trump’s press conference also received pushback from FEMA (the Federal Emergency Management Agency), which is part of DHS (the Department of Homeland Security); FDA officials (the Food and Drug Administration), which is is part of HHS (the Department of Health and Human Services); and the CPSC (Consumer Product Safety Commission). The producers of

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<sup>14</sup> Available: (<https://time.com/5826882/coronavirus-trump-heat-bleach/>). TIME, April 24, 2020.

household cleaning products: Lysol, Clorox and Tide Pods also released emergency statements warning against the unsafe use of chemicals.

Following Trump's presidency, it has also been reported that White House aides were shaken by the conference ~ and its potential sway on their credibility (McGraw; Stein, 2020). Dr. Deborah Brix ~ who acted as Trump's COVID-19 response aide ~ has since come forward and said that every day they recall the 'bleach' event; how it was handled; and its implications (Gittleson, 2021). After the press conference, it was also reported that Brix communicated with former Mike Pence aide Oliva Troye, asking: 'Why was he talking to me? I have nothing to do with that setting. He just threw away all of the work we've done' (Moran, 2021). Troye has since noted in an interview with journalist Joshua Zitser that after the press conference there was an in-house meeting about how to contain Trump's suggestions, and to assuage people from using bleach to cure SARS-CoV-2 (2021).

The conference also led to preventable casualties ~ with a reported 121% increase in referrals for ingestion of household disinfectants and cleaners that month (Feuer, 2020). Trump's advice also came a few days after the CDC released a statement on April 20, 2020 as part of the MMWR (Morbidity and Mortality Weekly Report), which saw a 20.4% increase in calls to the AAPCC (American

Association of Poison Control Centers), about exposure to household cleaners and disinfectants (Chang, et al, 2020).

Although the NPDA (National Poison Data System) was unable to conclusively evidence associations between chemical exposures, SARS-Cov-2, and Trump's conference, the report does note that there appeared to be 'a clear temporal association with increased use of these products' (Chang, et al, 2020). In exposure calls, bleach accounted for the largest percentage of the increase at 62.1%, while non-alcoholic disinfectants at 36.7%, and hand sanitizers at 36.7%, accounted for the largest increase among disinfectant categories (Chang, et al, 2020).

In June, the CDC further published a MMWR report on a participatory study which was conducted in May 2020, which found: 39% of the subjects intentionally carried out at least one unsafe practice ~ not recommended by the CDC ~ for the prevention of SARS-CoV-2. These included: the application of bleach to food produce (19%); the use of household cleaning and disinfectant products on unprotected hands and skin (18%); body-spraying with cleaning products or disinfectant (10%); the breathing-in of fumes, gases and aerosols from household cleaners and disinfectants (6%); and the drinking and gargling of diluted soapy water, bleach solutions and disinfectants (4% each) (Gharpure, et al, 2020).

In simple terms, many people are unsafely consuming chemicals as a cure for COVID-19. And, don't get me started on Mark Grenon's 'Miracle Mineral Solution' ~ the 'archbishop' of the Genesis II 'church', and current prisoner at La Picota penitentiary in Bogotá, Columbia.<sup>15</sup>

While the ingrained value of 'cleanliness' has perhaps made us more acutely aware of that which is 'unclean' ~ and against that which is unable to be seen ~ the excessive use of cleaning chemicals can actually cause more harm than good. That is, over-sterilisation (in practice and principle) is both erroneous and unhealthy.

In the publication 'Tidy Whiteness: A Genealogy of Race, Purity, and Hygiene' (2010), Berthold continues: 'we go on generating and consuming all kinds of toxic germ-killers, ultimately harming ourselves' (8). While pesticides, disinfectants, germicides, and cleaning agents are associated to bodily harm (i.e. pulmonary edema, burns, melanoma), they are also, as put by Berthold, associated with the harm caused by perceived 'uncleanliness', and principles of 'social sanitation' (i.e. segregation, exclusion, persecution). Here, I refer back to nuances surrounding social space, 'social-distancing', and social viruses ~ which have surfaced throughout the endemic, and pervasive in 2021.

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<sup>15</sup> Pilkington, Ed. 'US 'archbishop' touts bleach as Covid 'miracle cure' from Colombia jail cell', August 11, 2021.



Exposure to bleach and other chemicals, is also discussed by Berthold relative to immune ‘suppression’ ~ something which has almost been silenced over the past few years.

They observe how the over-use of germicides can actually remove the presence of beneficial bacteria from our bodily microbiome, and how sterilising too much further supports the propagation of resistant viral strains and ‘supergerms’ (8). Of course, while some fears towards germs may arrive from a place of recognition ~ an understanding of potential epidemics ~ it seems significant to address harmful practices, and the undue residue of social cleaning and cleansing apropos SARS-CoV-2. That is, fear of ‘foreign’ substances and contaminating bodies. But we also need to recognise the virus of social-exclusion as an epidemiological problem ~ and one which is spreading now.

On May 8, 2020, António Guterres ~ the Secretary-General of the UN (United Nations) ~ tweeted: ‘the pandemic continues to unleash a tsunami of hate and xenophobia, scapegoating and scare-mongering’ (2020). In the tweet’s accompanying video, Guterres added: governments need to ‘act now to strengthen the immunity of [...] societies against the virus of hate’ (2020).

The precedent has been set ~

*I pump virucidal solution into an empty bucket ~  
add tepid water, and allow the suds to bubble over.  
How are these bubbles different from social ones?*

*The thin-film holds the air, while the surface ~  
iridescent and gleaming in differential refraction ~  
reflects the surface back to me.*

*The given volume is opalescent and prismatic ~ as  
is the partition of space we are collectively cut-off  
in. That is, hermetically sealed from within the  
soiled foam where 'fairness' ~ in all its  
signification ~ is mute.*

*I clean hands, pumice at the parched shell of  
macerated skin ~ peeling stratigraphic tissue from  
pores, as I douse any chemical into the rind.*

*I see the folds of the epidermis, dermis and  
hypodermis ~ past the hair follicles, sweat glands,  
and nerve fibres.*

*The subcutaneous fascia and adipose bed, hold the  
bleach like a sponge over the bedrock of muscle ~  
where I meet tendon and bone under the  
groundwater basin.*

*Powered soap is sedimentary, and the innards are  
separated and rinsed-out again.*

## On Anoxic Bodies

The dead man's nurse was waiting in the hallway when Kim Zambito and Al Johnson [funereal workers at Sherman's Flatbush Memorial Chapel in New York] stepped off the elevator on the third floor of an apartment building in Midwood, Brooklyn [...] [They] wore surgical masks, body-length plastic protective gowns, and thick blue gloves. A stretcher rattled behind them [...] A long interior hallway [...] led to the bathroom, where a man in a striped button-down shirt and gray cardigan was lying face down on the floor. He was seventy-one and, according to the nurse, had been having trouble breathing. Several hours had passed since she found him there [...] His mouth was still open.<sup>16</sup>

This excerpt from reporter Jonathan Blitzer's article 'The Body Collectors of the Coronavirus Pandemic' (2020), provides what may be called a familiar yet poignant account of America's SARS-CoV-2 endemic ~ and an intimate interface with the almost imperceptible structure of (after)life care provided by front-line workers throughout COVID-19, including: hospice nurses; medical examiners; funereal directors; undertakers; forensic pathologists;

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<sup>16</sup> Blitzer, Jonathan. 'The Body Collectors of the Coronavirus Pandemic', *The New Yorker*, April 22, 2020.

morticians; coroners; embalmers; and cremators. It also accounts for how the virus has affected some death care industries relative to: additional containment measures; shortages of PPE; interim storage space; absences of personnel; and the need for additional front-line reserves: volunteers; laboratory technicians; soldiers; and inmates.

As Zambito and Johnson moved to collect the body, they needed to turn the man over

~ without any air seeping from his lungs.

In the height of the endemic, front-line workers had to handle all cases as potential SARS-CoV-2 casualties ~ because some viruses continue to infect people through the exchange of bodily fluids and tissues, after the person carrying the virus has passed away. The negation of fluid in the case of SARS-CoV-2 is also particularly hard, as causalities weep, swell, secrete, and exude after their passing, often causative of edema ~ where fluid is trapped under the tissues ~ and aggravated by prolonged time spent on respirators (Blitzer, 2020). In autolysis, surplus carbon dioxide also supports an acidic ecology ~ where the body's cellular membranes begin to fissure releasing enzymes which metabolise from within themselves outwards (Aftermath, 2021).

There is also a 'pooling' of fluids in the body, and seepage from the skin, nose and mouth ~ along with other openings.

As outlined by bio-safety scholar Telma Abdalla de Oliveira Cardoso and forensic scientist Duarte Nuno Vieira, such biological matters associated with the anaerobic putrefaction of the body are ~ however ~ non-pathogenic. That is, while some pathogenic micro-organisms may be present on the body, many are unable to survive for more than 48 hours after the person has deceased (2016:486). There is, therefore, a higher chance of viral contamination when handling recent casualties.

The NCCEH ~ National Collaborating Centre for Environmental Health ~ released a study earlier this year on potential transmissions from handling the deceased (O’Keeffe, 2021). They concluded that SARS-CoV-2 RNA can be found several days post-mortem on the eyes; nose; mouth; periodontal tissue (which supports the teeth); the respiratory tract; nasopharynx; throat; lungs; and in additional bodily fluids and tissues (mucus, saliva, and cells) (O’Keeffe, 2021). Forensic scientists Isabella Aquila, et al, (2021), also found the RNA of SARS-CoV-2 in nasal, bronchial, and oropharyngeal samples which were collected at intervals of two, four, six, twelve and > 24 hours from a series of 20 people which tested positive with COVID-19 when they passed away ~ with the number of positive results decreasing over time (Aquila in O’Keeffe, 2021).

Genetic pathologists Nemanja Rodic, et al, (2020) also found a positive sample of SARS-CoV-2 one day after post-

mortem, and one day after embalment. This shows that embalming practices ~ where blood is replaced with formaldehyde-based chemicals ~ does not always impede the virus, and therefore additional care should be taken when handling bodies following embalming applications (Rodic in O’Keeffe, 2021).

In the IJID ~ International Journal of Infectious Diseases ~ medical scientists Mario Gabbrielli, et al, continue to answer to the question: ‘How long can SARS-CoV-2 persist in human corpses?’ (2021). Through reference to the work of genomic virologist Jeffery Taubernberger (2007) ~ and others ~ they postulated how SARS-CoV-2 could remain active in a deceased person relative to a number of conditions: the number of viral particles found on the body; the particular tissues SARS-CoV-2 was detected in; and the way the body was buried ~ as there is little data currently available on this subject (Gabbrielli, 2021).

While they could not conclusively determine the length SARS-CoV-2 is transmissible from a deceased body, they could ~ with certainty ~ say that SARS-CoV-2 could remain active in tissues for more than 30 days (Gabbrielli, 2021). It is assumed, therefore, that a body could pass on COVID-19 for a span of time following it’s passing ~ even if the body had been embalmed; treated with a sodium hypochlorite solution, or been sprayed with disinfectant (Gabbrielli, 2021).

In conclusion of their research, they summarised: ‘Here we demonstrate that SARS-CoV-2 genomic fragments were still present in the body of an exhumed person who died from COVID-19’ (Gabbrielli, 2021).

In the article they also note that the genomic RNA of the H1N1 influenza virus can self-preserve for decades in frozen bodies (Taubernberger in Gabbrielli, 2021). This information comes at a time when we are more acutely aware of ancient pathogens: viruses; microbes; and bacteria being preserved ~ and potentially released ~ in thawing permafrost, along with harmful reserves of CO<sub>2</sub>, methane, and greenhouse gases (El-Sayed, 2020). With the appearance of new pathogens ~ like SARS-CoV-2 ~ it is clear that securing the Earth’s permafrost from potential endemic matters needs to be met by international efforts. The worry is twofold: 1) the awakening and recovery of unfamiliar viral strains; and 2) pathogens which (while currently extinct) could surface again from deceased and persevered bodies. There are, for example, cases of viable bacteria found in plant, animal and human bodies; ice samples; ancient fossils; sea sediment; and bodies of water across Antarctica, the Arctic, Canada, Egypt, Greenland, Norway, Siberia, and the Tibetan Plateau (El-Sayed, 2020).

In the article, ‘Global warming could unearth ancient microbes. Will we be as unprepared as we were for the coronavirus?’, reporter Melody Schreiber comments: ‘Without the immunity our ancestors may have had, both



humans and the intermediary animals that can spread diseases could be extremely vulnerable to the revived microbes' (2020).

This seems pertinent ~ if not alarming ~ given that SARS-CoV-2 casualties are being transferred to emergency storage facilities, where they are kept in negative temperatures which ~ while slow down the process of decomposition ~ could function as fertile reservoirs for the causative virus. Here, I refer back to 'wet-market' economics and the thawing of 'perishables' as addressed in 'Symbiosis, Zoonosis'. That is, the condition of secretion, permeation and residuality: where bodies pool together, and then flow away. While it is unsure ~ yet ~ if SARS-CoV-2 may be resilient against freezing, thawing and prolonged storage at low temperatures, even the presence of non-viable bacteria is potentially harmful

~ and, can cause unparalleled effects.

In addition, ancient bacteria which have been subject to severe conditions over tens, hundreds, thousands and sometimes millions of years, have found new ways to survive ~ and are often resistant to antibiotics (Petrova; D'Costa; in El-Sayed 2020).

These ecological conditions include: the absence of nutrients and further sources of energy; and concentrations of nascent oxygen at low temperatures ~ which can harm

bacterial and viral forms of RNA and DNA. These microbes have, however, been found to repair themselves through processes which are relative to these severe conditions, and continue to propagate through methanogenesis ~ that is, anaerobic respiration (El-Sayed 2020).

~ They are anoxic bodies.

*the surface is never still ~*

*it's expansive currents are  
pulling underneath.*

*while we may only begin to perceive the  
imperceptible ~ the unusually shallow water  
receding and draining away*

*~ like a tide, the waves go out,  
before they come in.*

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