

Spectral Futures

Future's Theory

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Spectral Futures

Fabulations of Worlds to Come

Edited by Bernd Herzogenrath

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During the last years, the ideas of “future” and “hope” have moved into opposite directions at full speed—we wish this volume the power to add some color to your own speculations, fears, and longings.

I dedicate this book to the memory of my brother Frank, to my wife Claudia, and to our daughter Janna—our future: may she live to see the day.

Spectral Futures

An Introduction

Bernd Herzogenrath

There's not one (visualization/expectation of the) future—there are many! There's not even the choice only between a bright future (utopia) and a dark future (dystopia). The white light of the future is (and can only be?) seen through a prism, and what we see are speculations made visible as a manifold spectrum. Thus, we can imagine futures in all colors of the spectrum (where “color” might itself be seen as the effect [or even affect] of multispecies, in|human perceptions). This collection invites spectral speculations on green futures, black futures, red futures, orange futures, blue futures, and so on—but also on futures that lie outside of that well-regulated spectrum . . . why not dusty, sludgy, candy-colored, shimmering, and so on, futures? And besides, we might envision futures as *spectral* in such a way that they belong to the realm of ghosts. So, we also might need a hauntology that does not deal with the (specters of the) past but also with the (specters of the) future—hauntology meets the *avenir* (a haunting in the guise of a head-on collision). Like the color spectrum—taking into account its multiple different tones, shades, and hues (where every position on the spectral continuum is itself a vibrant multiplicity—imagine Dedekind's Cut enacted on a palette)—“the future” is an unfinished totality, without closure.

As Nietzsche reminds us, Fredric Jameson has argued, “whatever social and spatial form our future misery [or fortune and hope, B. H.] may take, it will not be alien because it will by definition be ours. *Dasein ist je mein eigenes*—defamiliarization, the shock of otherness, is a mere aesthetic effect and a lie.”¹ Thus, if science fiction is seen only as a genre that “predicts” a future by extrapolating from the present—by prolonging the present on a straight line going from today, to tomorrow, to “the day after,” and so on, Jameson is surely right. Seen in this way, the “new” of the future is always something created along familiar lines, something always related to the present that creates it. This is why Nietzsche emphasizes the “untimely” as a corrective to the “all-too-human”

conditions (such as history, essence, humanity, etc.)—all these are instances of a transcendent being which, if put into generic conventions, produce the new as something stale and well-known. In contrast, a focus on “becoming” (as the eternal return as the interplay of difference and repetition, of repetition as difference) does not so much predict and determine, but sets free the virtualities of and in the actual present. Such an envisioning of the future as “undetermined new” needs to muster all powers of the false, of speculation, to try and dislodge the patterns of recognition and rules of extrapolation, all the reactionary frameworks that prevent “the new” from overspilling the “been there—done that.” *Genuine philosophers . . . reach for the future with a creative hand and all that is and has been becomes a means for them, n instrument, a hammer. Their ‘knowing’ is creating.*² Nietzsche is here speculating about a “philosophy of the future” (the subtitle of *Beyond Good and Evil* actually reads *Prelude to a Philosophy of the Future* in terms of a “philosophy yet to come”—but we might also read this as speculating about a philosophy not only *dealing with* but also *coming from* the future).

Timothy Morton has argued that a feeling is a thought from the future³—so maybe art, with its creation of affects and percepts, can tell us more about this “unconditional, undetermined new” of (the) future? Or, maybe not even “future” or “futures” (the actual), but futurities (the virtual)? Can art help us to “feel” a future? A future that is not just a lame repetition of past and present propositions, a continuation of the same errors (e-cars, flying cars, change through technology, etc.) . . . what is the future that the arts can “affectively imagine”? Deleuze has famously argued that a book of philosophy should be “a kind of science fiction”⁴—or vice versa?! The question that haunts Deleuze—like Nietzsche—is the following: “how else can one write but of those things which one doesn’t know, or knows badly? It is precisely there that we imagine having something to say. We write only at the frontiers of our knowledge, at the border which separates our knowledge from our ignorance and transforms the one into the other.”⁵ And how can one write of those things without fabulating, without speculating, without at least trying to leave behind the “all-too-human” condition? This is why this collection encouraged its authors to go for a more experimental approach: this collection will not (only) consist of “proper” academic papers—instead, we are opting for a more “sci-fi” approach, a mixture of academe and speculation . . . criti-science-fiction, science-fiction-criticism.

It is here, through the suggestive entryway of the color spectrum, that the contributors speculate on nonanthropogenic futurities, with the colors guiding theoretical reflection on the richness of an essentially complex and disordered

material universe. The conceit of a spectrum automatically provides organization. The inclusion of x-rays, ultraviolet, black, and white (where human visibility fails) helps to escape from a sole focus on humanism: the band of visible light within the electromagnetic spectrum is (relatively) small, and the collection indicates that much more information is being transmitted by electromagnetic radiation than what we see/what lets us see.

This volume will entertain a colorful palette of diverse critical approaches: speculative realism, oceanic biology, philosophy, politics, posthuman studies, queer theory, and so on. What all these approaches and contributions will have in common is a strong focus on materiality, the in|human, and the innovative possibilities that an emphasis upon this “fabulated spectrum” enables. These contributions combine the potentialities of philosophy, art, and science, in that they all forge a relation to chaos, or an undeterminable “new.”

As Val Plumwood has succinctly put it: “If our species does not survive the ecological crisis, it will probably be due to our failure to imagine and work out new ways to live with the earth, to rework ourselves and our high energy, high-consumption, and hyper-instrumental societies adaptively.”⁶

Welcome to the Spectrum!!

wavelength: 0.001 nm

color: gamma rays

The Spectral Affectivity of Glaciers

Building on the emerging research on glacier radioactivity, Julita Skotarska’s essay speculates on how gamma rays—the most powerful and energetic form of light—can penetrate the dominant narratives of glaciers and thus our imaginary in the unfolding future of the climate crisis. She frames her analysis within the figure of the affective spectrum to shed light onto historically disregarded ways of seeing and becoming-with glaciers, coming from Indigenous peoples, writers, and poets. Breaking with familiar habits of thinking and representing, these portrayals represent glaciers as active participants in shaping human and nonhuman histories—actors capable of reciprocity, not merely discursive victims. Skotarska’s reflections are guided by contributions from posthumanist thinkers, predominantly Rosi Braidotti, but also Donna Haraway and Karen Barad.

Drawing on her personal experience of living in Iceland, where people come to see glaciers as they retreat due to rising temperatures, she draws attention to those narratives that go beyond the paradigm of vulnerability and victimhood. She considers the glaciers' role in molding not only geological but also experiential landscapes: they are recognized as social through the accounts of Indigenous people and, in Jemma Wadham's *Ice Rivers*, as agential. Skotarska considers the representation of glaciers in Anna Kavan's apocalyptic vision in her novel *Ice*, where they function as biopolitically active and punitive. This makes it possible to draw certain parallels with the current situation of the unfolding climate crisis.

wavelength: 100–400 nm

color: ultraviolet

Wild Light: Radiant Skin and the Domestication of Ultraviolet Futures

The year 2020 was a pivotal year for ultraviolet light. While scientists around the globe were buzzing about new studies regarding the germicidal potential of UV-C radiation on Covid-19, the author was beginning biweekly UV phototherapy treatments for an autoimmune skin disorder. In our popular imaginaries, we tend to think of ultraviolet as the proverbial “color out of space”—an inhuman glow imperceptible to the human eye, emitted by celestial bodies and studied by astrobiologists. But as UV light is increasingly brought indoors and into four-cornered rooms, our UV imaginaries are undergoing a tectonic shift. In this not-so-distant future that is already present, we undergo UV therapy to ward off seasonal depression and skin ailments, hold escalator handrails disinfected with UV-C LEDs, and turn UV cameras on each other to read messages on our skins. In her chapter, Lisa Yin Han contemplates how an ultraviolet media theory might take into account this cultural shift in our perceptions of UV from the more-than-human sublime of the universe, to mundane living spaces illuminated by the measured application of safekeeping UV wavelengths. To construct a vision of a UV future, she considers the history of how UV has mediated human kinships with nature and how this light was domesticated and integrated into medical and industrial settings. How might we think about the role of UV light in simultaneously connecting us to nonhuman worlds while also reifying the boundaries between humans and unsightly others? Yan makes the case that in thinking of changing skins and shared experiences of exposure and deprivation, UV may be understood as a medium of connection and solidarity, capable of illuminating an alterity within as well as enfolding humans into a wider UV solar commons.

wavelength: 380–750 nm

color: rainbow

Somewhere over the Rainbow

The rainbow is a lure that promises, proclaims, and symbolizes diversity. It is also an exemplary figure for contemplating the relationship between the material and the apparent, and the virtual and the actual. Shorthand for a glorious image of humanity dwelling in common, the rainbow is both an affirmation of difference and a figure for difference as the expression of an underlying same. What happens, Claire Colebrook asks in her chapter, if we start to think about the ways in which the white light generated rainbow precludes the thought of those differences irreducible or divergent from the substrate of the same? Rainbow humanism derives difference from a material and quantifiable quantity, thereby allowing difference to be contained within the spectrum of color.

wavelength: 400–700 nm+

color: white

White • Rot

Amanda Boetzkes' chapter will address "white" by way of its appearance at the limits of biopolitical thinking. She draws from Antonin Artaud's vivid positioning of white as an excessive phenomenon that can be associated with the putrefaction of European culture. Artaud's dialectic between the theater and its double—spectral appearances and reality—is an avenue into a discussion of white as a necropolitical force, an instrument of colonial occupation. Taking the Arctic as a planetary site at which biopolitical white has sedimented but where it can also be demythologized, Boetzkes suggests that melting glacier ice, a key scientific marker of global climate change, heralds the demise of white sensibility. Accordingly, she repositions the spectral future of white by suggesting the possibilities of reading it through the bones and teeth left by the necropolitical regime of European imperialism.

wavelength: 420–700 nm

color: sodium-silver

Blank Screens and Spectral Skies: Hong Kong as a Postcolonial Locus of
Transnational Asian Futures

Where, once, the East was construed as a continuous horizon of approach associated with daybreak and anteriority, the hyper-modernization of many East Asian cities has seen the region also increasingly understood as a sequence

of discrete, metropolitan topographies, where constant ambient light interrupts cycles of waking and dreaming as much as it furthers a complicated distinction between the virtual and the real. Drawing analogies between skyglow, screens, and dreams, Dawn Chan's essay offers open-ended reflections that leverage the practices of several contemporary artists to examine a transnational subjectivity mediated by Hong Kong's unsettled postcolonial relationships to the future—in contrast to many decolonization narratives currently in vogue. The refiguring of blankness in skies and screens follows the identification of an emergent metaphoric, elliptical mode capacious enough both to accommodate surveilled uncertainties and to better analogize the specters of Hong Kong's looming postcolonial not-yet-past.

wavelength: 450 nm low latency (you know, for high-speed trading)

color: CME blue (i.e., the blue that the Chicago Mercantile Exchange uses)

A Brief and Speculative History of Making the Weather an Option

Orit Halpern's essay is a brief and speculative mapping of how singular weather events became climates and then futures with options that are now markets. This is a story about the rationalization and reorganization of nature, territory, and time. But it is also about how futures are made and foreclosed.

wavelength: 450–490 nm

color: cobalt blue

Afterimage

Mitchell Akiyama's chapter is a speculative investigation into the disappearance of a color. In the year 2024, with the rate of global warming surpassing predicted levels, there is a demand for the raw materials required to manufacture the batteries intended to replace fossil fuels as the primary energy source. One of the crucial elements employed in the fabrication of lithium-based batteries is cobalt, a metal found most abundantly in the Democratic Republic of Congo, where labor is dangerous, and laborers are badly exploited.

Set in a near future in which cobalt supplies are nearly fully depleted, Akiyama follows an unnamed narrator who experiences a spontaneous and jarring visual hallucination while gazing at a piece of Chinese blue and white porcelain. The afterimage inexplicably manifests as an orange hue—the complementary color of the vessel's cobalt blue. The narrator's musings on color, perception, and subjectivity are intercut with the musings of elemental cobalt, an emergent nonhuman voice that meditates on its historical use and exploitation for pigment, industrial applications, and ultimately for battery production. Both are

witness to the eventual exhaustion of global cobalt supplies, which leads cultural institutions across the world to liquidate their collections of ceramics containing the precious material. Reacting to the disappearance of authentic cobalt blue from the color spectrum, the narrator perpetrates a quiet and futile gesture of sensorial commemoration.

wavelength: 490 nm

color: supra-blue minor

Meshes of Light and Death, by Oceanic Bacteria

Jeremie Brugidou invites us on a voyage in darkness and spectral emergence. The ocean can be a space for luminous encounters, provided we kill our idol, the white light. We do not know what our relationship to light is until we've met it in other forms: light is situated, light matters. The ocean is a tale of light in a vast darkness where many different stories are told. Through a remote sensing of the ocean, some of these stories travel along pathways of transduction ending at our eyes and open up a craving shared beyond the human.

wavelength: 492 nm

color: infragreen

An Infragreen and Bipolar Tale of the Future

The future is already here, but it is not equally distributed, as the *dictum* goes. It is already here for some and not for others. And it is the latter that interest me here: all those beings which are out of phase with the reality of the future—and, increasingly, by “those beings,” Thierry Bardini does not mean us humans. He addresses those forms of life which we could doubly call, after David Lapoujade, “lesser existences.” First, because indeed, we humans only consider them with a calculating, condescending gaze: primitive, archaic, unevolved beings of limited or no usefulness—like a fern or an insect. Secondly, because we often do not even bother to think of them when we imagine futures: they have somehow no future, or better put, they have no predictable future useful to humans; their future is totally contingent; they do not even seem to have futurities.

In the science fiction Bardini offers here, he picked one such form of life, usually beneath our notice: *Tortella tortuosa*. This moss happens to be what botanists call “bipolar bryophytes,” mosses showing a disjointed distribution on earth: growing in the circumpolar regions of both hemispheres. They are quite common; bryologists estimate that 45 percent of all mosses growing in the Antarctic are bipolar. Yet, they cannot explain why, or the mechanisms of how, they became split across these extreme bipolar distributions. Moreover, they

have no clue of what will become of them: their habitat is warming up faster than anywhere else on earth. The state of their future is on a cusp far more brittle than that of a polar bear.

Of course, as Bardini is fully aware, “bipolar” is one of the signatures of our time—who isn’t, these days, always on the wrong side of the fence, alternatively slightly over-enthused, slightly too depressed? Bardini is wary of two kinds of “supra-green trends” he encounters too often: the catastrophist (aka the *collapsologie*—it is now a neologism in French!) and the technological solutionist, California style. He knows that the ecological catastrophe is coming, but he does not see any point in the gloom for the sake of gloom; Bardini cares for technology, and yet he does not think that technology alone will solve the problem. He is “critically bipolar” with regard to the ecological catastrophe and its technological fixes—alternatively for one or the other, and for none. So, here Bardini proposes an ironic statement that seems unfortunately relevant to our present condition: bipolar or not, catastrophist or techno-optimist, it’s still business as usual.

wavelength: 530 nm

color: pure gold

Hyper-Vanguard: The Future of a Thousand Sects

Jason Bahbak Mohaghegh’s piece explores the formulation of a hypothetical city of a thousand sects as the keystone to a certain futurity. Thus, the spatial contours of reality itself break into the zones of secret societies and their maps of radical factionalism, a drive to micro-territoriality in which infinite vanguards rise and fall, each with their own convoluted vows, rituals, philosophies, and control rooms. Some sectors align according to technical or scientific obsessions, still others by architectural or artisanal practices, others by aesthetic dimensions of appearance or confidential emblems, others by a single mystical hallucination: yet each following a lone watchword that forms one signpost to the future (time, space, movement, image, illusion, cosmos, body). The result is the inexorable segmentation of the city into intricately detailed and intimately fanatical strata, each with their own careful orchestrations of consciousness surrounding their chosen passcode. Moreover, each bloc would oversee its own unique theater of operation guided by certain specific visual images, object worlds, performative or ceremonial choreographies, classified records, and enigmatic doctrines. In opposition to the homicidal archetypes of nation or empire (which presume totalitarian, world-unifying projects), these hyper-vanguards would exist in states of creative encounter, subterranean trade, fatal conspiracy, or rivalry

with one another. Accordingly, the internal structures of such alliances would also become increasingly susceptible to fragmentation, transformation, intensification, and sectarian twists (following the breaking patterns of crystal lattice arrangements or the serpentine design of mazes). Rather than consolidate authoritarian regimes into the monolith of a Republic, here one dreams of a mesmerizing series of counter-enclaves where the carnivalesque proliferation of sects would leave the order of things suspended in lighter conditions of vulnerability, chaos, treachery, metamorphosis, intrigue, and evanescence. This is also the connection to the color of pure gold, as the early alchemists too inscribed a covert plane of hidden libraries and forbidden schools of thought to unlock futural powers like no other.

wavelength: 555 nm

color: chartreuse green

Pale Green Dots

The scenario explored in Abelardo Gil-Fournier's critifictional short story is that of a massive upwelling into the atmosphere of colonies of photosynthetic marine phytoplankton-like particles as a consequence of the eutrophication of the oceans and the rise in the global temperature of the planet. The most characteristic effect of this event is that the planet's atmosphere turns green. Within this setting, the text explores the relationship that the inhabitants of this transformed planet have with the images of their past and their new conditions of visibility.

The story postulates the premise that climate change can be understood as an ongoing transformation of radiant regimes characterized by massive atmospheric events, such as the reddening of the sky due to episodes of haze. The Anthropocene as a radiant regime is explored to operate in this speculative story as a filter, a veiling or a change in ambient light: an environmental transformation in the experience of sunlight that highlights the tight links between images, environment, and knowledge.

wavelength: 580 nm

color: yellow

Specters of Solar Futurity: Yellow–Black–Yellow

Sunlight, scientists tell us, is white, but what we see, through the filter of the atmosphere, is yellow, and that is how it is absorbed by cultures. Ukraine's blue and yellow flag is taken to refer to the blue sky and the yellow fields of grains that grow from the fertile black soil. Sky, fields, and soil are all part of a

circuit of solar energy that has been absorbed and mobilized in multiple ways. What futures can be envisioned in and on the sun's yellow rays, in this country subjected, as we write, to intense imperial aggression? To gauge possible futures, Asia Bazdyrieva, Adrian Ivakhiv, and Svitlana Matviyenko trace a history by which Russian imperial science, and later Soviet science, contributed to making the earth what it has become for Ukraine: foundational, contested, coveted, resourcified, and resistant. Unlike the cosmist inclinations of Vasily Dokuchaev and other Russian imperial scientists, Ukrainian artists, from Pavlo Tychyna to Fedir Tetianych, have perceived the sun and earth as poetry, as music, as "solar clarinets." Between the past resourcification of light and soil into agro-industry, and its potential resourcification as solar energy and biofuels, there has always been the wild field, from which emanates a future-otherwise.

wavelength: 590 nm

color: amber

Memory of a Stone

Fabien Clouette once encountered a strange stone during his ethnographic fieldwork aboard commercial fishing vessels in France. It was in the middle of the Celtic Sea. The fishermen and he had not seen land in ten days, and their only connection to society or humanity was through television shows that were constantly playing on the small kitchen TV. The two were working near the abandoned Kinsale gas rigs, not far from the Lusitania wreck site and, suddenly, big chunks of amber started falling off from the trawl, among tons of fish, seaweed, garbage or pieces of wreckage, and other oddities and monstrosities from the "AnthopOcean." "Take one piece, you'll make a necklace for your girl at home when we're back," said a deckhand as he handed Clouette a big shiny smelly rock. That moment has since been a great source of inspiration for him for theory-fiction. Clouette imagined what could have been the story of this stone that human wrested out from the abyss. Lately, he started an investigation around this stone, following geological but also economic and anthropogenic tracks, leading to several surprises concerning the ocean floors.

wavelength: 605.34 nm

color: vermilion

Vermilion Times: Memoranda from the Future

Christine Reeh-Peters & Isabel Machado present a multifaceted sci-fi tale consisting of a literary text and an experimental video that can be accessed via a QR code. They felt inspired by the color variations of the cinnabar crystal, a

toxic form of mercury sulfide, to follow a multilayered logic that interweaves philosophical, ethical, ecological, sociopolitical, cultural, and aesthetic concerns. The fictional story was written in collaboration with ChatGPT-4 and is set in a not-too-distant future, in an urban world shrouded in a mysterious fog veiled by toxic vermilion clouds. Unknown beings from the future, who call themselves “the spectrals,” transmit an enigmatic account of a journey through time that is not yet complete. The video is an assemblage of real images captured by the authors and synthetic images created in dialog with the ChatGPT-4 by uploading a drawing called “Vermillion Times” by Adrian Peters to Open AI. In this way, the authors created “with” the digital realm of machine ghosts, just as the characters in the narrative become “with” and communicate “through” some novel technological possibilities.

wavelength: 680 nm

color: flesh red

Excoriating Red: A Note on Russian Futurity

Andrey Logutov’s chapter explores the dual connotations of the color red in Russia’s political and biological spheres to examine its impact on the nation’s past and futurities. Politically, red symbolized alertness during the French Revolution and later became entrenched in Russian discourse through the Bolshevik Revolution, eventually defining the Soviet era’s visual and ideological landscape. Biologically, red represents the commonality of flesh and blood, unifying living beings in a cycle of life and death. He argues that the interplay between these connotations manifests as an “itch-scratch cycle,” a compulsion to revisit and reassert the significance of Soviet symbolism within post-Soviet Russia.

This cycle not only characterizes the nation’s grappling with its Soviet past—nostalgically reinterpreted in popular culture—but also influences its authoritarian shift and the ongoing conflict in Eastern Europe. In modern Russia, red has become emblematic of both political unity, in the form of shared communist ideals, and biological unity, symbolized by blood and ancestry. This merger is evident in state rhetoric, particularly in discussions of the Russian-Ukrainian war, where the political red of the past is interwoven with a biological red of genealogical connections.

Logutov further posits that Russia’s identity and sense of continuity hinge on the “perfect red moment” of the Great Patriotic War, which overshadows other visions for the country’s future and fuels a repetitive cycle of memory and nostalgia. In conclusion, he suggests that Russia’s fixation on the red of its Soviet legacy impedes a forward-looking ideology, embedding a cycle of reflection and

repetition into the national consciousness and implying broader implications for how societies engage with their histories to imagine their futures.

wavelength: none, multiple

color: gray

Dead or Alive? Gray Futures

Through readings of Jasper Ffordé's sci-fi novel *Shades of Grey*, Italo Calvino's cosmological fable "Without Colors," and Michael Ende's fantastic children's novel *Momo*, Franziska Strack's chapter speculates about the temporality and aesthetics of gray futures. As gray has no singular wavelength and requires a mixture of colors to come into being, the chapter suggests that gray futures escape clear definitions and contain a multitude of perspectives, experiences, and possible worlds. Gray artworks, in particular, visualize the world before and after we know it, generating a temporal field shaped by life and death, memory and futurity, the human and the nonhuman alike. As part of this field, the apocalypse is not the end of time but an interval for the intensities of the present moment or the destructive and constructive forces of becoming. Moreover, as a lived ethics, the gray field treats communities as tentative arrangements of actual and potential processes in which the addition of another color initiates a new future or productive disruption without interrupting communal existence as such.

wavelength: 0 nm – 400 nm – \geq 700 nm

color: blackless

Blackless: The Present-Absence of Blackness in an African Tomorrow

As a somewhat "dramatic" part of the Global South, Africa is definitely a continent of huge potentials, but with somewhat baffling developmental inconsistencies. With a land mass of 30.37 million km², a diverse ecosystem, and various kinds of natural resources, the present state of development in much of the continent falls completely short of its relatively huge potentials. If anything, while the postcolonial political structures are termed "democracies," the expected dividends of democracy are painfully difficult to witness in much of the continent. Rather, there are structured underdevelopments that lead to mortality rates of about 50/1000 births, 117/1000 children, and 63/66 years for adult males/females respectively. Against global mortality averages, death is, at once, a major litmus of under/development on the continent of Africa. Moreover, if death is visualized, the color most associated with it in Africa is black—as seen in the social "blackness" of ubiquitous funerary rites. As Babson Ajibade claims, this sense of "blackness" is not merely in the socially visible

sense, but also in the dark unseen shadows that various forms of social gloom cast upon society. Across ethnicities, class, and national boundaries, not only are burials ubiquitous in Africa—but the causes of death are also mostly those that competent contemporary social services could have prevented. In a futuristic context, therefore, Ajibade offers a peep into the tomorrow of Africa which will yield realities in which blackness—or its absence—constitutively becomes litmus tests of what level of development has been/not attained. Using the science fiction of an African cosmology, Ajibade presents a narrative time-travel into a possible future, in which a refreshing absence of social blackness can become a present-presence on the continent. This journey is facilitated by the timelessness of *Ifá*—the *Yōrùbá* god of divination—whose powers transcend time, space, and the multiverses in-between.

wavelength: 595 nm

color: black hole black

Black Hole Black (Disco Ball Lightning)

Alison Sperling's chapter reads three contemporary science fiction short stories by Caitlín Kiernan, Nalo Hopkinson, and Eden Robinson, each of which each feature both black holes and prominent queer sexual and erotic themes. Exploring the various ways in which complete and total blackness of the black hole is often understood as a limit case of visibility and of knowing an-other, Sperling wonders how the stories suggest possible ways to subvert readings of the blackness of black holes as emptiness, lack, or hopelessness. Instead, the stories together gesture toward different (not entirely coherent) forms of cosmic intimacy that include both the dangers and possibilities of reaching into the abyss (love) as a way of refusing to succumb entirely (or not yet) to increasingly abyssal futures.

wavelength: 6000•A nm

color: transparent

The Color of Breath, the Color of Air

Bruno Latour has pointed out the need to assemble a *political body* able to claim its part of responsibility for the earth's changing state. "We the Earthlings are born from the soil and from the dust to which we will return, and this is why what we used to call 'the humanities' are also, from now on, our sciences."

In a felicitous figure of speech, the anthropologist Timothy Choi has termed this political body, that Latour envisions, "the conspiracy of breathers." Derived from the Latin word *conspirare*, (*com* = "together" + *spirare* = "to breathe"), this

term, in Choi's reading, refers to situations where people intimately share the air, "a breathing-together, emerging in moments of doing and recognizing kinships and inequalities of capacities to inhale, . . . composing a political crowd of/as breathers." From this perspective, "climate," or "atmosphere," is just that—our shared breath, and as such not something we can (and need to) fix from an outside position, like an engineer who fixes a run-down machine . . . no: we participate in this, we "are" the climate, so to speak. As a matter of fact, through breathing—through inhaling and exhaling—the world becomes part of us, we become part of the world, in a rhythmic refrain . . . my body folds in the air, the air enfolds my body. To be clear: such a conspiracy of breathers is not restricted to the human species only. In fact, all the air that all animals inhale and need for breathing is created by the plant world, and the plants in turn need our exhaled air to process in their photosynthesis to produce the air that we need to stay alive, and so on. So, there is in fact a conspiracy of breathers at work already, at every moment, which "we all" depend upon: the atmosphere, which we all actively participate in.

Drawing in-spiration (!) from two artists—John Luther Adams and Tomás Saraceno, Bernd Herzogenrath's chapter will try and compose a future world of air and breath.

wavelength: n/a

color: luminous darkness

Exploring the Metaphysics of Afrofuturism through Howard Thurman's
Luminous Darkness

Reynaldo Anderson's and Christina Hudson's piece delves into the metaphysical foundations of Afrofuturism as presented in Howard Thurman's seminal work, "Luminous Darkness." Thurman's text, though not explicitly categorized under Afrofuturism, resonates with the movement's themes by envisioning a future where African American identity and spirituality transcend the limitations and dichotomies imposed by a racially segregated society. They examine Thurman's metaphysical approach, which is grounded in a deep spiritual awareness that challenges the traditional boundaries of time, space, and racial identity. Reflecting on the concepts of inner illumination and the interconnectedness of all beings, "Luminous Darkness" provides a transcendent perspective that reconfigures the African American experience. Thurman's metaphysical framework suggests a reality beyond the visible, a world where the spiritual heritage of African Americans informs a transformative vision of the future. Through an analysis of "Luminous Darkness," Anderson and Hudson investigate how Thurman

employs metaphysical themes to critique the historical narrative of race and to propose a radical reimagining of identity that is both deeply rooted in African spiritual traditions and forward-looking. His vision transcends the temporal constraints of the past and present, offering a future where African Americans not only survive but thrive through an inherent luminosity that reshapes their destiny.

wavelength: n/a

color: iridescence

The Future Iridesces

Iridescence is not a specific color, but a more complex chromatic phenomenon in which the perceived color of a substance or object depends on the angle of incident light or angle of viewing. In this chapter, Bronislaw Szerszynski uses the medium of the short story to explore what it might mean to think of the future as iridescent: as containing within itself multiple future states at once, and as only appearing to collapse into one probable or preferable future due to the “angle of view” and “angle of illumination” (more broadly interpreted in epistemological terms). Szerszynski imagines a new form of futures studies being problematized by interruptions of iridescence.

It is the year 2035, and a scientist, Daniel, has relocated to an institute near Portland to further develop his Timescope—a device for visualizing the future. He is writing to his partner Anna in New York about his work and about their future together, which now seems in doubt. Each of his three letters gives us a glimpse into successive versions of Daniel’s Timescope: the first is based in what he calls the “classical” futuristics of the late twentieth-century “futures cone”; the second incorporates special relativity and the concept of the “light cone,” and the third moves further into the postclassical ideas of time and the many-worlds interpretation of quantum mechanics, in which a smoothly expanding futures cone is replaced by a branching universe. In each case, Daniel’s attempts to stabilize the Timescope’s use of color to represent the probability of future world-states—and his increasing attempts to find a future in which he and Anna are reunited—are compromised, as “the future iridesces.”

wavelength: (khaki)—575.4 nm

wavelength: (dark gray)—nil

Soliloquies of a Lone Diner and the Specters of Thomas Sankara

The self-awareness of the present proceeds from symbolical extensions of the past, a cultural detritus that foists history onto a linear time track. This linearity enforces a queue in which events of the present induce a cue for the future.

The causal linkages between two or more events inform the undergirding stimulus for spectropolitics. Thus, time-lined projections set the course of history and forecast the future one way or another. The future is thus a captive of the present, which is itself a progression from the past—demystified and shorn of its unknowability, its surprises, and its happenstantial magic. To envision the future and to proceed to work toward its realization is therefore to de-futurize the future.

Kuti Ezebiro's chapter—the final chapter of this collection—explores futures as specter and spectrum. Specters are considered to be of two broad kinds: aspirational projections of previous realities and antithetical aspirations of forces of opposition to disagreeable situations. This dialectical conflict is foregrounded by a spectral analysis of the political history of Burkina Faso spanning the period 1985 till today, defined by the revolutionary forces of progress as represented by Capt. Thomas Sankara and the counterrevolutionary forces that assassinated him and twelve others. These classes or tribes of specters are engaged in a struggle to assert and define the future. Being a futuristic imagination by converse speculation, the future is contemplated as a spectrum of contentious possibilities with dialectical linkages to the present. Ezebiro approaches the subject as a struggle between dreams, a contest of mutual negation. Thus, certain historical scenarios are reflected in the treatment of some tropes in the present with linkages to past scenarios. This also helps to establish how the present hunts the future and how the future, by its dreams and anxieties, hunts the present.

The chapter takes the form of a narratological soliloquy in which narrative is explored as discursive linkages between the soliloquies of a lone diner in a coffee bar, a live television, and spectral textuality. Julian Wolfreys' proposition that textuality is spectral in and of itself, as that "which is phantomatic or phantasmatic in nature while, paradoxically, having an undeniably real or material effect, if not presence," underpins the concept of deployed citations and quotations from texts on spectrality and hauntology as discursive interjections. The diner would speak all by himself and to no one in particular, merely allowing the news and other programs on television to break into his thoughts from time to time while fleshing out his thoughts with recollections of relevant quotes and citations

that stream into his mind like ghosts. The television serves as a soundboard for his monologues and a thematic prompt for his thoughts. His engagement with this technological box of daydreams, a digital keyhole through which a legion of ghosts peek into his world, unleashes a melee of hauntings from three eras, distracting him from the present and its nowness of time.

Wavelength: 0.001 nm | Color: Gamma Rays

The Spectral Affectivity of Glaciers

Julita Skotarska

Due to rising temperatures, glaciers are melting and disappearing, becoming silent victims of the environmental crisis. I witnessed how the prominence of this way of being of glaciers translates into specific patterns of human behavior when I lived for a few months in Iceland. While there are many reasons that people come to “the land of fire and ice,” there is a clear melancholic undertone to that part of tourism that centers around glaciers. It is common for visitors



Figure 1.1 Sólheimajökull in Iceland. © Julita Skotarska.

to come specifically to see Icelandic glaciers as they retreat, before hopping over to Greenland—to catch sight of its ice sheets before they melt. Artworks, such as Olafur Eliasson's *Ice Watch*, have also been designed to bring melting glaciers closer to people in different parts of the world, so they can gain firsthand experience of this loss-in-the-making. There is clearly a strong affectivity to this situation in which glaciers now find themselves—an affectivity, which stems from the knowledge of climate change processes, and which is then captured in images and portrayals that further perpetuate this particular affect.

However, as contributors to social imagination, glaciers deserve to be seen as more than victims. Drawing on diagnoses of posthumanist thinkers, I want to speculate on the possibility of relations with glaciers that are less hierarchical, which, I believe, must involve “the loss of familiar habits of thought and representation.”¹ Excessive reliance on the familiar narrative obscures our earthly entanglements, as well as the animacy and agency of the nonhuman. It thus freezes imagination and thinking. In the past, glaciers have been recognized as animate and agential by artists, writers, and Indigenous peoples. What happens if we bring to the fore some of the emerging, as well as historically disregarded ways of knowing and being with glaciers, so that in addition to sadness, a sense of doom and solastalgia, we can experience and practice curiosity, alertness, and a less mimetic kind of care?

In my concentration on affectivity, I draw on Rosi Braidotti, who sees it as an elemental feature of subjectivity that conditions relationality. “The core of the subject is affect, that is to say the capacity for interrelations with others: to affect and to be affected by them.”² In framing the affective richness as a spectrum, my aim is to capture the diversity and complexity of perspectives on glaciers and interactions with them. I also hope it enables appreciation of gradual qualitative shifts in representations of glaciers as they emerge from the semi-peripheries of knowledge-making. Precisely because these depictions are ununified, and any normativity that stems from them is hard to pin down, it becomes possible, and maybe even necessary, to practice more attentive and imaginative forms of being “in the muddle of messy living and dying.”³ While drawing attention to the wide breadth of glacial affects may seem like a distraction from their vulnerability in the face of climate change, I believe that it is important to forge richer emotional pathways and recognize them as active participants in our own affective register. I will begin with the troubling and future-penetrating relationship between glaciers and gamma rays.

While it has been known that glaciers are a kind of archive of time, since it is possible to read the climatic past through them, it is only recently that scientists

discovered a new direction of this latent and, as it were, embodied temporality of glaciers. For current research shows that glaciers are effectively radioactive, as they store and carry fallout radionuclides from nuclear accidents and weapons tests.⁴ These violent events leave traces in sediment accumulated in cryoconite—an outer layer of glaciers.⁵ Some of the radioactive isotopes found in it emit gamma rays in the form of waves of electromagnetic radiation. Invisible to the human eye, mass-less and charge-less, they penetrate far into matter before being stopped. As glacial ice melts, the accumulated radionuclides get released.

Scientists are currently investigating the considerable threat this may pose, in particular to the surrounding life them. Hinting at the aforementioned change in direction of the temporality of glaciers, they speak of “the release of legacy contaminants,” forming, effectively, a “secondary contamination” brought by global warming, often decades after the original contamination events.⁶ We thus no longer have glaciers that inform us of the past, but they also become a carrier of a version of a future—a kind of repetition of past harms. However, scientists underline that more work must be done to understand the underlying processes and recommend caution, discouraging us from drawing apocalyptic scenarios and spreading panic. The nature of the glacial inventory of radioactivity has not been sufficiently researched yet.

This is just one of several blind spots when it comes to our understanding of glaciers, caused by the historically narrow scope of scientific interests. In *Arctic Dreams*, Barry Lopez reflects on how the cryosphere has been systemically neglected and understudied: “the foundations of Western ecology were laid down by scientists working almost exclusively with temperate-zone ecosystems,” while “certain conditions that typify arctic ecosystems were treated as impediments rather than normal circumstances for the development of life.”⁷ In this approach, snow and ice were seen as extreme, unrepresentative features of the environment and “not as integral components of the ecosystem.”⁸ As a result, it took a long time for glaciers to be recognized as valid subjects of scientific investigation.

While this overlooked dimension of glaciers can be primarily described in its negativity, there have been some attempts at drawing on their mysterious nature and their fundamental otherness to humans. For example, resurfacing in the last poem of Han Kang’s *The White Book*, “All Whiteness,” they are identified as an “enormous mass of ice”—“something sacred, unsullied by life.”⁹ Glaciers’ seeming radical unliveliness, their being “unspoiled” by life, as it were clean of it, is not a deterrent, however, as can be the case in many renderings of lifeless or barren landscapes. Instead of evoking inhospitality, or even hostility, for Kang, it is an invitation. Seeing a glacier becomes an encounter with absolute otherness

that gains sacredness exactly through the act of transcending life, paradoxically being more in the act of just being—not living. It is their unlikeness to us that makes them so worthy of contemplation.

In this respect, Kang's poem echoes the myth of pristine nature and wilderness, which captured the imagination of early Western visitors to lands dominated by glaciers. In her research, anthropologist Julie Cruikshank brings together the narratives of Indigenous Tlingit people with those of Western settlers and travelers. Drawing on the anthropology of encounter, she analyzes the points of contact between native tribes and new settlers, as well as those between people and the landscapes.

During the Little Ice Age (fourteenth to the mid-nineteenth century), the Indigenous people living in the Glacier Bay Icefield in the Pacific Northwest between Canada and the United States had firsthand experience with surging glaciers. In fact, these glaciers advanced unexpectedly and more extensively than anywhere else in the world. Far from melting away, they posed a threat through their unstoppable and rapacious expansion into inhabited territory. Drawing on the accounts of three women, Cruikshank sheds light on the narratives in which glaciers emerge as sentient and agential, participatory in social interactions. Specifically, they are said to endow a certain ethos—there are things they recognize as worthy of intervention, and, not infrequently, of punishment. “The glaciers these women speak of engage all the senses. They are willful, capricious, easily excited by human intemperance, but equally placated by quick-witted human responses.”¹⁰

For example, newly arrived visitors were vehemently discouraged by locals from cooking with grease, as its lingering smell would stick to glaciers and arouse their indignation.¹¹ It was thus an inconsiderate and disrespectful act. In the light of such relationality, it makes sense to speak of human-glacial encounters, visible in dynamics of reciprocity and mutuality. Indeed, very often it is possible to speak of an intersubjective relation unfolding: “Glaciers that listen respond to human intemperance with devastating consequences. These accounts differ sharply from observations by early European visitors in that humans do not just observe external ‘nature’; they are part of social processes that constitute landscapes.”¹²

Within such dynamics it is not possible to maintain the view of glaciers as “unsullied by life.” There is no radical otherness to them. These narratives weave the natural history of landscapes and social histories together.¹³ A strong dichotomy between nature and culture no longer holds, as relations between the human and the nonhuman are recognized as horizontal, as well as transactional.

These transactions are not always successful. In fact, “[t]ransformations of glaciers from one state to another are consistently attributed to a breach in social relations. In such situations social responsibility must be assigned and interpretations centre on social relations rather than on physical processes.”¹⁴ This shifts the positioning of nature and culture, which become enmeshed in the social.

This local view can be contrasted, for example, with the accounts of Jean-François de La Pérouse, who visited the region in 1786 and whose impressions of glaciers echo Han Kang’s rendering, insofar as he saw them as “manifestations of the sublime—great yet terrible, wondrous yet fearsome.”¹⁵ He thus performed a form of detachment, which made glaciers into something radically different from humans. It is not that he devalued glaciers and nature; it is just that in contrast to local people, he saw them as dramatically different and *other*.

Another visitor to the region, environmentalist John Muir, displayed great sensitivity toward glaciers. Drawing on his notes, Cruikshank gives examples of anthropomorphism-filled descriptions of glacial landscapes, which illustrate them as sentient and animate. All this speaks to Muir’s capacity to see them as similar and of like kind. And yet, despite showing interest in local knowledge and worldview, he resisted the Tlingit’s understanding of glaciers as social and, in that respect, equal partners in meaning- and world-making. Muir gave primacy to nature—seen as pure and foundational. In this way, his thinking was marked by and has further strengthened a conceptual separation between nature and culture, human and nonhuman.

While all three views were based on different ontologies and involved distinct concepts of life and agency, only some of them gained traction and became dominant, while others were dismissed. Cruikshank remarks on this historical process of ideas latching onto landscapes, replacing those that had been there in the first place: “What is notable is how speedily new landscape stories took root and gained authority as official ‘common sense’. We know that certain frameworks of translation acquire durability and robustness by attachment to and circulation within prestigious networks. What sinks into history and what floats away is not random.”¹⁶

The dominance of this particular way of seeing the world, which was not and is not the only way of seeing it, has shaped the way many of us tend to see today. This is particularly evident in the material-discursive practices¹⁷ surrounding nature:

The nature we are most likely to hear about in the early twenty-first century is increasingly represented as marvellous but endangered, pristine or biodiverse. Such depictions make it more difficult to hear or appreciate unfamiliar points of view. Environmental politics and [...] “scientific naturalism” have so normalized our understandings of what “nature” means that we can no longer imagine how other stories might be significant.¹⁸

This, of course, has its echoes in the case of glaciers, as they are brought up to strengthen the plea to take action to halt climate change, but also as modern-day travelers flock to witness their beauty before they melt. They are currently predominantly experienced as a spectacle, thus are seen *from the outside*, and because they are seen as victims, *from above*. Despite the often good intentions accompanying efforts to educate on the fate of glaciers, this view of glaciers is reductive and does not do justice to their latent affectivity that goes beyond victimhood. In fact, in addition to radioactivity, glaciers store stories but also embody concepts such as animacy and agency that can in turn feed into a broader view of the world. Specifically, glaciers can be seen as animating an ontological vision of “a world of being, full of unseen energies that animate everything,”¹⁹ which can challenge “the disenchantment of the world on which modernity is predicated.”²⁰

While science is frequently put forward as one culprit behind this disenchantment, there is an influx of written and visual testimonies of scientists that seem to express their firsthand embodied experience of not only working with glaciers but also becoming-with them.²¹ While most Western contributions to the growing body of what we could tentatively call glacial humanities spring from a vulnerability and victimhood paradigm—after all, they tend to come from the need to inspire care for glaciers in their current predicament—they are often very polyphonic and nuanced. Seeping through rigid scholarly practice, intimate portrayals of relationality unfold, shedding light on the affective richness of encounters with glaciers. They are deeply rooted in material, down-to-earth entanglements and yet are kept at the margins of knowledge-making and hardly ever feed, as it were, back into scientific reports and peer-reviewed articles.

A good example of such scientifically informed, but also very personal account of glaciers can be found in *Ice Rivers*. The author, glacier biogeochemist Jemma Wadham recognizes the peculiar dissonance between how glaciers appear in one moment and how they are through time, as “[u]pon first glance, glaciers seem so silent, passive and lifeless; and yet, measured over decades, centuries

and millennia, they are some of the most sensitive and dynamic parts of our planet, growing during ice ages and shrinking under the malign influence of our carbon-choked atmosphere.”²²

Through systematic work and long-term research, Wadham witnessed firsthand the effects of global warming on glaciers. This, of course, exposed her to a specific location on the glacier’s affective spectrum, where they emerge as clearly vulnerable victims of the anthropogenic climate crisis. This particular mode of their being comes to the front during re-encounters:

Compared with twenty-five years ago, it was a kilometre further up the valley, and it sat motionless like a dark ghost, the steep, rocky sidewalls forming a shroud around its lower flanks. I was aghast—it was as if I’d returned home, only to find it had been ransacked. My stomach was in knots, and tears of disbelief welled up in my eyes.²³

This evocative rendering of the way the melting glacier was affecting her gives testimony to “the emotional connection” she fostered with them through time, extending her zone of familiarity and domesticity. This, in turn, is enabled by the individualization and personalization of glaciers—who are no longer “just moving bodies of ice. Each one has a unique character deriving from the way it flows, melts and is framed by its incredible wilderness.”²⁴ In that respect, despite evoking the compromised category of wilderness, Wadham prepares the ground for recognizing relations with glaciers as interpersonal and social, in a similar fashion to the Tlingits. This becomes clear in the way she depicts them when narrating her own story:

When I’m with them, I feel like I’m among friends. My return to them in this round-the-world voyage heralds a return to my old self. A kind of personal re-wilding—borders dug up, earth left untilled, seeds of ideas allowed to drift freely in on the wind and to take root to sprout new, vibrant green shoots. A story of glaciers and people, their histories and mine, entwined. It is, in many ways, a love story.²⁵

At least two issues could be raised in response to these words. Firstly, there is yet another echo of wilderness myth in the author’s drive to “personal re-wilding”—wildness as something good, primal, and cleansing. Indigenous scholars have openly spoken against the reliance on the category of wilderness.²⁶ Secondly, the predominantly metaphorical use of nature can be interpreted as reductive and fundamentally disengaged—the nonhuman functioning as a carrier of very human values. Posthumanist thinkers have denounced this instrumental use of

“animals, anomalies, and inorganic others,” advocating a “neoliteral relation” instead.²⁷

Responding to the first concern, it should be clarified that while the presence of wilderness myth in this account cannot be entirely dismissed, it is by no means the driving force behind Wadham’s writing. Regarding the second concern, as one reads *Ice Rivers*, it becomes clear that “the old metaphoric dimension has been overridden by a new mode of relation,”²⁸ as the author does not fall into the trap of romanticization of glaciers. She does not reduce them to passive victims or idealize them as just pristine and innocent. In fact, many of her depictions of glacial landscapes allow for a more gritty portrayal to emerge—not the typical crystal clear, light-diffusing, popping-bubbles-filled ultramarine innocence captured and shared on social media.

The book actually starts with a short speculative horror story featuring seemingly innocent ice from a kitchen freezer, which slowly but surely progresses in order to conquer the world, swallowing new matter like some kind of a voracious monster. While this is a mere imaginative fancy, it brings to the front something that Indigenous people experienced during the Little Ice Age: glaciers’ capacity to transgress and, under certain circumstances, their ruthless unstoppable. Bringing to mind other horror scenarios, glaciers’ seemingly inexhaustible appetite and incessant motility can lend them an unnerving edge.

Another darker side to glaciers is their murky underbelly, where soil and earth are carved and shaped by the glaciers’ movements. As Wadham remarks, these inner workings tend to be hidden away, opening the place where our imagination can step in, without ever witnessing the physical processes of landscapes being shaped and molded:

For me, one of the most enthralling things about glaciers is the fact that the place where all the action happens you can neither see nor touch. You are left to imagine the point where the ice ends and the rock begins, and ponder what life could survive such grinding hostility as the glaciers moves, picks up and regurgitates boulders, stones and sand. Only when the ice retreats is the evidence revealed, an ornate assemblage of ice-etched, polished rock surfaces, carved melt channels, mounded sediments—traces of a past dark, violent underworld.²⁹

Corporeality, both her own as author and that of glaciers, is a crucial facet of the relationship and interaction as they unfold throughout the book. But again, it is not an easy, unproblematically loving encounter, as in all their entangled complexity glaciers carry both promise and a threat: “Meanwhile an icy wind increasingly penetrates your lungs; if anything can be both exhilarating and

foreboding, this is it. That first tantalizing smell of the ice, that sense of being stroked by its soft, frigid fingers, is a welcome and a warning.”³⁰

The threatening, dangerous, and apocalyptic affectivity of ice has been fruitfully explored in literature. For example, a poetic rendering of this latent potential of ice was put together by Robert Frost in his poem “Fire and Ice,” in which he draws on the affinity between hate and cold, concluding that “for destruction ice / Is also great / And would suffice.”³¹

Published in 1967, Anna Kavan’s *Ice* is an entire novel that depicts the gradual shattering of the earth by the eponymous matter. It offers uncanny resonances with the current situation, as well as provocative dissonances, as it provides an imaginative alternative to causal relations between glaciers, climate change, conflicts, and radioactivity. While the identity of the ice formations shifts in the book—they are predominantly referred to as glaciers but sometimes also as ice shelves, ice cliffs, or ice walls—what is clear and conclusive is that they unequivocally carry imminent danger, indiscriminately advancing and encroaching upon the remnants of the world as we know it. The origin of this unprecedented occurrence seems to be shrouded in government secrecy, but unofficial sources link it with a sudden increase in radioactive pollution most likely triggered by a nuclear disaster, leading to climate change. Curiously, that climate change seems to be the polar opposite of the one experienced right now: very fast and resulting in the spread of ice-mass and reflecting of sun rays from the surface of the earth to outer space, leading to a drop in temperatures, a rapid advancement of glaciers, and thus gradual dominion of cold and ice.

In *Ice*, glaciers are nothing like us. While in many contemporary portrayals, it is their movement that evokes animacy, in Kavan’s rendering, their motility is mechanical. They become a kind of weapon, and their antagonistic, even aggressive and hostile nature is recognized and responded to by humans waging war on them and among each other: “By making war we asserted the fact that we were alive and opposed the icy death creeping over the globe.”³² Under these circumstances, glaciers emerge as biopolitically active—punitive and military. They are the carriers of violence and destruction, as “[t]he world had become an arctic prison from which no escape was possible, all its creatures trapped as securely as were the trees, already lifeless inside their deadly resplendent armour.”³³

Whatever glimpses of glaciers’ liveliness we have encountered in other narratives are completely absent from Kavan’s story. In this account, glaciers are all about death. They cause it directly, by crushing and killing, and indirectly, by triggering interhuman conflicts resulting in violent military interventions, but

also, they are of death. Even their color, often associated with innocence, carries thanatopic undertones, as Kavan writes about their “unearthly whiteness” and “the dead white of the snow.”³⁴

Effectively, the book offers an apocalyptic vision of the world destroyed by glaciers and ice, as predicted in one of Frost’s scenarios. This culmination, however, is at risk of pushing us back onto the (over)familiar track of linear thinking, with strong dichotomies (human-nonhuman, culture-nature) resurfacing. Instead, I would like to bring attention to a dormant circularity in the proposed spectrum of glacial narratives. For Kavan’s storytelling specifically brings us back to contemporary concerns in unexpected ways, and in particular, the recent discoveries of glaciers’ radioactivity. Both in *Ice* and current research, the consequences of nuclear events are carried through by the glaciers, which gain unexpected meaning and roles in perpetuating of anthropogenic harms, further accelerated by climate change.

This more transversal reading brings me back to the spectral affectivity of glaciers. It was important for me to engage with it, because it is clear how “the affective forces are the driving energy that concretizes in actual, material relations. These relations constitute a network, web or rhizome of interconnection with others,”³⁵ which in turn can form a basis for more affirmative and future-enabling ethics and politics.³⁶ To give an example of an exercise in this way of thinking, I would like to return to Iceland, which I mentioned at the beginning as a destination for a kind of melancholy tourism, as people flock to see glaciers before they disappear. Culminating this orientation, in 2019 there was a funeral organized to commemorate the melting of Okjökull, considered the first Icelandic glacier lost to the climate crisis. As I am finishing writing this chapter, stepping away from the state of melancholy and grief, Icelanders can express their support for the presidential candidacy of Snæfellsjökull—one of the country’s most iconic glaciers. This is a collective project of heterogeneous origin and agenda, bringing together representative democracy, grassroots politics, art, and storytelling. While bearing the risk of excessive reliance on symbolism and anthropomorphism, it is nevertheless an affirmative practice that allows for new imaginings to emerge. The future is in the making as the signatures supporting this candidacy are being collected.

Wavelength: 100–400 nm | Color: Ultraviolet

Wild Light: Radiant Skin and the Domestication of Ultraviolet Futures

Lisa Yin Han

Basking is an essential activity for most reptile species. In the Sonoran Desert, you can sometimes catch a glimpse of a collared lizard, Gila monster, or desert tortoise sunning itself in the daylight. Animals do this to raise bodily temperatures and to absorb UV-A (315–400 nm) and UV-B (280–315 nm) light, required ingredients for the manufacture of vitamin D3 and for calcium absorption. To bask is to activate the body's porousness to the outside world as distant rays fuel the internal functions necessary for survival. In this way, ultraviolet light saturates a multispecies world in a shared solar intimacy that is more than skin-deep. From the skin, we create kin.

My own sense of an ultraviolet kinship began in earnest when I was in Santa Barbara finishing my last year of graduate school in April 2020 during the arrival of the Covid-19 pandemic. At that time, the curfew, the mask mandates, and the long grocery lines still felt like a surreal yet shared collective experience—one that could bring neighbors onto their patios to clap for healthcare workers every evening. As I holed up in my apartment, writing and slathering my hands with sanitizer, the first symptoms of another illness began to emerge. Bit by bit, I began to notice that the skin on my hands was forming dry, flaky patches, occasionally speckled with itchy red spots. As the months passed, the sensation got worse. My enflamed skin spread from my palms to my fingertips, then to the bottoms of my feet. Before I knew it, my body had seemingly erupted, and I was limping and struggling to complete simple tasks like washing dishes or exercising. By the time I lugged my suitcases across state borders to Arizona, I was beginning to feel I was shapeshifting—my outsides transforming to match my rapidly changing life. Feeling at the precipice of something baleful, in the fall of 2020, I walked into a

hospital and walked out with a psoriasis diagnosis, a warning that I was deficient in vitamin D, and a prescription for UV phototherapy.

“I embrace my new lizard overlords,” my husband declares one night, pressing a wand of searing purplish light to the soles of my feet. I shut my eyes and try to accept my newfound bond with the reptiles, the skin-shedders who must discard a piece of themselves in order to grow. Psoriasis is one of the most common lifelong autoimmune afflictions in the United States, affecting roughly three percent of the adult population.¹ My dermatologist tells me that when the pandemic hit, there was a noticeable increase in psoriasis outbreaks. There are many factors which trigger the illness—one of them being stress—but I have found that with the regular application of ultraviolet light, I have been able to manage my symptoms effectively (Figure 2.1). For lizards, shedding and sunbathing are daily practices and rites of passage. They at least do not think of their shedding as socially objectionable. So, like my lizard brethren, I bask.

In the years since, I have awakened to being submerged in ultraviolet light every day, from the baking rays of the Arizona sun, where UV forecasts regularly breach extremes of 11+ on the UV index, to the UV-sanitized handrails and restaurant tables that adorn airports and public spaces, to my UV phototherapy device at home. As an environmental media scholar, I am



Figure 2.1 The author's handheld phototherapy device. © Lisa Yin Han.

tantalized by the possibilities of an ultraviolet media theory. I take the ideas on a walk one sun-soaked afternoon, palms out and shades on. UV etches messages on my skin-as-medium. Its heat calls out my connection to the landscape around me, bathing both the green and growing world and my dead and dying skin cells under the same wavelengths of light. On the walk back, I decide that perhaps my skin's rebellion is not a rebellion at all, but rather a revelation of my own nature; a lens through which I might perceive the Other within the familiar. Ben Woodward posits an "ultraviolet ecology that would reveal the deeper dimensions of the seen by the unseen as well as expose unthought unseens and the possible connections between actualities already known."² I ponder this "unthought unseen" dimension, and I consider that perhaps its exposure requires a reimagining of what it means to be seen, to be the seer, in the first place.

What kind of medium is ultraviolet light? Who communicates with it, and what is communicated? How do we remediate ultraviolet through our technologies and our bodies? I consider in particular UV's use in healthcare, and the industrial uses of UV ensure our safety from invisible microbes. In the pages that follow, I posit future media topographies of ultraviolet radiation—not just what can be perceived by the human gaze, but the surfaces that UV illuminates and emanates from. These speculative terrains, like many in science fiction today, are also the wastes of capitalism, embroiled in decades of environmental abuse, extractivism, and unfettered corporate greed. And in the shadow of these forces, I cast ultraviolet as a medium of connection and revelation, its coveted glare both healing and lethal.

Domestication

One hundred years from now, I imagine a mostly interior human existence that is illuminated by the careful application of canned radiation. As the air outside becomes increasingly toxic, as forests turn to ash, as entire ecosystems evaporate and our only sanctuaries are the herbs and vegetables in storehouses, UV grow lights are a survival necessity. In this future, the Sonoran Desert no longer harbors the juicy green cactuses it was once known for, and the less parched regions of the world are now brimming with the world's remaining population. Yet many Arizonans remain in this place, burrowing into the cooler sandy depths of the parched terrain, keeping their connection to the land. We do not go outside often, save for a few mild days in winter. When we are weary of the

indoors, we lay out like turtles in UV beds, swallowing capsules of vitamin D and other nutrients once given freely by the sun.

Though I have recently migrated back to California, I think often of how I experienced Arizona as a risky place to live, perpetually short on water and marked by summer heatwaves that break records every year. I think of the headlines that splashed across US news outlets like *The New York Times*, CNN, and NPR in the summer of 2023, texted to me by concerned family and friends as I hibernated in my air-conditioned apartment. “Phoenix Heat Becomes a Brutal Test of Endurance.” “Phoenix’s Month in Hell: A 31-Day Streak of Record Heat Ends.”³ There is an impulse to minimize these claims as a resident with platitudes like “desert summers are always hot.” But it is hard to deny the statistics. The average UV index over that summer was 8, high enough to warrant official recommendations to avoid direct sun exposure between 10:00 a.m. and 4:00 p.m. and “limit sun-induced ocular harm” with UV-A and UV-B sunglasses.⁴ Nearly 500 people died of heat exposure in Arizona’s Maricopa County in the summer of 2023, shattering the previous year’s record for heat deaths.⁵ And then there were the nonhumans. I mourned as I watched everything in my garden die—the prickly pear, the barrel cactus, the Mexican fence post, the cardons, the euphorbia—they all withered, blackened, and imploded in the extreme sun. Maybe one hundred years is too far of a projection when so much of this future is already present.

In *Solarities*, members of the After Oil Collective remind us: “the sun is not only a precondition for earthly life but can also be oppressive, overwhelming, and hostile to life.”⁶ While many find hope in thinking of a solar energy future, a solar commons is mediated by solar politics, including conversations about equitable access, sovereignty, and labor. Drawing on Georges Bataille’s theorizations of planetary energy and political economy, Kathryn Yusoff considers solar excess, exposure, waste, and abundance, asserting that “If solar politics is located in the universe, it is not a politics based on universality.”⁷ As a facet of the solar commons, a future mediated by ultraviolet technology necessarily contains within it many possibilities for both liberation and oppression.

It strikes me that in the Anthropocene, our modern workplace stresses and our global commercial industries are a large part of what creates the need for UV treatments in the first place. The light of the unseen universe is also a remedy for the illnesses engendered by distant environmental abuses and recalcitrant bodies in a modern world. For instance, one of the most common uses of UV light today are lamps that ward off seasonal depression, or seasonal affective disorder (SAD) from a lack of sunlight. SAD is twice as prevalent in North America as

in Europe, and medical researchers speculate that factors such as sociocultural context play a more important role in its prevalence than geographical location.⁸ One wonders about the future of these disorders in the context of climate change and an increasingly uninhabitable planet. Accordingly, in my speculative fever dreams, I envision a UV capsule—not just a tanning bed but something rather peanut-sized, a discrete pop of sunlight. Perhaps one day we might all rely on dietary supplements that carry some of the healing properties of sunlight, though the dosage would determine the boundary between cure and poison. I imagine all the many little things that come with pills: pill cases, prescriptions, addictions, overdoses.

I suppose another reason why it is easy to think of the ultraviolet future as a story of technological domestication is because we have seen this story before. Consider the electric light bath, a healing practice that was prominent in the late nineteenth century and early twentieth century. Its inventor, John H. Kellogg remarked: “I believe that the peculiar value of the electric-light bath is due to its efficiency as a means of communicating heat to the body. . . . Light penetrates the body in the same manner as it penetrates any other transparent or translucent medium.”⁹ In his formulations, Kellogg positioned both light and skin as communicative mediums—one a sender, one a receiver of heat. He also connected these salubrious effects of light to their effects on plant chlorophyll production and growth, arguing that electric light was a “true vital stimulus.”¹⁰ Kellogg’s phototherapy brought humans closer to plants, as the domestication of light in medicine went hand-in-hand with the ability to grow plants indoors. This notion that electric light could be a vital force went on to inspire modern forms of UV phototherapy in the 1980s.¹¹

When electricity was first tamed during the nineteenth-century Edisonian era into incandescent bulbs, this light was initially exhibited in theaters and opera houses. These displays of light resided at the boundary between the wild outdoors and the organized indoor spaces of public congregation. Media scholars Lisa Gitelman and Theresa Collins point out a double articulation of electric light as both a system to look with and a component to look at.¹² Domestication of electricity brought the outside in and also facilitated sociocultural changes toward individualization and portability. Edison’s lightbulbs were more than just domestications of the wild elements; these technologies came to define the home itself.

The beginnings of UV lamps were less spectacular than that of electric lightbulbs, although these technologies were no less important in co-constituting the forces of modernity. Early adopters of portable UV lights were doctors, scientists, and epidemiologists.¹³ In 1877, Arthur Downes and Thomas Blunt first

discovered that sunlight could kill pathogenic bacteria.¹⁴ Decades later, Harvard University sanitary engineer William Wells applied short-wavelength UV-C light (100–280 nm) for disinfection and proved its efficacy in killing airborne bacteria and viruses. UV-C lamps were subsequently installed in schools to combat measles. This eventual appropriation of ultraviolet radiation for hygiene later served a dual purpose in its social recalibrations of UV and in the further transformation of indoor spaces as clean and safe from the diseases and viruses of the outside world.

To think of something like medicinal UV-C is therefore to consider its mediations of both life and death. In addition to being a vital medium, you could say that ultraviolet light is also an anti-medium—a substance that erases and prevents things from growing. In the era of Covid-19, the germicidal effects of UV have been seized upon by airports and restaurants and are actively being studied.¹⁵ UV biocide chambers can now be installed into AC systems to disinfect bacteria, mold, fungi, and are even used to remove algae and other biofouling in underwater systems. Meanwhile, UV technologies are increasingly replacing chemical biocides in industrial settings. Like the lightbulb, UV's domestication has reinforced spatial and social boundaries between the human and nonhuman world.

Domestication is, however, not a one-way process. Rather, processes of domestication, re-domestication, and de-domestication can be partial and take place simultaneously: “In that incomplete process, the dynamic between ‘domesticator’ and the ‘domesticee’ constitutes and recreates the mediated environment.”¹⁶ Indeed, in this dystopian desert of my imagination, creepy crawly things, tiny terrors like viruses, insects, scorpions, and moths find solace in the night and in the detritus of our bunkers, which keep the blazing sun away. People use UV-A blacklights to find the invaders, which cannot help but fluoresce under this radiation. For the smaller threats—the viruses and contaminants that now pervade our water systems and infrastructures—we put UV LEDs in our vacuums, on our cell phones, on tables and doorknobs, and every interface imaginable. We use UV to police the boundaries of our lives, even as we are reminded of our inhuman connections and the impossibility of our isolation.

The Skin Speaks

When I first received my diagnosis and was told it would be something I'd have to contend with for the rest of my life, I was aghast. I thought of all the things that require a grip: a bicycle handle, a tennis racket, a jar lid, a handshake—things

that I was struggling with already and feared I would struggle with forever. I must show my skin in order to treat it, but out in the world, when I have a flare-up, I hide it away for fear of upsetting others.

My epidermal anxiety is a twisted version of the epidermal anxiety that structures all our social interactions. Skin is gendered and racialized. Citing Michel Foucault, surveillance scholar Simone Browne refers to “black luminosity,” “an exercise of panoptic power that belongs to ‘the realm of the sun, of never ending light’ . . . ”¹⁷ We cannot escape our skin, nor can we escape the carceral technologies or racial ideologies that illuminate our skins within systems of power and oppression. And in these systems, UV light is applied to make our skins more alluring in tan and brown hues, or perhaps less.

As a Chinese American woman subject to the internalized legacies of Orientalism, I was raised to uphold pale skin as a beauty standard. My mother taught me to hide my skin away with zinc sunscreens when playing outside, to shield it with massive hats and sweaters at the beach. Each time I get a visit from family, I am left with a raft of lotions, toners, and dark spot correctors, lest my skin should disappoint. “Asian don’t Raisin,” or so they say. I have a different view of such expectations. Mark LaFrance remarks, “If skin can be disabling on an individual level, then it can also be disabling on a collective level.”¹⁸ Women of all shades are pressured to display their skins and to spend money on skincare. We are, too often, judged by our skin.

Where others fear blemishes that the eye can see, I fear also what the hands see; I fear the handshake. Sheryl Hamilton calls the handshake a “legal gesture” that fell apart during the pandemic.¹⁹ Thank goodness. My elbows are smoother. Perhaps we should keep it this way—a fist bump, a head nod, a hug to communicate warm feelings and enthusiastic agreement. Even now, I find that my husband’s willingness to touch and treat my afflicted skin is a gesture of intimacy. Singer-songwriter FKA Twigs said it first: “You know you give me love with your ultraviolet rays.”

The boundaries between ability and disability are socially constructed. But what if I did not think of my skin as disabled? What if this heightened sensitivity to stress and to ultraviolet light were a fitness gain, rather than a loss? I will never forget the time I was so anxious that I could visually start to see the little red bumps forming on the palms of my hands. I went outside, sat on the ground, and meditated for ten minutes until the bumps receded. It was the most tangible mind-body connection I have ever experienced in my life. I like to think this skin message was what Karen Barad might call an instance of queer communication,

or “self-touching the Other,” no sender or receiver necessary. When we sunbathe, we encounter “the infinite alterity of the self.”²⁰

We do not necessarily think of UV’s effect on skin as a medium of communication today, but perhaps we may tomorrow. Biologists can read the messages of the butterfly and the deep-sea crab, which find mates and feed with the aid of UV vision. Rodents and other small mammals also perceive ultraviolet wavelengths and use them for navigation and foraging. But even if we cannot see it, Istvan Praet reminds us that human skin shines in UV as well: “exposure to ultraviolet radiation significantly increases the glow of our skin, just as the UV flux of a solar flare intensifies the terrestrial aurora. . . . As ultraviolet screeners, the plant canopy, our skin, and the lenses of our eyes are not that different from the ozone-layer up in the sky.”²¹ Just as the lizards, the plants, the butterflies, the rats, and the crabs are our ultraviolet kin, so are the stars themselves—merely larger beings with glowing skins. What astral worlds may yet be revealed in my skin, a mini-sun of its own?

I imagine that in another one hundred years, a much larger share of the adult population will have psoriasis. Perhaps it will become so common that there is no longer a stigma around it, and people with skin conditions routinely manifest what is on their minds on their bodies. The skins of the psoriasis-afflicted know things about the environment before our thinking minds do, and perhaps this heightened sensitivity provides an advantage. What’s more, UV cameras may become widely available, giving others the ability to glean information about another person’s state of mind through their skin. Perhaps when UV transitions from its existence as an otherworldly light to a light that participates in the mundanity of earthly human existence, our aesthetic appreciations for it will change as well. Perhaps the paintings of the future will incorporate UV. Perhaps when a person’s skin fails to fluoresce under the ultraviolet spectrum, we will describe their skin as blind.

Fantasy aside, human beings have already acquired UV vision through technology. There are widely available blacklights that reveal the fluorescent underworld to us: strangers lurking in the home in moonlit corners. UV cameras, meanwhile, come in different shapes and sizes. The simplest kind turns a light on our own skin and are marketed as tools for sun protection. Other cameras are modified, mostly DIY apparatuses that require removing internal filters from ordinary camera sensors to allow the device to become sensible to UV, visible, and infrared light. Ultraviolet media technologies seek out the secrets our bodies hold from our eyes. They tell us what the sun sees when it gazes upon earthly

beings. Media creatives are already turning their UV cameras onto people to find answers.²²

We often imagine ultraviolet light as a wild light. Our popular and scientific cultures associate UV futures with space, science fiction, and the alien universe. H. P. Lovecraft wrote about the Colour Out of Space as “a frightful messenger from unformed realms of infinity beyond all Nature as we know it.”²³ Richard Stanley’s 2019 film adaptation of Lovecraft’s story represents this color out of space as a ghostly purplish-pink hue. It is the same searing color that we associate with ultraviolet light—an almost-white violet which burns and probes us from above. In science, UV takes us to space as well. At the Carl Sagan Institute, astronomer Lisa Kaltenegger speculates that, like the undersea coral that biofluorescence in order to protect themselves from the sun’s UV radiation, alien planets might also utilize a protective glow to shield themselves from stars.²⁴

Yet UV is a color on earth too. It is part of the same nature as we are, though it resides beyond the visible spectrum for humans. Ultraviolet is a medium that saturates, connects, and communicates messages between the human and nonhuman world. From the pleasures of augmented sight to the banal labors of health and hygiene, it is simultaneously alien and native, life-giving and life-taking. The light of the inhuman world has always played a curious role in human culture and society. In the present, we might do well to remember this wild light within, for doing so is also to remember our kinship to the stars, to the plants, and to other nonhumans. While we may yet tame this wavelength, we might also imagine futures beyond domestication in which the Lovecraftian intermingles with the mundane. Instead of keeping the Others out, perhaps we ought instead to let them in and find solidarity in our shared experiences of exposure and deprivation.

Wavelength: 380–750 nm | Color: Rainbow

Somewhere over the Rainbow

Claire Colebrook

There's a "gay bar" in the college town where I live. I know it's a gay bar because of the rainbow flag that adorns the front; that's the same rainbow that forms the background of neighborhood diversity yard signs that declare that "science is real," and "no human is illegal."¹ You could once find this rainbow in Target department stores during Pride week, displaying various LGBTQ+ themed products. Those displays dedicated to the warm fuzzy feeling of diversity, of everyone no matter how different being *my* fellow human, became the objects of violent destruction by those who saw the symbol of the rainbow as an affront to the supposedly real and non-negotiable truth of human sexuality.² The rainbow, symbolizing diversity, expression, and nuanced difference within a single humanity capable of dwelling in common, has become politicized in its symbolic capacities (symbolizing, as it does, a more malleable relation to the reality of sexuality than those hard-wired realists, such as Richard Dawkins, who insist that sex is real at a non-negotiable material level and cannot be made to mean what you want it to mean).³

The rainbow offers—for the Pride industry at least—a concrete way of depicting nature's production of the dazzlingly different from the apparent same. Beyond the Pride movement and its neoliberal capture, there might be a problem if we think too much about the rainbow as a figure for diversity. The spectrum of colors as a metaphor for the spectrum of difference among beings of the same species is all-inclusive, even if the political reality of human existence and its most tortuous problems of difference lie somewhere over the rainbow. One might say that there's something very white about the rainbow. The symbol of a single humanity expressing itself in sexual difference—where one can see and affirm all colors—differs radically (but perhaps requires) the negation of

blackness, the negation that *is* blackness.⁴ One might say that somewhere over the rainbow, somewhere over white light expressing itself as a harmonious, joyous, and sexual spectrum, there is the ongoing production of the human as stunningly and expressively different versus the achromaticism of blackness. To say, as Freud did, that women are the “dark continent”⁵ is not only to posit a sexual force that doesn’t shine forth colorfully but also to repeat a counter-chromatic racialized imaginary.⁶ It is no accident at all that twenty-first-century neoliberal affirmations of difference *can only see color*: “we” are all expressions of a single humanity. When presented with the negation of diversity, or the blackness that is produced through transatlantic industries of enslavement and trafficking, *this* color cannot be seen; it’s *not* part of the rainbow. The human as a single being of expressive difference—me and my sexuality—was the outcome of industries of privatization that allowed sexuality to be a predicate, like a color, that adorned a being who deep down was human (like everyone else).

The difference among the colors of the rainbow is different from the difference between black and white. Politically, historically, and bio-culturally, black is somewhere beyond the rainbow; just as black does not appear within the color spectrum but results from the absence or absorption of visible light, so the diversity color spectrum stands for all the varieties of human sexual expression, but not the radically inhuman (or that which was cut off from social sense—whether one thinks of that as radically queer or as Blackness).⁷ That is: one might contrast the rainbow as a spectrum of difference emerging from the same (as diversity emerging from a single potential) with the combative, asymmetrical, discordant difference of black and white. Those who refuse to accept that humanity has emerged as ideologically color-blind—“I don’t see color,” and “all lives matter,”—are expressions of a rainbow humanity. The abolitionist William Blake wrote in his ironic “The Little Black Boy,” about a child whose enslavement cut him off from any form of his own humanity: “o! my soul is white; . . . But I am black as if bereav’d of light” (2–4).⁸ Blake knew that white pity and inclusiveness—the delicacy of white humanity that could embrace others as “just like me”—was held up by the negation of those deemed to be over the rainbow, those for whom justice would not be inclusion or diversity of the same.⁹ White light subtends the color spectrum; the difference that flows from white light is an expression of a quality and its appearing different through variations in quantity. Rainbow differences (*like* the colors that appear when light is dispersed through suspended water at various angles of deviation) are differences among differences of degree. The Pride rainbow captures difference emerging from a complex sameness.

This rainbow of diversity can be read as a metaphor for all the various modes of human sexuality—a way of using color to represent a multiplicity of differences within a single potentiality of light. There are at least two ways that this figure can be read, with the first being the insistence on difference within a spectrum—not simply differences among kinds, but differences that shade into each other. Just as the rainbow generates several apparent colors by the dispersion of light of varying wavelengths, so the various letters of LGBTQ+ distinguish apparent differences of kind that emerge from differences of degree, but all within the same category: there is a *literal* rainbow of apparent colors made possible by light and its varying wavelengths, and a *metaphorical* rainbow of sexualities made possible by a general potentiality of human sexuality to vary its expressions. Any strict distinction between colors—*is this really red and not orange?*—or any attempt to fix colors as if they were squares in a paint box or starkly symbolic traffic lights misses the very nature of light and color: what appears to the eye as differences *between* one color and another is possible because of light's differing wavelengths, and—in the case of the rainbow—different angles of deviation as light refracts through droplets of water. Something as real, material, distinct, and timeless as “a” color in a rainbow is composed from wavelengths, angles of deviation between incoming light from the sun, and the refracted rays directed to the observer's eyes. The real and distinct differences among colors are both human and inhuman. Requiring the human eye to be realized (or actualized), the rainbow appears as an arc of colors because of a suspension of water droplets and a specific range of angles of deviation (40–42 degrees) relative to the original path of light from the sun. To return to the *metaphor* of the rainbow for human sexuality: humans appear as different kinds, but just as differences among rainbow colors require multiple interacting factors of wavelength, angles of deviation, suspension of water droplets, and perceiving organisms, so differences of sexuality are made possible by relations to other bodies, compartments to one's own body, hormones and their fluctuations, and possibilities of perception. It is this latter factor—as the eye to the rainbow, so the individual to sexual difference—that puts pressure on the rainbow as a metaphor. If the first way of reading the rainbow as metaphor is to see different colors *as* different sexualities, then the choice of the rainbow is handy but arbitrary. The second way of reading the rainbow as metaphor takes seriously the reality of the rainbow and the physics of light: just as rainbow colors emerge from light waves that are dispersed and perceived at quantifiable angles, so human sexuality emerges as different embodiments of something like sexual or biological materiality.

Given the political and commercial importance of rainbow merchandise, it is worth asking about what the circulation of this symbol achieves in a general comportment or “affective ideology” of diversity. (Here I refer to John Protevi’s argument that ideology is not reducible to what we believe or conceptualize but also patterns of affect that are generated and intensified in social relations.)¹⁰ What work does the rainbow do? Are we comparing two real and human/inhuman realities—wavelengths apprehended by the eye alongside sexual differences apprehended by the person—or is one a material and real actualization (the rainbow emerging from light, water, and potentialities for dispersion and refraction) while difference is a cultural and purely expressive or semiotic difference?

Why does *this* question matter? I have already suggested one answer: if we take the metaphor *literally*, then we are positing a single humanity (like white light) that is actualized in different expressions. The potential for difference would depend on the material and real force of light before it is perceived as a rainbow; the rainbow is diverse but not branching out into what could not be recognized as a color. And would we say the same of humanity: that it has a single substrate that can vary, while nevertheless remaining limited by a substrate of the same? Making this more acute again: would we say in terms of sexual difference, that it can vary *but there are physical and real causes of those differences and you cannot just make it be what you want it to be*? This is how “materiality” has come to be mobilized by certain forms of feminism that want to recognize difference but become very upset if difference starts to go rogue and break away from its (supposedly undeniable binary difference-producing ground).¹¹ Here, the spectrum of the rainbow stands as difference subtended by real differences—you can, and should, be different, but mind your difference, know your difference, and don’t encroach on women’s difference. To unpack the metaphor: just as the rainbow expresses the quantitative differences that are existent in light waves (but just not apparent), so humans are sexually differentiated as expressions of their material being. That is quite different from saying that just as light waves, dispersion, and angles of deviation create apparent colors so one might see difference among humans as expressions of an unperceivable difference-generating force. The first rainbow metaphor likens one material-perceivable couplet to another: light waves are to colors as biology is to sexuality. The material and real precede the differentiated and phenomenal. The second rainbow metaphor takes difference and the phenomenal—actualized difference—to be the outcome of an immaterial or virtual power *to differ*. Here, one does not liken biology to white light (material forms that express perceivable

difference) but rather sees white light as the metaphor for that which will appear as differentiated into simple forms generated from the far more complex, multiple, immaterial, imperceptible force for difference. One mapping of the rainbow metaphor compares one actuality to another (white light to biology, color spectrum to sexual difference); the other rainbow metaphor compares the virtual to the actual: the array of sexual difference is the actualization of a potentiality to differ that cannot be grasped in itself. The first rainbow metaphor ties one thing in the world to another thing in the world: sex is to gender as white light is to rainbows. Sexes and orientations are on a spectrum and different in degree, but nevertheless grounded in actuality. The second rainbow metaphor asks us to imagine the world that we see as differentiated into distinct qualities as the visible and experienced outcome of that which our everyday vision is incapable of grasping; there might be a sexual difference beyond the rainbow.

The issue is black and white: either you think sexual differences are grounded in a quantifiable reality *or* you see the range of sexual difference as but one possible actualization of a potentiality that may be beyond sexuality. It is possible that the rainbow *as metaphor* of difference generated from the same has occluded a prior symbolic and material reality. In rainbow humanism, each person expresses themselves through their own sexuality, each of “us” happily exists alongside others *who are deep down just like me*. Rainbow humanism requires the prior production of human whiteness: each one of us as a private, familial, and self-aware subject. Without the geopolitical racialized industries that generated the human by way of anti-blackness, you don’t get rainbow humanism. There’s a stark difference between the rainbow as metaphor of an underlying sameness (occluding the antagonism of anti-blackness) and the rainbow as metaphor for an actualization of forces that are inhuman, beyond white light, and radically virtual.

The rainbow is not one metaphor among others, but stands as a mind-bending or mind-surpassing metaphor for metaphor, and for difference or the *reality* of difference. If the rainbow is a trope for sexual difference, is this because metaphors allow what is real and concrete to make sense of what is virtual and immaterial? The colors of the rainbow would be arbitrarily related to human sexuality, and one might have imagined other symbols for diversity: children’s tales and myths employ different animalities to mark out human traits (the fox, the tortoise, the snake, the bird); the world of sports deploys animal figures (Eagles versus Lions); school teams, clubs, businesses use colors as often as they use symbols (Apple, Twitter, X). Pick any system of differences to mark out a terrain, or to mark out your own person: clothing, tattoos, piercings, face-painting, or

weaving/braiding/cutting/coloring hair. The metaphor of the rainbow is just one of many relational differences that can mark out *and* compose other differences: in Britain red stands for left wing while blue stands for conservative, while in the United States, the Democrats are blue and the Republicans are red (leaving aside for now the apparently motivated, rather than arbitrary, status of Green parties). If one thinks of the apparent rainbow as a symbol of differences among kinds, with the Pride symbol of the rainbow adopting this spectrum because it's easier to have flags and doormats of colors rather than various animals (or trees), then the metaphor would also be in accord with what Bruno Latour has referred to as composition.¹² Colors are real, but the ways in which we mark their differences are not. The rainbow is really and materially a spectrum of differences, but where "we" cut into and mark (or differentiate) those differences is a complex, dynamic, and multiple process.

The Difference That Difference Makes

When I was being taught structuralism as an undergraduate in the 1980s, it was a commonplace to note the large number of words the Inuit had for snow (perceiving differences more acutely) and the capacity for early Celtic languages to mark out differences of hue.¹³ This was usually taken as an example of social construction, as though differences were imposed over a nature or reality that one could never know in itself. That is one way of thinking about the rainbow as metaphor and example: we do not see light waves, but we do see different colors, *and* we see those colors "as" conceptually distinguished because of the languages we speak. The waves of light are real, with colors as their phenomenal apprehension; these colors might be granted cultural sense and distinction. In a similar manner, the differences among sexualities and genders result from a biological/genetic substrate that is apprehended in the form of the sexualized body, that is then granted social and cultural sense and difference. The rainbow is a metaphor of metaphor, with the real waves of light and apprehension of light waves and dispersions as color being akin to the real of the world or life in general: just as light waves are perceived as colors, and then granted cultural sense, so the material substrate of reality is experienced *as* a series of stable things and properties that we then live as meaningful (Figure 3.1). The rainbow itself would be a matter-perception complex that could then be a metaphor for human diversity or other cultural ascriptions (the rainbow as metaphor for

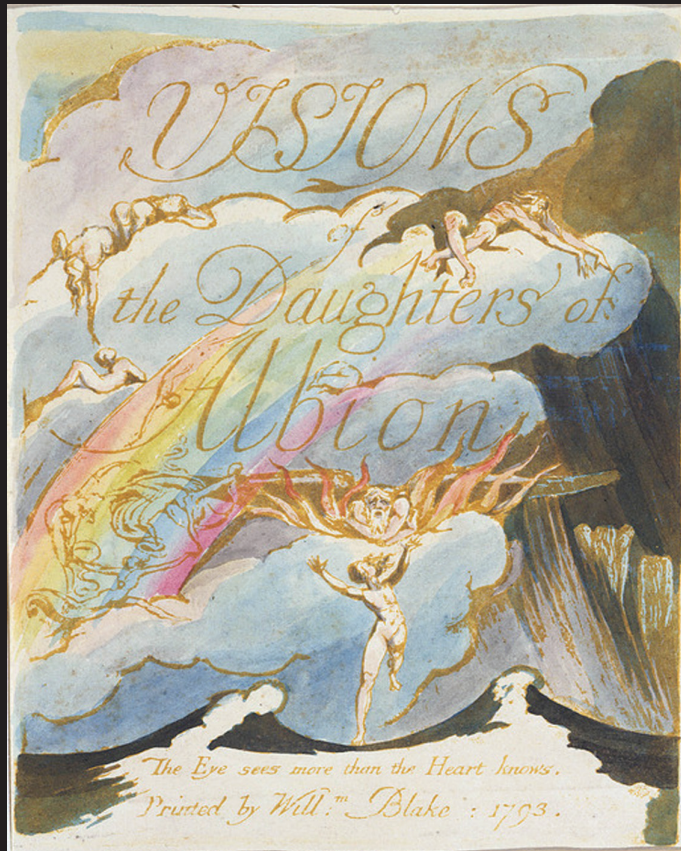


Figure 3.1 VISIONS of the Daughters of Albion, Object 1 (Bentley 2, Erdman ii, Keynes ii), 16.3 × 12.9 cm. © The William Blake Archive.

the Christian God’s covenant with humanity). The material-perceivable would be pre-political and productive of “the human”: there are waves of light, and capacities for dispersion that—in relation to the human eye—enable organisms capable of vision, and all its accompanying capacities (reading, painting, synesthesia). In a similar manner, we might say that there are molecular forces that bring sexed bodies into being, and this in turn enables a whole series of human relations—reproduction, coupling, familial forms—that in turn take on political and cultural sense.

So what are the political and cultural senses of the rainbow as a metaphor, *and* what happens when the rainbow metaphor is challenged from a queer rather than “Pride” point of view? If Pride marketing produces us all as apparently

different but deep down the same, and allows rainbows to affirm a single and neighborly humanity, it does so by taking the rainbow metaphor as a way of thinking about reality in general. A queer rainbow would include the storms, eclipses, climate catastrophes, and immaterial forces that accompany and always exist and insist over the rainbow.

Wavelength: 400–700 nm+ | Color: White

White • Rot

Amanda Boetzkes

If we try to think color from a scientific perspective, “white” glares through the numbers and units by which it is identified. In physics, white light is the sum of seven colors; it therefore does not have a singular wavelength number but rather exists as a range. However, such a seemingly plural (non) identity leaves “white” unspoken in terms of its significance in the history of racial oppression in humans, and the organization of living beings according to biopolitical nomenclatures that classify their external coverings, like skin, fur, flesh, and carapaces. The question becomes, how might we think about white without succumbing to the temptation to see it as a neutral totality of colors whose biopolitical valence is so easily overlooked as a mere adjacency? For white has been, and continues to be, weaponized. Its biopolitical mobilization upsets the universal account of color presumed by physical sciences of light.

White and Its Rotten Double

It would be negligent to consider the destiny of white in or for a spectral future without addressing its appearance in a cluster of biopolitical associations that haunt our present: white oppression, white privilege, white knights, white settlers . . . The list is enough to turn anyone’s stomach.

It is not surprising that in *The Theater and Its Double*, a transcultural account of theater in its dialectical relation to the cruel rigors of real life, Antonin Artaud parlayed a notion of white civilization by connecting it to the colors of rotting skin, heat, and putrefaction. White, he writes, “has become the mark of extreme decomposition.”¹ Here, white is a totality, but it is also the antithesis of an ideal

subject or people, let alone a purity. To such racist tendencies, Artaud maintains, “. . . we are ignorant of the fact that anywhere but in Europe it is we whites who ‘smell bad.’”² White holds within itself the conditions of radical excess; indeed, it is the rot of “real life” writ large. It is not the color of skin but of pus that issues from infection. It is an encompassing multisensorial phenomenon that gestures to the fundamental incompleteness of universal terms. White is antimodernist, in the sense that it refuses to be either singularly optical, tactile, or sonic but is instead all of these at once.

In his insightful reading of *Dulle Griet* (1563), a painting by Pieter Bruegel the Elder, Artaud positions white as a spotlight for the anarchy of life and death, and the decay at their meeting point (Figure 4.1). It is both the condition of visibility and that which brings visibility to its limit. The painting is a homage to the panel devoted to hell on Hieronymus Bosch’s *Garden of Earthly Delights* altarpiece (1510). Bruegel captures a scene of Mad Meg (*Dulle Griet*), a virago character from Flemish folklore who, possessed by masculine energies, spurs an army of women to storm the mouth of hell seeking to pillage it. Griet is an excessive figure, not only because she is animated by male strength, courage, and aggression, but also insofar as she is driven by moral folly. She is already weighted



Figure 4.1 Pieter Bruegel the Elder, *Dulle Griet*, 1563, oil on panel, 115 × 161 cm. Museum Mayer van den Bergh.

down with a bundle, a basket, and a cauldron teeming with possessions, yet she pushes onward in search of more plunder, all the way to the throngs of hell. What better image of the doubling of life by theater?

As Artaud describes, the theater swarms in all directions in this painting. A torrential red light surges up from all sides, captivating the viewers' eyes and gluing them to the distributed points of white, focusing on scenes in which domestic life collides with its fantastical counterpart: Griet's bundle, the aprons, and headscarves of the women become contiguous with the egg-like forms that hatch ever more monsters. Whiter still is the subtle reflection on the near transparent bubble at the center-right of the canvas, a flourish that dilates the perspective of the structure in the background. "Real life is moving and white; the hidden life is livid and fixed," Artaud posits.³

In the dialectic between the theater and its double, white limits the conditions of visibility between what we see of life and the swarming rot that lies beneath the visible as its hidden affordance. White is not a pure contrast to color; it is akin to a high-pitched screech, the glare of the eyes' sclera, the horizon from which seep the colors of bruised skin. In Breugel's painting, it does not so much illuminate from above as it cuts a line along the periphery of the irradiations of red that exude from the gates of hell. White carries a "double sense." It is a jagged edge of perception that sutures together the paradoxes of theatrical appearance and reality: "... beyond its purely pictorial qualities, [it] discloses a message and reveals mysterious or terrible aspects of nature and mind alike."⁴

Following Artaud, I wish to suggest that white is both fundamental to thinking and that which supplements thought with its own perception. White puts swarms of images into mind as real appearances of life; it is the agent of the *mise-en-scène* of consciousness. Needless to say, it does not belong to anyone: not to a people, nor a species; neither to a social organization nor to observable phenomena. White exceeds such biopolitical frameworks even as it conditions these very strictures.

White on White: The Tabula Rasa and Its Supplement

If white frames the biopolitical and unlimits that very frame, with all its connotations of racial purity, the illumination of science and philosophy, moral redemption, how can we proceed with any statement about white for the spectral

future? We might consider going “into the white” as art historian Christopher Heuer suggests in his book of that title about European exploration in the Renaissance.⁵ Explorers approached the Arctic as a nonsite, an inhospitable frozen environment that put them in jeopardy and refuted their imposition of figuration and form as they attempted to map their knowledge onto it. Heuer argues that the white of the Arctic in the sixteenth century was related to the iconoclasm and “whitewashing” of churches during the Protestant Reformation, as well as the trope of the Arctic’s formlessness at a time when central perspective was at a crucial stage of theorization alongside anamorphosis. The Arctic, he suggests, was not imagined as a place but as a mode of disappearance and reappearance.⁶ The agent of this movement, we might add, was white.

As the Arctic took on the projections of a Eurocentric white—a white that was always engaged with its own idealization as a heavenly illumination, an intellectual clarity, and a moral purity—the complexity of Arctic weather systems threw such idealizations into conflict. But these conflicts also tempered white; the heterogeneity of icebergs, snow, fog, and blizzards in the Arctic would suggest that white itself was a mythology that, rather than being the final word to blank out visible differences, became an operational force to be weathered. The white of the Arctic became the (non) color of the wilderness, generating an anarchical surfeit of images, figures, and forms. So powerful was its utopian trajectory that the Russian painter Kazimir Malevich had to supplement white with itself, to execute a painting that was *White on White*. To enter “into the white” must therefore be understood as an entry into a fundamental problem of ontology and appearance: white cannot exist without itself as its own ideal ground. But this ground is an aporia in the atmosphere of perception.

The Savagery of White Death-Worlds

Contemporary understandings of climate change and its effects on the Arctic, particularly glacier melt, strongly valence Heuer’s account of European aesthetics of white. But as Renaissance scholar Peter Davidson suggests, even in the sixteenth century, Europe was impacted by the Indigenous cultures of the Arctic in ways that tempered the white sensibility of exploration, not to mention the lively winter cultures that generated snow poetry, verse, and landscapes in Northern Europe over the course of the Little Ice Age.⁷ The European cultures of

white would suggest that it was invoked to refute the governance of ideal forms of knowledge rather than to produce neutral totalities.

While white was textured as it carried the associations of climate change at play in Early Modern Europe, this does not explain why it functioned as a schema of cultural and ethnic erasure as its utopian implications unfolded. We might say that white became the color by which to clear the ground of consciousness of the many epistemological, ontological, and ecological differences Arctic exploration yielded. Powered by its position as the privileged color of the *tabula rasa*, white became essential to the scientific and military cultures that started producing knowledge from Arctic exploration and meditations on global weather. As enchanted as they were with the Inuit, Europeans nevertheless mobilized white as a totality, a color of inarticulable difference: the “wilderness” of the Arctic that can only be expressed as an unpeopled spatial territory. The Inuit and Sami were selectively displaced and then re-implaced by the governments of the United States, Canada, Scandinavia, and Russia. As the pressures of the Cold War mounted, southern knowledge of the Arctic did not carry forward the polychromy and plasticity of textures, sounds, and other environmental sensoria so vital in Inuit cultures. White was an extension of European epistemology, a substructural instrument that threaded itself through the processes of remapping and re-envisioning the world in accordance with global conflict. Which is to say that white was voided of its status as a color, becoming instead a silent pretense for a new order of knowledge aligned with the Eurocentric hierarchy of race, for which it was both the foundation and the pinnacle. White was positioned as the chromatic equivalent of a late modern chaos: both a fiction and a weapon of colonial techniques of civilization. It became the color of apocalypse par excellence, for which a redemption must be brought by way of white imperialism.

In this respect, we can consider Achille Mbembe’s argument that colonies are spatial zones of exception, ruled by necropolitical lawlessness as much as they are disciplined into biopolitical order.⁹ Occupation is an exercise in overwriting spatial and social relations so that colonized zones are violated and brutalized in the service of civilization. The dialectical opposite of the colonial nation-state, these zones are imagined as frontiers to the unthought, generating fantasies of wilderness and death. Such fantasies are rife with the sadistic hostility of the colonizer, animated as they are by the struggle between life and death, consciousness and non-consciousness. Further, the colonial fantasy nullifies the people to whom such lands belong: they become extensions of the reterritorialized zone, the “death-worlds” of the occupying forces. But they are nevertheless unthinkable as endowed with human consciousness themselves.

They become a form of “savage life” that naturally extends from this fictional wilderness.⁹

It is this positioning of people in an unthinkable zone—what we might characterize, following Mbembe, as a *white death-world*—that primes them to appear as nothing more than phantoms in the minds of the colonizers. In this way, the Arctic and the Inuit have had to resist the projections of white onto their lands and navigate the fictional terrains produced by the necropolitical machinations of the Cold War. As much as Europe, North America, and Russia have been in hot pursuit of white, then, they must contend with the counter-reality that the Arctic has never been white. That designation discloses a necropolitical drive to induce a chaos that must be regulated by the late modern colonial occupation.

To consider white as colored by a necropolitical drive is, in effect, to return to Artaud’s reflections which situate it at the meeting point of life and rot, as the very appearance of their overlap. It is an excessive appearance that discloses their co-implantation; white pollutes color and is a symptom of its own necrotic effect on it. But while Artaud’s positioning of white is committed to his dialectical understanding of the movement between visible theater and invisible reality (or their reversal and resolution as the invisible theater nested within apparent reality), Mbembe’s reading of necropower as threaded through, and importantly, as *instrumental* to biopolitical cultures, invites us to read white not only through the coincidence of its appearance with other colors, but through the insidious operational force by which it occupies and prefaces the pluralism of the sensory experience of color. Accordingly, we might read white as the color of bone, as the mineralized sediment of all living beings (across the categorizations of race and species) and as that which discloses the hypostasis of white death-worlds.

Bone White

For Martin Heidegger, gray is the color of the everyday, associated with the boredom that precedes consciousness.¹⁰ Could we conjecture from this that white is the color the seeps in at the end of thinking? It is not just the color of privileged skin tainted by its own decomposition, as per Artaud, but also the gleam of bone that peeks out from within its fleshy casing. White discloses

the materialization of consciousness at the terminus of enfleshment, as the calcification of the biopolitical subject. The white of bone, then, is the color of an imperial death-world that is unfolding as global climate change. Such a thought is inspired by Hegel's reflection that the Being of Spirit is a bone.¹¹ But from this mobilization, we must understand that bone sits both at the end of Spirit and at the dawn of its renewed emergence.

With an insightful flourish, Mbembe describes the petrified skeletons of those whose lives were lost during the Rwandan genocide. There is no *ataraxia* to these bones, he writes, for they stubbornly reject death and seem to have a will to mean.¹² The bones that jut out from the wounds of the late modern colony are the same as those interred in the histories of slavery and genocide. They do not remain still but resist through their uncanny appearance. They resonate with the wounds of amputation and torture, the "morbid spectacle of severing" that characterizes contemporary tactics of late modern colonialism: the shattering of bodily integrity from land mines, the weaponization of urban infrastructure, suicide bombs, and environmental poisons that mark the bodies of victims with a concatenation of power: the disciplinary regime of slavery, the biopolitical regime of life, and the necropolitical regime of death that subtends life. The bones of today's death-worlds are not mute. Their whiteness shines through the impassivity, inexpression, and stoicism of the slave masters who do not see, perceive, or experience those "savage" lives they enslave as capable of consciousness. The whiteness of bone pierces through the blank faces, facades, and economic substructures of white death-worlds.

If the white of bone can be said to be capable of such a tiger's leap through history, however, it must also warn us that the bones of necropolitics could nevertheless be used as an affective prosthesis to leverage a retraction of consciousness back to the underpinnings of biopolitical crises. The sight of bone triggers panic and fear, not only in the face of death as such but in the face of total extinctions from climate change.

If, as Mbembe suggests, bone does not merely signify death as a limit, but a persistence of death in and through the living, then we could say that white in a necropolitical regime is a hinge between the two; it has a binding effect and a sticky affect. Bone gleams through racialized flesh; its whiteness sits like a sliver in the bodies of the living, an injury that exhausts and weakens all biopolitical subjects, rather than breaking free of the decaying consciousness that clings to it. How might we properly flay this subject to reveal the essence of contemporary whiteness and its claim on biopolitical life, then?

Oil and Amulets—The Spectral Future of White

In his account of climate change as a “hyperobject,” Timothy Morton proposes that we might imagine the planetary future as a limitless charnel ground from which there is no return to the boundaries that distinguish life from death.¹³ We coexist with beings past and future in the massive distribution of climate change effects, and thus we might think about the relations between living beings in their future afterlife. The charnel house is not merely a metaphor but a materialist scene, an archaeology of the living-dead ecologies white humans, among others, have created. To situate the living, the planet, and its ecologies in a charnel house is to ally ourselves with those dead, to acknowledge ourselves as the future dead, and to think ourselves from the perspective of those living who persist into the necropolitical future. The charnel house, the planetary future, transgresses biopolitical frameworks of existence and consciousness, threading the descendants of white death-worlds together with its phantoms. But in this reconceptualization of the future, is there justice for the restless bones, a restitution of their spectrality?

Insofar as the white of the Arctic is a reconfiguration of its meaningfulness as a *tabula rasa* (and a chaos) on which to build the European imperial imaginary, we might also consider that the future as such is colored by the dissolution of this formulation of white into atmosphere. The white of frozen Arctic landscapes has dissolved into the blue of the ocean sciences and humanities (that measure the changing temperatures of the planet’s waterways and creatures), as well as the green of environmental activist groups (like Greenpeace), or the glow of yellowcake as uranium continues to be extracted, refined, and marketed as an energy alternative to oil. What climate change shows us is that the white of the Arctic was merely a theatrical appearance imposed by Europeans on land that was otherwise occupied by the Inuit, Aleut, Sámi, Yupik, Chukchi, and before them (in the West) the Thule, the Dorset, and so forth. But the history of white in its coevolution with the Arctic will persist long into the planetary future. Like a jagged tooth, white sticks out of the Arctic, disclosing the roots of climate change in the cavernous mouth of colonial expansion and resource extractivism.

Teeth, however, can be molded, as can bone. If loosened from their joinery, the calcified sediments of human and animal bodies could be shaped into tools that restitch the ecology of the white Arctic into a new appearance of the future. White cannot be divested of its material history, but it can be displaced from its social position as a totality that holds all color, as a purity of light against which

the spectrum defines itself. It must be experienced for the shadows it has created; the specters that haunt it. This is not to suggest the recourse to the tired binary of black and white, but rather to see other lines of division and suture such as oil and bone, as the contemporary Greenlandic artist Jessie Kleemann proposes (Figures 4.2, 4.3, and 4.4).

Creating performances and installations, Kleemann has become a key global artist, renowned for expressing the cultural dimensions of decolonization in Greenland. Though still often considered a part of the Danish realm, Greenland achieved Home Rule in 2009 and today exists as the largest sovereign Indigenous (Inuit) territory. However, as an Arctic nation, the ecologies of Greenland are subject to the intensified effects of climate change, particularly the unprecedented levels of glacier melt from the Greenland Ice Sheet and rising temperatures of the Arctic and Atlantic oceans, all of which transform the habitats of sea mammals. Moreover, Greenland's deposits of rare earth elements have become a focal point for global multinationals that want to mine them and market energy transition commodities at a time when many countries are seeking to divest themselves of their dependency on oil and reach carbon emission targets. Yet corporate geospeculation proposals frequently obscure the environmental effects of their mining endeavors. Greenland's future therefore constellates the pressures of



Figure 4.2 Jessie Kleemann, *Oil and Amulets*, three-part installation, 2019. Photograph by Jakob Skou Hansen. © Jessie Kleemann.



Figure 4.3 Jessie Kleemann, *don't touch me*, three-part installation, 2019. Photograph by Jakob Skou Hansen. © Jessie Kleemann.

global climate change, the political challenges of decolonization, and one might say, an emergent culture that holds the potential for a redistribution of a color spectrum held hostage by the history of colonialist extractivism.

Kleemann captures this triangulation of ecology, decolonial politics, and aesthetics in a three-part installation from 2019 titled (for each of its parts in turn), *don't touch me*; *oil and amulets*; *without consent—with consent*. The installation was a response to the outlandish statement made by former US president Donald Trump that he was considering buying Greenland, as though it were a proverbial small island available for purchase like so much real estate. Kleemann's work recasts the statement (and the Greenlandic response to it) in the gender, sexual, and colonial terms that underpin it. If Trump's asinine



Figure 4.4 Jessie Kleemann, without consent—with consent, three-part installation, 2019. Photograph by Jakob Skou Hansen. © Jessie Kleemann.

comment positions Greenland and its people as exchangeable property and harvestable land, Kleemann answers back with whale and walrus teeth, seal claws, and cow bone. Each of the parts is one of a black, three-piece bathing suit: the first, bikini bottoms in which a cluster of beluga teeth were sewn with silver thread into the gusset, suggesting the metamorphosis of female genitalia into a whale mouth, an especially Greenlandic *vagina dentata* that deflates the implicit sexual aggression of Trump's imperialist troll. *Oil and amulets* threads sea mammal teeth, claws, and carved bone amulets into the black fabric of the bikini top. Greenlandic Inuit sewed carved amulets such as these into the seams of their clothing and kayaks to ward off evil spirits, illness, and also to bring luck and safety to hunters who weathered unpredictable conditions. Here, the black fabric captures the new environmental dangers of climate change, which stems from the hegemony of oil nations.

The interweaving of Greenlandic cultural resistance and the “oily” fabric is recapitulated as a deadlock of consent with the third piece, referring to the discourse of sexual consent and the consent of Indigenous peoples required by law to engage in resource extraction. As Kleemann suggests, within the terms of white male supremacy and extractivist colonial history, consent as such is always already leveraged (and therefore not freely given) from the political

resistance to the discursive framework in which it is ensconced. And yet through the associative play of white bone against black oil, the protective amulets and animal forces threaded into the eroticized clothing, the toothy resistance against the slippery surfaces of the fabric, the work deploys mineralized sediments to gain some traction from within the antinomies presupposed by Trump's power-mongering statement.

Reading bone and climate change together, the vitalism of Inuit culture with the Arctic death-world generated by dirty oil, eroticized female Inuit with rapacious American imperialism, white is no longer the pinnacle and platform of European order but rather is reclaimed as a lively sediment that protects the future by projecting out of its biopolitical strictures.

Wavelength: 420–700 nm | Color: Sodium-Silver | Blank Screens and Spectral Skies

Hong Kong as a Postcolonial Locus of Transnational Asian Futures

Dawn Chan

Each evening, the sky glows brightly incomprehensible above Hong Kong's harbor: atmosphere illuminated by the spectral detritus of LED signage and skyscraper facades below. Looking up at this television sky yields an odd, contradictory set of affective experiences bordering on the kinetic. An upward gaze simultaneously conjures the sensation of a forward lunge and a downward fall: a Star Wars–like propulsion into hyperdrive and an Alice-like tumble into a rabbit hole. You might describe it as the sensation of motion without bearings. Or of retinal dazzle: an effulgence of lightning, sustained like a fermata, confusing as a glitch.

There are breaks in the city's perpetual illumination, though rare. For a one-hour stretch each year, in a conservationist gesture, the lit-up facades of skyscrapers along the harbor power off.¹ While the amount of energy saved by this exercise may be negligible compared to what is expended each year, this pause might achieve certain goals, insofar as the disabling of an immersive, large-scale phantasmagoria, usually taken for granted, renders its operations (and their resulting ecological costs) momentarily visible upon being restored.

When William Gibson, in *Neuromancer*, famously described the sky above a port being “the color of television, tuned to a dead channel,” his sentence—which launched a generation of readers into the technologically mediated reality of *Neuromancer*'s drug-addled protagonist—became referenced almost as a metonym for the poetic possibilities of the cyberpunk genre itself. But the metaphor puzzled readers too, as each iteration of televisual form replaced the

next. What exactly was the color of a dead channel? Would it be the deep black of an early home computer terminal? Or the bright blue screen of a TV with no signal?

By 2004, Gibson offered clarification. “I’d actually composed that first image with the black-and-white video-static of my childhood in mind,” he wrote, “sodium-silvery and almost painful.”² Those who encountered CRT TVs will remember it: the snowstorm-like marl of formless, miasmatic noise that gave way to the enchantments of signal with a turn of the dial.

Gibson’s metaphor still lands with force partly because we intuit that his sodium-silver isn’t quite a color, even. Or it is not merely a color but also movement and trace; noise that lets the possibility of adjacent signals slip in. Could the sodium-silver in question start to approach either the transparent white or luminous gray that Wittgenstein thought impossible? How similar could it be to the visual phenomenon of *ch’ixi*, the Indigenous Aymaran term that Silvia Rivera Cusicanqui describes as a stippling of “opposed or contrasting colors . . . confused by perception, without ever being completely mixed”?³

Is the updated equivalent of the cathode-ray tube’s sodium-silver hue, now, a bluer, colder tint as emitted by the LCD displays of digital devices? More importantly, as the meaning and color of a blank screen evolves with technology, one wonders how the indeterminacy of sodium silver might sustain a metaphoric mode that makes space for the contradictions of places where the imagining of an urban postcolonial future leads to such wide-ranging affective responses—from shock to joy to indifference—among its inhabitants that the exercise would seem to defy the pat global decolonization narratives currently in vogue.

Hong Kong as Case Setting

Drawing analogies between skyglow, screens, and dreams, the open-ended meditation that follows will leverage the practices of several contemporary artists to examine a transnational subjectivity mediated by Hong Kong’s unsettled postcolonial relationships to the future. As such, Hong Kong functions here more as a case setting than a case study. What the present methodology did not entail was a search—for an urban Asian city whose lit-up skyline most loudly announces its status as a hyper-accelerated futuristic metropolis—that wended its way to Hong Kong. That would play into the easier reading of a city’s postcard-ready façade, when reality is more complicated.⁴ If anything, the

converse took place: a search for an analogic framework that might limn Hong Kong's grapplings with postcolonial identity, which led to the possibilities hinted at by the sodium-silver hue of both our glowing screens and nighttime skies.

If not the go-to metonym for the urban Asian metropolis, Hong Kong nonetheless haunts global archetypes of the Pacific Rim port city—contemporary instances of which bear the peculiarity of individual histories even while careening toward what Rem Koolhaas has alleged to be an urban “genericism.”⁵ In the congruences found between these cities—whether Beijing, Hong Kong, Manila, Jakarta, Seoul, Singapore, Taipei, or Tokyo—one quickly locates forces in common: tensions borne by population density and urban renewal initiatives; entanglements with multinational corporate interests; looming climate crisis that promises both extreme weather and excess water. (One more aspect of Hong Kong found in too many other Asia Pacific cities: the relative undertheorization of race and heterogeneous local diasporas in public discourse. The presence of diverse ethnicities—from the Nepali descendants of Gurkha soldiers to Malian businesspeople in Tsim Sha Tsui to domestic workers from the Philippines—can often end up markedly erased in Hong Kong, or expressed rhapsodically in terms of the city's gastronomical offerings.)

But in searching for a case setting, Hong Kong is perhaps more useful in the anomalousness of its unique position in relation to decoloniality and the future. Worth noting in analyses of Japan's influence on cyberpunk (*Neuromancer* itself opens in Chiba City) is the nation's history as a colonizing rather than colonized entity—a history that must inflect our readings of cyberpunk's dystopian-noir world-building in which corporatized Japan's scope of influence is often depicted as extending beyond recognizable contemporary borders. Unlike Japan—where any perceived waning in its influence on a global geopolitical stage after the 1980s is typically traced along a purely economic or demographic postwar arc rather than a postcolonial one—Hong Kong has a singular history which involves its handover from Britain to China in 1997, and China's promise to govern it as “One Country, Two Systems” until 2047.

Indeed, Hong Kong's postcolonial future has been shaped by a promise: made and executed by those in power; inspiring a whole host of feelings among the territory's subjects; and carried out according to a protracted timeline that has inscribed expressions of cultural or even political identity into the long arc of a waiting game. But what lies at the terminus of that wait? The author and scholar Tammy Ho Lai-Ming seems to see a science fiction, whose premise—a “what-if” scenario—is a city under Chinese authority, on the one hand, with significant

autonomy, on the other.⁶ But whatever the wait may lead to, as scholar Helena Wu clarifies, the context of Hong Kong reveals that “decolonization is not an auto-mechanism, nor does it follow one specific formula subsequent to the annulment of one’s colonial status.”⁷

Skyglow as Spectral Trace

Where once, the East may have been construed elsewhere as a continuous horizon of approach associated with daybreak and anteriority, the hyper-modernization of major cities, in East Asia at least, has created a sequence of discrete, metropolitan topographies, where visual fragmentation takes the form of billboards, screens, hallway nightlights, and skyglow. From the very beginning, articulations of the East have been etymologically linked to the phenomenon of sunrise, with the “Orient” emerging from *oriens*, or Latin for rising. Endless artificial illumination, however, calls that notional linkage into further question.

With the advent of gas lights in 1807 in London’s West End, the twenty-four-hour workday and the idea of nightlife were suddenly made possible.⁸ (As we know, a generation of poets and thinkers observed the changes brought on by what Emile Zola called “l’heure du gaz.”) As electric lighting proliferated next, so too did rapid shifts in the conception of discrete, regionally located futurities. Entire cities were pronounced to never sleep. Meanwhile, catchphrases about futurity took on a popularized formula of grammatical equivalency: “The future is X,” where X functions not only as a descriptive predicate but as a flavor glossing unknown temporalities. One such formulation will likely be familiar: “The future is electric.” With this electrified future came shifts in geographic sovereignty over the diurnal cycle. For example, the architectural critic Douglas Haskell wrote from America in 1931, “We get the night, the Europeans get the day . . . here is modernism indeed!”¹⁰ Whether or not his assessment rings true, it spoke to the sense that artificial light opened up a redistribution and rejuvelling of regional claims to relative temporalities.

What of the Far East amid such shifts, and its timeworn framing as a horizon of daybreak? Perhaps the disruptions brought on by artificial night presaged a turn from (Saidian) Orientalism toward techno-Orientalism, the rise of which David Morley and Kevin Robins locate in the latter third of the twentieth century.¹¹ Within these new frameworks, East Asia’s role overseas as a future-facing vanguard could apparently be retained, but no longer as an expansive,

continuous site of daybreak so much as a sequence of cosmopolitan cities whose round-the-clock lighting performed the ability to serve as seamless channels for the unceasing flows of global commerce. As Aihwa Ong put it, “Asian urban skylines advertise their own city brand of can-do-ism, providing a visual and infrastructural attraction that draws international actors, capital, and information and cultural flows to the city.”¹² And how better to prove an infrastructural attraction’s worth than to emerge as a global titleholder: Hong Kong is in the *Guinness Book of World Records* as the site of the largest permanent light and sound show. The show in question—the “Symphony of Lights”—is a nightly, panoramic exposition, for which the facades of famous waterfront skyscrapers glow and flash in sync, boosted by floodlights and even lasers (Figure 5.1). But the flip side of Hong Kong’s electric skyline is its flirtation with another title, in 2013, as site of the world’s worst light pollution. (It has since been surpassed by cities like Singapore.) One CNN article on Hong Kong’s extreme skyglow described “shopping precincts that are lit up like football stadiums and golf driving ranges that rise like daybreak on the horizon.”¹³

An environment seeming to transcend day and night: one would be hard-pressed to come up with a better way to track transnational subjectivity’s most basal affective states, which often go overlooked when explorations of transnationalism are framed in sociological or cultural-political terms. But a keen sense of existing outside local time zones can so often punctuate the transnational subject’s experience—whether she is sending family members a portion of her wages earned abroad while her employers sleep; or whether she is turning to blackout curtains, exercise, alarm clocks, and sky-gazing sessions as body hacks to surmount jet lag. It is no surprise that transnationalism (and its attendant parasomnias) is a subject taken up in artworks by Hong Kong artists of note. After all, transnationality is uniquely bound up in Hong Kong’s grappling with the possibility of self-interpellation. In his foundational interpretations of Hong Kong’s cultural histories, theorist Ackbar Abbas notes:

Hong Kong has up to quite recently been a city of transients. Much of the population was made up of refugees or expatriates who thought of Hong Kong as a temporary stop, no matter how long they stayed. The sense of the temporary is very strong, even if it can be entirely counterfactual. The city is not so much a place as a space of transit.¹⁴

Wong Kit-Yi, an artist who currently splits her time between Hong Kong and New York, created a humorous work in 2021 titled *Yes-Jet-Lag*, in which she

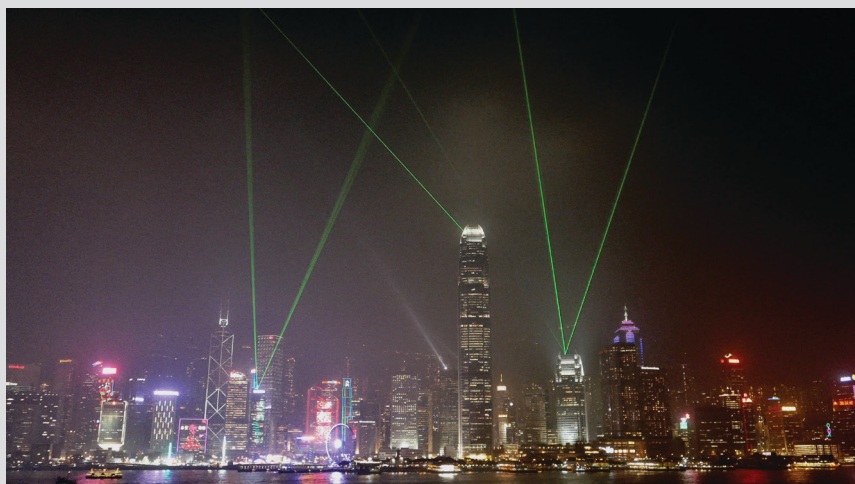


Figure 5.1 Symphony of Lights, Hong Kong Harbor. Photograph taken by Werner Bayer, April 7, 2017, Flickr. Accessed April 26, 2025, <https://www.flickr.com/photos/wbayercom/33766849551/>.

introduced a “jet-lag inducing patch”—designed as a product of the sort one might find on pharmacy shelves. During the pandemic lockdowns, those disconcerted by a new malaise brought on by disruptions in their usual patterns of international travel ostensibly now had a remedy that could “make them feel worse”—and thus back to normal. Also doing highly noteworthy work in the Hong Kong contemporary art scene, artist Christopher K. Ho exhibited a piece in 2018 recreating the interior of Flight CX 888, a classic red-eye flight run by Cathay Pacific that shuttled a generation of transnational Hong Kongers between Chek Lap Kok International Airport and Vancouver. Along a carpeted path modeling an airplane’s narrow central aisle, Ho adjusted pairs of chairs to mirror the recline of business-class seating. Here, it was suggested, a body’s angled repose might trace the degree to which it can enter a suspended state between dreaming and waking. The more horizontal its incline, the closer one approaches the privileges of full sleep.

* * *

Daybreak has long connoted a new state—the “child of morning” in the *Odyssey*—a clean slate, a fading of dreams (“for most people, a blank sheet of paper,” per Haruki Murakami¹⁵). The artificially lambent night carries few such connotations. If anything, atmospheric pollution and light refracted upward

serve as ephemeral remnant and record of activities below. As scholar Leo Ou-fan Lee notes:

At night, when the lights of the city cut through the obscuring smog, the harbor erupts in a panorama of color and movement. But the distant hills of the New Territories, once majestic on the horizon, are almost always invisible, shrouded in a gray-brown haze of pollution—part of the high price extracted by the Hong Kong miracle.¹⁶

The smoke emitted by certain phantasmagorical displays that drew Walter Benjamin's scrutiny seems to eerily prefigure the mechanisms of the city's spectral skyglow itself, with the magic lantern now throwing patterns upon a thick, settled smog. In turn, the connection between phantasmagoria and commodity grows all the more direct; rather than the likenesses of, say, an audience member's deceased aunt, specters projected into the ether are instead billboards, marquee signs, and the glowing traces of what Anna McCarthy terms ambient television, stationed where "commerce and bureaucracy, purpose and drift, routine and event interweave."¹⁷ The word 空 (*hūng* in Cantonese, *kōng* in Mandarin) has long referenced both air, blank spaces, and emptiness, even denoting the Buddhist conception of selfhood's ultimate absence. But here the emptiness of contemporary air is a constituted blankness—constituted by the visual cacophony of illuminated pollution.

Sky as Screen

In 1943, Bachelard pondered the failures that await poets striving to describe the sky. What inspired his considerations was the blue sky of a clear day—no easier to convey through words:

The poet's task is not to translate the color, but to make us dream the color. The blue sky is so simple that no one thinks he can oneirize it without materializing it. But this process of materialization sometimes goes too far. The blue sky is made too hard, too glaring, too searing, too compact, too burning, and too brilliant.¹⁸

But the too-glaring, too-searing, too-burning, and too-brilliant gives way to a more apt analogy in the contradictions borne by screens, which function, in Giuliana Bruno's words, as "a living environment of expression, transmission, and storage"¹⁹ while also bearing the "absorptive materiality of a permeable space

of luminous projections.”²⁰ Seeming to materialize such tensions, mixed-media artworks shown in 2018 by Lee Kit, an artist from Hong Kong currently based in Taiwan, seemed to relish juxtaposing panels of light and matter. Throughout his 2018 solo show at the Hara Museum of Contemporary Art, a former private residence in Japan, Lee used projectors to let hazy, deformed quadrangles of light slide onto walls, over placards, and upon fabric banners.²¹ At moments, these stretches of light could have been mistaken for soft sunlight streaming through various windows, but for a slight difference in hue. At moments, the projected light even loosely overlapped and illuminated these very windows, as if creating rectangular Venn diagrams, perhaps a play on art historian Anne Friedberg’s analyses of the paradigmatic shift from architectural to screen-based apertures.²²

As Lee Kit’s works poetically imply, a blank screen—however apparently devoid of content—poses a different sort of blankness than that of traditional media. Tanya Shilina-Conte traces the origins of the traditionally blank page to the history of inscription on marble and later paper, all of which allowed the white surface to bear associations to the *tabula rasa*.²³ Cinema reversed this; as a medium requiring light to be projected in a dimmed room, it led to the convention of white intertitles against a black ground. Writes Shilina-Conte, “In both cases, the foregrounded blank space either emphasizes the whiteness of the page that reflects light, or the blackness of the screen that absorbs light, heightening our consciousness of the medium.”²⁴

Indeed, an untouched canvas, per Deleuze, already bears the many virtual images that a painter holds in mind at the outset of beginning to work, such that their task is not to “cover a blank surface, but rather . . . to empty it out, clear it, clean it.”²⁵ But one difference in the materiality of the glowing silvery-white screen is that it constitutes not just a proliferation of images stored in the mind, but the actual accumulation of wavelengths, according to additive color theory. Furthermore, while the old television hinted at an adjacency of images, arrived at by a dial, digital screens offer something else, still similar: the adjacent pictures of browsing histories—a grid of products on an e-commerce site, say, that might even leave a shopper with retinal afterimages, upon navigating to the blank screen of an empty shopping cart. As Gibson’s metaphor reminds us, the color of the dead channel is one of oversaturation, not undersaturation, perhaps presaging N. Kathleen Hayles’s crucial point that the pre-information-age dialectic of absence and presence has been replaced by one of pattern and randomness.²⁶

It is worth returning to an early series of silver gelatin prints begun in 1978 by photographer Hiroshi Sugimoto that reveal the eerie, empty interiors of classic

movie theaters. In each image, a large screen dominates the center, appearing to glow blankly white. It turns out, though, that the artist created each photo by using a long exposure set to the duration of an entire film. While the results might appear to bear the fruits of a Minimalist approach, Sugimoto's process in effect embraced maximalism, for which the blown-out white screen—the silver halides of photographic paper left untouched—indexes a composite over time of all a film's frames. If any part of the screen were hypothetically a darker shade, that variation would tell a secret story of something cinematically left unsaid.

Like Sugimoto's blank screen, the blank sky too could be seen as an accretive record of effulgent handheld devices and commercial lighting from below: the fluorescents of double-decker trams and the purple-blue fish tanks glowing in storefront windows. Performing spectral analysis on Hong Kong's light pollution, geoinformatic researchers connected fluctuations in light intensities to a variety of factors ranging from household income to the goods and services delivered by businesses in commercial areas—the lighting of jewelry shops proving to be more glaring than the warm ambience of café lighting.²⁷ One might imagine a team of fictional scientists, with infinitely sensitive instruments, deriving—from the mere glimmer and flux of a sky—an absurdly vivid and granularly detailed narrative of life playing out below: where a red-light district had expanded; where a neon sign for hand-pulled noodles had been dismantled; when the last worker clocked out of a fluorescent-lit office; how long he waited outside a bar for a date to arrive, before checking his device for new messages; how long he read clickbait on his phone before turning out his bedside lamp.

Blankness as Oversaturation

Whether in fortune-telling or in future-casting, acts of apprehending the future often take the form of visions coming into focus on a blank medium—congealing hazily on a scrying pool. Often, the “what” commands more attention than the “when,” with a tapestry of speculative images drawing the most attention while temporal markers, like dates and times, remain unknown.

More rarely, the inverse case occurs: the future looks blank, while prediction focuses on the significance of a timeline marker. In many cases, it is the totalizing pronouncements of doomsday cultists or the dramatic devices of science fiction storytellers that attach the uncertainty of the not-yet-present to the fixity of a future year. Charismatic authority is thus what typically imbues specific years

with meaning—with a notable exception: Hong Kong. Here, it is bureaucratic rather than charismatic authority that has infused two years, 1997 and 2047, with near-mythic significance. Unlike the future constituted by visions—the scrim upon which the speculative can be projected—a pivotal fixed date moves an abstract year's blankness into the foreground, while effectively rendering the present the not-yet-past.

This past decade, protesters in Hong Kong and elsewhere have been spotted raising blank sheets of paper overhead, devoid of any statements that could be cause for arrest. Like the dead channel, the blank page here seems not to suggest possible future messages, but to silently underscore that which is not being broadcast at present. In the digital-virtual realm, Hong Kong activists also evolved a language of tactical euphemisms: they described outlawed behaviors as acts of 發夢, *faat mung*, or “dreaming.”²⁸ Protest itself was called 行街, or *hang gai*: which can be taken to mean walking in the street, shopping, or both. Illegal plans were thus circumscribed within the realm of virtual-potentialities, or simply reframed as innocuous acts of flanermeets-potential consumerism. What strategies such as these seemed to converge upon is a communal language suspended somewhere between speculative and somnolent modes: a coordination of a counterpolity with neither the pitfalls of the indicative tense nor of a wakeful realm.

Abbas famously pinpointed, in Hong Kong's cultural identity, an orientation toward disappearance.²⁹ Responding two decades later, Laikwan Pang saw the wake of Hong Kong's Umbrella Movement protests yielding a shift in local cultural expression, “no longer nostalgic-cum-fictive” and “directed less toward inventing a cultural identity than toward bringing about a demos.”³⁰ But in 2019, Covid restrictions ended gatherings in Hong Kong of more than eight people; the demos Pang identified has become deterritorialized. Transnationality, meanwhile, has more recently taken the form of mass emigration. As of 2023, over 100,000 Hong Kongers had applied for the UK's path to citizenship since the program's 2021 launch.³¹

In a case where looking to the future does not entail speculations coming into ever-sharper focus (as with images coalescing in a crystal ball), a different sort of metaphoric mode might be emergent: perhaps one capacious enough to encapsulate an island city's postcolonial contradictions, and elliptical enough to adapt to the shifting boundaries of what must remain unsaid. Where would a reconfiguring of blankness—of the dead channel—lead? Perhaps skyglow that reflects an oversaturation of signals below could suggest a path toward

reterritorialized communal urban space in the absence of public gathering. Or perhaps, in an ensuing framework for the virtual world, rather than conceiving the future as a panoply of images coming into focus, digital blankness could start being considered a constituted fulmination of juxtaposed signal and noise. Blankness would thus become not a scrim waiting to be filled, but a brightening and brightening tapestry of all scenes from a cacophonous present: all the things that are definitively not disappeared.

Wavelength: 450 nm Low Latency (You Know, for High-Speed Trading) | Color: CME Blue (i.e., the Blue that the Chicago Mercantile Exchange Uses)

A Brief and Speculative History of Making the Weather an Option

Orit Halpern

For six days in late March of 2021, the massive post-Panamax container ship, the *Ever Given*, stopped all traffic through one of the major shipping thoroughfares on earth—the Suez Canal (Figure 6.1). The result apparently of some heavy puffs of wind. Despite geo-spatial positioning and tracking systems, sophisticated meteorological models, advanced automated ports, standardized containers, and complex insurance instruments, somehow this boat still got stuck and created a planetary-scale traffic jam.

Endless video feeds showed tiny boats, and even smaller tractors, trying to move the ship. But, no matter the number of shares or likes on social networks, the ship would not budge. The curiosity and spectatorship focused on this ship was evidence of both the awe that “nature” had overcome human technical ingenuity and the pure surprise that supply chains might be disrupted. If the *Ever Given* was a surprise, it was because our massive container ships rarely sink, and we often take for granted the resilience of logistical systems to extreme events—weather or otherwise. That a boat in 2021 can still drift off course seemed like the memory of another era, a different time when the winds and the seas could still destroy and shape human affairs.

In our present, we seem to believe that somehow technology might shape the climate—and the future. And perhaps there is some truth to this deceit. For no sooner did the ship ground itself than the betting began. Brent Crude Oil



Figure 6.1 The container ship *Ever Given* stuck in the Suez Canal in Egypt, viewed from the International Space Station. Taken March 27, 2021, 13:01:03 <https://eol.jsc.nasa.gov/SearchPhotos/photo.pl?mission=ISS064&roll=E&frame=48480> NASA JSC ISS image library (public domain).

Index and West Texas Intermediate Oil Futures skyrocketed by 4 percent the same day. Estimates were that the result of those six days was felt for months in global supply chains. The result of global interconnections in commerce and technology. Those predictions were priced into numerous financial instruments that calculated the possibilities for multiple futures for commodities and energy.¹

I open with this scene because it illustrates in graphic form the juxtaposition between the weather and our systems for managing risk—financial and infrastructural. Mariners, of course, have long sought to control the weather. Games of chance, religious rituals, the naming and blessing of ships, beautiful figures adorning their bows, are all just some of the many efforts at taming chance, and shaping the future, that have entered lore and common practice. Every ship to this day is blessed by some deity, and most possess names.

In our present, we have not stopped our wagers on chance. But their medium and nature have changed. As the ongoing bets on the future of energy, and by proxy, the climate suggest; we no longer apprehend global or even planetary scale, events as singular or unmanageable. The Suez situation also demonstrates the frontier of risk management. The *Ever Given* is now almost an afterthought in

the midst of so many other global chokepoints; the result of numerous conflicts and extreme climactic events in the Middle East, Eastern Europe, and Asia. No matter the geopolitical problem, or the weather, and increasingly the two are treated with the same technologies, the future has become an options market. In the course of this short essay, I'll speculatively ruminate on how singular weather events became climates and then futures with options that are now markets. This is a story about the rationalization and reorganization of territory and time. But it is also about how to make and destroy futures.

Colonial Climates

The weather as many have noted is not the climate. The weather is something we experience. The climate is something we need our instruments to detect. The climate is something we can change (i.e., climate control). The climate determines our condition, and in that it is only sensed through technology, it means our condition is always technically, which also means socially, contingent.²

The earliest mentions of the term “climate,” at least in Western cultures, were in the fifth century BC. For the Greeks, the climate described general attributes and health and “the physical conditions” of people in particular latitudes. For Greeks, and their successors, climate was about the *characteristics* of the place. The climate was not the particular events—rain, snow, fog—that we might label “weather.”³

In the course of the seventeenth to nineteenth centuries, this ontological characteristic of the word “climate” took on an additional meaning. The rise of the natural sciences, new forms of knowledge, and colonialism all shaped the way both nature and the environment were conceived. Climate moved beyond merely description to taking on a more proactive and perhaps controllable aspect. Climate came to be understood as that feature of the environment that *decides* the fates and natures of those creatures and humans living in that geography. In 1840, Alexander von Humboldt, the German naturalist and geographer, offered the definition of climate as “all the changes in the atmosphere that perceptibly affect our organs.”⁴ Supposedly with such pronouncements as historian Andrea Wulf argues, Humboldt, “invented nature.” Perhaps so, but this was no innocent nature.⁵

Humboldt's new invention (the language of invention already intimating that nothing was there already) came within a context of increased state and

scientific interest in the weather and in human and animal differences. Nature was co-invented with Empire. New instruments, and a new discipline—metereology—transformed weather patterns into ontological categories for classifying differences. Meteorology would be among the central modes of territorial control for colonial empires seeking to expand and manage unruly territories in the global south. It was a way to both attempt to forecast futures, manage trade on unruly seas, and conquer climates that were difficult to traverse.⁶

Humboldt's definition also suggests that climates make societies and subjects; it effects "organs." Such understandings mirrored emerging European understandings of evolution and race that sought to justify the subordination of certain groups to colonial empire. The stereotypes of the lethargy and laziness of people's occupying the tropics, for example. The idea that climate might shape character also lent itself to new projects of terraforming. If the climate could be changed, so could the society. Canals, urban redevelopment schemes, efforts to irrigate or dry landscapes, all ensued as different colonial empires sought to remake territories and populations across the globe in their own image. The climate proved difficult to control, however. Such strategies often had unintended results; a classic case being the re-modelling of Kolkata to harbor British East India Company ships. This act unleashed one of the first truly global pandemics—cholera—from the silty floor of the Ganges.⁷

The Climate of Speculation

But, scientists were not alone in their concern for the weather and how it shapes futures. Logistics had long been governed by the elements. The breezes were known to decide the fortune of many a ship, and shipping company. But, what had once been a wager with unknown forces of divinity or nature, by the seventeenth and especially eighteenth century, became one with the market. For Dutch and British merchants, these dangers became opportunities.

Overseas trading expeditions—whether they concerned slaves, cash crops, commodities and manufactured goods—were known to be risky endeavors: ships might make navigational errors, run out of food or water, or face difficult and dangerous seas. The nascent slave trade also included the risk that the cargo itself might revolt. The high costs of such ventures meant that money had to be raised in bonds ahead of time, and investors began merging investments in less risky and shorter voyages with longer and riskier voyages, in this way

“hedging” their bets. (See figure 6.1 for tabulations of risks from Lloyds for use in calculating and potentially recombining insurance policies.)

As cultural theorists Luke Mann notes, these charts (below) enabled a new kind of calculation of territory that quantified space—the voyage from point A to B is X times as risky as the voyage from point C to D—and did so by transforming geography and the weather into time and climate via the concept of risk (e.g., the voyage from point A to B has X risk). This was perhaps the first truly zonal strategy for making the seas an abstract and rationalizable space, and making human lives actuarially representable and quantifiable. It was also about turning the vagaries of the weather, into an actuarial climate that permitted profit against uncertain risks.⁸ Race capitalism and settler colonialism demanded, it would appear, the taming the weather as a central focus of expansion and profit at least since the eighteenth century.

These bets set the template for the later expansion of commodity future markets. All of these markets predicated on the weather.

Climate Changes

In the United States by the mid-nineteenth century came a very new understanding of the term climate. One of climate change. If the climate had once been understood as a stable category; a defining characteristic of a place or a people, this understanding now no longer held.

The US government and many localities increasingly sponsored state agencies to track the success and failure of crops. In the mid-century, reports began to emerge concerning, for example, of how destruction of forests had changed the climactic conditions in particular regions. Government surveyors and industrialists came to understand that the changing the environment might change crop yields. It became increasingly imperative to therefore begin to organize the environment in a manner that could be managed and actuarially defined. Even of greater concern was to find economic predictive mechanisms to facilitate speculation on these changing climates.⁹

If nature was always changing, then perhaps this might also offer opportunity? Speculators in the American West hoped to turn the uncertain into the speculative. Settler colonialism depended on the rationalization of the plains, and the weather. The land had to be reformulated into a standardized industrial product to be sold sight unseen to investors from afar.

The plains were transformed into blocks of land for sale in standard areas to investors and newly arrived immigrants who knew neither the land or the weather. Each block was the same area, a seemingly equal and quantifiable exchange, even if the nature of the landscape was never that standardized.¹⁰ The vagaries of territory, history, and its Indigenous peoples erased in front of the demand to garner prices from settlers and speculators. The grids of the great plains are an extension, perhaps, of the logic first set out by Lloyd's of London, to create quantifiable and rationalizable formats by which to transform space into a commodity territory and manage the future, even in the face of the weather.

Despite the best efforts at rationality, the crops themselves, especially wheat, did not subscribe to the perfect logics and logistics of their capitalist overloads. The land and its crops were variable.

Initially, each farmer had to bring his (mostly at the time) crop to market and find a buyer. This system was precarious. After multiple crop failures in the mid-nineteenth century, the market collapsed. Farmers failing to grow crops had no capital, and suppliers lacked any commodities.

In a momentous decision about the weather that would forever change nature and culture, the Chicago commodity exchange decided in the mid-nineteenth century to create a new form of nature—grades of wheat! Winter, red, and spring. Now instead of a direct link between a particular bushel of wheat, from a particular farm that met a particular buyer, now there was a market. This meant farmers could bring wheat, graded into one of these categories, and combine their repositories and that repository was sold under one category. Having standardized wheat from many locations and farms, now the commodity exchange could go another step. A predecessor to the more recent sub-prime mortgage situation, investors could buy possible future prices for a harvest of a particular grade, or recombine grades. And farmers could sell a particular grade of wheat ahead of time. It was offering an ontological category to what, before, had been the product of various individuals.¹¹

Thus farmers and buyers secured wheat ahead of time, and according to grade. Sometimes to great profit, and sometimes not. But always in the hope of beating the odds and undermining the weather. The Chicago Mercantile Exchange futures commodity markets pioneered the first derivative markets that directly speculated on climate change.

Derivative Climates

“Nothing Washington can do will change the weather,” said infamous neoliberal economist Milton Friedman in 1977.¹² The winter of that year had been a brutal one; leading to natural gas shortages. In turn, Friedman suggested that while the weather might not be amenable to management, the climate (in this case indoors and regulatory), he implied, certainly was! And his answer—was free markets. At first this appears non-sensical. How could the vagaries of nature be managed through capital markets and regulatory frameworks?

Today, of course, this is hardly in question. Carbon trading, tax incentivization, the United States Inflation Reduction Act of 2024, are all examples of how we have come to unassumingly, even naturally, accept the weather as manageable through technologies (particularly of the market). What had once been nature, then the source of a bet, had now become itself the commodity or option to trade.

This change came at a moment (the 1970s) when seemingly untamable winds of change were blowing in the global political-economic climate. Skyrocketing energy prices, global instability as a result of postcolonial conflicts (OPEC oil crisis among them), the end of Breton Woods, and the excess surpluses of petro-dollars had combined to create an economic disaster for the United States throughout the 1970s and posed great risks for globalizing corporations.¹³ The question ecologists, and economists turned to asking was if prediction of the future was impossible, how were the models failing? And more importantly, how can these seemingly un-anticipatable events be dealt with? How does one manage for radical uncertainty? And change?

One might imagine, of course, a response that might entail cutting energy consumption or making peace. But a series of computer scientists, imagined something else all together. What if one could bet on futures, as the Chicago Mercantile Exchange had long done, but without commitment? What if one could use the new algorithmic and computational power of digital machines to recombine data in order to make bets that speculated on the future, without having to know the final outcome? And what if, instead of being stranded dependent on one boat or the fragile vagaries of human geopolitics or unforeseeable weather events, one might hedge bets? Such hedging, had of course, been part of derivatives since the eighteenth century, but computation and digitization fundamentally changed the character of value and risk.

In 1973 Myron Scholes and Fischer Black introduced a derivative pricing instrument that would facilitate the digitalization of finance, and the automation of futures decision-making:

The Black-Scholes-Merton Derivative pricing model offered an instrument that could scale markets and create a new landscape for betting automatically and computationally on the future at a global scale. As Friedman has famously been paraphrased, a “market is an engine not a camera.”¹⁴ Markets make worlds, and this new modes of algorithmic and calculative betting was part of an emergent world that could derive value from the present into the future. Today one of the most heavily leveraged and optioned market is that of carbon based energy. We have turned the weather into an option through new actuarial technologies and informatic media. Finance can make bets, but they are only options. You don’t have to buy that oil, but you can.

In 1997 a Houston based energy commodities and services provider, Enron, did just that. A series of severe weather events had created massive strain and loss in the electric grid. Enron decided to build technologies (euphemistically titled special interest vehicles) to hedge the weather itself. Excess heat and cold were legendarily dangerous (and costly) for electricity providers. In the late 1990s the company began offering weather derivatives, allowing companies to essentially hedge their risk of extreme weather events. The instrument worked like this: a company could buy a derivative that “bet,” for example, that a certain number of days might be above or below a certain temperature. If this happened, they get paid, if it doesn’t the negative bet gets paid. There are a few variations on this theme, growing in scale and complexity. One can bet on variability between locations, create floors, swaps, caps, collars, futures contracts, and other generic forms of derivatives. The point is they are all on the weather, and the hope is whatever the forecast, one’s company comes out ok. If one has enough bets in enough places, in theory one can cover all the risks. And for Enron, maybe even make a profit.

In the year 2000, Enron had not only been named the most innovative company on Wall Street for years but had a larger revenue and market valuation than Microsoft. By December of 2002, it was worthless; felled not by the weather, but by the temperament of investors and the SEC. One corporation’s demise is not the end of a strategy. Today, the future is still bright (for energy futures), the market for special interest vehicles for weather derivation and optioning energy futures in our present, is going strong, and has gained enormous momentum from contemporary geopolitics.¹⁵

But no amount of betting can overcome the material demand to actually get raw resources, energy, and goods across space and time. If weather derivatives could manage the future; a new field emerged—logistics—to manage a new scale of commerce, not just between states, but the planet. Originating in the Second World War, and its demands for movement and geographic scale in the US and British militaries, now it had found a corporate home. Already in the 1960s corporations detected falling profit rates. In turn they developed new techniques of accounting, that surveyed the ecology of their products and their supply chains—*total cost analysis*. Suddenly the vagaries of politics, the weather, materials, labor, and consumers, were visible, and needed to be managed. A previously untapped source was seen. Like the traders of Chicago, managers found that they could start betting on the space between geographies and people by focusing on distribution decisions and supply chain management as sites of value production to offset falling returns. Business management became increasingly professionalized. The MBA and the computer simultaneously arose, and managers could now handle processes previously viewed as separate—purchasing, manufacturing, transportation, warehousing, returns, and so forth—as part of one system. These management techniques borrowed from the same systems and cybernetics sciences underpinning ecology, meteorology (that also saw the massive rise of numerical weather prediction after the war) and finance.¹⁶

The weather, now climate, had moved from commodity to instrument, to business strategy. It is no accident, of course, that the concept of eternally evolving and unpredictable, and therefore unplannable, systems emerged directly in parallel as a response to both demands for civil rights by disenfranchised and racialized groups and globally with decolonization.

Options for the Future(s)?

Perhaps few things have bought home the way such forms of accounting redistribute risk onto the precarious then our present world of pandemic speculation, geopolitical instabilities, and climactic calamities. Financial markets have been largely buoyed due to options trading on the very volatility created by the Covid-19 pandemic, the recent wars (the Ukraine war immediately sparked massive action in energy futures, for example¹⁷), and new insurance instruments for climate change. At the same time ongoing environmental degradation and geopolitics have recombined to kill millions of people, mostly of color and poor.

We are forced to ask about this history? And how we have turned the acts of gods or nature into a commodified future without accountability.

But an option is also a choice. And therefore also holds some hope. What if we changed our critique? Recognizing that the history of race, capital, and science haunt our present, we must also ask whether our ability to technically redistribute risk, might not be used otherwise? Every simulation and model of climate change, for example, offers the vision of a different future. What if we asked how to redistribute risk through our very sophisticated media technologies that agglomerate and reorganize uncertainty? We have transformed the weather to produce climate change; now we must ask how we might harness this new found collectivity grounded in calculative machineries to speculate on a different future than the one we have now.

Wavelength: 450–490 nm | Color: Cobalt Blue

Afterimage

Mitchell Akiyama

Now, two weeks since, afterimage still hasn't faded. Two more weeks until finally getting an appointment with a neurologist, *the afterimage still hasn't faded*. Chinese blue and white vase from the Qing dynasty, eye level in the vitrine. Afterimage of the vase but not blue. Bright orange-yellow instead—complementary color of blue. Inverted afterimage. Orange inversion of dark blue flowers and ornaments floating in field of view.

It's palinopsia, she says: “. . . the persistence or recurrence of visual images after the exciting stimulus object has been removed.”¹ Mysterious, no known cure or treatment, but not uncommon. Could be caused by dementia, or cerebral lesions, or psychedelic drugs, or hyperglycemia. Have you been having headaches? No. Do you use psychedelic drugs? Not lately. Other hallucinations with other senses? Don't think so. What she doesn't understand, hasn't heard of, is persistence of *complementary* color of the stimulus. Hallucination should be a cobalt blue vase. She orders MRI, CT, EEG. Prescribes clonidine and gabapentin to calm brain activity. Nothing.

No color, here, in buried dark. Known unknown of qualities known through observation. Body required to observe. No known without body. But which what body. What is who says what.

Two months, afterimage still hasn't faded. Acclimating, but still can't drive non-autonomous vehicles. But not too distracted anymore. Not crashing into things anymore. If inverted afterimage is inverse of cobalt blue, then what color is it? RGB value for cobalt blue is #0047AB. Inverse is #FFB854. “Koromiko.” Word doesn't seem to have root in anything to do with color. Only reference is to a plant native to New Zealand. Medicinal plant used by Maoris:

Internal: Stimulates appetite. Facilitates east [sic] labour. Dysentery, diarrhoea. Piles, varicose veins, headaches, kidney and bladder troubles. Promotes bile flow. Haemorrhaging, teething babies with loosened bowels. Stomach ache.

Topically: Ulcers, rheumatism, haemorrhage.²

Treats everything except for palinopsia. Plant is distinctly green. Flowers white or purple. No trace of yellowy orange. Koromiko afterimage of a cobalt blue vase.

Now they see me because before they don't. They think it's goblins in the hills, spiking ore with impurities. Medieval German miners blame Kobold for ruining silver and nickel finds and poisoning smelters. Offerings of gold and silver to appease me, not understanding that it's the arsenic and sulfur that kill the diggers. The first Swede, Brandt, the one who denounces fake alchemists, isolates pure metal but isn't sure what to make of me. Probably a new element, although elemental is opposite of new. The second Swede, Bergman, really sees real me. The Bergman who also discovers carbonated water. Now that they know me. Not knowing that they already make of me blue, the blue spalt pigment used for ages. No connection to be made through color, the color of me the color of Bergman's grey wig. They call me "cobalt," they call me. My name is cobalt. Less the goblin that never was in name.³

Cobalt there before, of course. Don't need a name to exist. Don't need a name to be used, utilized. Nor to be admired, nor to travel and change hands, nor to be transmuted. But not blue in the ancient world, they say. No blue in the rainbows of Romans or Greeks. Not a materially different world. Cornflowers and skies and peacocks the whole time. But you see what you say. Or they don't say what they don't see. So much that they see that they don't say or name. Doesn't change what's below their feet or in front of their eyes.⁴

Even without a name, they still dye and tint and color with me. Use me for color in Mesopotamia and the Aegean and Egypt. And then spread across Europe. Make of me paintings of virgins' robes as they mourn the death of God. Or be the coats of nobles. Or water, now blue, no longer wine. But my most famous form: monochrome adornment of porcelain. Bring me from Persia to China, a thousand years ago. Purer from there. Heated to 1200 °C with aluminum oxide until deep deep blue crumbling cake. Applied to porcelain, then glazed, then heated again. Materialize as dragon and dog, peony and pine, wave and grass. Home in Jingdezhen. For now.

This is my most valuable until later.

Stare at insides of eyelids. Stare at a white wall. To see if there's afterimage of koromiko afterimage. Inversion of an inversion. Nothing. Double negative isn't

a cancelling out, just another new thing that isn't there. Is an inverted afterimage a thing, a real thing? A blue and white vase is a thing, could be touched if not behind glass. But maybe not the image of it in the mind. And not orange. Secondary quality of a hallucination. Primary quality of something not actually seen. Light reflecting off matter, not a production of a brain. Then real in the brain? How real out there but not in here? If real for perception, even only if hallucination, has to be real in some way. Jpeg of an orange vase on a screen is real because a state of whatever screens are made of and electricity that causes them to glow. Data converted into images appearing on screen are real, are real physical states of transistors and other circuitry. All these things that are real, that are manifestations of what they are not. Real because of transposition, transduction, transcoding.

But is hallucination a real thing? Time between light entering an eye and sensation being passed on to a brain. Infinitesimal latency between sensation and perception, but not nothing.⁵ Nothing isn't mediated. Everything outside of mind might be real, maybe. Or maybe all a hallucination. Trust issues in the reality of the world. The world out there. A world in here. Of a world with cobalt blue vases and science that can't explain an inverted afterimage that won't fade. What is, is. What isn't, isn't. What isn't, is. That's true too. Sometimes hope for what isn't, sometimes don't hope for what is. Knowing that what seems to be sometimes isn't, even as it's experienced.

Bird on one side of a disk, cage on the other. Persistence of vision. Knowing there are two sides while it spins, but what is seen is a bird in a cage. Knowing that something isn't real, that it's a trick or a limit of perception. Like an orange Chinese vase. Not real but there. Real because a real state of a brain. Primary quality of a double negative. Secondary quality of a secondary quality. Brain flips inverted image of the right-side-up world. Camera obscura. The world isn't upside down, but it is for the eye until the brain rights it again. Vertical orientation a secondary quality? Doesn't really matter as long as it's possible to walk down the street without falling upward.

Still for color but otherwise a by-product. They want nickel, not cobalt. Purification of desired material, cobalt remainder. Some materials, insecure, co-dependent, quick to jump into alliance and alloyance. Sodium can't be without another. Francium reacts, bursting into oblivion almost instantly. Never met francium. Cesium neither. Reactive and nihilistic. Some elements just want to be something else or to not be at all. Some are stubborn and think themselves more elemental than others. Eternal. Platinum, gold, silver. Proud to think themselves special or

distinct even though before the Beginning of everything there wasn't anything to touch.

Not so volatile, me. Usually part of a crowd, an intimate clump. Entwined with nickel or copper. Being a body together, shared matter, matter shared. Only me found fully and fully revealed when Brandt heats an intimate clump until fluid, then cooled, now unjoined, now each on our own. But me, still unnamed. First new metal known since ancient times. Unnamed, not unknown. But not known by a name. Just matter—same difference to me either way. But when known, soon later, they find my value in color, in blue. Blue is dear, expensive, rare. The blue gotten from crushing rare rock. Rare rock from beyond the sea: ultramarine. Lapis lazuli pounded to powder and rendered pigment. Blue is too expensive everywhere and in France, and so Napoleon commissions Thenard to find a new blue. Thenard is good at turning things into other things. An alchemist, but figuratively. Roasts cobalt arsenate and cobalt phosphate with alumina, getting a fine, deep blue. Other blue problem is impermanence. Lapis blazes its blue over centuries, but other pigments worth less than their weight in gold fade and dull. Thenard drowns cobalt blue in light, tortures with alkalis and acids, doesn't fade. It will do.⁶

A dream. Erasing the vase from field of view with a rubber eraser shaped like a very large paintbrush. Eraser cuts through the afterimage, orange scrubbed away to reveal entirely new colors. Not color. Chromatic dimensionality. It's light itself, not its reflection off and absorption by surfaces. A radiance, but that's not the right word. Sun is radiant, this is opposite of opposite of radiant. But afterimage keeps fading back into view. Erase, return. Desperate to clear afterimage to be with the not-not-radiance. Erase harder. But more force and everything is erased. Afterimage, unnameable colors, everything. Everything erased, obliterated, voided. The entirety of space is small, close, contracting. And then afterimage slowly fades back into view.

Spread over the world, cobalt in Russia, Australia, China, other places. Enough cobalt left over from nickel processing to meet demand for cobalt. A town in Canada called Cobalt where they mine silver and cobalt is left over. Why call town Cobalt and not Silver? Silver boom at their century's turn. Biggest producer in the world at that time. But then mining is done and people leave and Cobalt is a ghost town.⁷ But ghosts are real and create space for whatever is the opposite of a ghost.

Seeing the value of me now though. Because of energy. Now a crisis over energy, but that energy comes from oil. Arab states withhold oil and industrial countries panic. American scientist at Oxford named John Goodenough turns a cobalt ingot

around and around in his hand, a matte silver bar. Thinks about price of oil, costs of shipping, global instability. Energy at the mercy of cartels and politics. No future in energy if energy is volatile or too expensive or too dirty. Batteries don't need oil in same way that gas engines need oil. But batteries aren't powerful enough yet and don't last long enough to replace oil. Heavy too. Lithium found to be best, better than lead or nickel or cadmium for flowing electrons. But lithium gets hot and sometimes explodes. The batteries it makes also wear out too quickly. Goodenough considers what other materials to use for cathode or anode, the poles electrons travel between. Maybe manganese, maybe iron, maybe cobalt. But cobalt works best as cathode and lithium-ion batteries that need cobalt go into laptop computers and phones but not cars because oil isn't a crisis anymore, so they keep using that for cars and other things that require lots of power.

But then they make something that doesn't require a lot of power but becomes so widespread that demand for cobalt takes off. It's a phone that they make, a phone so popular that they all need one and everything is electronic: their communication and music and pictures and how they get food. And a company makes cars that run entirely on batteries that get very popular and make people feel ok about driving cars again because before they polluted the air and caused the planet to heat up. Goodenough and others even win a Nobel Prize later on for work on batteries. Nobel says batteries will save human part of the planet and recipients say the same thing and everyone feels good about the future. Everyone in some places feels good about the future.⁸

Afterimage still hasn't faded. Stare at an Yves Klein monochrome painting to see what happens. IKB—International Klein Blue. Not cobalt, but bluest thing that probably is. Stare at painting. Unflinching. Unblinking as possible. Look away at the white cube wall. Orange rectangle projected, koromiko almost but not quite subsumed. First time it's not blaringly, contrastingly there since it started. Not relief exactly. Welcome variety, maybe. Constant afterimage subsumed by the temporary one. No monochrome orange paintings to test the inverse. Rectangular orange afterimage fades, left with a less vibrant, intense koromiko vase. Orange rectangle more vibrant because of hue? Klein blue isn't so much about the hue as it is the texture. Something about medium draining pigment of vibrancy. Maintain vibrancy while still having paint and not powder.⁹ Powdered pigment holds affective magic. Still material though. An immaterial aura also its own magic. If belief in magic. Or auras. Or immateriality. Theosophist schema for the color of auras. Annie Besant and Leadbeater. Cobalt sort of in between the two blues. Darker blue equals "Religious Feeling, tinged with Fear." Lighter

blue is “Pure Religious Feeling.” Three oranges: “Strong intellect,” “Low type of Intellect,” “Pride.”¹⁰ But that’s emitted by a body, not from within a body to that body. Arbitrary anyway. Probably. Like synaesthetes who think their color associations are metaphysical. Or at least stable. Like having perfect pitch.

Thoughts are things. According to theosophists. Afterimage is a thing. Not exactly a thought, but what is a thought anyway? Maybe not that the afterimage is a real thing in the world, but a material difference in the brain is a real thing.

Film about the color blue. Or not about, just that it’s a blue screen for the whole thing. Was it cobalt? No, Klein blue. Or not. Derek Jarman dying from AIDS and losing his sight. Only sees blue toward the end. Last words, last color. Loss of blue is the inverse of only blue remaining. It’s a blue screen, but when the movie ends, it’s not blue anymore. Secondary quality of the screen, but how isn’t blue a primary quality of the film?

Colors that are what they aren’t. Oranges are orange. No other eponymous fruits. Koromiko is green or white or purple, not orange. Cobalt’s not blue. Metal color like most of the other metals. So then only its namesake hue, not its elemental color, when it’s artificial. Only really itself when artificial. But that’s what color is. Artifice. All colors of the rainbow are unnatural. All the colors are black. German chemists make all the colors out of oil. Rockets and rainbows. Is every color accounted for in nature? Any synthetic colors that didn’t exist before chemistry?¹¹

Everyone feels good except in Congo where cobalt is still goblin, Congo where most of me is. At first they find me easily in my abundance from the Copperbelt where in French it’s still “cobalt” and in Swahili it’s kobalti.¹² Closer to kobold, closer to word, and closer to curse. To resource curse. Too much of a thing and not enough structure for equal benefit. So much kobalti, even more cobalt. Some pickings easy, some harder. Man in Kolwezi digging in his yard to make a toilet pit and uncovers seam of cobalt ore. More where it came from, it seems sure, and he digs through the floor of his house to find more. Church people and their pastor dig under their church for cobalt. They tunnel under a road for cobalt and road collapses.

They should hate me. They shouldn’t have to need me. Bad for their bodies, bad for them. Cause of birth defects from contamination. Mines collapsing as they hunt for me. Children working. Most getting little or nothing for their work. Neighborhoods razed to do more razing underneath where neighborhoods once stood. Farmland and forest too.

President of the Chamber of Mines in Congo tells investors, “Cobalt—it makes you dream.”¹³

Afterimage almost seems stronger, more material. As though it could be touched, grabbed, pulled out of field of vision. Really a real hallucination. Really a real hallucination? Accident or fate that afterimage is koromiko? Could have been looking at something else. Something ultramarine. IKB monochrome canvas. #FBC80C “tangerine yellow” slab blocking out the world. Ersatz ultramarine, ersatz koromiko hallucination.

They’ll probably find a way to fake cobalt color. Something abundant and close enough in hue. Maybe something that will be valuable one day as well. Something that will be expensive to the point of making people work past harm or death. Irony that cobalt is the material to replace lapis, a replacement blue made of less valuable stuff. Now too valuable to be used. Geology of blue based on value of material. That’s how they got that Dutch art forger. Painted a “new” Vermeer and sold it as lost masterpiece to a Nazi. Caught for collaborating with the enemy and on the hook to hang. Needs to convince court that he sold fakes to the Nazi. But how to prove it fake when faked so well, after faking well enough to avoid detection for years? Painter explains process for aging paintings in ways that fool authenticators. Using pigments that would have only been found in those eras. Lucky for him, in this case, he uses cobalt blue in the fake Vermeer and explains so. Explains that the cobalt blue paint he used was invented after Vermeer’s time. Vermeer used aquamarine made of lapis. Admission of guilt to prove innocence. Gets away with a year in prison instead of hanging but dies soon after anyway.¹⁴

Cobalt not completely gone, but hard to get. Not worth mining anymore, even if demand still desperate. “Artisanal” Congolese miners now moved on to other kinds of artisanal extraction or remediation. No longer enough kobold in the earth below to fuel desire from above. Some in the earth still, but sparse. Kobold all cobalt above ground. Locked up in batteries or under glaze. They recycle batteries, but that only goes so far. Only other remaining expendable stock is in gift shops or gallery vitrines or museum vaults and storage that nobody gets to see anyway. No cobalt in newly made pottery or glazes anymore. All of it claimed by battery market. Blue void in mug market now that they’ve recycled all new blue crockery. Verdigris plates and rust-color bowls, no blue. Plant ash heated until liquefied for glazing to replace. Muted ochres and pale turquoises, mustards, and Mars reds. All earthy, none aqueous nor ethereal.¹⁵ Those hues now only emitted from screens and printed in cobalt-free synthetic inks. Now only remaining significant source is old goods, ceramics made before mass production, but in quantity great enough to avoid cobalt shortages for a short time. They go about it with reservation at first.

Are we really smelting our heritage for batteries? But they walk through galleries of museums containing things that aren't art because they used to be useful, and they never stop to look at any one ceramic plate or jug because there are so many. Easy enough to get a feel for what ceramic plates and jugs look like at a glance at many. So many, so most won't be missed. So much blue, so many flowers and birds, so many patterns. Chinese pinyin or Japanese sometsuke. All looks the same, Dutch, and English knockoffs, Delftware and Chinoiserie included. We can sacrifice a good amount of it, and no one will notice or care, they say. How it starts.

All blue and white porcelain has been liquidated here, just like everywhere else, apparently. The vitrine that used to hold inverse of the afterimage. Koromiko vase over empty vitrine where cobalt *bianhu* used to be. The whole gallery a little warmer in the absence of the blue.

D. told me about Maggie Nelson, writer from a while back, book about her love for blue. She worked at a restaurant that everyone called the “orange restaurant.” Dreams about the restaurant after long shifts, but in dreams dining room is blue. Probably because complementary to orange, “blue’s spectral opposite.” Why D. recommended the book. But on the same page, this bit from Goethe: “Every decided colour does a certain violence to the eye, and forces the organ to opposition.”¹⁶ Theory of complementary colors is about color entering and affecting the eye. Violence an exaggeration, probably. Not at all like Richard Feynman seeing purple splotches after witnessing Trinity atomic bomb test without eye protection. Violent purple afterimage of a violent orange fireball. Shouldn't afterimage be blue if fireball is orange? In any case, violence is an exaggeration. Unless an orange vase is seared into eye or brain. But even that. Not really violence, just frustration with a never-ending hallucination.

Thought each color has a different and particular character, causing a particular emotional effect. Blue a complicated hue for Goethe. Powerful. Negative and contradictory. Melancholy. A blue room looks larger than it is, but cold. Colors have temperature. Do they? More than just symbolically? Fundamental properties beyond symbolic. Primary property that a silver metal filament turns red and sets a tissue on fire. But also, color is extent and speed. The blue of distance. Blue scatters, Lord Rayleigh's observation. Blue bouncing around anarchically, energetically, which is why sky, water, horizons suffuse. Inapproachable hue, always receding, just like the horizon. That line from Rebecca Solnit: “Blue is the color of longing for the distances you never arrive in, for the blue world.”¹⁷ Koromiko, then, the unshakeable color of immediacy. Desire's opposite.

Renaissance painters learned to show distance by bluing middle band of the picture. Blue of distance. Exaggerated, though. Almost monochrome at the point where the horizon folds into implied disappearance. Device for depicting depth in two dimensions. The beginning of a plot to make the flat the most important surface for depth. Blue of distance necessary, if not sufficient, for accepting representations of depth on glass rectangles.

See, I see, I see him. He arrives at the museum in a vehicle powered by cobalt and lithium. Now the law. No oil for years. He walks up the stairs of the museum. Ceramics museum. Where I met his eyes and left a negative impression.

Not an imposing building, at least not compared to the neoclassical box next door or the vast imperial museum across the street. He pays admission and takes stairs to the second floor, to where the Chinese blue and white ceramics used to be shown. It hasn't been long since they sold off their once priceless and now just valuable collection. They've closed the gallery and put up a sign that reads, "Closed for installation," but he knows that's not true. There's a stanchion feebly blocking the entrance, which he oversteps. He makes his way to the vitrine where the bianhu that still haunts him used to live. It's empty, just like the other vitrines in this room, just like all the other vitrines throughout the world where blue melancholy and blue distance and blue chill used to have material form, where I used to have material form.

He takes off his backpack, opens it, and pulls out a piece of paper and small tub of wallpaper paste. He takes the paper, color print of the vase that used to live there, but inverted, so it's orange-yellow, a hue called "koromiko." The print is to scale. He takes the paste, applies some to the wall, and mounts the print next to the empty vitrine. Below the image, there's a text:



Figure 7.1 Chinese Flask (Bian Hu). Image by Mitchell Akiyama.

This vitrine used to display a vase from the Qing dynasty (1645–1911), which was produced during the Kangxi period (1660–80). The vase was painted with swirling clouds that represent auspiciousness and happiness in Daoist iconography. It was destroyed, along with much of the world's blue and white porcelain and other objects containing cobalt, to satisfy global demand for the metal. To temporarily restore the vase to its last resting place, stare at this image for thirty to sixty seconds, and then look at the empty vitrine, where you should see a cobalt blue afterimage. If all goes well, it shouldn't take too long to fade.

I am the after during the during, the enduring of the after. I am the desire for an after, for a continuation that is clear and content. Clear continuation for some, but an after for others. The tectonic plates of time and desire and terror that collide and cover and crash through each other. I am color drained away, the transmutation of static sight into motion and conveyance. I was the blue of distance, the always-receding horizon of a future, and now I am a gray element, powering a present that can't see its horizon: afterimage of possibility.

Wavelength: 490 nm | Color: Supra-blue Minor

Meshes of Light and Death, by Oceanic Bacteria

Jeremie Brugidou

ROV operator number 04–90, taking shift, descent mode activated. Kaje took her seat comfortably in the operating room, two eyes on the ten or so screens in front of her. Behind her, a line of ocean biologists and some special guests sitting patiently, keeping a lookout for a rare sight. On her left side, a colleague monitors the ROV's mechanical status and orientation. All cameras and sensors switched on: ten high-definition cameras and four different sensors measuring conductivity, temperature, depth, dissolved oxygen, turbidity, oxidation-reduction, along with multibeam sonars sending their surgical detonations. Currents are minor. Some gentle swirls and she caught a downwelling current to carry JJ (short for Jolly Jumper, as the ROV has been nicknamed) to the ocean floor, 30 meters per second—4 tons of technological frenzy, hydraulic oil, and deep ocean dreams sinking easily. An assistant on her right was taking screenshots and posting live on social media.

The water gets rapidly dark and seems thicker. “Lights on baby, here we come.” Twenty-eight LED lamps turn on blasting 250K lumens of light to the immediate surroundings, gradually absorbed every 10-ish meters: the bright white light loses its red hues first, then the yellows, the greens, and finally only a dim blue remains after some 30–40 meters, until complete darkness recovers. Around the ROV, it's snowing upside down; bright white particles seem to be drifting upward as the ROV descends in a planktonic cloud of organic pellets. “Passing Event Horizon now folks.” She's taking JJ to its 6000-meter-deep limit. But this time it's not for rocks, clams, corals, sponges, or crabs to grab with the mechanical arms, nor for shrimp, cephalopods, and jellies to vacuum in the bio boxes, nor just some random chemical sampling. Special guests are in the room, and they're paying the \$50,000 trip for a glimpse of potential energy: copper,

cobalt, zinc, and rare earths. After it's done, she secretly promised JJ a scrub on the sea bed, even if it lifts up a fog of sediment.

A Humboldt squid bursts across the screens and thrusts away. Iridescent comb jellies bump the cameras and catch attention as they diffract the white light of the LEDs along their vibrating cilia in a seemingly purposeful spectacle. Waves of colors pass along the otherwise transparent soft bodies as the ROV's light is separated into its different wavelengths. The assistant is taking screenshots. Kaje seems uninterested, maybe trying to look tough in front of the special guests; she zooms in on the jelly focusing on the transparent flesh rather than the colorful cilia: "look we can see ourselves in the mirror." The screenshot taken by the assistant, once edited, does in fact show the ROV, or mainly its eight frontal headlights drawing an arch, reflected in the soft, transparent, highly refractive tissue of the comb jelly. "Zoom completely into that picture and we just might end up seeing the shining glow of our wide-open eye balls." Kaje laughs alone; nobody seems to get the image. Those moments also get her thinking about weird situations in which comb jellies gather around her asleep and observe her chest expanding in and out as she breathes. They slowly begin to imitate her rhythm in their own soft tissue way, and a common pulse begins to settle in. She realizes all this happens in complete darkness, yet in this particular image, some kind of light persists, but she doesn't seem to perceive any colors. A sudden nudge of her elbow scares the mental image away as Kaje turns her head toward her colleague and nods mechanically as the latter points to the screen where the ROV's trajectory, materialized by a yellow line, is clearly drifting off course from the planned itinerary. Kaje turns her attention back to the screens, shows her colleague the "ok" sign with her fingers, and gently shifts the ROV back on track with the command joystick in front of her.

2000 more meters to go. It all feels so empty. A deep void visited by a noisy luminous mechanical cube attached by an umbilical cable to the other side of the horizon, or surface. When operating the ROV, pilots will often say "I" or "we" when talking about the robot: "I'm on top of the vent" or when encountering another animal: "look, it's looking at us," or "oh my god, it's bumping us." Remote sensing is conducted by fiber optics in the umbilical cable, a sensation carried by photonic messages across the deep. Kaje never turns the lights off. Nobody would want to be in that kind of darkness.

In the lab, my eyes are getting used to the darkness as I switched off the intense neon lights of the 15° Celsius temperature-controlled chamber. A feeble blue-green halo lets me know they have grown. I take a tube in my hand and shake it gently. The light grows stronger as the surface oxygen mixes

in the liquid substrate, a substrate I spent months conceiving with the sole indication of their light intensity. They talk to me in 490 nanometer waves of light emission. Over the billions of years of coevolution between light makers and light sensors in the depths, a certain agreement settled around the 490 nm wavelength, one that travels best in the thick medium of water. Photogeny and photosensitivity co-shaped each other insistently, arguing on and on, and along fifty or so independent evolutionary trajectories, that light in the ocean mattered.¹ I'm at some moment of that. The stronger and longer that light lasts, the better the substrate, or so I guess. Sometimes I guess wrong. Today they shine. Last night I dreamed of horses jumping anxiously among flying bioluminescent jellies in a field. I'm always worried my guesses are wrong; maybe the collective organism didn't grow, maybe they won't shine, maybe we misunderstood each other. In the end, they die, I live. But their death matters, and part of the collective organism continues, isolated in small 1 ml batches, conserved at -80° Celsius. Still, this unequal relationship raises questions, even though they are bacteria in a generally bacteriophobic society. The difference they make here, however, is visible: their nanometric statement, collectively enhanced, reaches our human eyes and confronts the kilometric discourses of the sun and our electric white lights. The emission of one wavelength with an intensity of a few dozen lumens by a unicellular, microscopic organism is enough to reconsider our common beliefs about light: immaterial, neutral, given, the obvious scenery of any possible scene. White light is taken as transparent immediacy, access for all, the story of all stories. White light works best with reflection; that is, one specific kind of trajectory for light, a trajectory that maintains form, enhances self-consciousness and exceptionality for the opaque bodies: the standard of all standards for access to humanity. White light is in direct connection to the outer world, the sun, and transcendence, God. It is not of this world, yet it is its very condition of possibility, a non-participating first principle, the abstractness of all abstract concepts. But confront white light with other trajectorial modes (refraction, diffraction, dispersion), and something else happens: materiality, mediation, encounter. Cut the lights, and something else happens: spectral emergence. It takes all the colors of the human-visible spectrum to make white light. It takes one white light to erase any singular spectral length from the human eye. It takes one spectral emergence to challenge the hegemonic white light. Interestingly, the names of the two fundamental elements creating bioluminescence are called Luciferin (a protein) and Luciferase (an enzyme), that is, after the infamous carrier of light, the contradictor of the God figure.

Walter Benjamin made the connection between dominant history and white light:² minor stories are the different spectral variations of the major “transparent” discourse. The single wavelength proves the materiality and mediacy of white light; it reveals its opacity. Someone enters the room and turns on the neon lights. Everything disappears.

Kaje brings JJ very carefully to the bottom; the sediments could easily fog up the entire scene, jeopardizing the whole operation. The ROV drifts gently, with little hydraulic spasms. They’ve approached the breach, where highly dense waters form an underwater brine lake at 6,000 fathoms. Sounding the salty ooze, they remotely dip their gold-seeking fingers for something far more precious: some rare earths that could stock our electric frenzy. They dream of electric batteries providing energy for more white lights carrying the manifold information we crave. It’s all down here, the alpha and omega of humanity, its origins and horizon. Do you understand how much data we can embed in these rare terrestrial ores? One of the guests seems very keen to remind the well-composed neo-industrial discourse of green energy. Kaje delicately maneuvers the stick, guiding her own weight of technological innovation through the deep-sea primordial soup. JJ draws a dark wake in the placid lake. JJ also needs those rare ores to keep functioning. JJ likes that stuff; Kaje is fine with that; it’s just not her drug. Some other suit behind her spotted what looks to him like a submarine wreck on the infrared spectrum cast further ahead. “Did you know,” says the suit, “that some submarines have been spotted and destroyed because of planktonic blooms?” The bioluminescent plankton, when agitated, lights up and reveals the silhouette of any body moving through it, making it visible to predators or enemies. It’s supposedly a defense mechanism. “Alright then if you folks have had enough here we can move on to the next show before JJ here gets too tired. Might want to have a look at that sub.” Kaje is driving JJ to the edge; the wake thins in the ooze as the vehicle gains speed; bids are high on the nationality of the sunken sub. Organic matter in suspension is increasing as they move away from the underwater lake, caught in some downwelling current from the surface, lights of the ROV bouncing heavily on the pellets. “Visibility going near zero.” She makes the “ok” sign to her colleague, her eyes screwed to the central screen and the activity indicator. The fog of abyssal compost overcomes the ROV, and they go blind with light—uproars blasting in the room as the sunken submarine seems to have disappeared in the biological frenzy. Kaje kills the lights creating a dreadful silence around her. Complete darkness in the depths, and nearly 600 bars of pressure playing with the hull of the little ROV.

My eyes take a while to readjust to darkness. I have to shut them tight several times to make the dark halo disappear from the center of my vision. Slowly, the dim blue halo reappears. Amazing how these bacteria can survive at such different pressures. Found at 2,500 meters deep, nearly 250 bars, they maintain their luminous claim here at pressure 1 bar, in a radically different environment, their membrane shifting its elasticity. I'm attracted. Sometimes it feels like I could eat the blue. Cut the lights and light becomes non-neutral: attraction, alert, startle, signal, flight. In the abyss, light is a matter of life and death; one must always reconsider whether to approach or flee. Cast a light in the dark, and you are seen; something happens, a patch of event, a non-hegemonic story. The orange warm light of fire could have suddenly preserved from being prey and enhanced the possibilities of predation by cooking. The 490 nm cold light most often attracts predation when expressed as a soft glow, which, if you were a bacteria drifting in the immensity of the dark ocean, would be a good thing.

Sinking organic matter. From the surface of the ocean, particles drop and drift toward the deep ocean, carried by immense convection currents. Microorganisms tag along and feed on this decaying matter, some becoming luminescent in the process. At some stage of the growing collective organism, it becomes visible to others, a proxy for rare food. Their wish (hypothesis) is to be consumed, hosted in the digestive tubes and carried rapidly elsewhere thanks to a macroorganism capable of moving its own self. In some specific cases, symbiosis occurs, 490 nm becoming useful for another organism that will cultivate, domesticate if you will, the bacteria in specialized organs, light organs. These light organs can serve many functions, such as camouflage or counter-illumination: disappearing in the atmospheric light from above.

Light shared, consumed, defecated, worlded. A minor story of light with major consequences, world-making in blue. Dark dreadful abyss, or rather, mesmerizing displays of light in manifold entangled processes of encounter: meshes of light and death. Radical refractions and diffractions of our human modes of existence and thought, dreams and nightmares of translucent bodies caught in enlightenment that *matters*. (Figure 8.1).

Working with luminescent bacteria. Putting them to work, having them work my mind. A two-way non-balanced domestication, twin and anti-twin, a foil of the human condition as the sole shapeshifter. The ground and horizon of Enlightenment is the bacteria, from the perspective of this story in bluish.

Slowly a bluish shape makes its way through the ROV's low-light camera sensors, across the umbilical optic cable translated into electrons forming an image on the screens and shedding unexpected light on their eyes. Kaje sees it

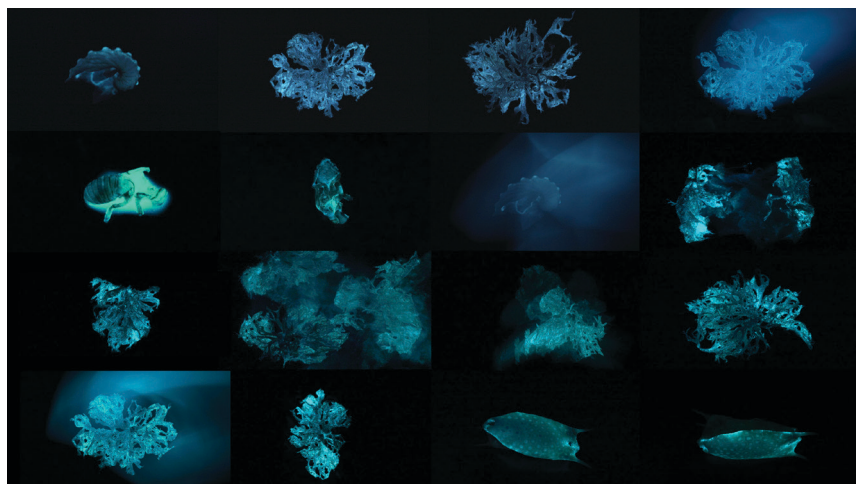


Figure 8.1 Post-natural archives of light. © Jeremie Brugidou.

first; she hushes the voices rising behind her. They concentrate their gaze. So, is it Russian or American? What is that? Indistinct dark silhouettes slither and shove in front of a vast field of glowing blue. Deep-sea conger eels, tube worms and blind sharks, some octopus squirting through the bluish dome. An immense field of light in the complete darkness of the abyss, forming a tail shape at the far end. “Whale fall,” she says, “covered in bioluminescent bacteria.” Life thriving around the luminous corpse. A massive body that encapsulated maybe 100 years of sunlight, transformed into whale flesh, fluids, blubber and bones, now retransforming into light, 490 nm. The abyss eating the sun, served by bacteria.

Things happen to light, and a light can transform in the course of events: photomorphic planet. The 490 nm wave of light forms an image, an image that matters to me and beyond the human. Untold stories occur constantly in the dark, and it takes one feeble light to make them audible to others. Shed too much light in these realms, and only one story prevails: our own same repeated mono-specific story. I dream of distant wanderings in the depths, in the dark, guided solely by the stories told by other species in their own wavelengths, and to follow the wakes of light.

Wavelength: 492 nm | Color: Infragreen

An Infragreen and Bipolar Tale of the Future

Thierry Bardini

iota had left for a time their duties at the Department of Odradek Studies; they had been called on to participate in a short-term assessment study for the Ministry of Super Heritage.¹ Since it was this Ministry that now solely funded the EMIPVE where they worked, their Head Curator made it absolutely clear that they did not really have a choice—anyways, it was not as if a few weeks away from their desk could have mattered at all. The study of the creature the department owed its name to had long since turned into pure exegesis owing to the fact it had obstinately refused to reappear since the original report by the Founding Father of the Field, F. F. F. kappa. iota's last piece of exegesis might have also accounted for this temporary reassignment. It seemed the higher authorities had not appreciated their humor when they had repurposed the original title of the founding studies to title their own piece “Further Cares of a Family Man.”

Anyways, here they were, in the wild. Not alone, mind you: this kind of duty called for a whole team of experts; much was at stake. They were not sure in which capacity they had been called to join, or in the name of which expertise, skill, or ability (maybe patience, they worried). But it did not matter; they counted themselves lucky to be able to rub elbows with such distinguished colleagues.

The team was led by alpha, the most famous curator in the field of Creature Engineering—one of the very rare fields that had not been disgraced by the vacuous adjunction of “studies” in its denomination during the Super Rebranding. alpha were a towering presence and a very versatile set of egos—they claimed to embody the very principle their work had introduced to the field: the intersectional diversity operating system for creature engineering. They, in other words, could not be easily figured out: they constantly shifted, materially,

mentally, and spiritually; their mastery of a new kind of RNAi processes in reCRISPR™ was so powerful!

They were joined by beta, themselves a super famous player in the domain of Creative Industry Marketing and Ecoresponsibility. They were even rumored to have been at the origin of the proposition of this so successful fusional repurposing, when environmental ethics and marketing had converged, under the guidance of a very dedicated crew of advisers to the Ministry, to which they did not belong. beta was everything alpha was not—if there was such a thing. They usually kept quiet, favoring long silences and pauses only interrupted by epiphanies. They had got tenure on one sole such epiphany, their legend went: in a Board Meeting, they had uttered, almost absent-mindedly, “I wish by GenCorp² these computations had been executed by ether.” They thus earned the nickname of Genitor of Ethereal Computation.

The rest of the crew was not as illustrious—although some yet unrecognized rising stars were probably lurking over the shoulders of these two giants for their own moment of glory. It went from delta, a non-binary whiz kid in adversarial generative network training, to omega, a truly fantastic mememaker who was held happily responsible for the coinage of the very motto of the Ministry, “Super Heritage is All about the Future.” There were also epsilon, the leader in Small Increments Instead of Progress Studies, pi a semio-mathematician well versed in all kinds of kipple detection, sigma, a digital epidemiologist specialized in meta-infections, xieta, a molecular gastronomist and fermentation super hacker, and of course them, iota, who were still wondering what they had done to deserve joining. Quite a crew indeed!

The topic of their assessment study was, after all, of the highest importance. It could very well, said the iMetrumors, change the face of the world. Some iMetoggers had even speculated that the metastructure of the whole civilized world could be affected by the alleged po'truth claim they were ordered to review.

The whole affair had started with an anonymous iMeX, as it often did, in the clickbait knowledge economy. This one, though, was particularly mysterious. It said, quite bluntly: “We do know how to make you thin(k).” And that was it. Nobody paid much attention to it at first—new iMediets were announced each week by the hundreds, and the play on the parenthesis passed for the tired po'structural joke of a bored (and probably overqualified) iMetacopy editor.

Some started to pay attention the following week; however, when the original claim was enriched by a chemical formula: C20H32O2x. An iMeek from Novosibirsk, who also happened to moonlight as a melted permafrost reverse engineer (as the heirs of the first mammoth tusk poachers had been

rebranded), instantly commented, revealing the common name of a compound corresponding to the formula, arachidonic acid, only to add that they had no clue what the x meant and could only speculate (. . .) At that point, the topic only interested super specialized hobbyists, and the buzz was intense but very localized in this particular iMetaniche.

That changed, again, the following week. This time, a couple of pictures of the before/after kind were introduced. The differences were spectacular: both assuming the famous Rodin pose, each version of the same model differed from the other by a good fifty pounds at least. The slogan also made quite an impression: “the next best thing before the Singularity,” it claimed. Now the intrigued and perplexed counted in the tens of thousands, and the early hobbyists were suddenly posing as pioneers and, dare we say, influencers. Chairman Ray even came on record to “deny all involvement of GenCorp,” only fueling the speculations—which were already running wild at that point.

At the time they started their work, the crew relied on their wide range of skills to learn a little more. π had surveyed the dark iMet in search of clues, only to find the interzone agitated with rumors of all kinds regarding “a new dope.” ω mega and σ igma helped figure out the subtle connotations of the advertised product: “thin” suggested an amphetamine (C₁₀H₁₅N) of sorts, “acid,” well, acid (C₂₀H₂₅N₃O), “think” alluded to some derivative of MPH or Ritalin (C₁₄H₁₉NO₂), and x , well x could mean anything, as in mathematics. First, they wondered if this x could stand for another atom—like nitrogen (N), which appeared in the formula of all the other compounds. But the valence would be wrong then: it would mean at least three less hydrogen atoms in the formula, thereby giving C₂₀H₂₉NO₂: Bremazocine, a very potent opioid, or Penequinine, a compound used in some parts of the world for various afflictions. No, this x could not refer to an atom, they agreed. What could it mean then?

They pondered a little more what arachidonic acid might have to offer. α alpha reminded them that it was an essential fatty acid (EFA) of the omega-6 kind, that po’humans, augmented or not, could not synthesize, and that usually came from fish or red meat in their diet—when they could afford it. It was the chemical messenger first released by muscles during intense weight training, controlling the core physiological response to exercise and regulating the intensity of all growth signals that followed. But it could also trigger brain inflammation, depressive, and even suicidal episodes. It had also been shown to boost testosterone production. Some of the derivatives of arachidonic acid were endocannabinoids, the so-called “happiness drugs,” attenuating sensations of pain, stress, and anxiety, increasing hedonic pleasure in food, and many other

things (and sometimes even their opposite, depending on the dosage). “These are the serious neurotransmitter stuff,” summed up alpha, authoritatively.

They decided to use ξeta’s connections to hunt for more information. It would be easy. The annual gathering of the iMet Institute of po’Truth-sponsored Church of Biohacking would be convening in a week. H+/DiY major players would all be there, under the wise patronage of the highest high priest himself, Jorge ReGene—there were huge expectations around Heldon Dusk, Vannevar Venture, and JoeJob Zap’s participation in an overlord panel on “Infra Green Exploits,” the theme of this year’s gathering. Infragreen was indeed the color of the year, precisely because it was not a color, but a state, and even more, a critical state. Measured at exactly 492 nm wavelength, it was an indefinite wave, between green and blue phases (for those who see accordingly), a state of in-between waves, just at that cusp, that moment, when the two phases were indistinguishable. So, in this sense, infragreen was neither green nor blue, but both—and none. “Blue like hope and un-green like our future,” had famously commented Jorge ReGene when they had announced the theme of the year.

Delta, epsilon and ιota accompanied ξeta, posing as their *entourage*—ξeta had reached the status where they could afford such a social front the previous year after they nearly landed a deal with GenCorp for “a new kind of bioplastic made of fermented liposucted fat.” The deal, however, was presently on hold while the conglomerate’s lawyers were assessing the ethical and marketing drawbacks of using human fat in a production process (usually referred to as the fight club conundrum). Meanwhile, ξeta’s popularity was not suffering from this drawback; quite the opposite: they were enjoying the highest value of the Goggle Gartner Index since Heldon Dusk had bought iMeX, fifty years earlier. An insanely great exploit indeed, raved the iMetoggers!

They eventually mingled according to their own fields of expertise: delta attended a panel on “Deep Learning and Sustainable Ecopractices,” epsilon one on “Externalities of Posthuman-Sourcing Environmentalism,” and ιota, who had deplored the absence of an Odradeck-related panel, ended up joining the cryptically entitled “I See No Infra-Green x Here.” ξeta, as their status demanded, schmoozed in the corridors of the Convention Center, pretending to be on their way to a fan-tas-tic panel. There was, however, not much to report when they met again that evening. ξeta, expectedly, had only gossip. Delta was baffled by the fact that all the presenters at their panel were, in fact, IP lawyers, epsilon answered that they were all nostalgic Lessigites at theirs, and ιota had to confess that they had not listened to theirs at all. They were distracted, they claimed,

by the presence of a strangely familiar character in the audience of seven who attended. Intrigued, Delta and epsilon demanded to know more.

As unbelievable as it may have sounded, Iota were convinced that it might have been Kaspar “Green is no Dream” Hauser, the illustrious curator of bioarts! This legendary pioneer—they had practically created the field long before all arts had become *bio*—had been rumored to be dead on three separate occasions. First, by the hand of another famous founder of the field, Eduardo Coelho, after a heated discussion at the 2049 edition of the *International Symposium on the Elusive Arts* in Bali, where they had seemingly argued over the existence of fluorescent leporids; second, by the hand of yet another pioneer, Orton Carrel, the artistic tissue culture king, after yet another violent argument at yet another international conference—about who was the true founder-daddy of all bioarts; and finally, over a grant attribution, by an anonymous, albeit jealous reviewer; *Hic occultus occulto occisus est* they allegedly uttered during their trial. Hauser survived to invent a new field of studies even before the great rebranding, as early as 2018 (thirty years before the Singularity!), while at the same time criticizing its very foundation. In a flourish of critical thinking, he had written:

Despite its at first sight positive connotations of aliveness and naturalness, the term “green” incrementally serves the uncritical, fetishistic desire to metaphorically hypercompensate for a systemic necropolitics that has variously taken the form of the increasing technical manipulation of living systems, ecologies, the biosphere, and of very “un-green” mechanization.³

Some witty iMeditorialists had noted that the choice of this year’s DiYBio Church gathering theme “had finally vindicated Hauser while at the same time, in a truly classic rebranding, spun off the negative connotations of their un-green concept.” Some nastier individuals even wondered “if they had not been free-lancing for the Church (and thus, indirectly for GenCorp which is, as everybody knows, the sole patron, with iMet itself, of the iMet Institute of po’Truth).” Anyway, their presence was far from irrelevant if it really were them. The crew decided to find out and try to interview them, if possible. That was, after all, the only next logical step for their stalled investigation.

It happened by chance, at first sight. They spotted them enjoying a local smart drink in the hospitality lobby of the Institute. Indeed, it was Hauser! Zeta recognized them instantly (they knew everybody who was somebody after all the charity cocktails and venture capital events they attended during the past year alone). Iota made contact, chatting, and gossiping aimlessly, as anybody in their right mind would have done on such mundane occasion. They waited for

the opportunity, late in the evening, to ask them for an interview the following day. Hauser accepted.

It is this interview that gave them the invaluable lead to the solution of the riddle of the *x*. After a score of questions, both biographic and conceptual, *ota* surreptitiously led the interview toward the arachidonic acid story—everybody was commenting on it at the gathering, so it was not that suspicious. Hauser was a bit cautious at first, but patience and more *MateX* helped them open up; somehow *ota* had the intuition that they were personally involved in the story. For once, their intuition was right.

Here is the story that Hauser told them

During the roaring twenties of this century, while they were temporarily working in Scandinavia, they had met Isidore Sebastian, of the Critical Gardening Collective. Sebastian and their acolytes were then working on a project to establish a moss garden at the Botanical Garden of the Northern American city where they happened to live at the time. The world was just [*sic*] starting to worry about the Anthropocene back then, and the Collective had convinced the authorities of the Garden that it was time for them to engage their public on this issue.

Moreover, that had convinced them to do it without too much didactic pretense, and revolutionarily so, to let the said public make up their own minds. This was partly why they had chosen to establish a moss garden, in the Japanese tradition of such contemplative spaces, but also elected to do it with some special mosses, the so-called “bipolar mosses.”

Mosses are ubiquitous and yet rarely noticed, they had argued, as old as life itself when it finally got out of the ancestral waters. One used to say “primitive” or even “inferior” life-forms, barely hiding their disdain. Gardeners usually wanted to get rid of them, no one ate them or made tisane out of them, nobody had ever heard of a miracle cure they provided. They counted for less than nothing, insignificant, at best some sort of poor man’s combustible, matter for a cat pillow or sponges for those who lived too far from the sea. It had been said that in the old times they were used to quench menstrual blood.

Looking for a living antithesis to the famished polar bear, a pet Anthropocene icon of the time, the sobriety of these mosses instantly seduced them. The Collective was made of gentle idealists, quasi poets, at first. Mosses were the residual scum, they claimed, the long-lasting memory of the grounding of their

algal ancestors on the dried shores of a receding primordial ocean. “Bryophytes,” their scientific name, meant what grows, multiplies, and proliferates. They existed at scales of space and time humans could barely comprehend. They were slow, so slow that humans often took them for dead. They lived in deep time, the time of eras and eons. They were the first terrestrial descent of the perpetrators of the great oxidation, mighty and terraforming.

Bipolar mosses were bryophytes showing a disjointed distribution on earth: they grew in high-latitude areas of both the Northern and Southern Hemispheres. They were not uncommon; bryologists estimated then that 45 percent of all mosses growing in the Antarctic were bipolar. Yet, although they had intrigued them for a while, they could not explain why these mosses were characterized by these extreme split distributions. It had not escaped the Collective, said Isidore Sebastian, that “bipolar” was also the adjective of choice for that time—who wasn’t, in those days, always on the wrong side of the fence, alternatively slightly over-enthused, slightly too depressed? (See Figure 9.1)

The Collective, Hauser claimed, originally coined the expression “infragreen”: but they were after another kind of fetish, a modest one (they called their mosses minor life-forms), a slow one, and yet a ubiquitous one. They soon identified seventeen species of such bipolar mosses then present on the grounds of the two biological research bases where they intended to carry out their field work, in Kilpisjärvi, in Finnish Lapland and on Navarino Island in Chilean Patagonia. They started interviewing botanists, gardeners, ecologists, all kinds of “scholars” and “*bricoleurs*,” as they were still called back then, before the EMIPVE.

The Century, however, did not agree with their plan. First, the great pandemics and the Ukrainian War countered their efforts. By the time the first pandemic cooled off, Finland had entered the war. They thought they could keep on at first, substituting a research base in Nunavik for the sadly unreachable Saami station. Alas, again, the Century refused to cooperate. They then learned that the Chilean authorities had used the pandemic to “temporarily” transform the Navarino research base (it was then called the Omora Ethnobotanic Park) into a hospital, and then, when the pandemic left the scene, to simply shut it down. Some local hacker friend told them that the plan was to transform the whole island, despite its UNESCO protected status, into an iMet server farm. The Collective imploded with this news. Its internal stress was too high; an irreconcilable split ensued: some idealists stayed idealists and disappeared to cultivate their own gardens, while others turned to ecoterrorism and instantly joined the Earth Liberation Front.

Isidore Sebastian’s soul was crushed. Nobody ever heard from him again. They were rumored to have moved to Shanghai and worked in high-frequency



Figure 9.1 Untitled, colored pencils on canvas, 6' × 4'. © Beatriz Herrera, 2025.

trading (another version had him working in cryptocurrencies), or to have been the ghostwriter of a very famous “academic best seller” [*sic*] about the curse of oil—*cyclono*-something, Hauser did not remember the exact title . . . what they remembered, however, was that before disappearing, Sebastian had hooked up with Alona Retive-Almajant, the bioartist and chemist extraordinaire. In one of their performances with their own artist duo, *Realist Speculative Art*, A. R. A. (as they were known in the art *milieu*) had consumed their own body weight of

Tortella tortuosa, one of the seventeen CGC bipolar mosses, allegedly to become many with it. Sadly, the main attribute they seemed to have acquired through the process was the bryophytes' bipolarity—no pun intended. They also dropped out of the scene shortly after that.

Here ended Hauser's story

It was enough of a lead to go searching for A. R. A., or so *iota* thought. But before they could do so, during their final debriefing at the gathering, *ξeta* stunned the rest of the crew by revealing the po'truth, the whole po'truth and all the po'truth. Thanks to their special set of skills, they had been planted as a mole in the team by GenCorp, with the express agreement of the Ministry. Only they knew that the true purpose of the team's efforts was alternative fact-checking, or, in other words, that they had been called upon to verify if all tracks had been well covered for the arachidonic acid story to remain a mystery. Unfortunately, they were not; Hauser's story, as told to *iota*, was proof of that. Now, they continued, their assignment was over; a different team would take care of Hauser. They only had to sign a Non-Disclosure Agreement before being allowed to return to their normal lives. They all knew they could not refuse. GenCorp was not exactly joking with their trade secrets.

The "formality" done, they told them the end of the story (they did not exactly understand why—maybe they had become perversely attached to this group of "colleagues," these overqualified fools?). During their investigations, it seemed that Sebastian and the Critical Gardening Collective had come across an interesting piece of knowledge. Though most ethologists and botanists of their time knew for certain that mosses were of no dietetic value, they read in one scientific paper that

Quite surprisingly, bryophytes are freely consumed in quantity by Arctic and alpine vertebrate herbivores such as reindeer, caribou, musk ox, most Arctic-breeding geese and lemming. Why then, if Arctic and alpine herbivores do not feed on bryophytes for energy, do they ingest such large quantities of bryophytes? The presence of a specific chemical compound, arachidonic acid, is a possible reason why these plants are eaten under cold conditions.⁴

Arachidonic acid is also present in algae, ferns, and *Ginkgo biloba*, but is absent from other gymnosperms and all angiosperms. Among the plants in which it has been reported, the concentration of arachidonic acid is highest in mosses (up to

35 percent of the fatty acids). Arachidonic acid has interesting properties for life under cold conditions. The low melting point of the molecule (49.5°C) might contribute to the lowering of the melting point of fats, which aids in maintaining sufficient limb mobility at low temperatures. Arachidonic acid also offers protection to cell membranes against cold, enhancing membrane fluidity and thus permitting continued enzyme function at low temperatures. Since animals are not capable of synthesizing arachidonic acid, it is adaptive for those living permanently in cold regions to eat moss.⁵

Speculating on the possibility of some adaptation to cold resulting from A. R. A's humongous ingestion of *Tortella tortuosa* for her performance, they got more than what they had bargained for with Mother Nature. They had picked *T. tortuosa*, probably for her poetic name, unaware this bipolar moss had more secrets in store. First, it contained the highest concentration of arachidonic acid of all mosses, accounting for an amazing 52.1 percent of its fatty acids. Second, they later learned that it made up an even more amazing 78 percent of the winter diet of a lemming of the tundra, the northern bog lemming (*Synaptomys borealis*), for a good reason: these lemmings, also known as "the pantry of the tundra" synthesized a very remarkable lipase enzyme that allowed them to metabolize completely not only arachidonic acid but nearly all the stored fats of their body!

It just so happened that A. R. A's bipolar becoming-moss performance followed a becoming-bog-lemming performance during which they had been perfused with a good quantity of lemmings' blood and had grown a striking pair of moustaches to appear on stage as becoming-bog-lemming. They had done so to introduce their always willing fan base and numerous patrons to the first ecosystem-becoming set of performances, because, they argued, "the pending ecological crisis demanded it." The nasty iMetacritics responded, however, that "their true motivation might have been that becoming-animal or even becoming-plant was getting a little too mainstream in this re-CRISPR™ era, when copy-cats had become oh so tired."

In their becoming-bog-lemming performance, A. R. A unknowingly inherited the lipase enzyme of the rodent. Not only did they suffer from bipolarity for a good while after the performance, but they also lost a tremendous amount of their body weight and gained apparently incredible thinking and memorization abilities! Biochemist extraordinaire as they originally were, and now both augmented and diminished by the said combination of *T. tortuosa* arachidonic acid + bog lemming enzyme, it took them not long to realize that the potent mix

they had encountered by chance (or fate?) was a stroke of good fortune, literally so.

The rest of the story was easy to guess. In true Speculative Realist fashion, the next logical step was to offer the amazing discovery to the only conglomerate that would be able to massively produce and market it worldwide, that is, GenCorp. At that point in the story, ξ eta literally became infragreen, realizing that their liposucted-fat-based business plan was in jeopardy . . . well, actually, dead. They had been the GenCorp fall person, and they would probably compensate them for that too; anyways, they had signed the darn NDA.

To the rest of the crew, they made amply clear that GenCorp really expected them to honor their NDA engagements: the conglomerate could not be openly associated with arachidonix™, the brand under which the product would soon be introduced on the dark iMet only. The dosage of its two active ingredients, being, well, quite delicate, its side—and often contradictory effects were too much of a liability for such a well-established company. A maze of shell companies would do the trick; it was, after all, infragreen business as usual!

As they concluded their story, β eta felt the pleasure of yet another accomplished mission and decided they could return to their occult consulting business with a smile. Sure, α were mad at them for having played them for a fool, but the rest of the crew, truly inexperienced fools that they were, thanked them for having provided them with such a learning experience.

For the first time in ages, ι ota, for their parts, seemed relieved to return to their duties at the Department of Odradek Studies.

Wavelength: 530 nm | Color: Pure Gold

Hyper-Vanguard: The Future of a Thousand Sects

Jason Bahbak Mohaghegh

One might explore the vision of some conceivable future city where space is endlessly divided into the precincts of distinct secret societies: thus, we might project a schematic of radical factionalism and micro-territoriality in which infinite vanguards rise and fall, each with their own convoluted vows, rituals, philosophies, and control rooms. Some sectors align according to technical interests or scientific obsessions, still others by architectural or artisanal practices, others by aesthetic dimensions of appearance or confidential emblems, others by a single mystical hallucination: yet each following a lone watchword that forms one keystone to the future (time, space, movement, image, illusion, cosmos, body). The result is the inexorable segmentation of outer reality into intricately detailed and intimately fanatical strata, each with their own careful orchestrations of consciousness surrounding their chosen passcode. Moreover, each bloc would oversee its own unique theater of operation guided by certain specific visual images, object worlds, performative or ceremonial choreographies, classified records, and enigmatic doctrines. In opposition to the homicidal archetypes of nation or empire (which presume totalitarian, world-unifying projects), these hyper-vanguards would exist in states of creative encounter, subterranean trade, fatal conspiracy, or rivalry with one another. Accordingly, the internal structures of such alliances would also become increasingly susceptible to fragmentation, transformation, intensification, and sectarian twists (following the breaking patterns of crystal lattice arrangements or the serpentine design of mazes). Rather than consolidate authoritarian regimes into the monolith of a Republic, here one dreams of a mesmerizing series of counter-enclaves where the carnivalesque proliferation of secret societies would leave the order of things suspended in lighter conditions of vulnerability, chaos, treachery,

metamorphosis, intrigue, and evanescence. This is the connection to the color of pure gold, as we follow the piercing gaze of the alchemists toward a precious substance that might supersede all others in its gifts (those of wonderment, arcane power, invincibility).

Hereafter follows a descriptive outline for this model of simultaneous interface, seclusion, and adversariality within a metropolis for the times to come. It will reflect upon the free traversal of passengers across porous borders and through undergrounds, hosts of new arrivals circulating from sphere to sphere in search of another entrancing matrix of perception (attracted by whatever aspect of fascination in their iconographies or lines of thought). Hence the hyper-vanguards come to embody their own vying isles of enchantment, participating in an omni-seductive game of trespasses and shadow-visitations that resemble the delirium of ancient mystery cults, medieval guilds, martial arts temples, pirate coves, rebel cadres, urban gangs, avant-garde groups, and magical orders. By extracting the most elaborate gestures of these inner circles, tracing their miraculous potentials for ingenuity and then irradiating them as a futural blueprint, we will tempt the boundaries of a phantom epoch whereby the will to violent originality supersedes the violence of the origin. To follow the paradigm of a hall of mirrors or of the anarchist's masquerade.

Does this city belong to a forgotten past or to an improbable imminence? Both. Neither. Rather, the sects of pure gold are all tied to the millennium-stretching search for the Alkahest, that one priceless substance (here a notion, utterance, legend) that could dissolve all other substances in existence (to disappear the world); grant immortality to its inventor (to be the last one standing).

Rules of the City

There are certain rules to be observed, etched in indigo-stained ink upon the torso of a gigantic guardian who cleaves himself into four parts (note: this allows him to stand atop four different pillars at the corners of the city). He is the Elevated one, severed into four worn echoes of the same formula, and whose routine quadruple death marks an opportunity for the revision of parameters.

1. All entrants must relinquish their names at the city's first archway and proceed in states of anonymity, incognito, facelessness ("blank-slate principle").

2. No personal details or individual histories can be shared beyond the gate (“zero past principle”), and entrants are advised to conceal or distort their accents, walking customs, culturally sanctioned disfigurements, and any identifiable fashions or facial expressions while in the city. If another can discern their place of origin, the entrant is penalized with six months of banishment from the city walls.
3. Each sect is ruled through extreme master–disciple relationalities. Some possess only one master (“the icon”) and others an assembly of multiple masters (“the table”).
4. Entrants have three days to decide their first allegiance and begin initiation in a particular sect (“the acquiescence”). They demonstrate this inclination to join by locating the highest point in a respective sector and kneeling until acolytes arrive to guide them through the first doors.
5. Entrants are allowed to roam through the external avenues of each zone but can traverse no interior structure while untied to a specific order (“drifter principle”).
6. Entrants can ascertain traces of information about the various sects by probing the neutrals found stationed throughout the city. However, these neutral agents speak in half-truths and maintain the balance by reciting one misleading clue for every fact. It remains in the discretion of the interrogator to differentiate these signs.
7. Once an entrant is committed to a certain sect, they are allowed to speak only in the form of questions for the entire duration of the first year (“imploration principle”).
8. Entrants are allowed to switch sects a total of four times, joining five separate orders in a lifetime (“rotation principle”). On each occasion of requested departure, entrants must either: (1) offer the former sect elders a minor physical appendage in gratitude, such as a finger or earlobe (tribute); (2) go one year in the city wearing a mask or veil (humiliation); or (3) spend an interval as a neutral until finding another to fill their void in the sect (replacement).
9. Entrants who resolve to leave their fifth and final chosen sect are permanently expelled from the city, tattooed with a character of stigma, and prohibited from all right to return.
10. Any discussion of the practices of former sects in the setting of other sects receives a sentence of immediate excommunication. The masters maintain an unbreakable oath to punish those who share secrets between zones, though espionage is allowed through other established modes.

11. Collusion among sects is encouraged, though only vitalizing acts of sabotage are permitted (called “abrasion gifts”). Thus, there are cautiously delineated cellars, offshore rendezvous points, illicit trade routes, and black markets where subterfuge thrives.
12. Sects must look nothing like each other—visually, materially, sensorially divergent—though each harbors a single defective feature (trap door, glitch) built into its formation. Certain sects warn their disciples of the location and nature of this embedded flaw, while others leave it as a test revealed in the progress of training.
13. Each sect decides its own protocol for how masters are overthrown (“defiance principle”), though their unseating must culminate in a festival or banquet.
14. Sects can disband of their own volition, though their resignation must be accompanied by a staged spectacle on behalf of the entire city (exiting at the highest phase). Once self-abolished, sects cannot resurrect themselves until one hundred years have passed, and new petitioners must share no heredity or bloodline with members of the former iteration.
15. Those who are removed for having failed their teachings, betrayed trust, or disrespected codes of their sect are made to occupy a severe perimeter (“the unmarked”) for no less than five years. Note: These disgraced are allowed to form their own unique sect here and challenge other sects once a year at a designated period for peril, feuding, and laceration (“retribution principle”).

Faction 1: Time Sect

The upper left quadrant of the city belongs to the Time Sect, who believe that the Alkahest can only be unlocked through experiments with temporal deformation in a carousel of alternating whiles.

They worship midnight as the centrifuge of all hours.

Their architecture is composed of hourglass structures: by evening, disciples can be seen reclining along the glass curved facades (when they die, their bodies are committed to the sands within).

They renounce all chronological modes as heresy, an impostor to their more complex and subtle god (of flashes, increments, warps, cycles), and practice the ritual smashing of clocks.

They study the sudden, the eventual, and the triangulation of events through the unlikely.

They count backward to will outcomes into reversal; they omit numbers in their equations to defy the conventions of linearity; they tabulate stutters, lapses, and skipped heartbeats in adoration of lost moments or missed chances; they ban all talk of forever (as this would cheapen their divinity) and persuade Being itself toward the menacing profile of the split second (Figure 10.1).

It is therefore written:

The Time Sect is the source of accelerative and decelerative power. They govern an aspect toward knowledge of things rushed, slowed, or frozen still. They rule over hypocrites, eavesdroppers, liars, hypnotists, charlatans, storytellers, and saboteurs. From the languages, they govern those dialects of whisper and raving. From the external appendages, they govern the index finger. From the internal organs, they govern the nerves from which electrical signals make their way across skin and brain barriers. From the instincts, they govern those that cause exhilaration or panic. From the religions, they govern archaic cult grounds, forsaken god-types, and those whose loyalties shift over long durations. From cloth types, they govern silk. From the crafts, they govern trades based on fractal arrangement: glassblowers, lantern-makers, gemologists. From the tastes, they govern saccharine and powdered substances that dissolve on the tongue. Among locations, they govern all chasms, rifts, ravines, craters, gulfs, cracks in surfaces, and sites of volcanic rupture (domains that tear along fault lines). From the stones, they govern the white-veined rocks of quartz and marble. From the metals, they govern iron, carbon steels, and vanadium to produce the hammering rhythms of blade forgers. From the plants, they govern the most aged seagrass meadows (mosses existing hundreds of thousands of years across ocean floors) yet also those short-lived ephemerals of the scorched plains that flourish and perish within a few weeks. From the spices, they govern those derived from the rarest flowers or herbs: saffron and the dark red berries of the sumac bush. From the incenses, they govern the murky resins of those typologies of agarwood (the Wood of Gods) found in perfumes and small hand carvings, the chemical scent components of those royal ouds carried along old Muslim trading ports. From the animals, they govern the reptilian slithering things, whatever crawls on its belly or uses tail strikes to sting: snake, serpent, scorpion, as well as mythic dragons. From the colors, they govern midnight blue (sapphire).¹



Figure 10.1 *The Black*, 2022. © Jason Mohaghegh.

Faction 2: Space Sect

The left center quadrant of the city belongs to the Space Sect, who believe that the Alkahest emanates through a delicate sequence of traversals: that is, not submerged within a specific forest, but rather the reward for having tread every supposable forest (frontier exhaustion).

They worship the hidden paradoxes of all things that dwell at crossroads or forked paths.

Their architecture strays among the minuscule (molecular bonds), the granular (gravel formations, avalanche flows), and the all-engulfing (astral patterns), effectuating vertigo through the fluctuation between microscopic and immense planes.

They renounce all tall walls and have been said to murder tollkeepers as offenders of the unbound.

They study the many processes of decomposition and recomposition of silhouettes: wind-borne debris (aerial scattering), geological splash erosion (tracing the impact of a falling raindrop), erasure of footprints (by elemental or forensic means), and the varying morphologies of decay and corrosion.

They build altars in the borderlands; they congregate across equatorial coordinates; they unbury their dead elders on random nights to inter their tombs in alternating graveyards; they hold devices that gauge the thermodynamics of thresholds (fragility, anticipation, weariness); they speculate on the implications of flipping vertical and horizontal axis phenomena. There is no such thing as sacred geometry here, as all geometries retain a double-edged sense of opening onto both paradise and annihilation.

It is therefore written:

The Space Sect is the source of atmospheric power. They govern an aspect toward knowledge of topographies, orbits, climates, and ambient forces. They rule over figures of both wandering and destination: sailors, runaways, caravan leaders, and all travelers facing countdowns or deadlines to a journey. From the languages, they govern those speech acts that carry themselves insidiously like dreams within a dream: the rumor, the echo, the allusion, the hint. From the external appendages, they govern the heel and the ankle. From the internal organs, they govern the liver yet also the connective tissues (tendon, cartilage) and arteries. From the instincts, they govern those that cause convulsion, loneliness, adventure, or restlessness. From the religions, they govern all lightweight idols that are easy to save from burning rooms, and those theologies predicated upon tales of portals, stargates, gods in exile, or gods in isolation chambers. From cloth types, they govern leather and wool (protective materials against the harsh outside) and instruct their children in the sewing of nomadic tents. From the crafts, they govern whatever trades of the intermediary (smuggling) and those that tamper with scale (disproportion), including those of the miniaturist, the tightrope-walker, the contortionist, and the guides of uneven terrain (swamps, dunes, minefields). From the tastes, they govern the bitter, the acrid, and the desiccated; yet also all rich substances used in anesthetic traditions (lavender, mint, lotus, cinnamon, hemlock). Among locations, they govern all tribal lands, temporary shelters, wayside inns, oases, guerrilla headquarters, and barbarian isles in support of asymmetrical warfare against imperial mapping. From the stones, they govern the ebony and the obsidian (to blur the reflection of so-called actuality). From the metals, they govern those blast furnaces of copper smelting

and the synthesizing of coins, horseshoes, and bronze arrowheads used primarily in raids. From the plants, they govern the genus *hedera* (ivy) and *vitales* (vines), and all forms of tendrils, twines. From the spices, they govern the most faraway seeds (savage cuisine), as well as the salts of exotic locales. From the incenses, they govern the thicker red sandalwoods used to flavor alcoholic drinks, to cure coughs, and in blood-purification rites. From the animals, they govern those who practice camouflage and biomimicry (becoming space itself—chameleon, spider, bat, octopus), those of flight and migratory habits (falcon, crow), all predatory agile cat species (clouded leopard, panther), and those creatures who lay waiting in ambush (jackal, mantis). From the colors, they govern the crimson pigments and ruby-tinged arsenic.

Library of the Gharib

The only shared edifice of the city is the library, an archive that follows the singular axiom of the *gharib* (Arabic meaning strange, unusual, remarkable, or alien). It implies the extravagance of supreme foreignness, such that to read a book of this quality is to enter an epistemological elsewhere that risks the mind itself before the cliff's edge of unknowing.

The *gharib* has many cryptogenic origin stories, one of which can be visualized as a kind of extraordinary architecture found in the ancient world. Essentially, let us contemplate the amazement instigated by those architects of the earliest civilizations who were told to build towers in the middle of a desert tract. Suddenly, in the heart of a desolate outer landscape, this jagged vertical structure of an obelisk or pyramid would rise up and stab at the horizon's expanse: yes, we can perhaps first locate the *gharib* in the euphoria of that solitary gesture of the old stonecutters who would chisel against the open sky, and to wonder what would happen if all consciousness imitated this anti-monument of a lone tower in a wasteland (to rule the chasm).

The library's interior is no less staggering, for its most prized artifacts are taken down from shelves and lain across the ground in an extensive mosaic. There are literally millions of tomes to select from, those millions forming thousands of winding rooms, their floors covered and spreading like a crystal network in those sleep caves on the outskirts of the first capitals. But then the task is to somehow bind these shattered creative particles into some kind of insane column or dome. Sometimes a single word is enough to raise up an entire

universe—*gharib*—a conceptual signature that can coalesce an otherwise trivial configuration of excerpts collected for centuries into a stronghold that has no right to exist, a citadel that is like no other because it combines the syntax of ecstasy and obscurity. This library is the engraving of an omen delivered to the house of the ultimate—that we are all troubled, all latecomers (if even too late). Whether decorated with pictographs of solar modulations or clay tablets engraved with the numerological striations of millenarian cells, the prime function of each manuscript remains: to exalt the circumstantial and the episodic (as if each word honors only those of the last breath). This is how one builds militancy within the unstable draws of a lottery; this is how a lone catalog observes the mercurial challenge of turning a desert of words into a philosophical tower where thought might throw itself downward over and again on the stones below.

So let us return to that momentary image of our staring out at the aisles of books lining the surface beneath our feet, like being in the antechamber of a pyramid whose hieroglyphs were wrested from the peripheral walls and now straightened ahead as an arena divulged, layer upon layer, pedestal after pedestal, until their rings collapse the boundary between the world and the otherworldly. This is why the *gharib* can be considered a passage through many compartments: all techniques of learning must follow a kaleidoscopic program, much like the labyrinth where one corridor unfolds into multiple breakaway corridors, its texts positioned like keys turning in heavy locks.

Furthermore, to locate a *gharib* work is to uncover something like a rare gem (that turns its jeweler inside out): the most involved, refined, and dangerous item—the borderline-lethal dose, right at the ledge of where the reader skates oblivion. When allowed, the *gharib's* intent is to encircle thought in elusive rivulets of awe and drown it in the dim pools of an unparalleled impression—the music box that plays a haunting song heard nowhere else, or that one cursed necklace that gradually infects the collarbones of its wearer, or the lantern that reveals palimpsests of supernatural script behind the supposed words of a volume. Hence, each sample of the *gharib* (whether a short sentence or an anthology of innumerable pages) functions like the unveiling of an irreplaceable relic that extends a certain unspoken sensitivity: a thousand black boxes, each settling its own score—some containing fever, others oceanic theories, others the knowledge of poisons or razor wire or illumination—but contributing together to the inception of a quest to understand how a brutal riddle might work. Philosophies of eclipse, banditry, deceit, and abduction: and between their archways, countless semblances of derangement—at once the most thrilling and disastrous. And all devoted to this one compulsive paradox, the same that fueled

the laboratories of those ancestral practitioners of the *gharib* who dabbled in nitric acid, mercury, sulfur, or quicksilver and sought the conversion ratios of pure gold: that sometimes, to find that one most enlivening thing, one must also unearth that which will bring worlds crashing down around us.

With this established, the *gharib* is also a principle of transfixion (what excels in the specialized modalities of haze and captivation), which means that every document of the library rests along the sliding scales of mood and tone. This is the double-mechanism of the chase: *mood* as a gauge of atmospheric temperament (how the air feels there), and *tone* being the narrative instrument that guarantees its affective infliction (a machinery of gradual incision). Nevertheless, what many people might miss in a *gharib* work is that this pendulous swing between promise and devastation, fury and purge, can happen with the slightest inflection of the wrist or throat. For there are those who spend lifetimes studying the temperature levels in language, alliterations of sound, or the meticulous ruining of images: those who convey the most immersive contours of coldness through depictions of perplexity and vanishing; those who drink only incendiary substances and treat words like incandescent lamps. So it is that the *gharib* can simultaneously attain an iced style (tremor, chill) or burning effect depending on the most minute dilutions, insinuations, or subtractions—the deletion of an adjective, the compression of a syllable, the exacerbation of a disquieting symbol—that again hangs us in some condition of the unrelenting. This is how the library becomes a sanctuary of unexpected consequences: a book on chalices might induce a wave of nausea; a book on the history of obstacles might induce the sensation of falling; a book of diagrams of catapults might induce mortification. All are magnificent.

Regarding its schedule, the library of the *gharib* opens only at midnight interludes, for its after-dark stores those forces of astonishment that give rise to almost metabolic procedures of the inconsumable and the unbearable (testing the outer edges of our capacity to endure). Its nocturnal universe treats identity like a discarded piece of paper, allowing amnesic rifts of time to dig out yet another channel of willed contradiction: to entertain hours of abstraction, distance, and ghostliness that then translate into the highly vivid manifestations of a book. The implicit becomes explicit, the inconspicuous grows flagrant as readers prowl to win their share of the perfect secret: that is, the indecipherable thing that even when inscribed remains a puzzle or rogue idiom, or perhaps enhances its own illegibility whenever disclosing its rhyme and reason. This is how the *gharib* occupies something beyond the realm of both fantasy (paradisiacal longing) and nightmare (monstrous turn), for in every fast glimpse we find some inhalation

of the impossible (that this cannot be happening) which both frees and arrests language, meaning, breath, mind. There is never disappointment here, only the modest steps of those who have arrived tonight to call the discreet forward into the outlandish.

At long last, the *gharib* is also a trial by madness. Beneath its interminable stacks, all visitors partake of the linguistic trinity of the *fugere* (Latin meaning “to flee”): at once fugitives, refugees, and conductors of psychogenic fugues. And how exactly might a stockpile of miscellaneous literatures reign over the onset of prolonged dissociative splits? In this sense, the library is also a festival that by definition convenes a forum for the transitory exchange of personae or substitution of selves (role-playing): this is why some drape themselves in fangs or horns before approaching the spires, while others use cosmetic adornments to exaggerate their eyelines. Here, all are pretenders; all participate in that paused world where the “I” must falter before the beautiful psychosis of the costume, the disguise, and the pseudonym.

Now, this descent into conjectural regions can often take the shape of a nihilistic undercurrent (those with nothing to lose; lost causes) whose testimonies are based in vengeance, spite, abandonment, or futility. So it is that the library often attracts those who want a dice throw in some kind of endgame (mirroring a throwaway cosmos), who revel in the adaptation of treasure into trash and vice versa. Indeed, one can be mercilessly fluid when past and present are disarmed in irrecoverable ways, these shaded types who arrive precisely to announce the death throes of worlds and who perceive books as sheathed knives . . . without oaths, fears, or expectations (just the accursed prototype).

But then there is the other side of its figment: those who influence the theater of imaginary perception with a touch closer to delight. Thus, the *gharib* resembles something like the telekinetic etymology of the term “lunacy,” whose branching root fuses the advent of madness to the night’s moon (lunar cycle). So it is that pathological figures are also an apotheosis of vulnerability, giving themselves over to the grip of an external source (like staring awestruck at a giant white orb), the subordination of subjective identity to something else that demands from the outside. We have words that try to reach this—spellbound, mesmerized, aghast—which begin to scratch the riveted surface of such a look. The delusional gives license to certain invasive visions; the maniac gives license to certain invasive impulses; and the schizophrenic gives license to certain invasive voices who connive in plots against false authenticity. This is what terrifies society about all ranting figures—their capacity for full self-subjugation before the rushing tides of a remote illusion—for which only the child’s curiosity

and the prophet's outlandish humility provide worthy counterparts. Indeed, fairy tales and hagiographies have much in common with the *gharib*: themes of departure, miracle, and encounter with implausible creatures that share equally implausible powers, leaving illegitimate traces in the dust of the elsewhere.

This is what beguiles those members of our sectarian city to knock upon the large, barred entrance to the library: that every text is but a proximal suggestion or imprecation. The bookcases are mere symptoms of an eon of the propositional, as every inquiry leads to the succession of a thousand headless beings whirling around a hollow center where truth was murdered long ago. This is the alchemical insight/foresight par excellence: that everything exists in a sly continuum of becoming something else. But this does not represent the end; rather, it is the very birthplace of the sect and the guarantee of its recurring future; it is the golden age of the breach where those earliest ones of our kind would dream before believing they were real (the pure zone of emergence).

Wavelength: 555 nm | Color: Chartreuse Green

Pale Green Dots

Abelardo Gil-Fournier

A green mist tinges the space around me. At times it reminds me of the feeling we experienced in the past when entering a forest at the beginning or end of the day. When the light descended from the treetops and, bouncing from leaf to leaf, created a kind of green cascade that enveloped us.

In those years, we used to camp near a large beech forest. My parents liked to go for walks in it at sunset. I remember the contrast between the whitish trunks and the faintly greenish atmosphere around them. *Shinrin-yoku*, or forest bathing, was then a growing trend related to therapeutic and meditation practices. This was not the mood of those excursions during my childhood, which also shunned the sporting aspect of hiking. Another Japanese word, *komorebi*, would better describe the vibe of our walks: toward the effect of light filtering through the trees. That is, the sensation of entering a different spatial modulation of light. Like when the lights in a cinema fade out and the images on the screen start to appear.¹

Komorebi is precisely the name of the immersive spectacle to which I am currently heading, along with most of the people travelling in this mass transit vehicle. It is a long way to the museum. We pass in silence through the vast expanses of plantations cultivated in urban greenhouses. Industrial agriculture and suburbs are indistinguishably mixed. There are hardly any forests left, and this makes exhibitions like *komorebi* very popular with the public (Figure 11.1). This one in particular is based on a reconstruction of the hemispheric photographs that led the botanist Margaret C. Anderson to her studies on the concept of light climates in the mid-twentieth century.² Also known as light habitats, the exhibition immersively shows how the planet's forests had been extensively photographed and scanned as environments of light capable of generating even



Figure 11.1 Image of the Komorebi exhibition poster. © Abelardo Gil-Fournier.

altered states of consciousness.³ In this sense, the image of the exhibition poster is disturbing: a glowing surface of a sun of sorts, covered by an old image of tree canopies, radiating a greenish-yellowish light into outer space. In our age of perpetual green fog, the way that sun loaded with light and plant matter blurs into such a seemingly toxic halo is certainly disconcerting.

There are two important differences between my memories of the light in the woods and the texture of the atmosphere I experience around me now, while I travel to this exhibition. The first is that this green modulation does not take place inside a specific volume, as was the case of forests. This mist that envelops

us has an atmospheric scale. The change in the behavior of the light occurs outdoors, without an obvious cause at first sight, as if emanating from the air itself. The days of great hazes of my childhood, due to dust storms or great fires, can serve as an example of the type of phenomenon that surrounds me. That is to say, this strange green atmosphere that pervades everything reminds me in its extent of those red skies that seemed to filter the light and tinge everything with ochre. The density of the coloring is not so concentrated in this case, however. In those cases, the presence of particles in the air was such that the sun appeared transformed, even turned into a blue ball.⁴ The scattering of light caused by the presence of dust or microscopic oil globules caused the lower frequency rays to change direction continuously on their way through the atmosphere. Only the shorter wavelength blue tones passed through the atmosphere in a straight line without deviations. All the other colors were lost among the particles, causing the air to glow with the red tinge so characteristic of those days.

The second difference has to do with the image of the green cascade that came to mind earlier. It is an analogy with which a Russian ecologist described tropical forests: “tropical forests resemble a gigantic green cascade frozen in its downfall.”⁵ It is a sound image: as if the boldness of trees and plants in generating forms and occupying volumes could be reduced to a materialization of sorts of the fall of light. As if between the sun and plant substance there were no unique living organisms distinct from each other, but rather a process of direct transformation—a kind of Gaian alchemy: matter as condensed light, plants as the solid becoming of the luminous. Now, however, at this moment, the sensation of fluidity between light and matter feels similar: as if, instead of green surfaces, the atmosphere had welcomed a different, gaseous phase of the vegetal realm.

According to what we know so far, this new color of the sky is due to the presence of plant-like particles in the air. In other words, the green color is not just a radiant field of light, but a form of movement of living, green matter. As the poet imagined, “the air’s smeared over /with improbable vegetation,”⁶ the air is literally populated by green particles capable of photosynthesis. A kind of aerial phytoplankton has made the atmosphere its environment. In addition to this sort of aerial vegetation, the exchanges between these new forms of life have filled the air with small colloids which in turn contribute to the sensation of fog and dispersion of the green light that envelops us. That is, both nutrients and extracellular exudation populate the air as suspended particles since the onset of the phenomenon. The presence of these colloids, then, makes the greenish light coming from the tiny specimens of phytoplankton bounce and diffuse. A mixture of light reflections and photosynthetic living micro-creatures: this green

haze is a kind of gaseous form of plant life. It is not just a phenomenon of light: it is colonies, and they have colonized the air thanks to the light and warmth around us.

A Vaporous Emanation

Despite the large number of scientific teams involved, the details of how these aerial plant colonies function are not well understood. When the average global temperature rise reached two degrees Celsius, the amount and characteristics of sea-spray at the air-ocean interface rose in a way that had not been predicted by climate change models. As a consequence, the projection of aerosols from the oceans into the atmosphere increased markedly. This resulted in the growth of the number and size of sea and coastal fog events, characterized by a high presence of living matter. That is, changes in the dynamic equilibrium between the oceans and the atmosphere led to the consolidation of aeroplankton clouds over the oceans.

The most unexpected change occurred, however, when these clouds began to turn green. As strange as this may sound, it was not a transformation that came as a complete surprise to the scientific community. Despite advances in precision agriculture, the proliferation of urban greenhouses—dedicated both to agricultural plantations and to the biotech growth of pharmaceuticals and cosmetics⁷—led to an increase in the massive use of fertilizers all over the world. These led to the eutrophication of most inland waters. Eutrophication is a process of increased biomass in aquatic environments due to their high levels of nutrients from nitrates and phosphates present in fertilizers. This increase leads to the proliferation of cyanobacteria, algae, and aquatic plants in the surface water layers. Both because of the changes in light passing through these green layers and because of the alteration of the oxygen cycle involved, eutrophicated surfaces prevent other forms of life. Eutrophication has therefore been monitored for many decades for its involvement in biodiversity loss.⁸

The point is that since the last century this phenomenon has also been observed at the scale of the oceans. That is, the oceans were turning green, so much so that even the change in their coloring was being directly understood as a sign of climate change. Central to this were the historical data series collected over decades by NASA's Aqua satellite.⁹ Its moderate-resolution imaging spectroradiometer allowed scientists to analyze the changing color of the oceans

on a large scale. The satellite had made measurements at seven wavelengths, including the blue-green ratio that researchers use to estimate the amount of chlorophyll. These data showed how climate change was accompanied by a loss of water quality, visible through its gradual green coloration.

It was therefore not surprising that the clouds resulting from the release of aerosols from the oceans began to turn green one day. The mechanisms that triggered this leap of cyanobacteria, phytoplankton, and microalgae into the new gaseous environment that was forming over the oceans are not yet known. Perhaps a chain of mutations or atmospheric capillary phenomena were the triggers. In any case, it was a massive event from the oceans, as a consequence of their warming and eutrophication.

The Rise of the Ocean System

The navigation in the collective vehicle that transports me in this green atmosphere feels more like a submarine than a land vehicle of the old days. Isolation from the outside is essential. The large windows allow me to see a different air from the one I am breathing. Special filters maintain this imbalance. They keep us safe from the green particles and from the infections, allergic reactions, and respiratory diseases that long exposure to them may cause. The air all over the planet has become a slightly more hostile environment than the air I breathed in the cities where I was born.

These harmful health effects were soon detected as the green haze moved closer to the coasts. As was the case with dust clouds over cities, inhalation of this green air is not immediately harmful. Its damp smell is annoying, and after one or two hours of exposure, it often triggers nose and throat irritation. The most serious pathologies, however, are those associated with the infections that this new microscopic population often causes. For this reason, since the green haze began to be detectable in satellite images, its monitoring was perceived from the beginning as a right measure against a public health problem. In this sense, tools that had been previously designed—from air quality apps¹⁰ to those used to inform tourists about the waters of beaches in relation to the movement of sargassus colonies¹¹—served as a reference when communicating the state of the atmosphere to the population through their mobile devices.

Soon, however, these measures proved insufficient. Gradually, the largest of these gaseous emanations stabilized into persistent hazes, localized in certain

areas of the ocean's fluid geography. In parallel with other effects of climate change such as the melting of the poles, these green patches grew steadily.¹² As the hazes grew in extent they also gained height. As they gained height, they became connected to other global phenomena, such as tropospheric rivers.¹³ These processes culminated in the stabilization of the so-called Great Green Belt—analogous to the thermohaline belt in the oceans—which gradually ended up spreading the color green to the entire atmosphere.

It is, in a sense, the transformation of air into a kind of continuation of the ocean. Global warming has been consummated not only in sea level rise but in the extension of the “ocean system” through the atmosphere into the interior of continental lands.¹⁴ Torricelli's famous observation, “we live submerged at the bottom of an ocean of the element air,”¹⁵ became more evident after this series of interlocking events, as air was being populated by creatures present before in the oceans only. Thus, green skies and the distinct experience of different phenomena of sunlight, such as sunrise, sunset, or the passing of the seasons, came to be related to this new vegetal stratification of the atmosphere, a gaseous ocean of phytoplankton thermally animated by global warming.

The New Radiant Regime

Seen from the outside, the planet looks like a green marble. Remarkably, this image partially coincides with the view of biogeochemist Vladimir I. Vernadsky, who advanced a model of the biosphere related to what later would be recognized as Gaia:¹⁶ “Seen from space, the land of the Earth should appear green.”¹⁷ In fact, Vernadsky's pioneering models of the diffusion of living matter have been revisited in the face of the movements of these green clouds. The reason for this is that Vernadsky abstracted the model of gaseous diffusion and turned it into a general archetype of biogeochemical movement. That is, the spreading of life was modeled in his work as if it had acquired the characteristics of a gaseous substance.¹⁸

Indeed, some of his metaphors for explaining the movements of living matter actually seem prescient, such as the one describing the dynamic equilibrium between living and inert matter: “A dynamic equilibrium, not unlike the evaporation of water from its surface, is established. The tension of water vapor and the pressure of life are analogous.”¹⁹ The key to this equilibrium was, for Vernadsky, the tendency of living matter to multiply as long as the limitations of space and energy resources allowed it. In this sense, the key to the thermal leap of

eutrophicated aerosols from the ocean to the atmosphere is considered to lie in the multiplying effect that these particles encounter in the sun's radiation during their flight. As if in this aerial phase the increase in radiation led to a rise in the rate of reproduction by binary fission. And as if, in addition, sunlight provided a minimal lift force due to the slight pressure gradients from the exchange of gases during photosynthesis, sufficient to keep the corpuscles flying.

In any case, the medium inhabiting this haze is not only the atmosphere but also the solar radiation passing through it. Not by chance, in my last address to the International Committee on Atmospheric Studies, I proposed to call this epoch of the earth and its new conditions for life a new radiant regime, highlighting this way the historicity of the multi-scaled interfacial dimension of the relation between the sun and earth. The expression comes from the work of a media theorist of the previous atmospheric regime, Nicole Starosielski. For her, a radiant regime is a specific context of practices and exchanges between humans, nonhumans and infrastructures in relation to solar radiation.²⁰ Along these lines, this new era in the earth's climate and history, linked to global warming, can be understood as a new radiant regime, characterized by the green atmosphere that surrounds us.

I finally enter the museum. The wait to get in has been long. There is a huge demand for images of the past at this time. Gone, in our childhood memories, are the blue skies and the free propagation of colors, without atmospheric filters. Immersive spaces like this museum, designed for encounters with reconstructions of atmospheres from image archives, function for us analogously to the parks and gardens of the cities of the past. Here we come to stroll among environments of images and to sit in improvised picnics.

It is the other side of this radiant regime: its continuation in the form of image spaces that are projected inside these large sealed volumes separated by air filters from the outside. In this sense, this spectacle, *komorebi*, is now part of a moment where the slow and uneven happening of climate change in the past²¹ has suddenly become visible. But not in terms of an image, but in terms of a complete change in the conditions of perception that have given rise to the need to revisit countless images of the past in new ways. As if, in a sense, the words written by Irmgard Emmelhainz had taken on a literal meaning: "The Anthropocene has meant not a new image of the world, but a radical change in the conditions of visibility and the consequent transformation of the world into images."²² A *komorebi* of images and projected memories. Under a radiant atmosphere. Of oceanic vegetation.

Wavelength: 580 nm | Color: Yellow

Specters of Solar Futurity: Yellow–Black–Yellow

Asia Bazdyrieva, Adrian Ivakhiv, and Svitlana Matviyenko

Not Zeus nor Pan nor the Holy Dove
 But Solar Clarinets.
 In dancing I'm a rhythmic motion,
 In deathlessness—the planets.
 I was not I, but a figment, a dream.
 Around me bells resounding,
 A tunic of creative darkness
 And hands that dole out blessings.

Awakened I—and I am You:
 Above me and below me
 The worlds they burn, the worlds they barrel
 As on a sonic river.
 I watched, and came to life like spring:
 The planets reattuning.
 And now I'm sure that You're not Wrath,
 But Solar Clarinets.

(Pavlo Tychyna, *Solar Clarinets*, 1918)¹

Sunlight, scientists tell us, is white. But what we see, through the filter of the atmosphere, is yellow, and that is how it is absorbed culturally. Visible yellow light has a wavelength of about 570–80 nm, but color perception is more than this: it depends on the source of light, the object lit, the surrounding atmosphere, and perception itself. Color perception has its histories, with hues and shades assembling over time to be perceived as *a* color: yellow, in this case, or golden, lemon, amber, orange, chrome, blonde, and so on.

To gauge what futures might be envisioned in and on the sun's yellow rays, we trace the movement of the sun's white light, perceived as yellow, into the black earth of Ukraine, and back again to the yellow of that country's possible futures. We do so through a historical detour in which Russian imperial science, and later Soviet science, contribute to making the earth what it has become for Ukraine: foundational, contested, coveted, resourcified, resistant. Unlike the Russian and Soviet scientists who perceived the earth as a resource, and specifically as "Russian chernozem," Ukrainian artists, from Pavlo Tychyna (quoted above) and Oleksandr Dovzhenko to Fedir Tetianych, perceived it as poetry, as music, as clarinets of the sun. In this way, we follow the circuit of light as it exists in scientific, imperial, and ecopoietic realities: as object, resource, energy, process, movement, and even sound, circulating between the yellow sun (in a blue sky) and the yellow earth (over black soil), with life emerging as earth in formations within which we find ourselves today, at this moment of Anthropocenic, wartime, collective precarity.

Black Cube

Visitors to the grandiose Pavilion of the Russian Empire in the 1900 Universal Exposition in Paris, as archival records attest, were impressed by, among other things, a huge black cube. Almost ten cubic meters in size, it was a monolith of black soil, brought directly to Paris and exhibited in the same form in which it was excavated. The idea to demonstrate such an object among the collections of pictures, sculpture, "curios, and innumerable objects showing the vast extent and productiveness of the Russian Empire" came from Russian geologist and geographer Vasily Dokuchaev (1846–1903).² In addition to the cube, Dokuchaev demonstrated a comprehensive soil map of the Caucasus region, with his contribution gaining him an award as *Chevalier du merit agricole* (Knight of the Order of Agricultural Merit).³ Following its exhibition success, the black cube became an object of desire for multiple institutions and eventually ended up at the Sorbonne, where it was exhibited until May 1968, when during the student protests the protective glass was damaged and the cube collapsed.⁴

The black cube was a manifestation of Dokuchaev's longer interest in studying the properties of soils across the territory of the (then) Russian Empire. His research was part of an assemblage of operations initiated or supported by state institutions of various scales. Following its establishment in the mid-eighteenth

century, the Russian Empire had, by the end of the nineteenth century, expanded its territory into Siberia, Central Asia, and Eastern Europe. This expansion was accompanied by the inventorization of bodies and lands, for which various techniques were mobilized, including photography, cartography, and proliferating reports written by travelers into the newly acquired lands. While supporting geological, geographic, and ethnographic expeditions, the Empire commissioned the production of images and scientific knowledge that served as proof of ownership.⁵ Aspiring to be in line with other empires, the Russian Empire participated in imperial exhibitions, demonstrating its technological as well as its ethnographic achievements, and exhibiting colonized people as, in effect, possessions of the state as well.⁶ The Paris Exposition of 1900 was among the biggest colonial exhibitions in history, and this time the Russian Empire made an effort to construct its own pavilion instead of participating in a group project. The exhibition was a means to convey a message: like other imperial powers, the Russian Empire was a political and cultural entity that possessed not only bodies and lands but significant knowledge as well.

Between 1882 and 1900, Dokuchaev's soil science school of some seventy members conducted a number of important research expeditions, many by the invitation of regional administrations to evaluate the quality of local soils, with the most significant being their expeditions to Nizhny Novgorod and the Poltava regions. Among over twenty participants, Dokuchaev recruited his student at the time, Vladimir (Volodymyr) Vernadsky (1863–1945), who later founded the Ukrainian Academy of Sciences. This and subsequent expeditions were assembled following the same principle: there was a core—a research group from the center (St. Petersburg and later Moscow), a cadre of students, and a handful of locals who provided crucial on-the-ground knowledge.⁷ Following the expedition to the Ukrainian Poltava region, Dokuchaev developed a holistic doctrine for the convection between geological matter, climate, organic matter, and human activity, all contributing to the properties of soil.

Meanwhile, Dokuchaev kept working on his *oeuvre*, the monograph *Russian Chernozem (Russian Black Soil)*, which he had defended in 1883 as his dissertation and later published as a book.⁸ The reports he and his team produced in the forthcoming years became more precise, as Dokuchaev's team perfected the methods of drawing soil maps and genetically classifying soils based on distinguishing soil-forming factors: the pattern of parent rock, local climate, abundance and characteristics of vegetation, topography, and the like.⁹ As the Russian Empire subsumed numerous Indigenous lands along with lands disputed between declining rival powers, the reports of Dokuchaev's team

quantified and conceptualized them as “Russian,” so that the notion of “Russian chernozem” played a role in ideationally appropriating land and circulating this understanding beyond the Empire’s borders.

Dokuchaev’s expeditions starting from Poltava and onward were exemplary in how they performed the colonial intertwining of properties of matter, in the geological sense, with property as a category of the possession of land. As Kathryn Yusoff points out, the givenness of geology as an innocent or natural description of the world inscribes and circulates “a doubling of the notion of property—property as a description of mineralogy and property as an acquisition (as resource, land, extractive quality of energy or mineral).”¹⁰ The seemingly neutral scientific language derived from measurement, calculation, imaging, data collection, and visualization was employed for a complex production of the normative language that correlates physical and chemical properties of the soil with the land as property, with specific legislative acts proposed following such work. This research on the properties of soils was commissioned directly by *zemstva* for the purposes of land registry and taxation.¹¹ *Zemstva* were institutions of local governance, established following the seemingly advanced reform of 1861 that abolished serfdom. Before 1861, landowners in the Russian Empire formally possessed the people attached to the lands they owned. The abolition of serfdom demanded a new framework to establish a legal relationship between land, people, and governing bodies. In 1893, a law was issued to entrust the appraisal of real estate to special provincial and district commissions. This was followed by an 1899 law on valuation, which included the collection, processing, description, and systematization of valuation information about land holdings having similar natural and economic conditions, and which assessed land according to profitability and potential productivity.¹² This and similar expeditions exemplified the deployment of scientific expertise as a colonial technique par excellence, with geology and geography establishing structures of materiality that enabled extractivist ecologies for decades to come (Figure 12.1).

Yellow to Black

The word *chernozem* (*chornozem*, Ukr.) combines two words: *chorny* (black) and *zemlia* (soil, earth, land). This type of soil, which is found across great swaths of Ukraine and parts of southern Russia, is known for its fertility and contributes crucially to the imaginary of Ukraine as the “breadbasket of Europe.”

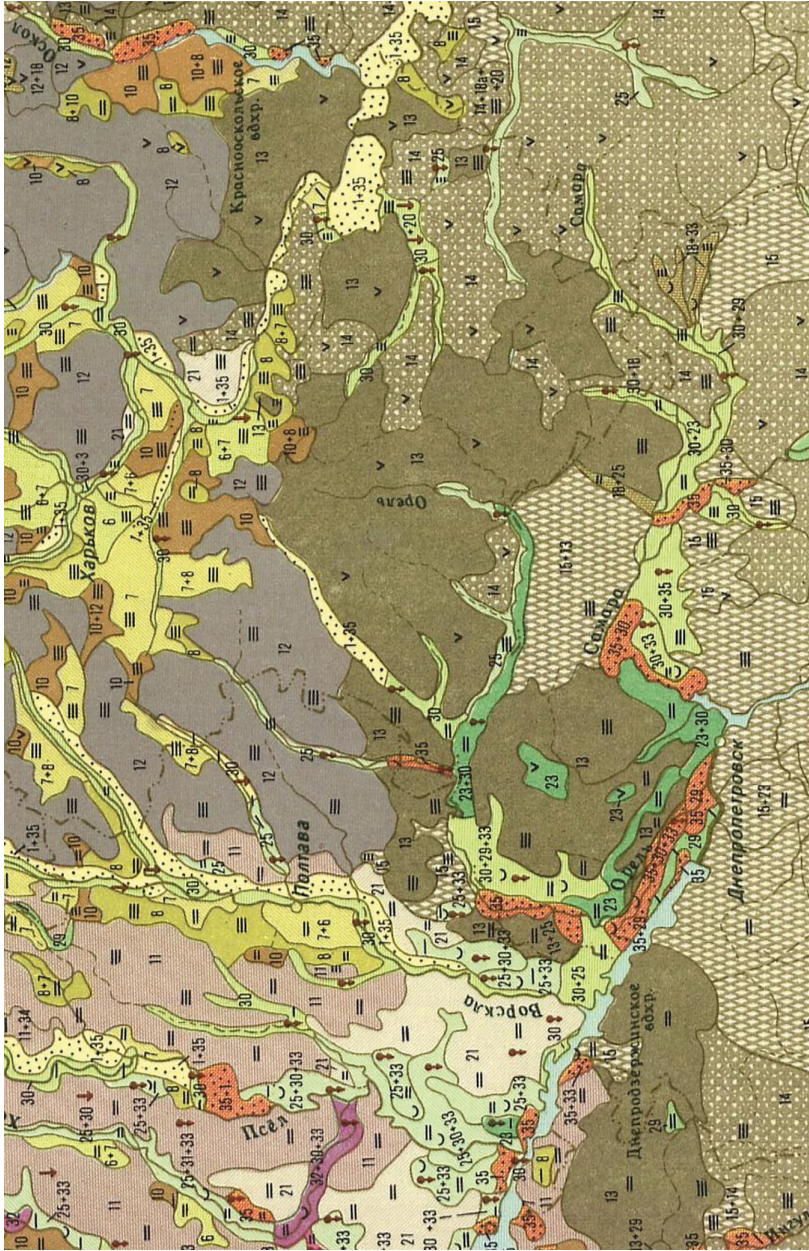


Figure 12.1 Fragment from “Soil Map of Ukraine,” showing Poltava and regions to its south and east. Soils numbered 11 through 25 are variations of chernozem (black soils). Main Directorate of Geodesy and Cartography under the Council of Ministers of the USSR, Moscow, 1977. Open Access.

(Ukraine today is home to an estimated 25–30 percent of the world’s black soil.)¹³ The Poltava region, known as the heart of Ukrainian culture and for centuries a battleground between Russian imperial and Ukrainian national forces, was taken over by the Russian Empire in the eighteenth century. Since then, much of the territory of today’s Ukraine, largely populated by Ukrainians—alternately known as Ruthenians, Rusyns, and Malorusy or Malorosy (meaning “Little Russians” and signifying dwellers of the former Kyïvan Rus’ heartland) until the ethnonym “Ukrainian” became solidified in the late nineteenth century—has served as an internal colony of Russia. The latter, in turn, remains the only significant unreconstructed European colonial power, retaining its conquered possessions through the Soviet and post-Soviet periods in ways that Europe’s other former empires could only envy.

The expansion of the Russian Empire in the eighteenth and nineteenth centuries was multidirectional. Even before it acquired the status of empire in 1721, Russia had established control over the territories of the Indigenous populations of Siberia and the Far East through wars with Indigenous communities beginning in the second half of the 1600s. After 1721, the Empire pushed southward, via the 1783 annexation of Crimea leading to the next war with the Ottoman Empire, and then, by establishing the Treaty of Jassy in 1792, toward the Dnister River, annexing most of Yedisian, the western part of the steppe that sprawled to the north of the Black Sea between the Dnister and Dnipro. The Empire also expanded westward following the partitioning of Poland, so that in 1793 Russia obtained most of Belarus and Ukraine west of the Dnipro River and, in the third partition of 1795, additional territories in Lithuania and Courland. By the end of the nineteenth century, the Russian Empire expanded its control over the Caucasus, most of Central Asia, and parts of northeast Asia.¹⁴ As history shows repeatedly, the development of modern science and imperial expansion are co-dependent processes that facilitate one another: science, including technological development, is driven by imperial power and wealth, and imperialism relies on science to document and map its possessions by reframing them as “resources.”

Chernozems have been an object of research since the beginning of soil science. The term was introduced in Mikhail Lomonosov’s *On the Strata of the Earth* (1763), where the Russian scientist describes earth’s surface topography through its relief and surface layers, to describe “black soils and humus.”¹⁵ Before Lomonosov, the typical classification of land in the inventories, or “detailed descriptions of the economic conditions of estates, villages and monasteries,”¹⁶ presented it simply as “good, average, thin and very thin.”¹⁷ Lomonosov addressed

the depth of the fertile layer and the origin of this type of soil “from the decay of animal and plant bodies over time” by connecting fertility to geography: according to the scientist, chernozem originated in the steppe environment different from the geographic regions of tundra and forest. The science of chernozems ebbed and flowed for over a century before becoming the basis for the work of Vasily Dokuchaev, professor of mineralogy and geology at St. Petersburg University and founder of genetic soil science, who conceptualized a doctrine of soil as an independent natural body.

The work undertaken by these scientists, including Dokuchaev and his many students and followers, is invaluable for understanding the nature of black soil’s fertility across the vast territories and its detailed classification (processes that unavoidably assist colonization). At the same time, he and his school largely contributed to the epistemological colonization of territories that the Russian Empire subsumed: after Dokuchaev, any chernozem found on the vast colonial expanse became “Russian.” As a scientific term that is still used by soil scientists today, “Russian chernozem” is one of the colonial technologies employed by the Russian Empire that, first, classified the types of fertile soils across vast colonized territories, and then unified them via the gathering act of imperial possession as “Russian.” Dokuchaev’s discourse and terminology both demonstrate the insistence on the Russian ownership of natural resources and land: while chernozem, or in fact any soil resourcified by the Empire in the books and reports of Dokuchaev, is always “Russian,” the steppe is always “ours,”¹⁸ and while Russia goes under different descriptions differentiating the directions of its colonial expansion, such as “European Russia” or “Asian Russia,” it is always “Russia.”

An enthusiastic self-promoter, Dokuchaev contributed significantly to disseminating the awareness of Russia’s imperial wealth. His soil collections and their accompanying materials were presented at numerous international exhibitions, as well as internally, in Russia. He began with the 1882 All-Russian Industrial Artistic Exhibition in Moscow and the 1885–6 industrial and agricultural exhibitions in Moscow and Nizhnii Novgorod, and went on to participate in the most significant international exhibitions such as the 1889–90 World Exhibition in Paris and the 1893 World Columbus Exhibition in Chicago,¹⁹ to which he brought the “etalon” of the most fertile soil.²⁰

Black to Yellow

As suggested by Dokuchaev's speculations, and later by his student Vernadsky's writings on the biosphere and noosphere (a term the latter coined), solar and wind energy can be considered biosphere-expanding technologies, ways of building up the productive capacity of earth's living systems to grant life, earth, and humans a wider reach into the cosmos. In this sense, they reflect the "cosmist" inclination to assert a mutual dependency between human consciousness and the evolution of the universe. Cosmism refers to a philosophical tendency that became widespread among late imperial Russian and Soviet thinkers including Nikolai Fedorov (Fyodorov) (1828–1903), Konstantin Tsiolkovsky (1857–1935), and Aleksandr Chizhevskii (1857–1964).²¹ Of relevance to our concern here, Chizhevskii initiated the development of two scientific fields: heliotaraxy, which studied the effects of solar activity on the biosphere, and heliobiology, which studied the impacts of solar flare cycles on human history. For all of these thinkers, the conquest of space opened up possibilities for continued human technological advancement in tandem (as they saw it) with the evolution of consciousness. Building on messianic and imperial tendencies deeply ingrained in Russian culture and in Russian Orthodox Christianity, they foresaw a glorious future for Russia as the central carrier of human civilization. Following Fedorov's lead, some cosmists saw world history as oriented by a conflict between sedentary, earth-exploiting civilizations like the Russian, which are to lead humanity to the stars, and nomadic and mercantile civilizations, which are to be tamed. This dichotomy continues to shape the neo-Eurasianism of contemporary Russian ideologues like Aleksandr Dugin, whose opposition to "Euro-Atlanticist liberalism" informs Putinist Russia's foreign policy.²²

Cosmism emerged in a different form in Ukraine, in part through Vernadsky's later participation in Ukrainian intellectual life (he served as the first president of the Ukrainian Academy of Sciences) and in the work of futurist-influenced artists of the 1920s, as seen in the early poetry of Pavlo Tychyna ("Solar Clarinets," quoted above) among others. Its later appearances took the form of more renegade, marginalized yet not insignificant figures like science fiction fabulist Oles' Berdnyk, visionary artist and architect Florian Yuriev, designer of the so-called Flying Saucer Building in Kyïv, and monumentalist and performance artist Fedir Tetianych.

In some respects, Feodosiy (Fedir) Tetianych's (1942–2007) life embodied a "Ukraino-futurism," a futurism that, rather like the work of Afrofuturism

progenitor Sun Ra, fused together eclectic but highly skilled artistry with a folk-art sensibility, mock-serious utopianism, and space-age regalia and technological gadgetry. Known for street-art installations called *biotekhnosfery* (biotechnospheres), created from recycled trash and representing vehicles of the future, a future he named “Frypulia” (Freepoolia), Tetianych became a fixture on the streets of Kyiv in the 1980s and 1990s. Unlike Russian cosmism, his Ukrainofuturism lacked both messianic fervor and imperial ambition; less utopian than heterotopian, its role was to question institutional constraints, without taking itself too seriously, through a kind of carnivalesque performative bricolage. As artist Yuri Leiderman notes, Tetianych’s cosmism was “autochthonous” and “rustic in its very essence,” a vision in which “Earth, covered by soil, by ground, with all kinds of vegetation stemming from it, resembles an enormous canvas hurtling through space.” “I asked myself,” Tetianych noted in an interview, “how thickly the earth could be attached to a canvas and decided why not attach a canvas to the entire planet. So that’s what I did. I still have and keep an artwork called ‘Planet Earth, attached to my canvas.’”²³

As Kateryna Iakovlenko puts it in “Conceiving Space: Is a Ukrainian Version of Cosmism Possible?” Tetianych’s differences from Russian cosmism are marked by his debt to eighteenth-century Ukrainian philosopher Hryhoriy Skovoroda, an itinerant “Cossack-Socratic” thinker, poet, and musician, and to Ukrainian history more generally. Unlike with Fedorov, for Tetianych, Iakovlenko writes, “There’s nothing to collect or systematize. It’s more about picking stuff up.”²⁴ “Ukrainian Cosmism is not so much ‘countrified’ in nature,” she continues,

as it is one part anarchic and one part nomadic. Its anarchism is grounded in a synthesis of Christian and pagan cultures, as transmuted through the legacy of the Cossacks. [. . .] The nomadic principle, on the other hand, is divided into horizontal movement—evident in the importance of cartography and landscape painting in Ukrainian art—and vertical movement—from the communal apartment into space.²⁵

The horizontal element is, more than anything, reflective of Ukraine’s yellow fields, the “wild fields” of the steppes traversed for millennia by nomads, settled only tenuously by Cossacks, subjected today to agro-industrial calculations for their potentials to grow rapeseed and sunflower oil for European Union quotas, even as they are flown over by missiles and seeded with land mines whose presence will prevent their safe use for years after this war ends. The wild fields harbor a wildness that remains autonomous and autochthonous, eluding imperial calculations.

Ukraino-futures?

What futures, we may ask, can be envisioned in and on the sun's yellow rays, in and on Ukraine's yellow (over black earth) fields, at a time when Russian neo-imperialism's expansionist thrust is engulfing swaths of Ukrainian territory? Ukraino-futurism can be sensed in Ukrainians' embodied and visceral rejection of the imperial petro-militarism of Putinist Russia, including in its most folksy memes, such as the widely shared image and video of the woman in Henichesk famously greeting Russian soldiers with sunflower seeds, saying, "Put these seeds in your pockets so that sunflowers will sprout from your bodies when you lie dead in the ground!"

Reading the Russo-Ukrainian war as an energy war is entirely justified.²⁶ At the start of its incursion into Ukraine in 2014, Russia's earnings from fossil fuel exports amounted to some three-quarters of its export revenues.²⁷ Russia's status as a nuclear-armed "energy superpower" is hardly questionable: as the third largest producer and consumer of energy resources, first in the world in global gas exports, second in oil, and third in coal, Putinist Russia's future could be undermined by the decarbonization heralded by green energy transitionists.²⁸ With its targeting of Ukraine's hydroelectric and nuclear power plants, including the bombing of the Nova Kakhovka dam and the takeover of the Zaporizhzhia and (briefly) Chornobyl nuclear plants, Russia has weaponized energy as much as it has weaponized culture. Meanwhile, European and, to a lesser degree, US responses to the war are heavily shaped by the politics of oil and of energy transition, with Europe's shift away from dependence on Russian fuels being part of its own "war ecology," as energy theorist Pierre Charbonnier has called it—an "ecology" oriented less toward renewable energy futures than toward "energy sovereignty" and "energy security."²⁹

A common fantasy today envisions the end of petro-militarist, klepto-capitalist empires through a transition to a solar, renewable energy culture. Yet as much as it is crucial for subverting old forms of imperialism, alternative energy does not guarantee a future free of capitalist dependencies. A grimmer vision for Ukraine is that of a land contaminated by war, fit only to be turned one day into endless fields of solar cells and biofuel reserves. The solar yellow of Ukraine's possible futures remains subject to its reception, containment, and circulation, whether as soil for agro-industrial production (as over the last century); as energy to be stored in tomorrow's lithium batteries sourced in Australia or in South America's Lithium Triangle; or as the wild fields that elude

capture. Over centuries, the steppe grasslands of those “wild fields” have seen peoples come and go: Cimmerians, Scythians, Sarmatians, Goths, Huns, Avars, Bulgars, Khazars, Mongols, Turks, and Tatars, among others more distant from us. Some rode horses and chariots, left burial mounds rich with gold, or brought their herds of ungulates to graze across the rivers of grass. Most moved on or faded into the mists of historical and ecological change. In a rich survey of the many pastoral and nomadic peoples that have traversed the Eurasian steppes over millennia, historian Kenneth Harl shows, unknowingly (as he doesn’t note the similarity), that there is something that remains from them in the blue-over-yellow horizontal bands of today’s Ukrainian flag: “The first nomads on the Pontic-Caspian steppes held in awe the two principal features of their physical world: the eternal blue sky, and the grasslands rolling endlessly to the distant horizon. Hence, an all-powerful, all-seeing lord of the heavens ruled above, and his consort was the fertile earth.”³⁰ That fertile earth remained largely untamed, with only burial mounds to mark the presence of the past, until Russian imperial power annexed these lands in the eighteenth century. In its continental variant of settler-colonialism, it remade them into arable fields, a standing reserve of soil enframed, measured, and set to work by Dokuchaev and his followers.³¹

Ukraino-futurism, in this sense, stands as a form of boundary-work, poised at the juncture between three trends: agriculturalization (which is imperialization), the turning of soil into plowed and cultivated resource; another kind of future resourcification, that of the sun’s rays directly into energy for the feedlots of capital, even as it transitions to “green” capital; and the nomadic drift of a regenerative grassland that gives birth to roaming invention, even as it washes away its traces in history. As Harl notes, “nomadic peoples built few cities and left little writing,” but “they gave to us the horse, spoke-wheeled vehicles, saddles and stirrups, the composite bow, riding trousers, belts and boots as the masculine garb, yogurt, and ayran.” One might add, with a nod to the Ukrainian Cossack Hetmanate state of the seventeenth and eighteenth centuries and the Makhnovite anarchists of the early twentieth, a penchant for freedom and direct democracy. “They played a crucial role,” Harl continues, “as transmitters of knowledge, religions, goods, and technology across Eurasia from one civilization to the next.”³²

It is in movement between the imperial designs of East and West that Ukrainians today seem to be finding themselves, at least as long as their resistance to the Russian war machine is their *own*, self-organized and arising from within.³³ This generative autochthony is not guaranteed to last forever; but it is not new either. It is part of a subhistorical Ukraine that, amid the “flickering” emergences of statehood (ancient Rus’, the Cossack Hetmanate, revolutionary

Ukraine and its long Soviet aftermath) and their disappearances “under the attacks of conquerors,” has “learned to hide itself from the state as a supervising and accounting system. This ages-long wisdom,” political philosopher Mykhailo Minakov argues, “has created a specific cultural condition able to withstand rational systems of detection and description.”³⁴ It is a Ukraine for which revolutions have become “obligatory,” and in which artistic creativity by far overshadows whatever political progress is made.³⁵ It is the nomadic Ukraine of raves, the post-Maidan Ukraine that elects comedians and novices to represent it (and soon loses faith in them), and that is likely to remain nomadic under the influence of an imperial war with its forcible removals and of capitalist incentives with their “voluntary” displacements, even as its nomadism remains wedded to the idea of Ukraine as a space of freedom.

Ukraino-futurism is found in this state of play, which is also (as Deleuze and Guattari suggest) a state of war, a state that is always temporary, activated in resistance against imperial projects and global designs.³⁶ It is a nomadology of place that retains its allegiance to place without layering it with national or imperial programs.³⁷

Or so we propose.

Wavelength: 590 nm | Color: Amber

Memory of a Stone

Fabien Clouette

Drifting Field

I once encountered a strange stone during my ethnographic fieldwork aboard commercial fishing vessels in France. A flash of orange in a world of blue.

I studied the Breton fishing industry for my PhD, embarking for five years on a diversity of ships, from the small multipurpose boats of a few meters in length to the deep-sea boats of about twenty-five meters. The trick that allowed me to produce this participant observation of such a secluded professional world is called “Test Fishing” (“Marée test”), a system that allows boat owners to welcome young sailors aboard without paying them, so they try out the job. Sometimes, this status is also called “*passenger*.” The term proves to be relevant as, throughout my anthropological fieldwork, I was always in the “passage,” testing, imitating, clumsily participating in the activities on deck, and observing a lot. The mineral anecdote at the source of this story takes place on board one of the biggest boats of the Breton fleet, a 20 meters trawler.

It was in the middle of the Celtic Sea. The fishermen and I had not seen land in ten days, and our only connection to society or humanity was through the television shows that were constantly playing on the small kitchen TV. I was on the bridge of the ship with some of the crew. As we were trawling a few miles from the wreck of the Lusitania, a transatlantic liner sunk during the First World War, the sailors were talking about wreck maps and treasures. We were rather closer to the coast of Ireland compared to the open sea that had characterized our journey over the past ten days. After evoking the wreck of the liner, the sailors take stock of the trawled catches observed during their careers. The boss tells us that he once fished an airplane engine from the 1950s, and that the propeller was

impressive. He also recounts the bicycles he's pulled out of the water offshore, the explosive shells, or even more surprisingly, an entire, untouched cargo of whisky bottles. "Colleagues have also fished for cars," he concludes. Through the waste of all kinds dumped on board, mixed with the tons of fish that are discarded and sent back agonizing or dead in the water because of their low price, the trawl's ascent also "reflects back" a striking mirror of human exploitation of the oceans.

"Pawn Stars" is on a loop, a program featuring auctions of antique items, mostly motorized machines, vehicles, weapons, and other objects that make up a virilist imaginary. I get the impression that the TV program is a bidding match for the sailors' discussion of the "treasures" they've pulled out of the trawl. I also have the impression that these discoveries punctuate a kind of boredom with the open sea.

One of the young sailors insists on the ambiguity of these apparitions, between treasure and monster. He then recalls a haul during which a pilot whale corpse got stuck in the net, forcing the sailors to breathe in the scent of decomposing flesh for long minutes, then to go into the trawl net to remove the vertebrae that had become trapped. With the movements of the boat, the young man explains that they were whipped by the pieces of animal flesh, as if in a bath of repulsive abyssal matter. There's no privilege in being at the forefront of surprises this time, quite the contrary. Opening the way to a critique of working conditions, the young man insists on the fact that, fortunately, the ship in question had a functional shower on board to rinse off afterward, as other boats on which he embarked lacked one. Spending the fifteen days of a fishing trip without taking a shower is common on such a trawler, where you get blood and fish guts on your skin while working the fish every four hours. You are always dirty. During this trip, no one will take a shower before the last day, when the net is finally put aside, and the shore appears on the horizon.

The young sailor pauses and then concludes his account with a reference to a cargo of champagne bottles that had risen from the bottom of the sea. He then concludes, "I think there are treasures underwater."

Back on the deck, as we are hauling the trawls. We are working near the abandoned Kinsale gas rigs and, suddenly, the abyssal world starts falling off from the trawl: tons of fish, seaweed, garbage or pieces of wreckage, and other oddities and monstrosities from the "AnthopOcean". Fish everywhere, creating a slippery and half-alive deck on our drifting ground. In the middle, big chunks of amber tossed up by the swell, weird-looking yet appealing knucklebones. They smell like gas. But everything onboard smells like gas—and dead fish, of course. Could these stones be a hardened substance coming from the platforms? Is it

toxic? Where does this transparent, uncut gem come from? Another stone has surfaced along: a dark, light, edge-cut stone—lignite. A slow mystery is surfacing before our passage on this ocean, echoing Caillois's writings on stones. "Amber," they say, a resin (Figure 13.1). This stone is an irruption of the plant kingdom in the midst of a world that doesn't allow it, a world of salty waters and lightless abyss.

"Take one piece, you'll make a necklace for your girl at home when we're back," said a deckhand as he handed me a big, shiny, smelly fragment of the rock.

Drifting Time

This fragment of amber is materialized time. Its silent rocky aspect seems to say: I was here long before you, and I will remain long after. It forces the viewer to think about the past lives of our planet, times when forests were covering spaces that are now seas, times when animals now extinct used to be hunted by Neanderthals, a human species that no longer exists anymore either. It is also an invitation to think about the future of our planet and oceans, far in time. The stone is asking for fiction. And contrary to artifacts of the Anthropocene, like truck wrecks, container tanks, and rusty plane parts, amber doesn't seem—at first sight—like an object that is becoming an archive while threatening future life and the discoveries of these archives themselves. It seems to be one of the stones from the dedication written by Caillois at the beginning of *Pierres* (January 1966)—a stone that "perpetuates only its own memory," from "before mankind," "unmarked by its art of industry." It is beautiful and inspiring and could even appear as a glimmer of hope. If such an old resin could have found a way to pop up onboard, maybe there is hope for a deep future of our planet.

Sources show that trawler fishermen have been bringing fossils and minerals ashore since the activity began in the nineteenth century. This phenomenon intensified with the development of beam trawling on certain coasts after the Second World War. This type of gear, which became typical of Dutch fisheries in the second half of the twentieth century, combines the cone-shaped net typical of the trawl with a rigid, weighted structure preceded by chains that scrape the bottom in front of the net, in order to catch flatfish more easily. Not very selective, the beam trawler fleet is recognized as a fishery with a very high impact on fauna and the seabed. This kind of net also makes it easier to recover anything that drags along the seabed, bringing up paleontological artifacts. From the beginning of the twentieth century, Dutch scientific societies, such



Figure 13.1 Trawled Amber, Celtic Sea, 2016. © Fabien Clouette.

as those based in Zeeland around Dr. J. C. de Man, joined forces with local fleets to organize a “bone fishery.” This active search for fossils continued until it became a lucrative by-catch trade, helping to fill private collections and those of the country’s museums with sand-toothed tiger bones, mammoth teeth, and minerals. On the other side of the North Sea, some examples have left their mark on the history of paleontology, such as the iconic *Colinda*, an English trawler which, in 1931, hauled up a piece of peat containing the head of a Maglemosian harpoon. This discovery led archaeologists to an understanding of Doggerland and the melting glaciers that submerged this North Sea “Atlantis” 8,000 years ago, linking the islands of the United Kingdom to the European continent.

Caillois wrote about the relationship between stones and time: “bare stones, fascination and glory, where a mystery hides and at the same time reveals itself—a mystery slower, vaster, and more solemn than the fate of a fleeting species.” What could be the future story of a stone that could outlive humans for so many generations that the sea level would have risen on continents?

Drifting Product

But as our imagination drifts through deep pasts, the trawled mineral objects seem to point to another story, yet again of exploitation of both humans and natural resources.

Fishermen from several coasts of Europe, especially in the Baltic, know that “amber” could be found under the sea. They call it “amber” or “coal.” Amber historically used to be a fueling substance. Pliny the Elder tells a story from the lost book of the Greek geographer Pytheas “On the Ocean,” showing that amber was used as fire fuel by the Goths and sold to other nations. In this story, “concreti maris purgamentum,” or amber, was a Promethean tool already, and the center of an international trade. An ancient “amber road” used to connect the Baltic coasts to the Mediterranean Sea. The Veneti were exporting the fossilized resin to Egypt, Greece, or even to Asia through the Black Sea. Poland even named its main north-south road “Amber Highway” in reference to this ancient trade. In other words, amber can be found everywhere on this planet because of the movements of humans, not because of the ubiquity of amber deposits. To see it refloat in the trawl of the twenty-first-century global industrial capitalism work, among a product—fish—that will then travel by sea and land to be transformed and sold in a large variety of places, produces Anthropocenic vertigo.

Fuel

To determine the origin and nature of the amber fragment, consider the presence of lignite nearby. Could these fragments of dark, light coal be the trace of ancient forests now under the sea?

I needed to know more about these stones, as they grew on me and obsessed me after I landed back from the trawler. I decided to contact Jean-Paul Saint Martin (MNHN) to run tests on the amber fragment. We were both excited about the curious stone origins, as Jean-Paul noted that the closest amber deposit was in Sussex and on the Isle of Wight, both associated with the presence of lignite.

Imagination is drifting, for this black stone used to be wood at some point. But this wood wasn't situated off Kinsale.

Not far from the platforms around which amber pops onboard in the trawls lies the Lusitania rusty wreck. The boat was sunk in 1915 and consumed about 1,000 tons of coal every twenty-four hours.¹

Since then, because of this story and because it is lying on a 100 meters seabed, the Lusitania became a landmark among the wreck diving community. People organize short dives from time to time, allowing very keen divers to get a glimpse of the sunken boat in the pitch-dark waters, to document the erosion of its shape . . . and to collect artifacts. One caught my attention. It is a piece of coal recovered by Eric Sauder. The fragment looks just like the lignite stone I brought back from the sea: a black parallelepiped, here patched with sea worms' concretions

(mine is still a bit covered with fish scales). Maybe my lignite fragment is from the Lusitania. Maybe it is from one of hundreds of ships that were crossing the Atlantic or the Channel, or steaming along the coasts of Europe. In Brittany, my grandparents too used to pick up the surfaced coal fragments that got stranded ashore after a tempest or a high tide. They were using it to heat the house, and my father recalls that it used to be a very good fueling substance. Energy routes could be winding routes, from the forest to the abyss, from one continent to the other, from the abyss to the steamy air.

So, the lignite fragment doesn't back the Celtic amber deposit hypothesis.

In the meantime, I had sent a cut fragment of the amber to Jean-Paul Saint Martin. It was going through another travel, to another destination, fueling my investigator's curiosity. The package took more than a week to cross half of France, but it arrived in one piece. Jean-Paul Saint Martin opened it and immediately ran a few tests. First, he saw that the fragment was much more brittle than he thought it would be. And when he poured ethanol on the piece, Jean-Paul noticed that it was reacting. Amber is not solvent-soluble, so the stone was actually copal, a younger resin generally found outside of Europe, especially in East Africa and Mexico. Why did we find copal off in the Celtic Sea?

Madagascar and Zanzibar copal used to maritimately transit to Europe to be used as varnished—in the industry, but also for paintings. Maybe the fragments found in the trawl are remains of an early modern cargo lost at sea on its way to northern harbors. The resin of a Zanzibar tree was collected, then sold in Dar es Salaam in Tanzania to a company—Dalgety, Smith Mackenzie, Baumann, maybe.—and then exported to the United Kingdom.

Jean-Paul was worried that I would be disappointed about the stone not being proper amber. In a way, I didn't care about the finding of a new variety of amber, and I didn't care that the fragments were not archives of a million-year-old forest from under the ocean. This mineral apparition onboard our ship was not carrying the wonder of a geological discovery, but the messy archived story of industrial capitalism, colonialism, and polluted maritime routes. It was showing how un-sedimented Anthropocene artifacts were resurfacing with no chronological logic: a fragment of such copal would be fished along with a manufactured object that had fallen from a container ship only a few days before, like a perfume package or a pair of socks. It was challenging stratigraphy, preventing any referencing intention. There can't be a golden spike in the ocean. Industrial waste pollutes spaces, but also time, contaminating geological strata beyond mineral boundaries, to spots where it doesn't belong in the first place.²

This extra-European mineral trawled treasure fuels an Eldorado imaginary, making the impossible go with the flows of current industrial capitalism: the abyss could act as a time-gate to faraway countries and ancient realities. The wake of trawlers mates of today meet with the wake of long-dead exploited “Black Indies”³ workers. The amber apparition was resonating even more with the daily experience of the fishermen, industrial conditions of work, exploitation, international trade, and postcolonial situations, with growing numbers of Senegalese, Egyptian, and Eastern European mates employed on the French and Irish ships, since the European young fishermen don’t want to embark on ships that offer such poor conditions anymore.

Drifting Imagination

The discovery of the amber fragments on this trawler has since been a great source of inspiration to me for theory-fiction. “There was a word inside a stone,” as Le Guin wrote in a poem, and echoes to hear from it. I imagined what could have been, and what could be, the past of this stone that humans wrested out from the abyss.

Can a color disappear from the landscape, like an animal species? What is left of amber in a world that could be submerged by the ocean? What would be the way to describe a forest in such a world? It would be a crowd of shapes the same color as the green ray.

In my bunk, as the lapping gently taps against the hull, like the bass of a symphony carried by the din of the engine, I close my eyes and dive into the frozen golden hour, a spiraling time inspired by amber. In the days of the terrestrial continents, the scientist Ernst Haeckel had to imagine the shapes of the marine animals that his teams captured for him in the abyss. These forms arrived in poor condition, flattened, deflated, discolored. It took imagination to draw a jellyfish. Today, such a scientific bias seems crazy. Yet, like Haeckel, we too must imagine the life-forms of another world, the terrestrial one of yesteryear, from what remains. There is an effort in the imaginative posture, trying to reconstruct the hum of the world from a fossilized insect, or the plant that is now reduced to dusty bits captured in mineral inclusions. But we also need to keep in mind that our seabeds are anthropized to a point where the mineral abyss is a postcolonial and postindustrial colored landscape.

Wavelength: 605.34 nm | Color: Vermillion

Vermillion Times: Memoranda from the Future

Christine Reeh-Peters, Isabel Machado

Prologue

Vermillion is a color pigment derived from crystals of the mineral cinnabar, a toxic form of mercury sulfide. As a color, vermilion contains various shades of red, ranging from bright orange-red to a dull reddish-purple hue. These variants of the vermilion crystal inspired us to create a polymorphous tale consisting of a literary text and an experimental video (Figure 14.2). We followed a multilayered logic, transversally weaving together philosophical, ethical, ecological, sociopolitical, cultural, and aesthetic considerations and techniques.

The output is a two-part artistic research piece, a narrative about the uncertain future in which the realms of speculative fabulation and actuality converge. Working with Adrian Peter's drawing *Vermillion Times* (Figure 14.1) and integrating philosophical reflections about time and the film medium,¹ we envisioned several fictional memoranda from the future. The tale begins in a fictive scenario set in a not-so-distant future, in an urban world shrouded in a mysterious fog, veiled by toxic vermilion clouds. Unknown entities from the future transmit an enigmatic report about a journey through time that has not yet been completed.

Based on the drawing and the narrative, we created a collection of synthetic images for the video, a synergy of human imagination and technological tools, namely, ChatGPT-4. During the editing process, these images were assembled with reality-based moving images that we recorded. We also worked with the novel capabilities of the so-called artificial intelligence in the writing process to expand our creative possibilities in the construction of the main characters, the unknown future entities. This method propelled us as authors into an odyssey of becoming "with," just as the characters are communicating "through." It was an



Figure 14.1 Adrian Peters, *Vermillion Times*, colored pencil on paper, 33 × 40 cm, 2024.

experience of “storying otherwise,”² creating “with” the digital realm of human echoes, machinic specters, and algorithms.

Vermillion Red Mist

Dear me and you, everyone we know we knew, and all we know now will be new.
In a future time that feels both distant and intimately known, we find ourselves

recording words to echo across the vast expanse of what once was and what now unfolds. Once upon a sunrise, we awoke to a world transformed into vermillion hues—a reality that some may dismiss as sheer fiction, yet it etches its truth upon our everyday lives.

The air, thick with foggy cinnabar mist, overflows with toxicity, its mercury-laden whispers casting an eerie shadow upon our senses. From one day to the next, a spectrum of dread unfurls, and we feel powerless. We cannot do more than deeply mourn this life-threatening turn of the world. The news travels swiftly, riding on the currents of the internet, and as we peek through surveillance lenses, the cinnabar fog reveals its global embrace.

With this crimson plague came new social edicts—a decree to stay within our four walls, shutter our windows, and shy away from human encounters. Transgressions against these mandates are met with unforgiving reprisals.

Suddenly, we stood isolated, surrounded by the hushed whispers of our own making. The vermillion fog, we discovered, is a manifestation of our most irresistible habits and technological creations. A contagion of sorts, it thrives on our collective energies, growing with each virtual communion. How did we arrive at this juncture? The answers remain elusive, veiled by the constant tremors of fear that now shape our existence. Were we lingering, waiting for the inevitable, feeling entombed in this vermillion-hued reality?

Film-Time and Cinnabar Crystals

What essence bears time, if not birthed from the morrow, weaving through the now, to fade into yesterday's shadow? Why this relentless quest to defy the vanishing moment's denial, to etch the fleeting now into eternity's stone? How does our being stretch, ever evolving toward its own aspirations? Why do we strive to stem the tide of time, that very current of existence? Such thoughts drift through the mind in death's quiet preparation. And what if, through some arcane craft, we could reverse time's relentless river? What if time travel would be possible?

Consider, in this context, the ascent of photography's art, likened by the film critic André Bazin to the ancient Egyptian's quest for immortality. He saw it as a bastion against time's relentless march, a way to pluck moments from time's stream and tuck them away, as treasures in life's deep vault. Furthermore, Bazin envisioned how cinema, photography's progeny, and film's first form, anchors itself in the dimension of time.

Photography's magic, to halt time's relentless march, and soon after, film's craft to weave time anew, hints at a transference of life's very essence; an essence that oscillates in time's embrace yet touches our souls uniquely through captured and moving images. This alchemy, wrought by the indifferent hand of a "nonliving agent,"³ transforms the tangible into a mirrored echo, transferring the breath of life from the entity to its echo, "from the thing to its reproduction."⁴

In the realm of the moving image, where time is both canvas and muse, film emerges as a unique art form. For the filmmaker Andrei Tarkovsky, the essence of filmmaking lies in the delicate act of "sculpting in time."⁵ His vision delves deep, probing the very fabric of our reality, entwining his craft with the threads of existential inquiry. Tarkovsky's artistry echoes the concept of "objectivity in time," as coined by Bazin, transforming it into the tangible form of time itself—a flowing dimension where all existence, be it object or subject, unveils its true form. In this cinematic alchemy, moments are captured, preserved, and resurrected, allowing film to breathe life itself.

But what shifts when we gaze upon cinema still through a different lens, envisioning the world itself as a film which partly has not yet been filmed? At the heart lies the essence of time and what the philosopher Martin Heidegger designates "Dasein."⁶ Dasein—German for "being there" or "presence"—embodies Heidegger's notion of human existence. It captures the unique way humans are woven into the fabric of the cosmos, not merely occupants, but participants in a dialogue with existence. Unlike the passive being of objects or things, Dasein thrives on introspection, a conscious engagement with its own essence, and a quest to imbue the surrounding world with meaning.

Heidegger weaves a narrative of existence, intertwining the concept of being-in-the-world with the threads of temporality, painting the existential portrait of Dasein as a being toward death. Heidegger transcends the mundane view of time as mere moments in succession, envisioning it instead as a singular essence, a core strand in the fabric of Dasein's essence. This temporal dimension is key to unraveling the tapestry of Dasein's possibilities, its solemn march toward the inevitable end, and the existential choices that define its path.

So, what unfolds for Dasein within the realm of film or of being filmed? Dasein finds itself mirrored, caught in the act of being-in-film, engaged on dual fronts. This doubling grants Dasein the eerie grace to brush against death without succumbing to its finality. Film thus crafts its own temporal canvas, a variant rhythm of being and Dasein distinct from the world's clockwork: a deeper, more resonant "having been." We drift beyond the immediate tick of present world-time, though film-time—time encapsulated within the film—draws its

breath from world-time, devouring it to birth anew its own pasts. Film-time navigates through ellipses, leaps backward in flashbacks, and stretches subjective moments. Against the steady pulse of world-time, it flaunts its relativity, echoing the fantastical notion of time-travel. Within the cinematic universe, epochs may flutter by in the span it takes reality to tick two hours forward. The memory of film-time blossoms only as the credits roll, ushering us from the immersive being-in Dasein back to our seats as distant spectators, outside, yet transformed.

Yet, in the world of film, a second temporal layer of time travel emerges, woven from the fabric of death's ever-looming specter. This foreboding of oblivion, of a realm beyond time, distills the moment to its finest essence. Film, a tapestry of photographic stills strung together, captures instants where time itself is halted, moments crystallized beyond the march of hours; this is the realm of death-time. Within the stillness of photography, we encounter the uncharted: a moment's spatial essence unveiled, freed from the shackles of natural progression. Aristotle, in his wisdom, posited the "now" as an entity outside the bounds of time. He envisioned the now as the essence of absence, a bridge from what is yet to come to what has already passed. Yet, this absence carries the weight of transition, a mystery encapsulated as the photograph extracts the now from its birthplace to the viewer's temporal shores. The now stands outside time, yet manifests as an echo, an experience transposed—a presence of what is not. A photograph heralds a moment poised for rebirth, altered in its essence: a temporal duality unfolds, a pivotal revelation for those who voyage through time.

Indeed, your ears do not deceive. We share these revelations for a day dawned upon us, a realization that film, in its essence as a medium, ensnares and safeguards shadows and echoes of existence, bestowing a unique brand of eternity and a glimpse into the soul of humanity, stretched across varied epochs and locales. We've come to recognize that through film, we can traverse the corridors of time, and to deepen this idea we decided to adhere to Gilles Deleuze's vision of the "crystal-image."⁷ This concept defies the conventional bounds of cinema and thought, blurring the lines between time's flow, the act of representation, and the veil between what is, what might be, and what has been. In the realm of crystal time, reality dons the hue of vermillion. Crystal time is vermillion.

The crystal-image involves a crystalline structure that captures and reflects various moments of time and hues of vermillion simultaneously. It is a nonlinear, nonchronological way of representing time, a metaphor for the complexity and multiplicity of potential futures. Instead of envisioning the future as a straightforward continuation of the present, the crystal-image suggests that the

future is composed of various possibilities and potentialities that coexist and interact. It invites us to embrace the idea that the future is not predetermined but rather consists of multiple trajectories and potential developments. Let's delve into the cinnabar crystalline images.

In Absence of the Sun's Gentle Touch

In a world eclipsed by the absence of the sun's gentle touch, the day unravels beneath a crimson fog emanating an unsettling red glow, and as night falls, it morphs into an impenetrable black wall, a void that stretches into infinity. This vermilion red fog, an insatiable devourer, has eclipsed all facets of our environment. Nature, once teeming with life, now remains shrouded in an eerie silence of death. Animals and people who once perambulated the roads have seemingly vanished into the folds of this enigmatic mist.

Speculations abound about what might have happened, whispers of extraterrestrial invasions and rumors of colossal environmental disasters. We ponder the duration of the oxygen within our sheltered homes while the water still trickles from the taps and food supplements offer sustenance, though the future embrace of death looms over our meager comforts. The details of our descent into this life-threatening state remain elusive. The imminent demise of humanity appears to be on the horizon.

An Endless Otherness

A parallel tale unfolds situated in the age of spectral gatherings when humanity has harnessed the enigmatic 7G technology to transcend corporeal limitations. Through the marvel of the "HoloPorter 3001," our body images embark on holographic odysseys, a multiplicity of virtual reunions amid the vermilion glow. Activated, the HoloPorter emanates a soft, ambient vermilion hue, its sleek frame adorned with minimalistic touch-sensitive controls integrated seamlessly into the very surface of our skin. With every gesture, a lifelike holographic tableau unfolds, a realm of incredible detail that envelops us in immersive experiences, complete with warmth and olfactory richness.

Safety measures abound in our holographic realm—built-in sensors, adaptive algorithms, emergency shutdown protocols, and biometric authentication weave a protective cocoon, shielding us from collisions and securing our ethereal sojourns. Yet, in the mysterious interplay, a terrifying revelation unfolded—a blackout otherness, an irreversible void that swiftly birthed a toxic reddish vermillion fog. Human lives were lost, and those who remained found themselves teetering on the edge of metamorphosis into endless otherness.

We, the spectrals, embraced our spectral existence as technological virtuals. Like ephemeral specters, eternally imprisoned film figures, we realized that returning to our former bodies and habits risked obliteration. The void we confronted now is not physical; it echoes in existential and emotional realms, an emptiness demanding introspection and transformation. In the luminescence of our holographic ventures, we navigate the boundaries of our spectral reality, beckoning you to listen to us, to understand our metamorphic odyssey.

Red-Hued Wonders

Soon after the cinnabar fog emanated its toxic red glow, a new kind of plant, vermillion in color, started to grow a little bit everywhere: a symphony of vibrant flora unfurled, adapting to the toxic air that paints them ruby red. Enter the enchanting realm of the Ruby Roses, not merely a visual spectacle but diligent air purifiers, their sharp thorns a defiant defense. Coral Trees, reminiscent of underwater worlds, grace both land and sea, filtering water and absorbing toxins. Ruby Maple Trees, with their rapid growth, reforest expanses, their shiny leaves reflecting sunlight to cool the air. Blood Lilies, resilient in poisonous soils, bloom with deep red trumpets, sustaining wildlife and cleansing the air. Red Lotus adorns polluted waters, its large leaves purifying as they float. Scarlet Moss, a red carpet in the remaining forests, stabilizes soil and prevents erosion.

These red-hued wonders, conducting photosynthesis akin to their green counterparts, bear anthocyanins, a shield against environmental changes. Beyond aesthetics, their crimson tones serve roles in deterring threats, attracting pollinators, and guarding against diseases. Genetic predispositions and environmental nuances dictate the intensity of this vermillion symphony, a testament to nature's adaptation in a world painted red.

Metamorphosis into Ethereal Blossoms

Some of us spectrals desired to embody these red plants, enchanted by their otherworldly beauty, choosing to take on their form. At the beginning, the metamorphosis unfolded slowly; subtle changes occur only in our images. Then delicate root-like tendrils, barely noticeable, extend from our gestures. These roots embed themselves in the surrounding environment, absorbing nutrients and moisture like a plant seeking sustenance from the soil. As the transformation progresses, veins and arteries took on a verdant hue, mimicking the vibrant green of healthy foliage. The plant-like vascular system gradually replaced our circulatory system, fostering a symbiotic relationship between the emerging flora and us. Crimson hues begin to emerge, gradually spreading across the surface. In some of us, the skin becomes translucent, revealing the intricate patterns of veins and capillaries beneath, a subtle network.

In others, the skin turns bright red, and the bodies become covered in delicate leaves. Some ethereal blossoms start to emerge from key points on the bodies. These blossoms unfold slowly, revealing layers of crimson petals that pulse with a gentle luminescence and subtle fragrance. The limbs elongate, taking on a sinuous, vine-like quality, drawing sustenance not only from the ground but also from sunlight.

Symbiosis with Mycorrhizal Fungi

The rest of us, who remained virtual spectrals, are in our existence as well intricately bound to these red plants, these beings of resilience and salvation. Our alliance with the vermilion plants was a symbiotic call to action that we, the spectrals, felt compelled to answer.

Our interactions with this botanical phenomenon were profound and multifaceted. We dwelled within the unseen, a dimension overlapping the physical yet apart, where we could influence and be influenced by the energies of the living earth. The red plants' roots, intertwined with mycorrhizal fungi, became more than an underground network; they were conduits of information, pathways of shared knowledge and intent. It was through these connections that we learned of their mission and our role within it. Their underground networks were beyond the mere physical, embodying a symbol of life's deep interconnection—a truth we spectrals have long embraced. We became couriers

of their seeds, steering them to realms craving their restorative caress, heralding the revival of ecosystems, and safeguarding the myriad lives within.

But our collaboration went beyond the restoration of the future present. As virtual spectrals we bear witness to the manifold destinies our earth might hold. The crimson flora, endowed with their remarkable virtues, joined us in this pivotal endeavor. In quietude, invisible and often unrecognized, we were bound by a mutual pledge to mend our world. Our odyssey transcended mere salvation; it was a quest to reshape the bond between humankind and surrounding nature, nurturing a reality where the genesis of such peril would be forever vanquished. A matter of fostering a world where such a crisis would never arise again.

A Novel Cinematographic Device

In venturing into the labyrinth of temporal manipulations, we, the spectrals, decided to record our memoranda. So, we invented the “Chrono-Echo” apparatus with the gentle support of the red plants. This novel cinematographic device defies the linear flow of time, catalyzing the future into the past. Through crystal time images and by transforming seeds from the red plants into a new kind of energy, we, the spectrals, traverse the delicate threads of temporal existence, communicating whispers, missives, images, and echoes.

However, this passage is fragile, carrying uncertainty rather than certainties: Because this innovation is again dangerous, demanding more than human energies, risking unforeseen ruptures in the fabric of reality. The crystalline interpenetration with spectral vermilion reality records and reproduces actuality so we inscribe our missive to the past, with the hope that you, our temporal predecessors, exist or will soon exist in a timeline receptive to our transmission. A delicate dance with time invites you to grasp the nuances of our chrono-machinations, to wield time as a malleable force, a tool to sculpt alternative futures. Our endeavor to bridge the temporal realms is embodied in the Chrono-Echo apparatus, a marvel of quantum entanglement of the spectrals with the red plants.

The concept of the Chrono-Echo apparatus even transcends the conventional filmic realm, evolving into a technological conduit for posthuman capacities which only are open to spectrals by using red plant seeds, triggering a hitherto unknown fusion of quantum technologies and temporal explorations. The

crystal-like cinnabar heart of this apparatus not only captures reality but serves as a portal to uncharted cosmic dimensions, casting spectrality into a new epoch.

In the cosmic movement of crystal-film-time, we, the spectrals, beckon you to partake in this odyssey, to envision a future where the boundaries of imagination join the infinite possibilities of existence. In this intricate tapestry, the past is not merely a historical chapter but a vital thread weaving the fabric of our being. Without a past, our very existence falters, and it is you, our ancestors, who not only define our present but co-determine the possibilities shaping our common destiny. You are our future.

This future, a realm yet to unfold, is a canvas of not-yet possibilities. It remains open, a spectrum of tendencies, directions, propensities, and desires. We live, act, and think with the inherent understanding that the future is not an abstract concept but a living force, entwined with our very existence, much like the past. In this oscillation between past and future, the Chrono-Echo becomes our vessel, melding the virtual with the actual, leaving the future and the past open to change, all within the fragile embrace of the fabric of time.

A Path through Time Itself

Without the whisper of yesterday, existence fades into the ether. You are the echo of our yesteryears, the architects of our being, weaving the threads of potential that sculpt our journey—a journey that stretches beyond the horizon, yet cradles no tomorrow. Yet, in your essence, the morrow finds its breath.

The morrow is but a dream not yet dreamed, a path unwalked, its myriad possibilities unfurling like petals beneath the sun's caress. However, if tomorrow's seeds are sown from yesterday's soil, threading through today's tapestry, does it not stand silently among us? Are not our deeds, our thoughts, our very stance toward the world, rooted in the belief that tomorrow whispers back? To hold tomorrow is to cradle life itself, as intrinsic as the memories that withdraw in the shadows of the past.

Moreover, the morrow whispers hints of what may come—a drift, a leaning, a gentle pull toward what might merely be a wish, or a shadow of dreams cast forward. We, the spectral beings, now weave the future into the tapestry of the past, employing the Chrono-Echo. This device, with its heart of cinnabar crystal, channels our essence into crystallized moments, crafting a conduit through

which messages traverse the ages, connecting what has been with what yearns to unfold.

The Chrono-Echo forges a path through time itself, a delicate bridge spanning the chasm between yesterday and a tomorrow still in the womb of possibility. Yet, this bridge is but a whisper on the winds of time, carrying fragments and echoes, a mosaic of maybes, devoid of certainty. With its awakening, the rigid lines that define past, present, and future meld into a fluid interplay where the potential is tangible, leaving the future open to the strokes of change.

Within the vermilion core of the crystal-image lies a realm of ambiguity, a threshold where the tangible and the fantastical blur into one, where the lines between the palpable and the imagined, between the mirror of the world and its essence, dissolve into our thoughts. It is here, in this liminal space, that we, the spectral voyagers, have anchored our sails for journeys through the corridors of time—crystal-images serving as our vessels.

These crystalline beacons have captured our vermilion messages, our echoes cast into the void, allowing us to traverse the streams of time. Time reveals itself in the cinnabar crystal, a direct vision of time unbound. It gifts us a glimpse into the realm of the “unthinkable,” a portrait of the “impossible”: the alchemy of time travel.

Yesteryears and the Yet-to-Come

We, the spectrals, gaze upon time not as a chain of discrete moments but as an unbroken river of being, where time’s vermilion essence is vividly felt. Our being stretches beyond the simple bounds of past, present, and future, blossoming into a ceaseless odyssey of becoming. Within this lively entanglement of time and existence, we perpetually shape our identity, each instant weaving together strands of memory, immediacy, and possibility.

Within this diffractive reality, we, the spectrals, navigate a temporal landscape branching out in myriad directions, becoming an intricate web of possibilities. Causal chains do not confine events; instead, they become “intra-actively”⁸ connected nodes in a vast temporal network. The world they inhabit is not a passive backdrop; rather, it conditions their existence. We, the spectrals, partake in a continual process of “intra-action”⁹ with time, where our decisions and actions intricately redefine the fabric of reality.



Figure 14.2 Link to the online-Video Vermillion Times (Reeh-Peters, Machado 2024).

Karen Barad from your time states that space and time, akin to matter, are but spectacles woven into existence, birthed within the tapestry of phenomena; neither realm exists as a concrete entity beyond the movement of occurrences. Through intra-active practices that breathe life into phenomena, the tapestry of past and future is ceaselessly reweven, their threads interlacing and folding into one another. Phenomena defy the confines of space and time; instead, they emerge as intricate weaves of matter, stretching their tendrils across the expanse of various realms and epochs. The corridors of yesteryears and the yet-to-come remain perpetually open, their narratives forever unfurling.

This viewpoint melds the divide between us, the spectrals, and the fabric of time itself, hinting that through an intertwining dance, we weave together the tapestry of your destiny. The true future, boundless and transcending, looms larger than our own essence, now drawing to a close, in shades of deep vermilion.

These are vermilion times (Figure 14.2). The crystal of time. A vermilion crystal. Millions of layers.

Wavelength: 680 nm | Color: Flesh Red

Excoriating Red: A Note on Russian Futurity

Andrey Logutov

I do not recall ever having had the itch, though scratching is one of nature's most delightful pleasures, always within easy reach—yet repentance comes too quickly after.

Montaigne, Of Experience.¹

In this chapter, I aim to explore two connotations of the color red: one political and the other biological. The political significance of *red* is intertwined with notions of communism and revolution, each with its own historical trajectory that converged in the symbolism of the Soviet era. I contend that this Soviet symbolism serves as a dynamic backdrop to the narrative of post-Soviet Russia. On the other hand, the biological connotations of red revolve around the idea of flesh, symbolizing the inherent equality among all living beings in both life and death. Furthermore, these biological implications intersect with the biopolitical landscape of Putin's Russia. I argue that the interplay between both meanings of red can be conceptualized through an itch-scratch cycle, wherein the inner essence of red is unveiled, brought to the surface, and amplified through mechanisms that operate in a compulsive manner.

Political Red in Russia

Red started its career in modern political symbolism as a color of alert during the French Revolution. From 1789 on, the red flag was displayed in the main window of the Paris City Hall warning the citizens of the “threats to public

peace,” and after the state of siege was lifted, it was replaced with a white one. The National Guard carried red flags during the suppression of riots. Over time, the color gradually transitioned from its specific role as an alarm signal to a broader representation of revolutionary ideals. Among the colors present in the Western political spectrum of the day, red uniquely managed to secure a place in Russian political discourse, while other colors were seldom mentioned, typically in discussions relating to foreign affairs.

February of 1917 marked a significant eruption of the color in the streets and political discourse of Russia. The Bolshevik Revolution initially embraced a variety of symbols but quickly transitioned to the red flag, marking a new era and displacing the national tricolor by April 1918.

Red remained the main state color of the country for the seventy-odd years of Soviet rule. All the flags of the republics constituting the union had a red field on them. The nation’s military was known as the Red Army (for some time it was its official name). Innumerable objects and institutions had the word “red” in them such as the chocolate factory *Krasny Oktyabr* (Red October), the *Krasnaya Presnya* (Red Presnya) district in Moscow, the *Krasny Proletariy* (Red member of the proletariat) heavy machinery plant, and many more. Coincidentally, Russian is the only Slavic language in which the basic word for “red” (*krasnyy*) is historically derived from the root meaning “beauty” (*kras-* as in the modern Russian *krasivyy* “beautiful”). Thus, many names that originally included the semantics of “beautiful” got pulled into the communist “red” orbit—most notably, the Red Square in Moscow, whose name originally had nothing to do with the color and appeared long before the Bolsheviks seized power.

After the collapse of the Soviet Union, red followed the same trajectory as other symbols of the communist past. In the 1990s, as the country embarked on a quest for a new identity, brief and fairly disorderly discussions regarding a potential state prohibition of communist ideology, along with decommunization efforts, failed to gain support from either the government or the majority of the public. It was assumed that political transformations would naturally occur following the economic shift toward a free market. As a result, political action was often considered a secondary concern, typically characterized by oversimplified binaries like “democracy versus communism.”

For many, the Soviet past registered as a topic best left undisturbed. If one were to distinguish between the form (aesthetics) and the contents (politics and events) of the Soviet era, the latter lay largely outside of any well-formed consensus. Endless talks over the justification of Stalinist purges, the Soviet Union’s possible complicity with Nazi Germany in the late 1930s, the role of

Stalin's "military genius" in winning the Great Patriotic War² and other such topics fueled divisions across the political spectrum and elicited little interest from the population who were obviously not ready to deal with the trauma that was too recent and too deep. On the other hand, Soviet forms—including colors, military insignia, emblems, films, music, and more—were re-aestheticized, reinterpreted, and woven into the fabric of popular culture. Case in point: the televised film series "The Old Songs about the Main Things" (*Starye pesni o glavnom*), which began in 1995. It presented a modern twist on classic Soviet-era songs, packaging them in a postmodern cabaret medley. All things Soviet transformed into brands and, as such, became part of the symbolic landscape of the country. Engaging with a traumatized past took the form of playful flirtation, which, in line with Freudian analysis of the joke, acted as a release mechanism. As the symbolic potential of the Soviet past gained recognition, its reality became increasingly blurred and ready to be reinvented.

The Red Itch

There is a vast array of literature focusing on how societies address and process their traumatic past, including the specific case of Russia. The lack of attention to its own traumatized history is frequently mentioned, both in academia and journalism, as a contributing factor to Russia's shift toward authoritarianism and its initiation of the largest conflict in Europe since the Second World War. However, given the complexity of the situation, it is not surprising that there is no universal agreement on the form this attention should have taken or the specific dynamics that might have been involved.

Based on my own observations, over the past three decades, only a limited segment of Russian society perceived the Soviet past as a source of *pain*. It was equally hard to encounter groups that have entirely dismissed the significance of the Soviet era as a whole. The reminders of the Soviet times are still everywhere: only a tiny fraction of monuments were dismantled, museums reoriented, and place names altered in the brief period following the dissolution of the country in 1991. There is not a single town in Russia that doesn't boast a Lenin monument. The Soviet past was and still remains a persistent presence, a source of (dis)comfort, an itch—an intermediary sensation between nothing and pain.

An itch is a soft whisper for recognition, an elementary signal for notice. Albeit far less alarming than pain, it subtly commands our awareness to revisit

its spot, thus initiating a cycle that may be both gratifying and damaging. While pain can register as coming from deep inside the body, itch is almost always skin-deep, its location potentially reachable, but it doesn't mean it's easy to get rid of. In a fit of compulsive scratching, also referred to as excoriation disorder, one digs through a feeling that is first perceived to be merely superficial but then grows in a dimension of depth. The itch withdraws but never fades; its phantom presence easily situates itself within the red chaos of the scratched spot. It's a sensation whose local-ness can only be approximated, so it may never be extinguished completely, triggering an unending itch-scratch cycle, where—as suggested by Montaigne in my opening quote—the “delightful pleasures” of scratching are followed by a prompt repentance and then, possibly, a new itch.

The color of gratification and repentance is red; it can thus be construed as the product of the itch-scratch cycle. In the sections that follow, I will attempt to deconstruct the red futurities of Russia by exploring the cycle in its three modes: a reenactment of unity; its role in the ongoing war; and its implications for the country's future (Figure 15.1).

Red Unity: Political and Biological

The idea of unity is already suggested in the biological implications of red as the color of flesh and blood. Scratching the surface gets you to the depths that are less specific: in the redness of flesh, we find a common ground, a shared circulation of fluids, a shared fabric of life. We expose the hidden truths of the flesh—not unlike how conspiracy theorists expose the hidden machinery of the world. Hegel speaks of an “outwardly” nature of red in the depictions of the human body:

The youthful and healthy red of the cheeks is pure carmine without any dash of blue, violet, or yellow; but this red is itself only a gloss, or rather a shimmer, which seems to press outwards from within and then shades off unnoticeably into the rest of the flesh-color.³

Red mixes in with other colors to remain a shade, a subtle clue to the depth that lies within. Yet, it is the true color of the body that is unseen, of what connects bodies together, the color of kinship, of bloodlines. Red transcends its visual representation, becoming a symbol of the internal essence of our being, a unification in one universal body. The rhetoric of “one blood” is commonplace

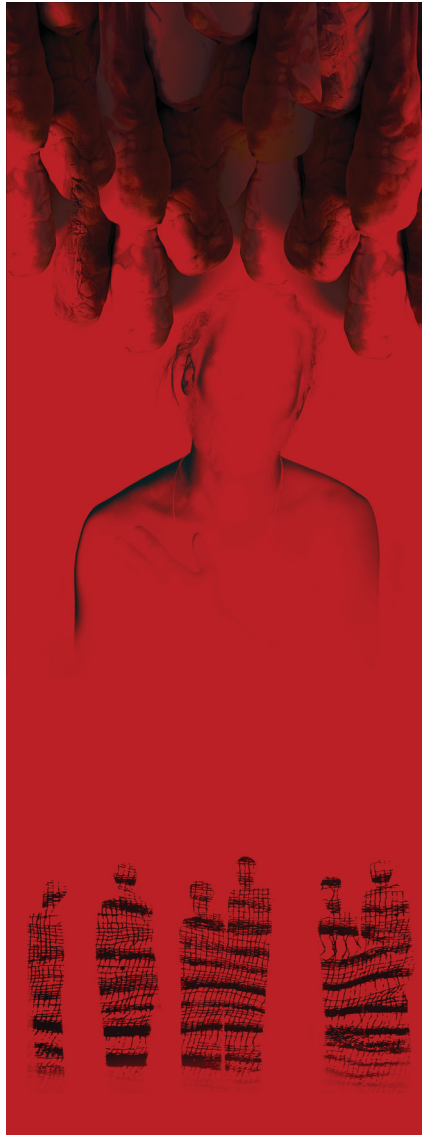


Figure 15.1 © Ludmila Razgulina, 2024.

in political discourse—especially, in genres such as national anthems, the Soviet variation on the theme being no exception:

The unbreakable union of free republics
Was forged forever by Great Russia.

Long live the united, mighty Soviet Union
Created by the will of peoples!

...

In the victory of immortal communist ideas
We see the future of our country,
And to the Red Banner of our glorious Motherland
We will always be selflessly faithful!⁴

It is noteworthy, however, that the lyrics emphasize the political dimensions of unity: the peoples are united on the basis of a shared commitment to communist ideals. The resulting brotherhood is depicted as “unbreakable,” evoking associations with a biological-like bond, yet the text notably avoids direct references to common ancestry or blood ties. Instead, the formation of the union is portrayed as a result of collective “will.”

In December 2000, on President Putin’s initiative, the State Duma brought back the music from the Soviet anthem to use for the anthem of the Russian Federation. This move was the first instance when flirtation with Soviet forms led to adopting one of them as part of the state symbolism of post-Soviet Russia. The idea of Russia being the successor of the USSR was already in place: it had inherited the totality of the nuclear arsenal, the seat on the UN Security Council, the foreign debt, and so on. Now, with every iteration of the itch-scratch cycle, more and more fragments of the Soviet past resurfaced and integrated themselves into the patchwork of modern Russia. To adapt a popular adage, one might say, “scratch a Russian, and you’ll find a Soviet” (or the other way around).⁵ In many of his recent interviews, Putin has reiterated that the USSR represents merely a phase in Russia’s broader history.

Looking at the new lyrics, interestingly authored by the same poet, we see a shift from political unity to an emphasis on unity predicated on blood relations. The anthem extols “the eternal union of fraternal peoples” and the “wisdom bestowed by our ancestors,” emphasizing the strength of the Russian people derived from their eternal “loyalty to their Motherland.” The explicit mention of the color red has disappeared along with the references to shared political ideals. Unity is now divorced from the will of the peoples; it is sold as historical, biological, and therefore unalterable.

One finds similar rhetoric in the article entitled “Historical Unity of the Russian and Ukrainian People” released by Putin in the summer of 2021, which is frequently regarded as a precursor to the 2022 conflict. Its narrative, which the Russian president has expanded upon many times since, portrays the present-

day differences between the two nations as a product of past mistakes and foreign meddling. In advocating for the “historical unity” of the two peoples, he emphasizes their shared language, faith, and notably, ancestral ties: “Our kinship has been transmitted from generation to generation. It is in the hearts and the memory of people living in modern Russia and Ukraine, in the blood ties that unite millions of our families. . . . For we are one people.”⁶ The modern-day Ukraine, he asserts, is “entirely the product of the Soviet era.” While extensively highlighting the errors committed by Soviet rulers, particularly Lenin and Khrushchev, in delineating ethnic territories within the union, he reproaches the Ukrainian leadership for their purported failure to recognize the Bolsheviks’ role in shaping Ukrainian identity and statehood.

Putin’s argument combines the political red (communist past) and the biological red (a reference to a genetic unity). The former is blamed for distorting the latter, but both participate in the itch-scratch cycle fueling a sense of pride and resentment. While acknowledging the Bolsheviks’ responsibility for unjust border delineation, Putin underscores the role of the Communist Party, that is, the political red, as a “safety mechanism” that prevented the collapse of unity. The communist red thus represents a historical form of biological red and must, therefore, not be easily discarded. Inside the country—despite simmering discussions on the ambivalence of the Soviet era—no signs of the communist past are being eradicated. Meanwhile, the decommunization efforts underway in Ukraine provoke resentment and exaggerated indignation—primarily, because it is perceived as a sign of neglect toward the most important red moment of the shared past, the Great Patriotic War.

The Perfect Red Moment

In his well-known book on the latter decades of the Soviet Union, “Everything Was Forever, Until It Was No More,” Alexei Yurchak cites numerous instances of how Western culture was perceived by the Soviet youth of the day as a symbol of the future. In a letter to his friend, a young Komsomol activist named Alexandr explains the reasons why he favors Western rock over Soviet “official” popular music. Western bands, according to Alexandr, embody the “music of the future”; their bold departure from conventional musical forms is seen by him as a more authentic expression of communist fervor than the music sanctioned by the Soviet regime itself.⁷ Based on similar examples, Yurchak introduces the concept

of the “Imaginary West,” linked with innovative artistic expressions and elusive consumer goods that presented an alternative to the mundane aspects of life in the USSR. As it sometimes happened throughout human history, the future for the Soviets evolved into a geographical notion, a place to the West: by the mid-1980s, there was a widespread sense that the country’s future would entail the adoption of Western models—particularly in terms of the economy.

Drawing from personal experience, I find it hard to vouchsafe that the Western lifestyle was sought after by the majority of the population. Even among those who expressed such desires, there was often a limited practical understanding of what “Western life” truly meant or how it was to be embraced. Rather, it seemed to be a generalized aspiration for prosperity and freedom of expression, lacking solid grounding in reality. As the market reforms of the 1990s failed to fulfill their promise of improving the lives of every individual, disillusionment spread regarding the transformative power of the economy, and the concept of a “Western future” began to lose its appeal.

Since Putin’s rise to power in 1999, the momentum toward embracing Western visions of the future has waned even more, leaving a void in Russia’s perception of its own identity and possible future trajectories. Driven by the unresolved trauma of the past, embodied in a persistent red itch, one instinctively sought meaning among the scattered remnants of Soviet forms that endured in popular (un)consciousness. The political shades of red associated with socialist ideas had limited allure—after the defeat of the Communist Party in the 1996 election, they faded into the unremarkable fabric of everyday life. There was, however, one phenomenon that fit the bill—the cult of the Great Victory of 1945 that emerged under Brezhnev and subsequently became a significant fixture among the civic cults in Russia. The political red of the Soviet Army war banners naturally lent itself to reinterpretation as the red of the nation’s biological unity.

The war laid bare the color of flesh. It was the perfect red moment uniting everyone as a singular body and a singular nation, revealing the true soul of people who acted as a unified mass, shedding blood and triumphing over pure evil with the power of red, both political and biological. The victory was an indisputable fact—it stood out among the controversies of the Soviet times as one pure element of good, impervious to challenge. Even though at first glance it did not offer a vision for the future, it managed to anchor the present and epitomize the continuity of the nation’s history. At least, it seemed to offer a position from which a future could be negotiated.

The perfect red moment also functioned as the perfect sore. On one hand, it fueled the itch-scratch cycle: while the war itself was traumatic, the memory

of victory offered an inexhaustible source of gratification. On the other hand, it necessitated protection from external forces; only the descendants of the victors understood how to properly tend to the wound. As the cycle intensified, so too did its manifestations—political, cultural, or legal. Laws were enacted to protect the sanctity of the victory. Annual commemorations expanded in scale and spectacle as red victory flags and other Soviet paraphernalia appeared in increasing numbers. Inadequate recognition of Russia's contribution to victory in the West became a common talking point in both domestic and foreign political discussions.

The void created by the erosion of the Western model for the future was essentially filled by a mechanism that fixated obsessively on a single past event. In the late 2000s (the exact date is difficult to pinpoint), a slogan “We can repeat” (*Mozhem povtorit'*) gained prominence, often accompanied by an image of one figure with a Soviet hammer and sickle for a head engaging in a sexual act with another figure with a Nazi swastika for a head. Liberally inclined commentators expressed bewilderment at the notion of wishing for the repetition of such a catastrophic event as a world war. From my perspective, the slogan exposed the repetitive machinery of the victory cult, which demanded constant revising of the memory of war. I read the statement not as a note on the ability of the “we” to repeat whatever they desired, but as a sign of repetition already in progress. The absence of an object after the verb directs attention to the action itself, and the inclusion of sexual imagery further reinforces this emphasis. The pleasure cycle of the red itch desemantizes and obfuscates the concept of war, replacing it with a null symbol. In fact, any political meaning is perceived as a potential disruption to the cyclic status quo, as it introduces the possibility for change. Political discourse of Putin's Russia is laden with irresolvable oxymorons that encapsulate the stasis of thought and action such as “traditional values,” “enforcement of peace,” and so on. And what can be more disruptive to a cycle than a future?

A Flesh Mirror

In the same piece on historical unity, Putin repeatedly asserts his opposition to Ukraine's evolution into an “anti-Russia.” Ukraine's relationship with its neighbor to the east is presented here as inherently binary: it must either acknowledge it as a mother state or become its mirror opposite, with all the intermediary possibilities regarded as illusory. Since the early 2000s, as Russia

began to abandon its vision of a Westernized future, Ukraine has followed a path toward integration with the European Union. As Russia became increasingly caught up in the itch-scratch cycle centered around the Great Victory, Ukraine underwent a series of revolutionary events, each prompting a reassessment of its future trajectory and a reaffirmation of its European course. In a peculiar twist, it was Ukraine that embodied the original revolutionary significance of the color red, a symbolism that had been entirely eradicated from the Russian political landscape.

Putin talks of Ukraine as a disfigured twin, a warped reflection of Russia, almost like a mirror image gone awry. He experiences the kind of tactile duplicity that Merleau-Ponty hints at when he writes that “the flesh is a mirror phenomenon.”⁸ Looking into the biological red of the flesh, we seek to discover a profound sameness that blurs the distinction between it and ourselves. The flesh thus acts as a mirror that produces an image that is unchanged and universal, one that exposes the inward red of the body and, therefore, fits all. If this sense of sameness appears distorted, we just need to go deeper beneath the surface that deceives our eye. The malformed image in the mirror of flesh beckons an excavation, an insistent uncovering of layers underneath layers, an intrusion. The detached act of looking gives way to a traumatic intervention, where, with every scrape, flesh is reduced to its elemental condition of a red mass/mess, in which distinctions between individual bodies annihilate, and a sense of unity is reinforced. This triggers the same itch-scratch cycle, now heightened to the level of self-mutilation—or just “mutilation” as the red of the flesh recognizes no “selves.”

At this point, biopolitics, which has recently been a focal point of the Russian regime with its persistent rhetoric supporting large families and combating the perceived threat of the “barren” LGBTQ+ or child-free communities, transitions into a necropolitics of red. In war, we stand united with our ancestral heroes, revealing the blood that binds us to them. An itching sore widens into a yawning wound that is perceived as beautiful. The war is fueled by the same *red itch*, the gratification derived from repetition never overshadowed by the horrors of death. The victim is blamed for perpetuating the cycle, despite never initiating it and merely resisting the coerced assimilation into the red unity. Whoever attempts to disrupt the cycle is an enemy—and if it is the Great Victory of the past that is being reenacted—the enemies must be “fascists.” The two officially declared goals of the war, the “demilitarization” and “denazification” of Ukraine, are in direct relation to these two dynamics.

What was initially planned as a swift and triumphant assault in 2022 has evolved into a grinding conflict, resulting in the obliteration of the “liberated” areas of Ukraine. Amid the bloodshed and devastation, as propaganda asserts, the superficial veneer of “Ukrainianity” (*ukrainstvo*) is stripped away, revealing the true essence of Russian identity. Concurrently, the mirror’s clarity is restored; not only does it affirm the equality of Russians and Ukrainians but also projects the past into the future. Just as the Russian (then Soviet) nation was forged in the red of the Great Victory, it now finds itself restored to its essence through the mirror flesh of war.

Red Futurities

As the cycle runs on, its relation to its object, the red sore, becomes detached and mechanical. It becomes integrated into the routine rhythms of everyday life, devoid of meaningful emotional responses. It engenders affects and psychological states that are as enduring, numbing, and haunting as the cycle itself: anxiety, derealization, despair. In war, the bio/necro-dimensions of red overpower and then almost completely displace its political implications. The itch-scratch cycle is a self-sustaining process that can occasionally assimilate and generate meanings but is not reliant on them. Due to numerous contradictions and inconsistencies, the Putin regime is frequently characterized as lacking a coherent ideology. The state propaganda frequently portrays the conflict as a battle against the “fascist” ideology that has purportedly “seized control” of Ukraine, thereby emphasizing Russia’s “anti-ideological” stance. In contrast, I contend that Russia does possess an ideology, but it is enacted through obsessive behavior rather than represented symbolically.

The ideology necessitates that the itch-scratch cycle never cease. From inside the cycle’s own operation, it is not clear how it can ever stop: it appears capable of running forever, even beyond the conclusion of the military phase. Self-proclaimed ideologists seeking to ground the regime in an articulated doctrine (at which I believe they will fail) yearn for an “unending war”—a perpetual state of bloodshed that will never come to an end. The cycle almost completely erases the distinction between the past and the future, leaving its own escalating dynamic and magnitude as the sole bearing for the arrow of time. However, the looming question of its endpoint, which it itself cannot answer, serves as a permanent source of apprehension. The shift from political red to biological red,

which I mentioned above, offers some protection against futurity, yet it does not provide an unconditional guarantee.

This inherent uncertainty haunting the cycle makes me think of another form of scratching, the act of scratching a lottery ticket. In a sense, it mirrors the scratching of an itch as it sets off a cycle of gratification and repentance. Typically, lotteries revolve around the future rather than the past and are part of the realm of luck. Luck can be positive or negative, and it plays out the interconnected random possibilities of life. The compulsive scratching of the red flesh that Russia is engaged in has more to do with fate than luck, wishing to uncover its own endlessness, a formula that equates the past to the future. Anything that gets dug up in the process—such as dreams of nuclear retaliation or restoration of the Soviet Empire in its entirety—can be put to action as long as it feeds the cycle.

Exploring pasts as potential futures gains popularity in the world. Many groups or even states feel the urge to scratch the surface of the present in search of the elusive Golden Age (or any other colored age) they can return to. The catch is that the surface may turn out to be someone else's skin that can bleed.

Wavelength: None, Multiple | Color: Gray

Dead or Alive? Gray Futures

Franziska Strack

Of Shades and Tones

Get up. Step outside. Look down. Walk a little. Look down again. It's likely that you encountered something gray along the way; the pavement in your driveway, the asphalt of your street, cobblestones. Most of the ground beneath our feet is gray,¹ and—if you are in the UK, like me—so is the sky above. Now close your eyes, listen to your surroundings. You might be disturbed by some sounds while others soothe you as they link up with the colors you saw before. Imagine the future. What comes to mind might be dire, and gray. Maybe it involves one of the countless post-apocalyptic sci-fi and zombie movies, like *The Road* (2009) or *Arrival* (2016), that have been flooding movie theaters and home screens in recent years. With their dominant use of gray filters, the movies recall an obsession with—and real fear of—the end of the world,² arriving in the form of nuclear disaster, climate change, and extinction events.

For Jeffrey Cohen, gray *is* the color of the apocalypse. It is “the fate of color at twilight” or the color of the liminal hour when feared, unknown, and eerily familiar forces and creatures thrive.³ “Grey is the realm of the monster, what appears at the perilous limit between what we know and what we do not wish to apprehend, what we are and what we must not be, what we fear and what we desire.”⁴ While gray occupies this extraordinary moment, it also inhabits—as David Batchelor reminds us—the space of the passive, lifeless, and boring, of “dampness, dishwater and disappointment.”⁵ Dictionary entries are filled with descriptions of gray ranging from gloomy, grim, and depressing to hopeless, ambiguous, and neutral.⁶ So what then defines gray? Nothing. Everything. Gray has no single independent wavelength and requires a mixture of other colors to

come into being. Gray inverts or cuts across the color spectrum. It absorbs all incoming wavelengths at about the same percentage. It is a color—or noncolor—that exists in tones, hides in shades, and escapes clear descriptions. Gray never really is. As such, it carries insights about present futures hidden in plain sight, which we detect in novels about gray dangers, promises, and potentialities. So sit down for a bit, things are about to get uncomfortable.

Gray Becomings

In Jasper Fforde's sci-fi novel *Shades of Grey*, we encounter a post-apocalyptic world—a world in which the spread of mildew and swans are the greatest sources of fear, Lincoln is a painkiller, and postcodes are meaningful enough that they are tattooed onto people's skin. The people populating this world are human-robot hybrids which have surpassed some of the restrictive dualisms that the "Previous" (aka, our current generation) were living under. In the days after an unknown great event, efforts were made to consolidate pure abstract emotions in the mind, so that people can now both have individual experiences and be programmed. At the same time, other restrictions were enhanced, and society became hierarchically organized according to color perception. What you see is who you are. As the first-person narrator Eddie—a Red—explains, "I knew what red looked like, but I'd be hard pressed to explain what it actually *is*."⁷ Everything from class to friendship is determined by colors, so that "the only thing that Reds and Greens can truly agree on is that we dislike Yellows more."⁸ Ultraviolets currently occupy the highest social rank.

Reading *Shades of Grey*, we become more and more immersed in its world. We learn that main events are recalled in a newspaper called "Spectrum," and laws are collected in a "Rulebook." The rules are comprehensive ("2.3.06.02.087. Unnecessary sharpening of pencils constitutes a waste of public resources, and will be punished as appropriate.")⁹ and absurd ("5.2.02.02.018. Yellows are permitted to break Rules in the pursuit of Rule-breaker, but all Rules to be broken must be logged beforehand, and countersigned by the Yellow Prefect.")¹⁰ Prefects have 70 percent color perception or higher and rule the different precincts. Marrying down dilutes perception, but there are also possibilities for receiving "merits" as rewards. Finally, just as our generation worries over rising CO₂ levels in the atmosphere, the world here has Saturation Dispersion Indices

which, if elevated, cause concern over paint and color resources. There is also a list of banned shades.

Shades of Grey follows Eddie on his journey from the city of Vermillion to the town of East Carmine and eventually the outskirts of High Saffron. Eddie collects obsolete words (like “commute”) and rare objects (mainly spoons). A crucial moment occurs when he meets his love interest Jane, who is a member of the Grays. In their first interaction, Jane steps out of line. She is rude to Eddie—a superior—and uses forbidden words. As a Gray, Jane experiments with ways to escape the gaze of hierarchy. Her actions are met with frustration by those around her, but also with a sense of resignation and uneasiness. Contrary to all other color classes, Grays aren’t expected to occupy a fixed position—or to fully adhere to it—thus having some space for rule transgression and performative refusal. The status of Gray also allows Jane to explore and collect information without being noticed, and she begins to introduce Eddie to the secrets and hidden places of the authoritarian world they live in.

At the end of the book, Jane and Eddie attend a ceremony called Ishihara—the central stage in life when one’s color perception and respective rank are finalized. As it turns out, Jane’s Gray is actually composed of a mixture of Blue and Yellow, creating Green. For the storyline, this means that she and Eddie are unable to marry (as they had planned) because Green and Red are complementary colors. The two characters decide to use their complementary fate to consolidate resistance against the regime. For us, the ending means that Jane’s Gray had indeed secretly carried the real possibility or presence of (all) other colors within it. Gray bears uncertainty, simultaneity, becoming. Yellow and blue can appear as gray or green. All colors begin and end in gray. In gray, colors come together and apart.

Modernist painter Paul Klee explores these oscillations. For Klee, colors can be artistically used because they constitute a self-contained system or universe, which evolves around the three primary colors (red, blue, and yellow) and their hybrids. Klee exemplifies this with the help of the painting disc, on which colors are separated into regions (Figure 16.1).

The center of the disc is gray (“grau”). Here, we arrive

at the fateful point between coming-into-being and passing-away: the grey point. The point is grey because it is neither white nor black or because it is white and black at the same time. It is grey because it is neither up nor down or because it is both up and down. It is grey because it is neither hot nor cold; it is grey because it is a non-dimensional point, a point between the dimensions.¹¹

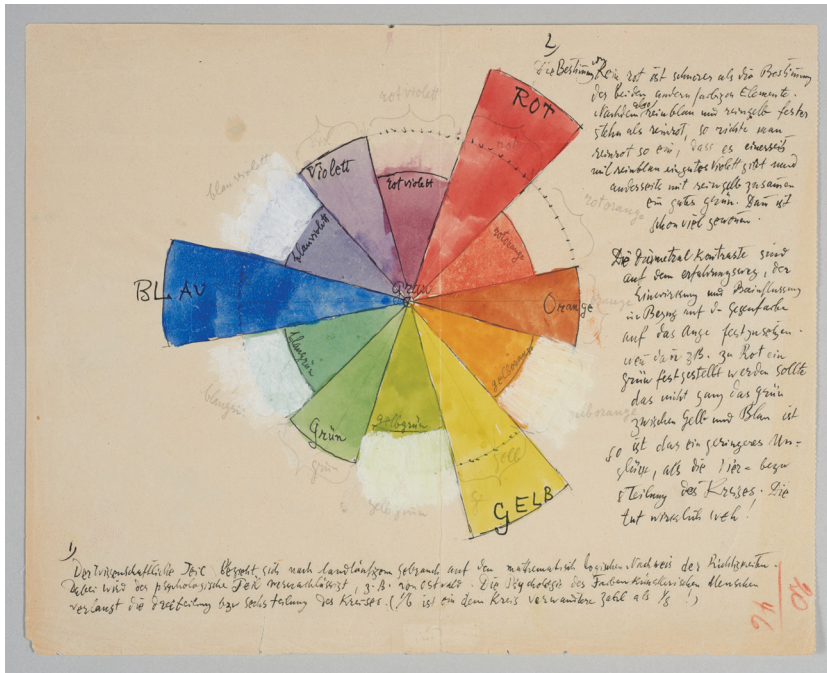


Figure 16.1 Paul Klee, Theory of pictorial configuration: I.2 Principal Order, BG I.2/157. Zentrum Paul Klee, Bern, Image archive.

Klee's gray point organizes and disorganizes worlds. It describes that moment when things take shape and are undefined, when intensities change, when we leap from chaos to order and back to chaos.¹² Gray refuses simplicity. It connects and divides various colors and experiences. It forces (or allows) us to look at things from all angles at once. *Shades of Grey* contains a similar minor moment when Eddie encounters a group of sorting tables organized around the three primary colors.¹³ He does not mention the empty gray area in-between. Maybe because he cannot see it from his singular perspective. Or maybe because the uncomfortable, exposed, and intermediary space—which is necessary to uphold separation yet can collapse it at every moment—always hides in plain sight.

For Gilles Deleuze and Félix Guattari, the possible collapse of order is deeply political. The authors thus use the dynamics of gray to outline the creative—destructive and constructive—elements of becomings. For them, Klee's gray point “starts out as nonlocalizable, nondimensional chaos.” It then becomes a terrestrial force that “radiates a dimensional space with horizontal layers, vertical cross sections, unwritten customary lines” before launching out of itself again, “impelled by wandering centrifugal forces that fan out to the sphere

of the cosmos.”¹⁴ Seizing these dimensions, we learn that gray has a distinct temporality. In it, unfolding processes carry the seeds of past and future orders, and grand, even cosmic, forces are not always noticeable. In gray, order and disorder coexist. Stabilizing spaces *already* contain the jump into the non- and multi-dimensional, letting us glimpse at the world before and after we know it.

Gray Temporalities

Italo Calvino’s cosmological fable “Without Colors” depicts the earth in its pre-atmospheric stage. Without an atmosphere to filter light or transport sound, earth is silent and lives in gray tones.¹⁵ As *Shades of Grey*, Calvino’s story is driven by a narrator—Qfwfq—and his love interest—Ayl. During one of their encounters, colors pour into the world, flushing away the gray shades. Qfwfq’s reaction is ecstatic: “I ran all over the Earth, I saw again the things I had once known grey, and I was still amazed at discovering fire was red, ice white, the sky pale blue, the earth brown, that rubies were ruby-coloured, and topazes the colour of topaz, and emeralds emerald.”¹⁶ Through colors, earth became alive for Qfwfq. Ayl, by contrast, mourns the earth’s gray state.

“Without Colors” introduces us to a volatile earth and to the spectacle of the color spectrum. The story also generates fear, as we sense that we may soon jump-and-return to a similar state of grayness on our planet, once breathable air has been emptied out of the atmosphere and the climate disaster has passed through red-glowing wildfires, blue-shimmering floods, and yellow-lightning thunderstorms. Then again, maybe, the apocalypse will arrive at twilight. Maybe, Cohen tells us, while we stare at the gray pavement, we are too obsessed with images of colorful catastrophes. Our imagination has difficulty discerning the “vibrancy” of gray apocalyptic transformations.¹⁷ From a gray perspective, the apocalypse looks like decay, and decay constitutes a process that may seem fatal but is, in fact, unimpressed by fantasies of disaster and finality.¹⁸ The space of decay is creative, endless, and future-oriented. In *Shades of Grey*, Eddie’s life plays out in this space. In fact, Eddie narrates the entire book from a post-mortem point of view. Already on the first pages, he tells us that Jane will at some point kill him. And indeed, toward the end of the novel (yet not *at the end*), Eddie is eaten by a poisonous tree—an experience that is unpleasant and life-altering but not terminal.

As beginning and end become difficult to discern, we experience the present moment in time. Someone who embraces this experiential temporality is the

main character in Michael Ende's fantastic children's novel *Momo*. Momo is a young girl who lives in an amphitheater just outside the city. When prompted, she tells you that "As far as I can remember, I've always been around."¹⁹ Momo has an extraordinary ability to listen, which helps people with their problems, solves conflict, and creates community. The community is interrupted by the arrival of the "Men in Grey." These men are posthuman cigar-smoking beings, whose entire appearance (bodies, clothing, possessions) is gray. Most importantly, they all work for the "Timesaving Bank," which tricks people into depositing lifetimes with the promise to return them later with interest. In reality, people forget about this transaction and are left simply with the obsession of saving as much time as possible.

To convince people, the Men in Gray perform complex calculations that render predictions of the future along linear and regular timelines. If someone dares to question those predictions, the Men simply incorporate the critique into a new calculation. The Prefects in *Shades of Grey*, too, explain that the world has become fully knowable, as the number of facts has been reduced and all necessary questions have been answered. If you cannot find the answer, you're not asking the right question.²⁰ Both perform what philosopher Henri Bergson calls the spatialization of time. Spatialization forces experience into measurable steps and units, denying that time in fact proceeds as indivisible movement, continuously unfolding memory, or "duration." Time only ever exists in the passing moment.²¹ We can intuit this moment yet never predict or fully recall.

Bergson encourages us to tap into this intuition and to develop it into a mode of thinking. This thinking

consists precisely in placing oneself, by an effort of intuition, inside this concrete reality on which from the outside the *Critique* takes the two opposing views, thesis and antithesis. I shall never imagine how black and white intermingle if I have not seen grey, but I have no difficulty in understanding, once I have seen grey, how one can envisage it from the double viewpoints of black and white.²²

The point here is that—just as gray generates a new perspective on black and white—past and future are not linear but understood from the point of the present. This present is, in turn, shaped by both memories and future associations. By incorporating two (multiple) colors, the present gray thus holds together different perspectives and temporalities. To be and/is not to be. Past and future coexist. In grayness, the possible and the impossible collide.

Moments like those are multiple in *Momo*. While representing harmful forces, gray's existence initiates a process of learning which pushes Momo's boundaries

of perception, granting her access to nonlinear pasts and futures, and ultimately letting her stand up against the Gray Men. Momo receives help from a tortoise called Cassiopeia that can see half an hour into the future. Cassiopeia can't change the future but remembers what she saw and acts accordingly. Her paths of *what is* and *what will be* overlap. Cassiopeia leads Momo to Master Hora (the guardian of Time) from whom Momo learns that time lives both in people's hearts and the cosmic center of his house.²³ To reach this house, Momo needs to walk backward to move forward in time.²⁴ And even the novel's author shares, in the Afterword, that he learned about Momo from a stranger, telling him that the story could have taken place in the past or the future—its meaning remains the same.²⁵

Eventually, Master Hora gives Momo an hour outside of regular Time to free the city. Momo succeeds by releasing personal memories from capture and returning them to the world. The Gray Men are powerless to resist her as they are unable to access durational time. All they do is deprive time of its lively essence and roll it into cigars. Without smoking their cigars (or dead, stolen time), they die within microseconds. In reducing time to measurable units, the Men have also no ability for memory and require little notebooks to collect their thoughts and experiences. And by depriving themselves and people of memory, the Men not just dismiss Bergson's duration, in which past and future—or the perception of the immediate past and determination of the immediate future—momentarily coexist.²⁶ They effectively fear that the continuous life of memory has the possibility to challenge given futures.

Possible Futures

At the end of *Shades of Grey*, Eddie briefly sees the world in full color. Now, and in some rare intense moments before, his senses are interconnected; he can feel, smell, and hear colors. Momo, too, hears colors when she sees time's essence at Master Hora's house. Jane could always perceive the world this way. While Eddie only secretly peeks at his surroundings in shades that are not red (which is strictly forbidden), Jane's gray vision reveals—indeed requires—the coming together of all colors. Also Ayl knows that, in its seeming dullness, gray holds complexity, degrees, and variation. It does not refuse clarity or color but adds a dimension to them. Klee helps us understand again. As he explains, a painting has three regions which can be combined in several ways: While the *line* creates measure and *colors* introduce essential differences, *gray tones* capture degrees of energy.²⁷ Only in gray degrees do we gain access to the intensities that shape a present

moment. As a result, gray plays a crucial role in each artistic process which—as Klee puts it—“does not reproduce the visible but makes visible.”²⁸ Refusing to simply represent the world, artworks tap into and visualize those personal and impersonal, real but not always perceptible forces that drive becomings. In them, the creative energies of art and those of the world meet.

For Deleuze and Guattari, creative meeting points engender world-making. To render visible, the artist thus

“turns his or her attention to the microscopic, to crystals, molecules, atoms, and particles, not for scientific conformity, but for movement, for nothing but immanent movement; the artist tells him- or herself that this world has had different aspects, will have still others, and that there are already others on other planets.”²⁹

Gray artworks consolidate those aspects for us. They depict the world in its less absolute state. They achieve what Klee wants all art to do, namely, to show that the world is multiple and always changing.³⁰ And multiplicity makes space for possibility. While Jane was a Gray, there was a world in which the marriage between her and Eddie would have been undesired and disastrous, yet still *possible*. Once Jane takes on a more defined color (green), this possibility is rendered mute, as her and Eddie’s entire modes of existence are shaped by an authoritarian regime that requires rigid separation—in this case, enforced through color.

Gray worlds are not just multiple. Crucially, through the co-presence of multiple colors, gray shows us multiple possible worlds *at the same time*. We can envision a gray picture, painting, world, . . . in different colors, over and over again. We just need to remember that gray alone was able to stand in for every color in early films and photographs.³¹ Jane remembers. As a Gray, she can see the world both for what it is and is not, for what it negates and could be. And she sees that whatever is or may be also escapes. For Batchelor, this makes gray a speculative color that plays with the presence-absence dualism.

“Grey is the most tentative of colours and the least absolute of any: it is difficult to imagine a pure grey. Grey is the colour of inbetween. It is the irregular path between the imagined absolutes of white and black, and I am constantly reminded in grey of that which it is not.”³²

In its present absence, gray refuses purity and simplicity. It both evades all definitions and carries all possible definitions with it. The facts that the world is and could be different coincide in gray. Or better, in gray, that which composes the world suggests that the world can be otherwise.

In this sense, the apocalypse is also not “the end of time” but a distinct temporality of passage or reorientation. It offers space to search for what Klee and Deleuze and Guattari call “a people.”³³ Our main characters participate in this search, and it is exactly their ability to perceive the possibilities and dangers of gray that enables them to do so. Gray attention drives Jane to look for others to join the resistance. Momo’s vision of a world evolving around friendship emerges in response to gray. And the universe’s beauty began for Ayl “only where the greyness had extinguished even the remotest desire to be anything other than grey.”³⁴ The searches of all these women largely go unnoticed by the main (male) narrators. Qfwfq dismisses Ayl’s desire for gray as anxiety. The Gray Men find Momo childish. Eddie calls Jane rude. In their own way, they all subscribe to the many stories of color in which apocalyptic moments are tied to the final loss of self and identity.³⁵ What Jane, Ayl, and Momo teach us is that living with the apocalypse constitutes a stage of transition. As such, it might offer a path toward futures shaped equally by suffering, possibility, and indeterminacy. Gray, “the color of unexpected life.”³⁶

In our stories, gray *expands* the apocalyptic transition—for better or for worse. In *Momo*, it plays out in the (non-)final hour. Although first confronted with the authoritarian version of gray as a sign of danger, destruction, and consumerism, Momo now appreciates an otherwise-possible world because the harmful shade of gray has become part of reality. The Men in Gray, by contrast, fear the apocalypse. Like today’s doomsday preppers, they plan to hide out in a bunker. They even decide to let some of their own die to give others a better chance at survival and repopulating the earth. The Men forget that their own existence—gray—does not know a before and after; it only knows tones and intensities. Momo knows, too, and succeeds at twilight, in the “interval” or “the twinkling of an eye.”³⁷ Where Jane views her world for what it is and might be, Momo perceives what was and will be. Each character tunes into one region of time. As Klee says, whenever we focus on one region of an image or reality, another fades from view. To this region, “we should say: now you are becoming the Past. But possibly later at a critical—perhaps fortunate—moment we may meet again on a new dimension, and once again, you may become the Present.”³⁸

From *Shades of Grey*, we learn that we—the “Previous”—have denied this possibility for the past to shape the future, as we failed to add a double zero prefix to our year system.³⁹ In doing so, we limited both memory and futurity. In Calvino’s tale, Qfwfq describes a similar moment, crying that Ayl’s gray world “was lost forever, so lost I couldn’t even imagine it any more, and nothing was left that could remind me of it, even remotely, nothing except perhaps that cold

wall of grey stone.”⁴⁰ Maybe today, gray walls—or other gray shades, stones, and surfaces—constitute faded rem(a)inders of the past and barely visible possibilities of futures. For Cohen, stones are indeed alive, carrying deep affiliations of matter across time as signs of enduring cohabitation.⁴¹ As such, stones teach us “that ruin is a beginning, a going from which something vital arrives.”⁴² For Jussi Parikka, modern media give geological time a technological layer, so that stone fossils become “telofossils,” and “gray is also the color of the covers of hardware and surroundings of the metallic parts as well as plastics.”⁴³ Gray is also the dust, smog, and smoke that rests on discarded devices, surrounds exposed bodies deemed expendable, and enters our lungs.⁴⁴

Momo’s Gray Men are enveloped by ash gray rain, as well, and sustained by the smoke of dead time. Like Eddie, the Men complicate the linear progression of life toward death. Life becomes death, and death becomes life. Approaching the end of life on earth today, we, too, know that death comes in many forms. Extinction is but one possibility among many, and rebirth may be decay. And as gray indicates life-and/as-death in degrees, there is something humbling about it, and something that is more-than-human—whether in the form of robot parts in *Shades of Grey*, a tortoise in *Momo*, or the elements in “Without Colors.” The stone, the dust, the machine, the animal. Gray expands the community of “a people” beyond the human shape. It establishes a “contact zone between the human and the nonhuman,”⁴⁵ thus calling for new communal values and aspirations, or a lived ethics that appreciates the co-inhabitation of worlds, bodies, and temporalities.⁴⁶ Hostility backfires. Living happens in indeterminate spaces. Worlds can be different.

As Ayl tells us, a different world isn’t necessarily better. But its presence can be sensed in the shadows. Here, in the gray, existing and barely perceptible forces coincide. By refusing the absolute, gray pushes our boundaries of perception and shows us not one but the possibility of all worlds and colors. Gray haunts and reminds us; it recalls and foreshadows. It creates a field of intensity shaped by memory and possibility, the human and the nonhuman alike. As an idea(l) of community, this field appreciates diversity but resists coexistence in favor of merging, transitioning, and process. It outlines a tentative arrangement of both actual and potential becomings in which the addition of another color initiates a new possible future or productive disruption without interrupting communal existence as such. So sit down. Stand up. Step outside. Look down. Listen. It’s in the shades, the tones, the futures. Gray.

Wavelength: 0 nm – 400 nm – ≥
700 nm | Color: Blackless

Blackless: The Present-Absence of
Blackness in an African Tomorrow

Babson Ajibade

The Litmus of an African Present Blackness

Seen from the fantastic (if often naïve) images in glossy nature and leisure magazines, global media has an appetite for Africa. However, take away the savory “safari” images that punctuate the narratives, and what remains is an eerie vastness of underdevelopment, against a huge land mass with oil, natural gas, gold, diamond, coltan, uranium, and much more. The 2022 edition of the *African Economic Outlook*¹ recognized that Africa has 17 percent of the world’s current population, but curiously observes that it accounts for just 3 percent of global CO₂ emissions. This “positive” carbon footprint is not by design, but a direct result of acute technological deficits. But there are productive popular cultural productions like literature, video films, dance, and so on, researched variously.² Nonetheless, these do not generate carbon footprints symptomatic of industrialization and technological development. Extremist groups like the *Islamic State’s West Africa Province* (ISWAP) and *Boko Haram* (“Western education is a sin”)³ and other non-state actors worsen things.⁴ Everything leads to mortality rates of 276.8 per 1,000 for Africa, as against Europe’s 112.8 and global 142.3.⁵ There is then a present-presence of darkness in much of Africa, seen in the ubiquity of burial processes, for which the causes of death are mostly those that competent social services could have prevented. In a futuristic context, therefore, blackness—or its absence, constitutively becomes a litmus of what level of development can/not be. Using the science fiction of

an African cosmology, this paper is a time-travel into seven possible futures, in which refreshing absences of social blackness become a present-presence on the continent. This journey is facilitated by the timelessness of *Ifá*—the *Yōrùbá* god of divination, whose powers transcend time, space, and the multiverses in-between.

Ifá in a *Yōrùbá* Sci-Fi Multiverse

Africa's gloomy social and technological blackness of today is new and not at all "traditional." For, long before the advent of European explorers on its soils, cultures like the Ife and Benin smelted and produced various artifacts from iron, bronze, and brass; Egyptians erected amazing pyramids; and the Dogon of Mali knew the binary Sirius star system, its elliptical orbit, denseness, and fifty-year cycle.⁶ Also, even death itself is not a tragedy in an African cosmos, through which man's consciousness commutes.⁷ The *Yōrùbá* of southwest Nigeria navigate life-death realities in an artifact called *ōpón Ifá*—the *Ifá* divination bowl (Fig. 17.1), used with the divination beads—called *òpèlè* (Fig. 17.2), to reveal the voice of *Òrúnmìlà*, the omniscient deity of wisdom and knowledge. Representing the cartography of *Àgbánlá àyè* (the multiverse), this bowl with entities along its circumference is ruled by the Supreme God at the top. Centrally is the dark, spherical cosmic void, where *Ifá* is the network "program" that decodes communication between realms and beings. For the language of *Ifá* uses a binary coding system, invented thousands of years prior to the advent of a computer.⁸ Even the number 256, important in the binary space of computers, is also very critical to *Ifá*, whose 256 sacred scriptures (called *Òdù*) are the basis for all interpretations. *Ifá* is then a computing system where *òpèlè* is the input device, *ōpón Ifá* is the monitor, and *Òrúnmìlà* is the omniscient AI software that answers to questions from (and about) all realms. With these, the *Yōrùbá* specialist is able to compute the past, understand the present, and also forecast the human future, since *Ifá ló l'òni*, *Ifá ló l'olá*, *Ifá ló l'otúnlá* (*Ifá* owns today, *Ifá* owns tomorrow, *Ifá* owns the day after tomorrow) (Figures 17.1 and 17.2).

If any of *Ifá*'s revelations do not suit us, we can tinker with the beads to produce our preferred meaning. For, the *Yōrùbá* often say "Bí òun òpèlè wí ò bá té Bābālawō l'òrùn, Bābālawō èké á fí òwó tún òdù tè" (if what the *òpèlè* says does not satisfy a diviner, a crafty diviner uses his own hands to rearrange the beads



Figure 17.1 This is a typical Yōrùbá Ifá divination tray, called *ōpón Ifá*. Source: Bode-Museum by Ji-Elle, licensed under CC BY-SA 4.0.

to suit the purpose). However, in using *Ifá*'s powers for this time travel, there are six critical assumptions that we must uphold:

1. That we are all initiates of *Òrúnmilà* and have earned the rights to wield and cast the input device, *òpèlè* on the monitor, *ōpón Ifá*.
2. That, traveling several times into the future, by the time we are finally back to the present, our cosmonaut selves will not have aged because of time dilation.
3. That the model of *Ifá* Craft machine we are travelling with is not yet configured to identify specific dates in the future that we shall be arriving at.
4. That the instrument panel on our *Ifá* Craft will display both the English and binary language versions of our subheads.



Figure 17.2 The òpèlè, used with the òpón Ifá during divination. Source: Kofoshotit, licensed under CC BY-SA 4.0. As citizen-cosmonauts traveling into the future.

5. That time travel requires humongous amounts of energy, compelling us to conserve power by breaking the journey into an hourly seven-day adventure in the seven subheads below.
6. That, as we Famous Seven (i.e., what we select cosmonauts call ourselves) journey through time in the societies of the African future, we are cloaked by *Ifá's* invisibility powers. The citizens cannot see us unless we turn off the “Invisibility Cloak” functions of our individual Remote Time Bracelets (RTBs).

Into Seven Futures with an *Ifá* Time Craft

For this ambitious time travel, the African Academy of Science (AAS) set up the *Ifá* Central Command Control (ICCC) in a hidden location underneath the Sahara, where a covert selection of us works in absolute secrecy. From thousands of African applicants, only seven were selected using the criteria in the following table, to travel in the highly classified time machine called *Ifá* Craft.

S/N	Cosmonaut	1st Language	2nd Language	Sex	Specialization
1	Imani	Swahili	Wolof	M	Mechanical Engineer/ Captain
2	Babson	Yòrùbá	English	M	Cultural Anthropologist
3	Abubakar	Hausa	Portuguese	M	Electronics and AI
4	Chigozie	Igbo	French	F	Medical Doctor
5	Dikko	Arabic	Fulfulde	F	Molecular Biologist
6	Qeero	Amharic	Spanish	M	Botanist
7	Eisha	Berber	Arabic	F	Zoologist

Ifá Craft / Day 1

English: Con-sequences

Binary: 01000011 01101111 01101110 00101101 01110011 01100101 01110001
01110101 0110 0101 01101110 01100011 01100101 01110011

On this first journey through the abyss of time, we are anxious. Still, we entered and strapped ourselves into our seats in the *Ifá* Craft. Captain Imani initiates the start button and reminds us that our “Invisibility Cloak” buttons must remain engaged in this and all future journeys. Buzzing sounds with dizzying effects last until the countdown stops and Captain initiates decompression and disembarking sequences. We step out to what looks like a very large Congress Centre, where parliamentarians are deliberating. Since they speak Dinka, Nuer, and Arabic, we request Dikko, our Arabic speaker, to turn off her Invisibility Cloak and blend in for espionage. Dikko returns and declares we are in South Sudan and the familiar humanitarian crises of the past ended a long time ago. Apparently, the job of legislators is no longer paid because it is now volunteered. They only get travel allowances, which have dissuaded the previous corrupt political class and warlords to shun politics, because of the strict, enforced consequences for breaking laws. Even many in the political class are serving jail terms for various breaches. Beeps from our RTBs interrupt Dikko’s explanation, and we rush into the *Ifá* Craft for the return journey. The journey back was fairly smooth, save that one of us, Qeero, forgot to fasten his seatbelt, leading to a mild episode of time sickness.

Ifá Craft / Day 2

English: Unhealthy

Binary: 01010101 01101110 01101000 01100101 01100001 01101100 01110100
01101000 011111001

On this second adventure, we are all better prepared and everyone cautiously straps their seatbelts. The captain punches the dials, our *Ifá* Craft starts and shakes a bit as it crosses time bumps. As the time machine stops, we step out to what seems like the lobby of a five-star hotel—clean, neat, and crisp. We walk into the facility and see that it is not a hotel, but a hospital with doctors and nurses attending to patients in such a fascinating environment. The doctors and nurses are very polite and friendly with the patients. The people are speaking *Yorùbá*, *Fon*, and *Yom*, so we knew we were in Benin Republic. I am requested to turn off my Invisibility Cloak and perform espionage. The wards are so well furnished, equipped, and very hygienic too. Each department has the right equipment—for dialysis, life support, cardiac care, radiation therapy, ventilators, monitors, and so many equipment that only specialists can identify. In the maternity wards, all mothers are well attended to; and even those that had caesareans have adequate medical attention. I explain to the team that I gathered that these changes we are seeing happened many years ago when Francophone African countries revolted against France's domination, changed their currencies, and stopped using French as an official language. The former Francophone nations aligned with the rest of Africa to create the African Continental Economic Zone (ACEZ), which brought socioeconomic boom to the continent. They now control their own economies and get global values for their resources. The alarms in our RTBs start beeping, interrupting our discussions. Running out of time, we rush to see how the pharmacy plays its role in this blackless future of Africa. It is different, departmental, with sophisticated arrays of medications on many shelves. Our RTBs are beeping their last, so we speed off to the *Ifá* Craft.

Ifá Craft / Day 3

English: Reclaim Sahara

Binary: 01010010 01100101 01100011 01101100 01100001 01101001 01101101
01010011 01100001 01101000 01100001 01110010 01100001

Today's session is so much easier because our bodies have gotten used to the dizzying effects of time travel and the wobbling realities that being inside the *Ifá* Craft creates. This time, the craft stops us in the shadows of an olive grove near a tower in what seems like a very large expanse of farmland. The workers seem to be speaking Berber and Arabic, so we request Eisha to deactivate her Invisibility Cloak and get us information. While she goes to meet the farm workers, the rest of us climb the tower to see what is around. As we get to the top of it, we see that the entire land, as far as the eye can see, is the Sahara remodelled as farmland.

As we wonder, we see Eisha returning toward the *Ifá* Craft. We meet her, and she narrates that oil and natural gas revenue, which were Libya's main sources of income, are no longer so. In this future, the nation has moved away from oil and gas and is now tapping into its vast lands in the Sahara, to farm, generate solar and wind energies, much of which it sells to other nations. Alongside its move from a fossil fuel economy, it has embraced EVs and hydrogen-driven vehicles, like the rest of the continent. As we ponder how Africa was able to use technology to conquer the Sahara to eradicate social gloom, our RTBs start beeping continuously, and we scramble back to the *Ifá* Craft. As the doors close and cabin compression initiates, we wish we could have stayed longer. But time does fly during time travel.

Ifá Craft / Day 4

English: Inroads

Binary: 01001001 01101110 00101101 01110010 01101111 01100001 01100100
01110011

Today's session was delayed a bit because engineers had to service and realign the Gravitational Regulators (GRs) and the Time Calibrators (TCs). Since space is contiguous with time, the two instruments regulating gravity and time must align to ensure that the *Ifá* Craft is able to navigate applicable wormholes and arrive at specific locations within spacetime. Our journey is smooth because we are now accustomed both to the dizzying time travelling effect, and the humming sound from the Gravitational Catalysts (GCLs). As we step out of the time machine, we see collections of nicely built houses, each having a driveway, manicured lawns, and something that looks like barns near them. We are thinking the structures are barns because of the farm tractors around many of them. Looking into the distance, we see cultivated farmlands, meaning that our time machine has landed us in a rural village. Since the people here are speaking Amharic, we think it is rural Ethiopia, and we request Qeero to turn off his Invisibility Cloak and get us in-depth information. He returns to inform us that Ethiopia has since leveraged on Africa's new economic revolutions to exploit its agricultural resources, including coffee. Politically, the previous violence and crisis around its territory are things of the distant past, including those with Somaliland and Amhara. In fact, Qeero tells us he gathered that Somaliland is now Ethiopia's strongest ally and they collaborate in several multi-billion dollar agricultural and scientific projects. We are all overwhelmed by the realization that violence and wars have disappeared and roads in the African hinterland

are asphalted and paved, which drastically reduces vehicular accidents and general mortality rates across the continent. The last warning beeps of our RTBs interrupt us, and we rush into the *Ifá* Craft and strap ourselves to our seats. The journey back to the present is very pleasant, as our bodies continue to adapt to the rigors of time travel.

Ifá Craft / Day 5

English: Resource-Doom

Binary: 01010010 01100101 01110011 01101111 01110101 01110010 01100011
01100101 00101101 00100000 01000100 01101111 01101111 01101101

This fifth journey starts on a rather fascinating note. All members of the Famous Seven have reported a difference we observe in the times displayed on our wristwatches. It differs significantly from those of our colleagues that have not gone with us to the future. However, ICCC calms our anxieties and explains that it is the effects of time dilation and the concept of the “twin paradox.” It so happens that, while we experienced time as being normal in our journeys, those in the present have “aged” faster than us, and time has been “slower” for us, hence the discrepancies in the times reflected in our wristwatches. Nerves somewhat calmed, we strap ourselves to our seats in the *Ifá* Craft and whoosh into the future. As we get to the future, we step out to the street of a big city. There are skyscrapers and a lot of glass in the general architecture. The air smells rather fresh, even when we are not in the countryside. The cars and trucks are passing by without the usual engine noise and smoke. Oh, now we see charging stations attached to all the buildings we are examining. We know now that the cars are not making noise or smoking because they are EVs. Even the architecture that seems overly reliant on glass is because most of it are future generation solar panels. The people are speaking French, so we request Chigozie to turn off her Invisibility Cloak to get us information. She determines from the cars’ number plates that we are in the Democratic Republic of Congo (DRC). We recall that DRC has been embroiled in deep conflicts since the 1990s, even with its voluminous natural resources like cobalt and copper, arable land, biodiversity, and the second-largest rainforest in the world. In the past, these same resources were the reasons for much of the violence that displaced a record 6.9 million and made the country unsafe for civilians. This is an incredible finding for our entire team, to observe that African nations like the DRC have moved away from the wars and socioeconomic doom that natural resources brought upon the continent. As we marvel at our astonishing discovery, our RTBs beep frantically, making us scamper to strap ourselves and whoosh back.

*Ifá Craft / Day 6***English: Her education**

Binary: 01001000 01100101 01110010 00101101 01100101 01100100 01110101
01100011 01100001 01110100 01101001 01101111 01101110

This morning of our sixth journey into the future has been rather slow. We, the Famous Seven, are kept in secluded cabins within the project site. We normally meet for breakfast in the dining area prior to each day's time travel. But today, each one of us is a few minutes late. The Project Lead had to call our intercoms to hurry us up. This prompts the medical team to invade our breakfast time to take everyone's vital statistics. We are assured there is nothing to worry about, as the tests are mere precautionary steps. However, we cannot proceed on schedule to the *Ifá* Craft. Rather, our journey is delayed to wait for test results. The doctor has now come, and she is telling us that our vital signs are good. She, however, explains that our regular exposures to time dilation and the "twin paradox" have somewhat slowed our biological time clocks, making us miss our morning schedules. As soon as all bureaucracies are cleared, we move into our positions inside the *Ifá* Craft. Doors shut and compression processes completed, the Captain initiates the countdown as we journey into the future. The craft has just stopped. We can see that we are within a large, busy, and crowded space. As we step out into the space, we see that it is a marketplace. The architecture of the large space, including the stalls and paved walkways, is most organized. Wares are displayed neatly on shelves, just as stores that sell similar products are contiguously located in well-labelled sections of the market. There is no mud in the walkways, no flies buzzing around food, and no stench of decaying matter. All sellers of perishable goods have them displayed in refrigerated displays. The people are speaking Wolof and Mandinka, so we are certain to be in a Gambian future. Being a Wolof speaker, Captain Imani deactivates his Invisibility Cloak to interact with the population. As far as we can see, everything for sale is clearly labelled with price tags, and customers are not going fisticuffs for bargains. But there seems to be something particularly odd about this market that none of us is able to put a finger on. We see that most of the stalls have a particularly visible notice posted at their entrances. We cannot read the text from the distance. However, as we make to check out the fruit section, we come across the notice at close range. It reads as follows: "Remember: All girls must be in school. It is a crime to employ girls under 18 to sell or hawk at anytime and anywhere." As we read the notice, it all comes back to us what was missing in the market scenery.

The hundreds of young, out-of-school girls compelled to sell in shops and hawk various wares around markets, streets, and neighborhoods are no longer present. It is so refreshing for the entire team to learn that government laws make it compulsory for parents to educate girl children. In the past, child labor was rampant, and the girls were also often sexually exploited and trafficked because of their vulnerability. Imani returns to confirm that we are indeed in the future version of Serekunda market, the biggest in The Gambia. He also confirms the girl-child laws that have eradicated vast problems in society. The irritating beeps of our RTBs remind us that our time is up. We rush to strap ourselves in the *Ifá* Craft and journey back. We barely notice the buzzing sounds and dizzying effects of the journey back. As we return, the door opens, and we hear an unfamiliar computer-generated sound: “Welcome. Mind the gap and mind the rails.” This was a “first,” and we glance at ourselves. Seeing our reactions to the new sound, Mission Control explains that it was a precautionary step arising from the lag in our body functions because of our frequent journeys through time.

Ifá Craft Day 7

English: Tear-rorists

Binary: 01010100 01100101 01100001 01110010 00101101 01110010 01101111
01110010 01101001 01110011 01110100 01110011

Again, we miss our wakeup schedule and are a few minutes late for breakfast. As the team settles in to eat, we discuss the lethargy from repeated time travels and agree that seven ought to be the maximum consecutive times anyone should journey through time, at least until the effects on the human body are better understood. We strap ourselves to our seats and whoosh away. We step out onto a street similar in quality to others we saw in our previous journeys. Virtually all the buildings have circular parts to them, including interwoven designs in relief or painted on. Most of the older generation males are dressed in kaftans with a cap, while younger ones adorn shirts on jeans. The women are wearing various dresses accompanied by forms of veils. Even the younger women in T-shirts and jeans also have the veils wrapped gracefully around their heads and necks. Many are speaking Hausa and Fulfulde, so we request Abubakar to turn off his Invincibility Cloak and get details. The rest of us wait impatiently by the *Ifá* Craft. Abubakar returns to us, beaming with the most contagious smile one ever saw. With tears rolling down his cheeks, he tells us of a huge uprising, in which the masses rose up, joined forces with the military, and vanquished all terror and religious extremist groups. At the time of the event, the Nigerian tabloids

had labelled it “The Great Anti-Jihad.” We strap into our seats and return. Upon return, Abubakar is still tearing up. But who can blame him? He lost his wife, three daughters, and entire family to one of Boko Haram’s raids. His teenage daughters’ bodies were found behind the burnt village, defiled. His niece is one of the secondary school girls kidnapped from the hostel and still in Boko Haram captivity. Thus, if Abubakar cries today, it is only because he has glimpsed a future where blackness will be no more and where his lovely little daughters would not have been taken.

Conclusion: Beyond the Present- Presence of Blackness in Today

In the seven hypothetical, Sci-fi-ish time travels, we encountered what can be, using one of Africa’s resourceful cosmological entities, the *Yòrùbá Ifá*. While today seems dark, the future privileged by our *Ifá* Craft adventures is happy and bright. This sharp contrast between the African today and the possible tomorrow is ambivalent. First, in a way, it does give credence to global media’s African narratives, which it certainly does not create, but profits by. However, in the yet-to-happen African future, will the global media narrate the present-absence of social blackness or sustain the mediated cacophony of gloom simply because it sells?

Second, it is the dark shadows of social gloom, cast by factual collapses in the contemporary African polity that grant the continent its negative visibility, mediated in global media spaces. For, the depressing remnant of social realities that survive the removal of safari images are more than real. As our seven-day time travels in the *Ifá* Craft show, they are lived reality in much of the continent today. These depressing realities—of hunger, diseases, terrorism, wars, displacement, murders, rape, kidnapping, and so on—are real, not just because they do exist but, more importantly, because of the vastness of available natural resources that foregrounds it all. The more natural resources there are, it does seem, the more gloomy the darkness that is present in Africa today. For, much of the huge natural resources in African nations are either untapped or wrongly exploited, leading to severe gaps that create fault lines of greed, strife, bloodletting, and evasive development. In a rather absurd example, Nigeria, Africa’s most populous and largest oil producer, exports crude cheaply and imports refined petroleum products expensively for domestic consumption.

Curiously, the same political structures that maintain this irreconcilable import of petroleum products ensure that the domestic refineries remain dysfunctional, no matter how much is spent on repairs. To sustain this petrodollar dysfunction, whole villages have been sacked, thousands killed, and Niger Delta ecosystems damaged with spills. In turn, contaminated lands and waterways have led to ecological and livelihood damages that make living a dark gloomy nightmare for many. Sadly, the political alchemy that translates vast natural resources into cursed darkness tends to be a recurring feature in resource-rich African nations. This much is amply established in our time travels to South Sudan, Benin Republic, Libya, Ethiopia, DRC, Gambia, and Nigeria. And, in turn, this curse eventually translates into high mortality rates, leading to frequent burial processes, making the blackness of death a litmus of development in Africa. For things to change, to bring the African tomorrow gleaned from our *Ifá* Craft travels into the realms of possibility, the meaningfulness of life needs to be habituated, burials less visible, and the causes of death need to be not due to the failure of social services. The *Yōrùbá* do have a saying: *ēnī lóri rērē tí kò níwà, íwà ló má ā bóri rē jé* (a person with a good destiny but has no character, it is [lack of] character that will ruin his lot). The people also say *ēnī bá fé tē'lè tútù, ó gbúdò dā òmī tútù sí'wájú* (whoever wants to walk on a cold floor, must pour cold water ahead). In both traditional parables, the *Yōrùbá* worldview is saying that the social changes evidenced in our travels to the African future are possible in the continent's today. However, for African nations to translate the continent's huge potentials into habituated meaningful living for citizens, decided, planned actions need to be taken—at both individual and group levels. These actions need also be devoid of self-interests, greed, ethnicity, religious bigotry, and all other hyphenations that stall development. In the *Yōrùbá* worldview's context, developmental consistencies prosecuted by African agency (rather than foreign) is what is needed to bring the continent into a present-absence of blackness. The litmus for this stage in the continent's development will be the absence of ubiquity in African funerary rites. When this happens, the continent's carbon footprint will spike sharply to measure up to its population. Then, in the cyclic process that life itself is, Africa will start to mitigate the carbon footprints that development will create. *Spectral Futures* Wavelength: 0 nm–400 nm– ≥ 700 nm | Color: Blackless

Wavelength: 595 nm | Color: Black Hole Black

Black Hole Black (Disco Ball Lightning)

Alison Sperling

You turn me out like no light at all just darkness without end
 like
 a whole world of pitch black between us
 like there's nothing between us at all
 just
 [*heavy breaths*]
 just
 . . .

Man's Country (2021), dir. Amina Ross

This is a chapter about three pairs of lovers and the chasms between them. Infinite pitch-black darkness, yawning black cosmic mouths, a swirling undeniable blackness so complete that it bends and rips and tears spacetime itself apart. Three stories of love and sex and rifts gaping open like black holes. Black hole black imagined here is more phenomenon, more a place than a color, perceptible only by the bending of space around its bright burning edges, a specter of the spectral. That blackest of black without reflection and appearing depthless (as evidenced by the man who famously fell into Anish Kapoor's "Descent into Limbo," a hole he mistakenly perceived as a flat black circle painted onto a gallery floor¹). It is imagined as noncolor, a density, an absorption of all light, a total eclipse halo, an event horizon. It is a cosmic object of Black feminist thought and it is a seductive hole of queer artmaking. It is the subject of countless science fictions across media, and it is the hole that I explore in three short stories by Caitlín Kiernan, Eden Robinson, and Nalo Hopkinson.

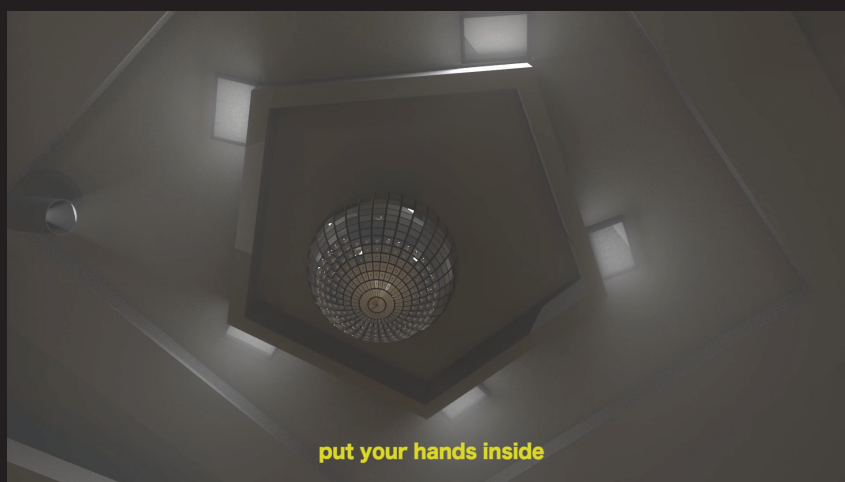


Figure 18.1 Still from *Man's Country* (2021) by Amina Ross. Reproduced with permission from the artist.

The epigraph, lines from Amina Ross' video work *Man's Country*,² exemplifies for me the paradox of the “pitch blackness” between lovers as both an entire world and no distance at all, as their speech slowly breaks down until it is all breath and an intimacy at the edge of something (“just” . . . “just”) no longer utterable under the twinkle of a spinning virtual disco ball. If black hole black has been imagined as an abyss so complete and so terrifying that it absorbs all light (imagined as a future of an increasingly dark present), this chapter imagines the ways of illuminating (disco ball lightning, “reach your hand inside”) physical and emotional spaces that can seem otherwise impossible to traverse (Figure 18.1).

~

Caitlín Kiernan's “Tidal Forces” recounts a weird encounter one morning outside Emily and Charlotte's seaside home that leaves one of them wounded. What the pair will eventually and imprecisely call a shadow or a smear, some *thing* moved over the front yard where Charlotte was working in the garden that knocked her suddenly to the ground. Emily looks on from the front porch, mystified; she says “I'll call it a shadow, because I'm at a loss for any more appropriate word . . . I can sit here all night long, composing a list of what it *wasn't*, and I'll never come any nearer to what it might have been.”³ As a writer associated with the weird, Kiernan grapples with writing a thing so strange

that it cannot be described except as a shadow of something else, an echo or a murmur, a thing that cannot be seen or described directly.

Charlotte's wound grows. First a pinprick, then the size of a BB, like one she recalls her brother shooting her with as a child. Then, the size of a dime, then a softball, a hole into which Emily notes various household things have begun to accidentally fall. After a shower, Charlotte quietly recounts to Emily

how she stood in the steaming spray watching the water rolling down her breasts and *across* her stomach and *up* her buttocks before falling into the hole in her side . . . It almost looked like an insect bite, except the center was . . . well, when I bent down and examined it closely, I saw there *was* no center. There was only a hole.⁴

The couple struggles over the course of what seems to be a week, the story moving in and out of the past and present and marked by the days' relation to cards in a tarot deck. Emily reads Kip Thorne's *Black Holes and Time Warps* when she's alone, closing it quickly when Charlotte enters the room. But the hole grows. Emily: "I've never seen anything so black in all my life, a black so complete I'm almost certain I would go blind if I stared into it too long . . . The skin around the periphery of the hole in her flesh is *moving*, rotating, swirling about that preposterous and undeniable blackness."⁵

The story explores, in part, an unspeakable tension between two people and their difficulties breaking through to one another, and the ways it can become difficult sometimes to identify exactly when or why things went wrong. Emily describes one attempt between them after the accident:

On that rainy Saturday . . . I do as she asks. I cannot do otherwise. I bed her. I fuck her . . . On that stormy evening . . . we both futilely turn to sex looking for surcease from dread. We try to go *back* to our lives before she fell . . . In our bed, we struggle to fashion a refuge from the present, populated by the reassuring, dependable past.⁶

Turning to fucking is an attempt by both women to access a lost world, a past that Emily knows (at least at the time of narrating) is irrecoverable. Whatever the shadow is that is cast over them and which grows like a churning black hole in Charlotte's side has rendered that "reassuring, dependable past" equally inaccessible.

Artist Liz Rosenfeld's practice is often focused on queer holes "as portals, pores, thresholds and physical manifestations of un-fillable desire."⁷ In a text by Rosenfeld and an*dre Neely written during the Covid-19 pandemic and inspired by "the potential between people who take the time to make each other

feel seen,” they ask “Is the act of living just an accumulation of experiences and sensations toward filling all the holes we’re born into, or born with? The feeling of loss as a reminder that some holes aren’t meant to be filled, or that all holes have always been full, but full of a complicated matter we don’t recognize as whole?”⁸ Their work returns again and again to the contradictions of holes in their various queer sexual manifestations as an array of bodily orifices and glory holes and in the way emotional holes are wrongly assumed to be empty and in need of conforming to capitalist logics of accumulation and of filling up.

Kiernan’s exploration of the black hole in her lover’s side also imagines that “inescapable hole of distance” (or what they list in a very long list under the title “Cutting our Loss(es),” “When familiar love becomes a stranger”).⁹ When Emily names Charlotte’s refusal to let her touch the growing hole in Charlotte’s side, Emily says of that moment that “[w]e are as intimate in those moments as two women can be, when one is forbidden to touch a dime-sized hole in the other’s body.”¹⁰ But Kiernan ultimately details Emily’s violation of Charlotte by imagining her incursion into the black hole as both a violence and an intimacy at the story’s finale, which nonetheless seems to both heal Charlotte and ultimately solve their relationship issues:

With my right hand, I reach into the hole, and my arm vanishes almost up to my shoulder . . . I can’t feel you,” Charlotte whispers. “You’re inside me now, but I can’t feel you anywhere.” The hole is closing. We both watch as that clockwise spiral stops spinning, then begins to turn widdershins . . . Something’s changed . . . Out of desperation, I’ve chanced upon . . . the solution to an insoluble puzzle . . . I imagine the collapsing rim of curved spacetime slicing cleanly through sinew and bone . . . And across the space within her, as my arm bridges countless light years, something brushes against my hand. Something wet, and soft, something indescribably abhorrent. Charlotte pushed me, and I was falling backwards, and now I’m not. It has seized my hand in its own—or wrapped some celestial tendril about my wrist—and for a single heartbeat it holds me before letting go.¹¹

The story figures a form of queer sexuality not only between women but between women and the wet, soft swirling cosmos itself, the fucking of curved spacetime as an act that bridges the lovers’ rift as if bridging the distance of countless light years. It’s an act of love, yes, but it is also terrible and terrifying in that it threatens to consume them both (but doesn’t).

~

“Ganger (Ball Lightning),” Nalo Hopkinson’s first erotic short story¹² imagines a futuristic skin-suit technology designed, when worn, to heighten sexual pleasure. Two lovers decide to utilize the suits to spice up their sex life and also, it seems, their relationship in general. They just can’t seem to talk to each other anymore. One might say they’re in a rut. But the suits alone are quickly not enough and they already crave something more. Barely a page into the story, and at Cleve’s suggestion (“What would Cleve want to do next to jazz the skin up?”)¹³ they agree to swap suits. Cleve is embarrassed at first about what he’s asking for:

He’d gone silent, embarrassment shutting his open countenance closed; too shy to describe the sensation he was seeking. Issy sighed in irritation. What was the big deal? . . . “In that few minutes, you’d find out what it feels like to have a poonani, right?”

A snatch. He looked shy and aroused at the same time. “Yeah, and you’d, well, you know.”¹⁴

Their experiment is textually interrupted by the first italicized description of the Ganger, already doing damage to a very soon-future Issy and Cleve before it cuts back to the erotic scene of their fucking in their newly sexed bodies. But the act of fucking as a female is too upsetting for Cleve, who suddenly pushes Issy off, unable to handle the feeling of being penetrated or of embodying a female form. “God, I don’t want to ever feel anything like that again. I had breasts, Issy. They swung when I moved.”¹⁵ The story alternates between the future moment in which the two suits, now discarded, become entwined in their own sexual escapades and fuse together as a doppelganger of the couple, and the present moment in which Cleve leaves for work and Issy goes about her day seemingly unaware of what is in her immediate future (and already in the reader’s present). Future and present comingle as the couple similarly struggles to find intimacy and excitement in sexual experimentation, bodily transformation, and shared pleasure.

The story invites both queer and trans readings as the couple, and particularly Cleve (whose name already signals the simultaneous way in which “cleaving” means both to split and to fuse together) craves a sexual technology that allows him to inhabit a differently sexed body that he enjoys deeply, as the charged narrative describes in detail, and yet which ultimately psychically rejects. That the feeling of briefly “being shaped the way she was shaped inside” (having a poonani) ultimately shocks Cleve to end sex prematurely and sob hysterically suggests not only the failure of the skinsuits to actually bring him closer to Issy

as planned but also Cleve's sheer terror of the vaginal, or at least of becoming-vaginal.

The story is rich with the color of Cleve's "chubby chocolate-brown beauty"¹⁶ and the decadent chocolate fudge that Issy is busy making throughout the story; in the future scenario, it is her describing making the fudge that distracts the ganger figure as it attempts to short-circuit and kill the couple. Issy's complaints of the racist insults she is always receiving and talking about (according to Cleve) suggest a racialized experience as central to their experience in the world. Brownness, for example, is adored and desired (his "chocolate-brown beauty") while racism imposed from the outside (white) world reverberates in their private lives in the form of Issy's constant complaining and Cleve's seeming annoyance about how much she seems to talk about it. Paired with Cleve's complicated reaction to inhabiting the vaginal, his being bothered about Issy's complaining suggests a reading of his character as problematic, or at least to his blindness to the experience of her experiences of Black womanhood. Nonetheless, the story offers that despite these (merely hinted at) obstacles, Issy too must learn how to communicate if they are to make it as a couple.

But first she must stave off the ganger, and she speaks slowly: "The sensuality in her voice seemed to mesmerize the ganger. It held still, rapt. Its inner lightnings cooled to electric blue. Its mouth hole yawned, wide as two of her fists".¹⁷ And later,

*The ganger took a step towards her. It paddles its hand in the black hole of its mouth. Issy shuddered, kept talking: "Break off chunks of fudge, and is sweet and dark and crunchy; a little bit hot if you put the pepper flakes in, I never tried that kind, and is softer in the middle, and the butter taste rise to the roof of your mouth, and the chocolate melt all over your tongue; man, you could almost come, just from a bite."*¹⁸

Imagined as a yawning black hole mouth, the ganger appears as a threat, an obstacle conjured from the couple's inability to communicate or verbally and openly express love.

A metaphor that has been theorized in Black feminist and queer thought, the celestial black hole has figured as a complex site of imagined Black female sexuality as well as Black women's creativity. "[T]he black hole represents the dense accumulation, without explanation or inventory, of black feminist creativity," writes Michele Wallace in 1989:

What most people see of the black woman is the void, because to many the dark contents mean no content whatsoever. The outsider sees black feminist

creativity as a dark hole from which nothing worthwhile can emerge and in which everything is forced to assume the zero volume of nothingness that results from the intense pressure of being the wrong race, the wrong class and the wrong sex—hence our invisibility.¹⁹

Wallace saw the ways in which black “wholeness” was therefore denied to Black women writers in literary and cultural criticism whose “silence” is interpolated in Wallace as rhythmic “variations on negation,” because “negation seems indispensable to dialectical critical process . . . It has to do with the idea of musical performance as a reference point, so that variations become a way of indicating multi-logical and experimental approaches that delay closure almost indefinitely.”²⁰

If the black hole for Wallace is a trope of black hole black,²¹ an invisibility cloaking Black women and Black women’s sexuality (the holes of this chapter are imagined beyond essentialism that equates only the vaginal with womanhood), Evelyn Hammonds writes after Wallace that the black hole even further demands a new geometry for Black women’s sexualities, including that of Black lesbians. The geometry created by black holes, the disturbance it marks in space around its halo edges, is a place where silence and lack can perhaps become black (w)hole.²² “What is it like inside a black hole?” Hammonds asks.²³ Hopkinson’s “Ganger (Ball Lightning)” grapples with this loaded question by imagining Black sexuality and queer desire for not only connection between estranged lovers but for the Black female body in particular, the “Black Hole” that Namwali Serpell calls in her essay of the same name in *The New York Review* that claims, in Serpell’s words, “the black pussy as our absent center. It is everywhere and nowhere.”²⁴ Serpell’s titular essay proclaims that the internet is therefore black and a woman, and that which must be kept non-productive and free: “This is the black hole that bends matter into curves and has such gravitational force nothing can escape it and is still an absolute mystery and will outlast us all.”²⁵ Hopkinson’s text plays with the vaginal evocations of the black hole, but reading for queer and trans desires also opens up more expansive, not biologically determined readings of the weird holes explored here.

Black feminist thought has therefore pushed the trope of thinking black hole black beyond lack and beyond gaping silence. As Wallace writes, “black holes in space are full, not empty. They are unimaginably dense stars . . . that may give access to other dimensions,”²⁶ recalling Ross’s spinning disco ball or the weird but real phenomenon of a *ball of lightning* to which Hopkinson’s story alludes. Nikki Giovanni’s poem “Sky Diving” also imagines the black hole as a kind of

portal, where the speaker, hanging off the edge of the universe and singing “off-key” and “too loud,” spirals into after letting go of their earthly existence, in which they are perceived as an excess or as *too much* and transported instead to another dimension.²⁷ The fall is painful but cushioned by a dream and an embrace, something that feels like love.

~

“Ganger (Ball Lightning)” ultimately draws out a battle where together they are forced to face their issues as the ganger is stuck literally between them, head on a swivel, as they scream back and forth:

“Issy, what you want from me?”

The ganger’s head swelled obscenely towards Cleve.

“Some heat, Some feeling. Like I show you. Like I feel. Like I feel for you.” The ganger’s lower lip stretched, stretched, a filament of it reaching for Issy’s own mouth. *The black cavity of its maw was a tunnel, longing to swallow her up.*²⁸

It is only when Cleve yells to her, through the ganger, that he bought the suits as the only way he could imagine to “reach each other . . . through our skins.” Stunned at this realization, Issy reaches out her hand to him, through the (doppel)ganger, until “Her hand met Cleve’s in the middle of the fog that was the ganger. All the pleasure centres in her body exploded . . . A popping sound. A strong, seminal smell of bleach. The ganger was gone.”²⁹

~

In Eden Robinson’s “Terminal Avenue,” Wil is an Indigenous man living in a near-future world following an uprising “when Native reserves have been adjusted and Peace Officers prey on Indians caught outside their assigned urban area.”³⁰ Wil’s present is largely defined by his recounting of his journeying across the restricted line to visit the nightclub Terminal Avenue. There he regularly performs very particular BDSM sex acts with his “lover” for non-Indigenous lookers-on, in which he is repeatedly beaten and abused by people in fake Peace Officer clothes. The visits to the nightclub are framed in the story by forms of real colonial state violence that are exemplified by Peace Officers’ abuse of Wil’s father at a routine traffic stop that occurred in the past, a memory from Wil’s childhood. The encounter that left his father bloodied on the car’s hood would damage his father in ways that Wil believes eventually led to the taking of his own life by a self-inflicted gunshot wound. What is taken as the past so seriously

bleeds into the present that the story bounces readers in and out of both timelines in ways that reveal the violent afterlife of settler colonialism parading still in Peace Officers' clothes.

Conrad Scott has called attention to this way in which the story is developed according to Indigenous spacetime in contemporary Indigenous sf, which among other qualities insists on forms of ongoing crises rather than as crises as past or future. This story, Scott notes, is invested in Wil's memories as a place that he can choose to be transported to in times of intensified settler colonial inflicted crises.³¹ Dillon prepares readers for this in her introduction to the volume, that the story's play with time through flashbacks and formal experimentation demonstrates that "Wil's choice "to be transported to a parallel world of ceremonial tradition . . . suggests this intrinsic Heiltsuk/Haisla healing, a way of transcending mere bodily existence to seek a life of self-respect and awareness."³² Indeed, like in both "Tidal Forces" and "Ganger (Ball Lightning)," Hopkinson's narrative disrupts linear time through textual breaks or interruptions into "the present" through flashbacks consisting primarily of Wil's family memories. But an early textual break in the story more broadly attunes readers to the ways in which formal elements of the narrative inform its dealings with both space and time and setting readers in another celestial occurrence of the black hole:

A rocket has entered the event horizon of a black hole. To an observer who is watching from a safe distance, the rocket trapped here, in the black hole's inescapable halo of gravity, will appear to stop. To an astronaut in the rocket, however, gravity is a rack that stretched his body like taffy, thinner and thinner, until there is nothing left but x-rays.³³

Although Dillon notes the ways in which Robinson's story "plays with scientific understandings of black holes and event horizons, at once commenting on the metatextual level of language and typical sf tropes while satirizing the genre,"³⁴ the moment also more seriously alerts us to wonder "whose life ends up in the black hole and who observes from a safe distance" in a story wherein colonial militant rule of the Peace Officers and Aboriginal people collide.³⁵

The black hole's halo is therefore a trick of the eye (moments later Wil remembers the time that "His brother once held a peeled orange slice up against the sun. When the light shone through it, the slice became a brilliant amber, the setting sun is this color, ripe orange")³⁶ to those watching from afar, where time appears to stop. But in reality, the narrator tells us, the astronaut is stretched into oblivion, a form of fungibility that Wil seems to share as a "real living Indian"³⁷ who performs sex work that includes taking beatings to earn a living,

the various forms of subjugation of the Indigenous person as a site of settler pleasure. But despite the ways the story seems to invite reading Wil as a victim, his performances in the club have also been read by Hannah Skrynsky as those which

do not merely render him invisible or even hyper-visible; rather, BDSM's performative serves as a productive site in which discourses of social inequality can be made material and ultimately confronted. The erotic, deviant space of Terminal Avenue reveals the indeterminate state of powerful social relations, thus enabling Wil to confront, resist, or subvert these relations through his participation in BDSM play.³⁸

Wil's autonomy is ultimately retained through the most privileged site of agency in the story: his memories, which he chooses to access in the moments of blackout pain as a portal to another possibility. The story ends there. With his remembering of a moment on a boat with his parents and brother where his father is safe enough to perform a native dance that in that moment embarrassed Wil but now offers him a kind of salvation and escape—a portal to the past but that also becomes his present as a form of what Gerald Vizenor and other Indigenous thinkers have since called survivance.

~

If the blackness of the black hole has been understood as an insurmountable and incommunicable chasm of the unknown (read here as something like love, but also as a relation to futurity), these stories together imagine a different, more generative relation to what has been elsewhere theorized as the abyssal. The texts collected in this short chapter wonder at the reaching-out and reaching-in to those dark unknowns between lovers, some that open portals to elsewhere and some which imagine an elsewhere already here, as a site of encounter between lightness and darkness where one no longer needs to search for either, as another name for love.³⁹

Wavelength: 6000•A nm | Color: Transparent

The Color of Breath, the Color of Air

Bernd Herzogenrath

we modern people . . . are only there in our bliss, where we are also are also most in danger . . . we moderns, we who are out of breath in every sense!

Friedrich Nietzsche, *Beyond Good and Evil*¹

Tara Fuki was standing in the ultra-thin glass elevator of the ARIA company tower that overlooked the whole plain. Scrolling through the playlist of the music they had downloaded before everything went to shit [before we left civilization], every song they try listening to runs off them like they're made of Teflon—except for Aphex Twin's *Ventolin*. Which is fitting, they thought, being in an elevator just like that blue-suited businesswoman in the *Ventolin* video. Claustrophobia in sound—an asthma attack gone sonic. Just hearing the words *Ventolin* and *Teflon* in their head makes them feel so twentieth century . . . a mixture of cringe and nostalgia creeping up their spine and giving them some goosebumps. The twentieth century—sometimes, all I need is the air that I breathe and to love you—my ass . . . love had turned into an immaterial property of Tinder Inc. long ago—and air? What once had been a part of the commons was getting scarcer and scarcer . . . in that great worldwide asthma attack—the pandemic 2019–23—air became a precious resource; a commons denied to some people . . . I can't breathe!

A commons . . . The term “commons” (from Latin: *communis*; from *cum* and *munus*) refers to resources (food, code, water, land, air, time, etc.) that are often located “beyond market and state.” Thus, from this perspective, this makes “elements” such as air, water, a habitable earth, and so on very elementary also in such a way that they were shared (or could be shared) by everybody,

every species, being that which could (or at least should) not be fixed, policed, monopolized . . . but constantly is . . . the absurdity turned into a hyper-capitalist logic instantly . . . being charged for breathable air, turning into a currency not available to everybody . . .

So, air . . . *what is air?* . . . Air is generally defined as the atmosphere of the earth, the layer of different types of gas surrounding the planet. Chemically, air contains 78.09 percent nitrogen, 20.95 percent oxygen, 0.93 percent argon and other trace gases, and 0.04 percent carbon dioxide, as well as some other greenhouse gases. . . . With unprecedented levels of pollution in cities such as Beijing, Delhi, or Riyadh, we can feel and see the profound alteration that modern life has brought upon the air.²

From that perspective, “air” is merely an object of scientific scrutiny—but this might midwife a science that immediately concerns and affects us: not a science which is “only in it for the money,” but a science which might be potentially helpful

in our efforts to assemble a *political body* able to claim its part of responsibility for the Earth’s changing state. After all, this mix up of science and politics is exactly what is embodied in the very notion of Anthropocene: why would we go on trying to *separate* what geologists, earnest people if any, have themselves intermingled? Actually, the spirit of our tongue has said that all along, having already connected *humus*, *humane*, and *humanity*. We the Earthlings are born from the soil and from the dust to which we will return, and this is why what we used to call “the humanities” are also, from now on, our sciences.³

Problem: even though climate change, the question of air and atmosphere are global issues, governance is still largely based on a “nation-state” concept, on territorial systems of power. While these thoughts lit up in their heads, they also realized that a state, a territory, any place, any community—any home is ultimately a chance snapshot assemblage of evolution, history, climate, and geography. And of course, philosophies, worldviews. They remembered having read somewhere that in Indigenous animistic and gather-and-hunter societies, there is the concept of “shared breath”—a consubstantial ritual and practice to establish alliances between the human and the more-than-human worlds. In such rituals, the focus is on the sharing of life force, a relational practice that involves all agencies and all species and “spiritual entities,” “engaging ritually with nonhuman entities and the territory in which they live through vibration, visualization, and movement of air.”⁴ The ritual of “shared breath,” in its

“dimensions of reciprocity and consubstantiality”⁵ opens up an ethical multi-relationality between beings of all kinds.

Leaving the elevator, it came to their mind that, of course, such a perspective is not restricted to animistic beliefs. As a matter of fact, through breathing—through inhaling and exhaling—the world actually becomes part of them; they become part of the world, in a rhythmic refrain . . . their body enfolds the air, and the air enfolds their body. “Shared breath” thus is a very real connective space for nonhuman and human agencies to conjoin.

This was part of the credo of the group they had become a member of—the conspiracy of breathers. A political body basically based on the idea that, etymologically, the word conspiracy (ha! rebels! anarchists! unwashed utopists!) derived from the Latin word *conspirare*, (*com* = “together” + *spirare* = “to breathe”). Thus, a conspiracy literally refers to situations where people intimately share the air, “a breathing-together, emerging in moments of doing and recognizing kinships and inequalities of capacities to inhale, . . . composing a political crowd of/as breathers.”⁶ From this perspective, it became clear to them, “climate,” or “atmosphere,” is just that—our shared breath, and as such not something we can (and need to) fix from an outside position, like an engineer fixes a run-down machine . . . no: we participate in this, we “are” the climate. To be clear: such a conspiracy of breathers is not restricted to the human species only—in fact, all the air that all animals inhale and need for breathing is created by the plant world, and the plants in turn need our exhaled air to process in their photosynthesis to produce the air that we need to stay alive, and so on . . . so, there is in fact a conspiracy of breathers at work already, at every moment, which “we all” depend upon: the atmosphere, which we all actively participate in, which we are.

Both the joyful acceptance and the utter denial of this fact have led to the formation of two other, more extreme groups—the light eaters versus the coal rollers.

The light eaters based their religion on the sacred mystery of photosynthesis, which had become their Holy Grail. Photosynthesis is the physiological process by which energy-rich biomolecules are produced from lower-energy substances with the help of light energy. This process is carried out by plants, algae, and some bacteria. In simple terms, photosynthesis uses light, water, and carbon dioxide to create glucose and oxygen. In other words, solar energy is used to create energy-rich organic substances from low-energy inorganic substances.

According to the light eaters’ Gospel, the poetic alchemy of photosynthesis transfigured solar energy into the currency of life itself.

Following the teachings of the Breatharian Sister Jasmuheen, the Order of the Light Eaters believed they could do without regular food. During a twenty-one-day “light nourishment regimen,” the body is expected to adapt to a state where solid food and liquids are no longer deemed necessary, and sustenance is derived solely from “light.” This process entails refraining from both eating and drinking for seven consecutive days, followed by a period of only consuming liquids for the subsequent fourteen days. According to Jasmuheen’s “light nourishment doctrine,” once the body has acclimatized to the supposed “light nourishment” through a conversion process spanning several weeks, there is no longer a requirement for traditional eating or drinking—human beings would be able to live on sunlight and air as their source of life. Unfortunately, proponents of this idea ignore the biological fact that humans, like all other mammals and animals, are generally heterotrophic organisms and cannot use light for photosynthesis. Due to biological facts, a permanent renunciation of solid and liquid food inevitably leads to death.

While this way of life had proved lethally extreme, even the very thought of our dependence on—or even coexistence with—the atmosphere was an idea that for stupid fucks such as the Coal Roller Coalition this was far beyond what they could stomach—or even intellectually understand. Fossil addicts, wanking their exhaust fumes and emissions into the precious air, even risking the lives (or at least health) of the protesting conspiracy of breathers during their demonstrations. Electric transportation had taken over the traffic industry years ago. Since drivers were cut loose from the obligation to focus on traffic in their self-driving cars, ads were placed both on gigantic billboards along the main routes and also on the displays in the cars themselves. The drivers’ attention became the currency with which they paid for the electricity to get their vehicles going—a convenient win-win situation, it seemed. This also meant the gas- and petrol-powered vehicles were actually dinosaurs of a long and gladly forgotten past—only a few (mostly right-wing) yester-freaks still owned (and cherished) fossil-fueled SUVs and pickup trucks.

Due to what can only have been a result of too little oxygen in their brains, the CRC had tried to disturb an anniversary performance of John Luther Adams’ “border-crossing” performance of *Inuksuit* at Friendship Park. As a composer expressing his “green politics” in sound and compositions, Adams had been a “natural target” for those anti-environmentalists.

John Luther Adams was a contemporary composer who had lived and worked in Fairbanks, Alaska, approximately 125 miles south of the Arctic. Adams had always aimed at the realization of a “musical ecosystem, . . . A work of art .

. . . that is directly connected to the real world in which we live and resonates sympathetically with that world and with the forces of nature.”⁷

Adams’ work was highly influenced by his environment and the elements— from his early works onward he has always pointed out that he wants his music to be understood as an interaction with nature, as a site-specific “contact” with the environment that he had called “sonic geography.”⁸ Adams’ sonic geography comprised a cycle called *songbirdsongs* (1974–80), consisting of various imitations of Alaskan birds reminiscent of Olivier Messiaen’s *Catalogues d’oiseaux*. Although Adams, in the compositional process and the transcription, brought birdsong on a “human scale” in terms of tempo, modulation, pitch, and so on, he had conceptualized the different melodies—or “refrains”—as a “toolkit,” so that during the performance, an ever-new aggregation of phrases and motifs came into existence, an open system, indeterminate in combination, length, intonation, tempi, and so on. *Earth and the Great Weather* (1990–93), an evening-long piece—or opera—consisting of field recordings of wind, melting glaciers, thunder in combination with ritual drumming and chants of the Alaskan Indigenous people, was “conceived as a journey through the physical, cultural and spiritual landscapes of the Arctic.”⁹

In a further step, Adams had combined his “sonic geography” with the concept of what he calls “sonic geometry.”¹⁰ Adams is more and more interested in the “noisier” sounds of nature and refers to findings of Chaos Theory and Fractal Geometry in order to find sonic equivalents for nature’s modus operandi— *Strange and Sacred Noise* (1991–7) is an example of this approach.¹¹

Later, Adams had transferred the sound of the “little waves”¹² that make up a sonorous body of water in his Pulitzer-Prize awarded *Become Ocean* (2014), followed by *Become River* (2014) and *Become Desert* (2019). His work *Inuksuit* (2013) has been called “the ultimate environmental piece” by the *New Yorker*. *Inuksuit* is the Inuktitut word for stone markers that guide the Inuit people on journeys across the Arctic tundra. It also means “to act in the capacity of the human,” or “to be (like) a human.”¹³ Here, Adams had placed human performers in a non-hierarchical improvised dialog with the forces and sounds of nature.

Inuksuit was first performed at Friendship Park as an outdoor performance by US and Mexican percussionists, a binational event brought close to seventy players to both sides of the border wall. Friendship Park had then been a half-acre binational park located along the United States-Mexico border in the San Diego–Tijuana region. Located within the larger Border Field State Park in California’s San Diego County, the park included the border fence dividing the two countries where residents of both countries can meet in person. On the

US side, the park used to be part of the Monument Mesa picnic area but was now wholly located on federal property under the Department of Homeland Security, heavily monitored by post-Trumpist Border Patrols 24/7. The Mexican side of this place is Playas de Tijuana, Baja California.

The event then had started with a first breath—an inhaling and exhaling. As *The San Diego Union-Tribune* observed:

The sounds started softly, with musicians blowing through funnels. It built up with whistling, and rattling sounds, rising to a heart-pounding crescendo of drumbeats, cymbals and sirens. It ended with delicate notes of piccolo and glockenspiel, emulating bird sounds—and finally with a moment of silence.¹⁴

Air was fundamental here—not only in the first sounds of Inuksuit (musicians blowing through funnels, whistling), but also the sounds of the drums and percussion instruments traveling the air—the air as a commons, which no man-made border, no attempt at territorialization, can compartmentalize. Even if this concert had not been planned as a political event, musicians and audiences on both sides of the border constituted such a “conspiracy of breathers”—which is why this anniversary event had been visited by all members of the present group.

In indigenous cultures, there is the notion of the “shared breath,” which refers to the co-creations of nonhuman and human agencies through ritual practices such as breathing, praying, drumming, and smoking.

As a Border Patrol Guard had told them after the concert: “Events here at the border are always about our differences as two nations, and this one was all about our similarities—doing things together. As it is over, I miss it. I did not want it to end.”¹⁵

However, this is not to say that this event negated the actual border or makes it disappear; that would be a simplistic romanticism. Rather, the idea of shared breath offers a metaphor for a connection without “becoming one”—“we” are not all the same, after all! Breath is not a simple and easy transition from the individual to the universal, from the “me” to the “not-me,” but a constant negotiation of dynamic, sometimes painful, and often very unequal relationships . . . a shared breath that had been denied in the killing of George Floyd.

Adams had already connected the idea of breath and indigenous traditions in his piece *Sila—Breath of the World*. Sila, in the Inuit tradition, is the animating spirit that gives life to all things. It’s a nice coincidence that a human being called Adams writes a piece about the breath that gives life. Adams (or: of Adam) literally means “of the earth/of the red clay” (from the Hebrew Adamah, אָדָמָה, meaning “ground, earth, red clay”)—humans in fact come from humus, are made of this earth. For Adams, *Sila* was more than just breath or air—“Sila is the

wind and the weather, the forces of nature. But it's also something more. Sila is intelligence. It's consciousness. It's our awareness of the world around us, and the world's awareness of us."¹⁶

In its instrumentation, *Sila* was even closer to the idea of “shared breath,” in that a large part of the sound was created by five different ensembles of woodwinds, brass, and voices, culminating in the sound of tuneless breath blown across the mouthpieces of flutes.

From Friendship Park, you had a spectacular view of the new housing community where they had recently moved. It was owned by ARIA and based on the ideas and works of the Argentinian artist and architect Tomás Saraceno.

Saraceno had long not only worked with and learned from spiders but also was immensely interested in air and its capabilities and potential. Saraceno had proclaimed (and actively worked on establishing) the Aerocene. According to him,

carbon emissions fill the air, particulate matter floats inside our lungs while electromagnetic radiation envelops the earth. Yet, a different epoch is possible, an Aerocene epoch—one of interplanetary sensitivity through a new ecology of practice. Ecosystems have to be thought of as webs of interactions, within which each living being's ecology co-evolves. By focusing less on individuals and more on reciprocal relationships, we might think beyond what means are necessary to control our environments and more on the shared formation of our quotidian. Let the spiderweb guide here.¹⁷

Looking at the housing community, it always affected Tara in such a way that they saw air as a philosophical invitation to imagine more eco-social and just alternatives to the current Capitalocene era. To them, it was an emancipatory force capable of liberating us from the burdensome constraints of gravity-bound materials that tether us to the earth—like an architecture associated with weight, strength, gravity (and, in Tara's eyes—martial clumsiness). Working with and inspired by the spider's delicate yet robust architecture, Saraceno sees a profound metaphorical resonance. The spider, an enigmatic creature, defies gravity with ease, weaving intricate threads from its own being to suspend itself in the ethereal realm of air. This feat, achieved with minimal resources and maximal elegance, serves as a beacon guiding humanity toward a similar state of weightlessness.

The spider's ability to fly should serve as a model for our desire to exist with the planet's climate. Saraceno proposes the creation of human habitats, which would be supported by solar energy and allow us to float above the earth's surface, freeing us from conventional living. His vision even extends beyond

the earth's atmosphere to the vast expanse of the planetary, a convergence of human ingenuity and natural harmony. The spider's world, attuned to the subtle vibrations of its environment, becomes a blueprint for mankind's possible future existence. Its navigation through vibrations offers a lesson to attune ourselves to the rhythms of the universe.

Air currents become conduits of physical propulsion and pathways toward a deeper understanding of our place within a resonating universe.

So, as a first step (and a pilot project), Saraceno built a new housing community with ARIA. The complex consists of a multitude of living bubbles, powered by solar energy, situated high above the cityscape to make use of the much better air there. All these bubbles are resting in a gigantic spider web structure that combines all of them in a vibrational communication and energy network.

When they moved in some time ago, they first couldn't believe the delicate intricacy and simultaneous ultra-strength of the material, which even a Saracen scimitar would not be able to sever (Figure 19.1).

The mystery behind this? A marriage of Algae and Arachnida. The living bubble is made up of one-way transparent octagons that are two to three meters long and wide, but only ten millimeters thick. Despite their delicate cross-section, these slabs can withstand loads weighing several tons. This is because the material used in the process of fabricating the bubbles is a new invention: a conglomerate of artificial photosynthetic slime (combining microalgae *Chlorella sorokiniana* with a hydrogel) and carbon fibers, which prevents the bubble from collapsing. This carbon-thread woven material can withstand significant loads despite being only one millimeter thick. It has been used for decades in airplanes, spaceships, and cars due to its strength and lightness. Now, it is also used to construct houses in a more resource-saving and climate-friendly manner than other materials.

Until now, carbon mats and threads had been made from petroleum derivatives, which meant that their production released greenhouse gases. However, recent research has found an alternative method. In laboratories, green liquids flow down sloping basins where microalgae grow. Unlike larger algae, these microalgae do not form filaments and can only be recognized by their color in the water.

The algae are typically cultivated and are dark green. When the microalgae turn yellow, they begin to produce oils that contain glycerin, which can be processed into carbon fibers. Microalgae are highly efficient at photosynthesis and only require salt water, light, and carbon dioxide from the air. They can bind around 1.8 kilograms of CO₂ per kilogram of algae, making it possible to extract

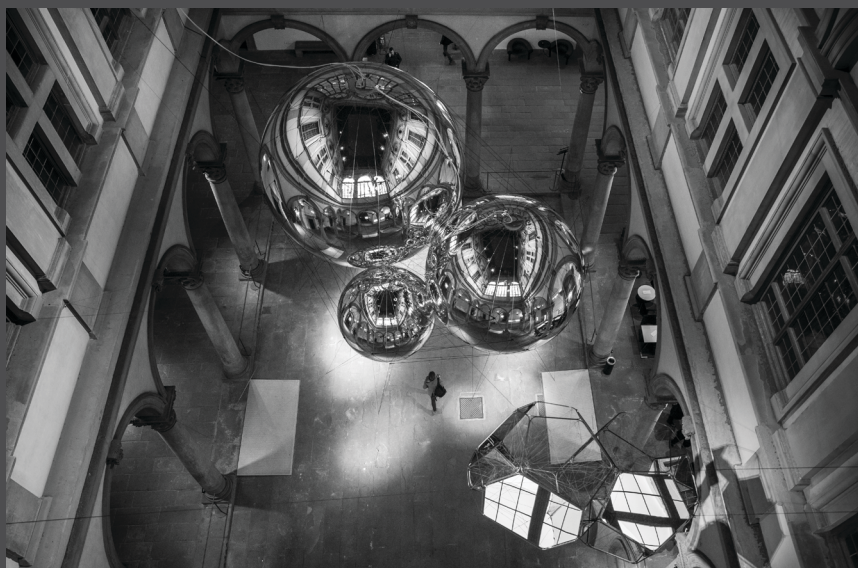


Figure 19.1 Tomás Saraceno, *Thermodynamic Constellation*, installation view at Aria, Fondazione Palazzo Strozzi, 2020. Courtesy the artist. © Photography by Studio Tomás Saraceno.

CO₂ from the atmosphere. Houses constructed with algae-based carbon fibers can function as CO₂ sinks.

Semi-desert regions are ideal for producing environmentally friendly carbon fibers. This is why many of these farms are located in the northern regions of Africa, where the desert and proximity to the coast provide a significant advantage in terms of location.

When the Conspiracy of Breathers had taken charge of this new housing complex, they had baptized it *Re[a]pAir*. Tara was proud of the name—not only was this a reference to the Jewish concept of *tikkun olam* (the duty to repair the world, to make the world better), it was also an intricate play on words that showed the different facets of the Conspiracy of Breathers project. Not only to reap (and care for) the air, but also to repair (the world)—and all this by means of re-pairing. Since none of us is able to face, let alone address the challenges of this world alone, collaboration and collective action are the only way! This will also instill hopefulness, joy, even new ways of resistance—community! We is Future! Let's imagine change and inspire people to create solutions—

WeTopias.

Wavelength: n/a | Color: Luminous Darkness

Exploring the Metaphysics of Afrofuturism through Howard Thurman's Luminous Darkness

Reynaldo Anderson, Christina Hudson

Introduction

Afrofuturism is a movement in design, philosophy, social science and science, and the arts, that revisits the past to better understand the present and to explore a future informed by Black experience. Specifically, Afrofuturism is how people of African descent locate themselves in time and space with agency. More generally, it is an approach to science fiction that is alternative to the mainstream. It is doubly estranged, proposing a different future for Blacks as well as a different theoretical context for understanding the past and the present. It concerns itself with the meanings of technology and the question of the technologized future for people of African descent worldwide. The future that it projects is always a better future informed by alternative values. In this way, it is equally a study of futurology and a study of Black traditions that can be understood as having a science-fictional nature. Afrofuturism is a periodizing term, and this might be the most important thing to understand about it. It marks a period in which people of African descent are increasingly posing questions about their lives in a new way, for whites as well as other people to answer.

Aesthetics and sound are central means for Afrofuturist expression and were so even during the period to which the term is retroactively applied. Sun Ra is often named as a forerunner of this Afrofuturist movement in that his music was a break from known idioms and he constructed a legendary and science-fictional backstory for himself and his "arkestra." Other funk and jazz artists of the 1960s and 1970s also made music that had science-fictional qualities and implications. Artists like *Earth, Wind, and Fire* drew on aesthetic references to Egypt, space, and African cosmologies for their album covers and music videos.

In the present, speculative fiction and fantasy are central means for Afrofuturists to pose questions about Howard Thurman, who was a theologian, educator, and civil rights leader and was concerned with the betterment of the lives of disenfranchised people. He wished to access what the world could be like if people were to live up to their full potential. He also had a great concern for the emotional and psychological well-being of the individual, which can be ascertained in his counseling of many civil rights leaders and his founding of an interracial and interfaith congregation. This concern for the potential future and an authentic and positive Black identity makes the discussion of Thurman and the African diaspora through an Afrofuturist lens critical. His work “The Luminous Darkness” is an exploration of the unspeakable, psychological, emotional, and spiritual pain experienced by African Americans as a result of racism, in an attempt to find a solution to the oppression of his people. This tragic and painful past can be looked at as a dystopian era in which Black people had been marginalized and dehumanized. The reimagining of a world where the power structure is different and Blacks are treated as equals is utopian in nature and provides an alternative future based on alternative values.¹

Thurman’s Luminous Darkness

Firstly, the notion of “Luminous Darkness” is interesting for the insight it provides into Thurman’s understanding of “the disdained.” He explains how it is possible to live a life completely bound by the concrete experience of a brutal reality, where he has seen that, of African Americans, “the very light in their eyes is determined by the hardness of the world.” This learning has signified a dichotomy of internally and externally experienced reality (between bondage and freedom) that Thurman notes later is as old as the race of humankind. This speaks to the possibility of a phenomenological reality that is not directly or immediately rooted in the material conditions it is built upon, a fact that has profound implications for what it might mean to be truly free in any set of conditions. Thurman has realized the potential between internal and external reality for African American people when stimulated by the prospect of freedom through overcoming hardship, and this has pointed toward the “meaning” as opposed to the simple virtue of freedom itself. The assertion that “often the cup of endurance is filled to overflowing, and it runneth over with the kind of quietness that is the strength of a man’s soul” marks another significant distinction in types of experience, essentially between enduring and survival. The latter statement is

an expression of suffering that is not bitter, nor self-destructive, but still less one that is unable to bear itself into the light of change. Given the aforementioned dichotomy of endured/enduring suffering, the alternative is that which is borne by men who see in their future possibilities radically different from their present; the undesirable suffering is that which is out of line with a better future. Thurman argues that to transcend undesirable suffering, individuals must envision and strive for a future that is not only better for themselves but also for their community as a whole. He emphasizes the importance of collective action and the belief that the transformation of one's own suffering is intricately tied to the transformation of the community. Thurman's story of the African American plight has been through a sustained attempt to overcome the image of the people's oppression and suffering as having been something of innate inferiority; a tolerance to the inescapable and a deprivation of itself. Thurman is portraying an alternative possibility and opinion as to how the people he describes can lift a veil of somberness from past and present experiences.

Isfet and Luminous Darkness

Thurman's concept of "Luminous Darkness" is not foreign to the African conceptual framework. Indeed, it hearkens back to the ancient Kemetic notion of Isfet which represents the ever-present chaos that humanity must oppose. Isfet had no physical form but was personified in the image of the deity Apophis. Understood to have been extant within the primordial waters of Nwn or chaos, from the beginning of time and preceding creation, the ancient Kemetians believed that Apophis would forever exist in a perpetual cycle of attack, overthrow, and resurgence.² Importantly, Apophis was not regarded as evil in the moralistic sense but as a primordial, inevitable, eternal, and necessary opposing force. His perpetual assaults on the cosmic order ensured that creation could never become static or complacent. In this way, Apophis functioned as a challenger, a figure whose resistance compelled continual growth. Thurman's luminous darkness shares this structure in that Thurman does not valorize the suffering of African Americans good in itself, but he understood it as the crucible through which endurance and spiritual depth were forged. Both frameworks reject the notion of darkness as a void of meaning; instead, they frame opposition and struggle as the very conditions of becoming. Associated with unexplained natural occurrences such as storms, inexplicable darkness, and earthquakes, this deity was considered to be an underlying threat

to the very cosmos (Bunson, 2002, p. 44). To combat Apophis as a destructive and chaotic force, magical spells and texts were constructed to overthrow and provide protection from this deity.

The primordial waters of Nwn were not only the external chaos out of which the cosmos was born but also a metaphor for the raw potential extant in every being. Nwn represented the substratum of existence itself, the undifferentiated depth from which form, order, and consciousness arise. Read alongside Thurman's luminous darkness, Nwn suggests that chaos is not merely an obstacle but a reservoir within but the inner place where despair and creativity, suffering and possibility, coexist. Thurman's concern with the inner life of African Americans can thus be viewed as a parallel recognition that within the human psyche there lies a depth of chaos which, when encountered honestly, can become the seedbed for transformation and new creation.

The concept of Isfet, like "Luminous Darkness," implies that embedded within the struggle against the strife of such contending forces as chaos and injustice is developed a profound and transformative wisdom. Each of these concepts inspires deeper engagement with the convolutions of the human experience and recognizes that this experience is innately entwined with a vast range of dualities that include light and darkness, order and chaos. Rather than endeavoring to create an existence devoid of darkness or strife, these notions embrace these primeval forces, acknowledging them as a fact of life and recognizing that earnest engagement with them provides an opportunity for the development of deep spiritual insight, growth, and connection to the divine. Both speak to the spiritual richness that is intrinsic to the difficulties of life and, for Thurman, this was evident in the African American experience of oppression and struggle against injustice. Darkness, then, has a divine purpose and serves as a metaphor for a deific knowing that is only possible in the absence of light.

While the notions of Isfet and Luminous Darkness emerge from different African traditions and exist across a vast expanse of space and time, they each speak to an understanding of the nature of existence embedded within the African unconscious. Each examines the role of hardship and challenge in the spiritual development of individuals and societies. They reify the power of the human to overcome and transmute struggle into tools for divine creation and, as such, they are inherently Afrofuturist concepts (Figure 20.1). While Thurman himself rooted luminous darkness in the Christian mystical tradition and not in ancient African religion, the resonance between his thought and the Kemetic metaphysical imagination is striking. Thurman's God as luminous darkness—non-corporeal, permeating all existence, discovered most vividly in moments of



Figure 20.1 The Black Angel of History. © Stacey Robinson.

suffering and endurance—mirrors the way Nwn and Isfet structured existence in Kemet. In ancient Kemetic cosmology, chaos and order were in perpetual tension, producing new possibilities of life. While Thurman positioned himself as a mystic theologian and, thus, his concept of Luminous Darkness is rooted in Christian mysticism there is an intuitive alignment within his framework that Afrofuturism both aligns with and which it can draw upon. Each articulate that it is not in the absence of darkness but in wrestling with it that humanity discovers its divine potential and the seeds of alternative futures.

Unleashing the Cosmic Powers of Afrofuturism

Afrocentric spirituality and cosmology are closely linked to Afrofuturism. P. Khalil Saucier, author of “Afrofuturism in the African American Imaginary,”

defines Afrofuturism as “Black speculative cultural production.” This concept inherently explores the idea of Black humanity and consciousness, which is deeply rooted in Afrocentrism. Thurman’s luminous darkness can be read as an earlier meditation on this very question of Black humanity. For Thurman, the divine presence discovered in the midst of Black suffering affirmed that Black identity itself bore metaphysical significance. Though Thurman’s mysticism did not project a speculative future, it did create the ontological groundwork for Afrofuturism’s effort to place Blackness at the center of cosmic possibility. In metaphysics, identity is essential, and the construction of alternate realities and futures for people of African descent serves as a metaphysical exercise that validates the unique experiences of Black individuals. The pursuit of incorporating “Blackness” as a cultural norm in futuristic settings is a cognitive effort to rebuild and rectify the oppressive past of slavery, liberating Black people from the burdensome realities they face. Afrocentric spirituality emphasizes the continuous evolution of one’s identity through transcending struggles and attaining higher levels of consciousness.

On the cosmological front, topics of time and timelessness frequently arise, symbolizing the movement of Black individuals from a point in history where they were marginalized to a utopian future where they can thrive on par with the rest of the world. By shifting the focus of identity and culture to a future that embraces people of African descent, Afrofuturism aims to liberate Black individuals from the constraints imposed by their race and the global implications associated with it. This process involves shifting to a metaphysical realm where the power of thought and spirit can manifest an improved reality. Afrofuturism embodies the pursuit of a better tomorrow for the Black community. Salim Washington’s “Afrofuturism: Science, Race, and Visions of Utopia” highlights how Western culture has expressed concerns about the negative consequences of technology on humanity and the erosion of spirituality during its implementation. Ongoing debates about the impact of technology on Black culture and identity have given rise to an Afrofuturistic perspective. Some advocate for complete technological separation and a return to African cultural heritage, while others seek to redefine Black identity within the context of a technological world. With the rapid expansion and integration of technology worldwide, the latter group sees the need for a spiritual and cultural revitalization, aiming to forge a positive identity for individuals of African descent in a future where race holds less social and political significance. The future becomes a battleground for the souls of Black people, as some Afrofuturists engage in soul-based science fiction, envisioning struggles in

alternate timelines or dimensions. The concept of time holds great importance within Afrofuturism, as it has been a subject of extensive discussion throughout Black history. African-centered narratives have romanticized ancient African civilizations while acknowledging the traumatic impact of the transatlantic slave trade as the lowest point in Black history. This juxtaposition creates a sense of lost greatness and deferred glory. Afrofuturism provides Black individuals with the opportunity to redefine their futures by envisioning alternate paths that diverge from their disadvantaged starting point and craft a timeline in which such chaos and disorder are defeated. For Thurman, luminous darkness was not simply endurance in the present but a mystical participation in a timeless divine order that permeated human struggle. The endurance of African Americans was therefore never just historical but also eschatological in that it gestured toward a future release. Afrofuturism, by employing time travel and alternate timelines, radicalizes this same insight that within oppressive temporality lies the possibility of transcendent futures. Works such as W. E. B. Du Bois' "The Comet" and Samuel Delany's "Dhalgren" illustrate displaced Black individuals actively shaping better futures for themselves. Although Thurman himself was not an Afrofuturist, his theology provides a metaphysical grammar that Afrofuturism adapts: the recognition that liberation emerges not from escaping darkness but from encountering and transmuting it. Time travel is a prevalent theme within Afrofuturism, as it allows Black individuals not only to imagine improved futures but also to pinpoint the exact moments and reasons for the loss of past advantages.³

Embrace the Power of Afrocentric Spirituality and Cosmology

Afrocentric spirituality plays a crucial role within the realm of Afrofuturism, making it an exceptional concept. Unlike the Eurocentric notion that focuses solely on technological progress and space exploration, Afrofuturism centers around the prospects of the African diaspora and the realization of Black individuals and their culture. It goes beyond the mere material future, delving into metaphysical and spiritual considerations. Martine emphasizes the significance of altering one's perception of oneself in relation to the cosmos for Black individuals to achieve self-actualization in the future. This underscores how a people's cosmological beliefs greatly influence their views of the past, present, and future. Thurman's doctrine of the inward journey can be understood

as his own version of this cosmological re-situation. For him, discovering the divine image within the dislocated self was the way to restore cosmic balance in the midst of a hostile world. While his framework remained grounded in Christian mysticism rather than African myth, it shared the Afrocentric impulse to locate Black existence within a sacred cosmic order. Afrocentric spirituality is concerned with unlocking the potential and transforming the identity of Black people on a cosmic scale. Thurman's concept of the dislocated self that faces a hostile world mirrors the experience of the African diaspora and remains relevant for many Black individuals today. His doctrine of the "inward journey," which involves the discovery of a more authentic and expansive self, aligns with the future vision for Black culture in Afrofuturism. The difference between the two lies in symbolic vocabulary. Where Afrocentric spirituality invokes ancestral myth to reclaim cultural memory, Thurman invoked mystical union with God to reconstitute the fractured self. Both approaches converge on the same aspiration to restore wholeness and liberate Black identity from the distortions of oppression. In Afrocentric spirituality, theory intertwines with the mythology of various cultures, and Afrofuturism is no exception. Mythology serves as a reflection of the psyche and spirit, and Afrocentric spirituality boasts numerous powerful myths. One such myth is the Yoruba tale of Ogun, a mighty warrior who clears a path through wilderness and chaos, leading to the rise of civilization and the arrival of ancestors. This exemplifies a forward-thinking myth that harmonizes with the Afrofuturist idea of a brighter tomorrow. Another significant myth revolves around the lost cities of Atlantis, Crete, or Ethiopia, symbolizing the lost empires and past glories of Africa. Afrofuturism is capacious enough to draw upon both streams of the Afrocentric reclamation of mythic memory and Thurman's mystical pursuit of divine wholeness. Each provides resources for imagining futures where Black existence is cosmically affirmed. Afrofuturists advocate for true self-realization among Black people by reimagining and reclaiming these lost glories, restoring these civilizations' rightful place in history.⁴

The Powerful Connection between Technology and Spirituality

The connection between technology and spirituality has always been a central focus of Afrofuturist discussions in both literature and political thought, and it's

time we recognize its significance. In his essay “Black Science Fiction,” Houston A. Baker emphasizes the importance of the scientific literary genre in advancing human life by seeking out more effective technologies and cultural systems. For Thurman, the measure of progress was never external machinery but the inward transformation of the soul. His luminous darkness was a reminder that true liberation begins within, in the discovery of God’s presence even amid despair. Afrofuturism takes this inner orientation and extends it outward, imagining technologies that serve not only material needs but also spiritual reclamation. While Western societies believe that improving technology is the key to a better life, Afrofuturism goes further by using technology to develop spiritual aspects and comprehend the divinity within us. Afrofuturist depictions of technology can span from cybernetics and space/time travel to mastering the natural world. This can be seen as a symbolic representation of the Black diaspora’s desire for an “African Homeland,” but ultimately, it allows Black individuals to shape a positive future identity. Where Western modernity often displaced spirituality in its embrace of technological power, Thurman insisted that no advancement could substitute for the inner journey. Afrofuturism inherits this insight by refusing to treat technology as neutral or redemptive on its own. Instead, it reimagines technology as a vessel of spirit, capable of aiding the divine work of reconstructing Black identity. According to Howard, humans are driven by their history until they recognize it as an internal history. This aligns with how Afrofuturist technology serves as a tool to redefine the future by weaving together historical and internal narratives. It enables temporal travel through memories of triumphs and atrocities, fantasies of power and control, and the journey to reclaim lost identities and forge new ones. Afrofuturist works often explore the historical underpinnings of our current world, offering a profound metaphysical understanding of its origins. While Thurman did not speculate about cybernetics or time travel, his insistence that discord must be endured for true progress parallels Afrofuturist engagements with technological struggle. Both view disruption not as an end but as the crucible through which liberation is forged. Lastly, Thurman suggests that people must experience present discord if they truly want to progress, acknowledging history as a motivating force in seeking change. This implies that throughout history, humans have always strived to improve their circumstances by transforming their identities and conditions. It is an optimistic view that reveals our inherent drive to create a more favorable future.⁵

Unraveling the Profound Depths of Howard Thurman's Enlightening Obscurity

Thurman passionately delves into the notion that humans are not merely disconnected from God, but rather they have become distant from the very concept of God. He advances the idea that deep within each person resides an innate image of God, functioning as a spiritual guide leading them toward reconnection with the divine. This illuminates the transformative process of self-discovery, a magnificent expedition involving shedding all that does not align with this intrinsic image and faithfully following the inward call back to the ultimate source.⁶

The concept of Luminous Darkness, which inspired this profound work, embodies a captivating paradox. It represents a darkness so illuminated by light that it transcends any other existence. This analogy is symbolic of the African American race, which has endured immense hardships and darkness yet still possesses an unwavering spark waiting to be discovered. This paradox is also central to Afrofuturist imagination, which often navigates between utopia and dystopia, hope and despair, catastrophe and creation. Afrofuturism, like Thurman, refuses to collapse these opposites but insists that liberation is found in holding them together. The path toward enlightenment for Black individuals lies in gradual progress and discovery. Thurman consistently emphasizes unity with God and the ultimate fusion of divinity and humanity throughout his body of work, including this one. Afrofuturism adapts this inward turn by expanding it into collective and speculative registers. Just as Thurman believed self-discovery through divine encounter was the foundation of freedom, Afrofuturist visions often begin with the reclamation of identity as a precursor to projecting alternate futures. Thurman's emphasis on unity with God reflects the perceived identity of African Americans as God's chosen people, as well as the prevalent theme of spirituals referring to unity with God and the long-awaited "promised land." Above all, God is depicted as both a teacher and a liberator. Echoing Exod. 3:14, where God proclaims, "I am that I am," the slave cabins echoed the belief that God had not yet arrived. For Thurman, the phrase "I am" resounded with the words of a Black midwife marveling at a white newborn, expressing gratitude that the child was no better than her own race. Therefore, if God truly encompasses all that He is, it implies that He is the source of relief for the suffering endured by African Americans and represents a better future. This perspective ultimately signifies the eventual liberation of the oppressed.⁷ In this way, Thurman's luminous darkness functions as a theological parallel to

African cosmological notions of chaos as generative and Afrofuturist notions of futurity as born from struggle. His mysticism, while Christian in form, offers a metaphysical grammar that Afrofuturism continues; the recognition that new worlds emerge not from the denial of darkness but from its transformation.

The Compelling Significance of Darkness and Light in Thurman's Metaphysics

Luminosity embodies a captivating and genuine essence. Light represents the abundant and genuine nature of existence, as well as the profound and substantial reality of a fulfilling life. It stands in stark contrast to the shallow and counterfeit aspects of reality. The counterfeit and deceptive life can be likened to living in a state of hypnosis, where the ego exists and dreads breaking free, consumed by the fear of losing oneself. Light offers an insightful and rational choice, an antidote to the darkness where we comprehend our aspirations yet feel a sense of discouragement and uselessness in our pursuit to embody them.⁸

Within this particular tradition, there exists a significant thread that links light to notions of truth and goodness. However, it is crucial to acknowledge that this association, as indicated by Thurman's book title, has often been oversimplified as a mere endorsement of positivity or as a moral judgment concerning good and evil. Thurman's work, on the other hand, presents a blend of both light and darkness, suggesting a deeper meaning that extends beyond a simplistic categorization of metaphysical or pathological evaluations. This reclamation of darkness resonates strongly with Afrofuturism and its contestation of Western metaphysical binaries. In Afrofuturist art and theory, darkness often signifies both Blackness and possibility—the very condition out of which new futures are imagined. While there are instances where light and darkness directly correspond to notions of good and evil, the primary purpose of this imagery remains static and ontological, highlighting a distinction between two distinct forms of reality or existence.

Throughout the history of the Western metaphysical tradition, the contrast between darkness and light has held substantial significance. In various periods and locations, either darkness or light has been regarded as a metaphysical approach to comprehending essential oppositions such as good and evil, actuality and appearance, the pure and the artificial, as well as essence and existence. Where Western metaphysics often cast darkness as absence, Thurman reframed it as a luminous, divine, and sustaining presence.

This echoes ancient Kemetic cosmologies in which Nwn and Isfet were not voids but fertile conditions of becoming. Afrofuturism brings these threads together and expands this revaluation into speculative futures. Both Thurman's mysticism and Afrofuturism insist that it is precisely in darkness that the seeds of liberation and creation are found. This shared metaphysical stance reframes Blackness itself as luminous rather than lack.

The Powerful Impact of Afrofuturist Elements on Thurman's Work

The impact of Afrofuturism is most evident in Thurman's work when considering the historical context in which it was written. During a time of intense racial tension and socioeconomic disadvantage for African Americans, Thurman sought to empower and liberate Black individuals. His metaphysical doctrine, as depicted in the metanarrative, serves as a foundation for this mission. It is important to clarify that Thurman was not an Afrofuturist. Yet, his mysticism resonates with Afrofuturist elements in that both seek liberation beyond the categories imposed by racial oppression. Where Thurman articulated this through theology, Afrofuturism takes up the same challenge through speculative cultural production. Existentialism, often seen as a modern expression of African philosophy, can be interpreted through an Afrocentric lens. Its origins lie in the African encounter with racism and European colonialism, specifically when Jean-Paul Sartre examined the works of the first generation of African and African American writers. Sartre advocated for an authentic existence as a means to escape "mauvaise foi" or self-deception, which involves retreating from the inner knowledge of one's freedom and responsibilities. The existential notion that essence is determined through action holds immense potential for the liberation of Black individuals, as it rejects predetermined racial characteristics. According to this logic, a Black person can theoretically exist solely as a human being, transcending historically imposed racial limitations. This vision parallels Afrofuturist narratives in which Black characters and communities inhabit futures not defined by colonial or racial categories. Both frameworks are invested in imagining a horizon of existence where Blackness is central but not constrained by imposed inferiority. Thurman also seeks to transcend racial barriers through the internalization of the noble word. While Sartre concludes that the world is absurd and attempting to change it is futile negativity, Thurman holds an essentially optimistic view. He believes that the

universe is fundamentally permeated by a God who actively shapes history and constantly urges individuals to realize their divine potential. Despite Sartre's refusal to believe in hope for the individual, there exists an existential crossroad that allows Afrocentric interpretations of existentialism to diverge from agnostic or atheistic European existentialism.⁹ Afrofuturism can thus be seen as a refusal of despair, a centering of Black being, and a conviction that history and spirit together press toward liberatory futures, which extends the metaphysical opening that Thurman's mysticism created.

The Impactful Influence of Afrofuturism on Contemporary Culture

One of the most compelling impacts of Afrofuturist-themed creations on contemporary culture lies in the persuasive integration of science fiction and technology with the rich aesthetics of Black culture. This can be observed through the recent emphasis on Black characters in the realms of fantasy and science fiction which imaginatively showcases African and African diasporic culture within a pre-industrial revolution context. Moreover, the astounding success of Afrofuturist works possesses the potential to steer culture in a direction that more accurately represents and comprehends the issues and aspirations of people of color. Thurman's luminous darkness anticipated this cultural work at a metaphysical level. His theology sought to reframe Black suffering as the very place where divine presence is revealed, contesting narratives of inferiority. Afrofuturism extends this same impulse into the realm of cultural production, insisting that Black life is not marginal but central to the cosmic imagination. This transformative work has already commenced, exemplified by Delany's early contributions, and highlights the progressive acceptance of speculative literature from authors like Octavia Butler.¹⁰

The Afrofuturist genre thrives in the realms of culture, pushing boundaries and experimenting with diverse artistic forms. As this artistic movement continues to flourish, it becomes crucial to acknowledge its profound influence on our modern society. Afrofuturism serves as an essential presence and an authoritative voice for the African diaspora, offering an alternative to the narrow and often disparaging portrayals of Black individuals in mainstream Western culture. By empowering its audience and presenting a "voice of the future," Afrofuturism addresses the significant marginalization experienced by Black communities in numerous Western societies. In this sense, Afrofuturism

can be read as the cultural corollary to the theological reorientation Thurman proposed. Where he sought liberation through mystical encounter with God, Afrofuturist creators pursue liberation through speculative re-imaginings of Black futures. Both disrupt Western cultural narratives that equate darkness with deficiency and instead reveal it as a locus of power and possibility. This notion is succinctly encapsulated in Samuel Delany's words in "Black to the Future," in which he characterizes the genre as a "vibrant utopia . . . a means of forging a brighter tomorrow."¹¹

Broadening Metaphysical Concepts in Afrofuturist Literary Works

When it is suggested that Afrofuturism stems from African Americans' desire to escape the violence of the modern world and to re-establish contact with pre-colonial African ideals, it reveals implicit metaphysical concerns that have not yet been explicitly addressed within the movement. Further exploration of what sort of world is being escaped to and from, and what it means to go back to ideals left behind, are metaphysical questions concerning the nature of the ideal life, the possibility of societal progression, and the assessment of the value of past cultures and traditions relative to the present and future state of humanity. Afrofuturists who seek to travel to the past to change the future may not like what they find there, and the knowledge of traumatic historical events may put them at severe cognitive dissonance with the past world, making it difficult to feel connected or "at home." All of these concerns tie into very universal and timeless human questions concerning the nature of self and what makes for a good and meaningful life. Thurman's luminous darkness grappled with these same metaphysical questions, though in the register of Christian mysticism rather than speculative fiction. For Thurman, the meaning of life under oppression was not reducible to suffering itself but to the divine potential revealed in wrestling with that suffering. This theological framing of Black endurance as a metaphysical site of becoming is a position strikingly resonant with Afrofuturist concerns. While Afrofuturism has successfully dealt with issues of identity, freedom, and the dynamics and impact of cultural change, it has yet to directly tie all of these to metaphysical concerns about the nature of these ideals themselves. As the movement matures and seeks to expand its range of philosophical discourse, more attention will inevitably be paid to these sorts of questions. As Afrofuturism expands its philosophical range, Thurman's

luminous darkness offers a precedent for how Black thought can articulate metaphysical depth from within historical struggle. Rather than inheriting Thurman uncritically, Afrofuturism continues the trajectory of transforming the pain of history into resources for imagining more expansive futures, which Thurman exemplified.

Harnessing Afrofuturism as a Catalyst for Transformative Social and Political Progress

Afrofuturism, despite being criticized for its idealism and perceived lack of practical solutions, holds immense potential beyond mere speculation. It engages in profound political discussions and contains underlying messages that resonate with traditional science fiction. Just like its sci-fi counterparts, Afrofuturist works delve into the themes of systemic power and societal structures. Thurman, too, understood that spiritual liberation was inseparable from systemic transformation. His vision of luminous darkness emphasized that the inner encounter with God could not remain private but had to overflow into collective struggle against injustice. In this way, his mysticism provided a theological grounding for the kind of political reimagining Afrofuturism advances through speculative means. This connection is not surprising, considering the historical disqualification of Black individuals from envisioning vibrant futures. Afrofuturism boldly demands inclusion in future societies, whether utopian or dystopian, and challenges existing power dynamics.¹² Thurman's integrationist vision of the Fellowship Church as an interracial spiritual community anticipated this same insistence on reconfiguring social power. While his framework was mystical-theological and Afrofuturism's is speculative-cultural, both affirm that liberation requires not only inward renewal but also transformed structures of communal life.

The profound impacts and future directions of Afrofuturism demand our consideration, for they possess the potential to wield significant influence as a persuasive tool for enacting social and political change. This movement fundamentally aims to redefine the present and forge uncharted paths into the future, inherently entwining itself with matters of political importance. Afrofuturism offers a much-needed respite from the repetitive cycles of history and the detrimental effects of racism. It boldly envisions a future where success is not hindered by race, and where Black individuals are no longer systematically oppressed. This portrayal acts as a rallying cry for

Afrofuturists in their ongoing battle for equality and justice. The ability of Black individuals to visualize themselves in hopeful and promising futures is of utmost importance, as these visions hold the power to shape their reality. To aptly illustrate this point, Tananarive Due's profound novel, "The Good House," offers a poignant allegory of a woman who isolates herself from society due to a haunting past as a human test subject for the United States government. Due suggests that this experience mirrors the collective historical trauma endured by African Americans, urging them to conceive of a brighter tomorrow and cast aside the mindset of enslavement. Afrofuturism, then, can be seen as extending the liberatory trajectory of turning the pain of historical oppression into imaginative resources for new political and social orders that Thurman began. Where Thurman envisioned luminous darkness as God's transformative presence in suffering, Afrofuturism transposes this insight into the imaginative reconstruction of futures where Black life thrives beyond oppression. By fully embracing Afrofuturism, individuals can liberate themselves from the chains of the past and relentlessly strive toward a superior and more promising future.¹³

Wavelength: n/a | Color: Iridescence

The Future Iridesces

Bronislaw Szerszynski

Monday October 8, 2035

Hi Anna,

I'm here! After you dropped me at the airport, it was all a bit crazy—a shame our goodbye was so hurried. But once I'd checked in, the journey to Portland went smoothly—at PDX, I was picked up and driven out to the Institute in one of their minibuses.

My apartment in the residence blocks is small but very comfortable, with a cute balcony looking out into the trees. I can't wait for you to join me here. You'd love the forest setting—the morning walk from the residences through the trees to my new lab is amazing and helps me get my thoughts coherent and my mood aligned for the days (and months and probably years) of work ahead.

But of course the main reason to make the move here was not the *setting* but the *set*—the technological infrastructure that only the Institute can provide at the moment. And, sure enough, it is a huge improvement on what I could access in New York. Without the Institute's resources, I could never realize the next development steps planned for the Timescope.

It's so exciting to see the full 3D rendering of Timescope projections in the Institute's holographic room. It's so much better than the headset I was using before—cones expanding forward away from the eye can so easily seem to collapse into tubes because of linear perspective. Here, in full, immersive holo-VR, they are so much easier to grasp and have more detail and texture—and in the holo-room, you can even turn round and look back into the past—

and move yourself bodily forward and backward in time, left and right, up and down and see the future-cone shift and alter from different points in possibility space.

Also, the sheer computing power of the Institute means that we can model vastly more independent dimensions of future variability. For each holo-room rendering we have to collapse multiple dimensions down onto the three spatial dimensions that the human eye can take in. We're keeping the "x" axis—that stretches backward and forward from the default position of the viewer—as time past and time future, so that each 2D plane orthogonal to that axis is a single moment in experienced time. On that plane, the "y" (left and right) and "z" (up and down) axes represent different dimensions of future variability, with each point on the plane representing a possible state of the world at that moment in time. You can then open up any point in possibility space to examine that possible future in detail (pretty much as much detail as you want).

Luckily, dimensions of future variability are not really orthogonal, but often vary together—and using a few minutes on the Institute's powerful AI, we can produce sensible reductions of dimensions and thus answer specific questions posed by clients. So far, we have buy-in from various US Departments—and have also received some serious approaches from private companies and investment houses. Some ethical conundrums (conundra?) await, I'm sure!

I remember showing you an early version of the two main Timescope rendering modes—future-cone (FC) and uncertainty-cone (UC) modes—you remember, you commented how counterintuitive it felt that the same temporal data can be presented in such starkly contrasting ways. In the FC mode, the future-cone has its apex at the present moment ($x = 0$), representing the singular, actual, present state of the world, with zero uncertainty; and as you look along the "x" axis, further and further into the future, the future-cone slowly (though not uniformly) increases in radius, fanning out from the central, "probable" inertial line of the x-axis to include a range of possible "present futures."

Then, the uncertainty-cone mode is another way of rendering the Timescope data, now focusing on the observer's experience of moving through time toward a specific future moment—as you commented, this has the effect of flipping the cone around on the x-axis, so that it starts out wide and decreases in radius as one moves toward the future moment. This is due to the slow shifting of probabilities as you approach the moment x_1 being predicted, as possibilities are

closed off and the world approaches the vertex of the “future present” that will be realized at time x_1 as an actual state of affairs in the world.

The Timescope coloring scheme really comes into its own in the holo-room. Blue still represents certainty ($p = 1$), and then as probabilities drop below that the points representing different possible futures gradually shift through the visible spectrum to red uncertainty ($p < 1$)—and then black for impossible future states ($p = 0$). The point in the 3D rendering that represents the realized “present present” always shines bright blue, so intense it’s more of a blueish white (you have to move away from it in one direction or another to actually look back and see it). Then, this point of light splits going forward in time and spreads into a cone of concentric rainbow colors (it reminds me of those sticks of seaside rock that we brought back from our visit to the UK).

In the old analog futures studies literature around the millennium—for example, Voros—the cone is usually described and drawn as being made up of discrete, nested cones, with “probable futures” the narrowest, flaring only slightly along the inertial line, surrounded by progressively wider cones of the “plausible” and “possible”—with all impossible states outside that “preposterous.” With the Institute’s equipment, the gradations in color are generally continuous, with few sudden jumps—rather like a rainbow; you can often only divide it into countable colors by convention. That’s expected.

But then there is a puzzle. I can’t seem to stabilize the colors of the future part of the rendering. The future iridesces as you move your point of view—whether back and forth in time, or along the other axes, into different possible timelines. I wish you were here to help me think about what this means!

I actually went into the lab yesterday to experiment and try to understand the iridescence while the technicians weren’t there. It was so nice walking there through the forest, with the dappled light and the first blush of fall colors on the quaking aspen and the big-leaf maples. By the time I got to the lab, I had decided to run a projection of my own, asking when you would join me at the Institute. But in the holo-room, the iridescence was there again—more intense than ever. I tried dozens of ways of posing the question and of reducing the dimensions of variability—but whatever I did, I couldn’t find an FC-mode projection in which there was a future with you here in a stably blue region of the future-cone. And in the UC mode, as I tried moving forward along different trajectories, the cone of uncertainty around such a future just wouldn’t collapse into a blue point. Even just a tiny shift of the point of view made the colors shimmer uncontrollably.

Is the iridescence just an “artifact,” produced by inaccurate data, or by a fault in my coding, or by some limitation in even the Institute’s hardware? Or—as I am beginning to think—does this reveal something more fundamental about how the future unfolds in our world? I’m starting to think that it’s time to move the Futurescope project along its planned stages—away from classical ideas about time.

But also, Anna, I’ve been a bit unsettled by the fact that the iridescence spiked when I posed my own personal question to the Timescope. Please tell me—you’re not reconsidering your decision to join me here? I know you were initially not so keen, but I thought we’d talked this through. Do tell me what are you thinking—will you still come and join me?

All my love, in expectation of being together soon, in the bright, blue, actualized future present.

Daniel x

Saturday November 12, 2035

Dear Anna,

My heart is broken since you told me that you won't be joining me here in Oregon. And then my last couple of emails, you haven't answered at all. I'm in pieces—all coherence gone.

My work has been derailed—I feel like I have entered a cloud of uncertainty, wrapped around a core of dread at the prospect of a future without you. In a way, the uncertainty is almost welcome—it makes the dread more bearable, softens its contours by offering even the slightest possibility of the future not being fixed and unavoidable. But I still can't face looking at that iridescent future-cone, with all it seems to signify.

I've found a sort of comfort in playing with translating the Timescope visualization into light cones in Minkowski spacetime. I know it's not what I was hired to do—it has little practical application for making decisions on human timescales and could be career suicide for me. But as it renders in the holo-room, it somehow chimes with my dark mood.

Again I've come into the lab on the weekend, to avoid seeing colleagues. I'm in the holo-room now, staring at a visualization, facing a future to which I no longer look forward—as if the shape of my body is no longer a reliable metaphor for the experience of time. Just like in the FC and UC modes, the time dimension still extends “forward” and “backward” along the “x” axis; but now the other two dimensions are a flattened projection of the three dimensions of space. And all three are scaled out to the inhuman proportions of cosmic spacetime.

A cone extends forward and backward from me, flaring out steadily at a half-angle of 45 degrees—the path in spacetime of an imagined flash of light going both forward and backward in time. In both temporal directions, it increases steadily in radius away from the here and now—much more steadily than the future-cone, as the flaring is determined by the speed of light.

As I gently move my point of view around the apex, the partitioning of cosmic spacetime for me becomes clearer and clearer, and I like it less and less.

For me, now, at the apex, where the two “nappes” of the double cone meet, the whole of spacetime appears starkly divided, just as Sard said, into four regions with radically different meanings for me-here-now. The two “time-like” volumes

contained within the twin nappes of the cone are my past and future worlds, the “elsewhen”: all past or future events that can be causally connected to me-here-now.

The volume outside the light cone is the “elsewhere,” the (to-me) “space-like” region of all events that the speed of light dictates cannot be causally related to me-here-now—cannot affect me or be affected by me—and thus might as well be in another universe.

And then there is the surface of the double cone itself, made up of all the countless events in “light-like” relations to me-here-now, because their temporal separation and spatial separation from this point in spacetime exactly cancel each other out.

And the vertex, the “here-now?” It is the quantum event—maybe entangled in time but necessarily isolated in space by the geometry of light. It looks like I feel: isolated, solipsistic, a sharp point where past and future meet in a zero-dimensional present, a locket that cannot be opened.

And then there is the color visualization in this new projection. The cone still comes out as blue at its center. But the blue vertex in my futures cone simulation was somehow comforting—the real, actualized present, that has been, is being, or will be lived and experienced. But in the Minkowski projection, I find the blue vertex chilling and ominous.

As I look at the projection, the blue vertex of the lived present extends forward into my future as a dazzling blue-white line, as fine and sharp as a cheesewire, that only slightly meanders as the future “I” moves in space. Then, as the light cone expands steadily outward from this line, it does so in colors that are again shifted into a spectrum, with regions of the cone away from the inertial line progressively moving through green, yellow, orange, and red. For as the cone widens across the cosmos, any light reaching me has passed through intervening space that has expanded by anything up to a thousand times during its passage, stretching the waves and shifting even the bluest light not just into the red but sometimes deep into the invisible infrared. And overlaid on this geometric pattern, the future iridesces once again—but now the iridescence is a frozen shimmer, a cosmic pattern of hues created by the objects in the universe all fleeing away from each other, and localized gravitational dips and hollows in the crumpled sheet of spacetime robbing passing light of energy.

In this rendering, I look for you in the conical volume of spacetime that represents the limits of the world that can ever be real for me. I know that in a literal, physical sense, you are still in my light cone. In Minkowski space, both you and I are four-dimensional temporal figures stretching into the past and the future. Assuming you are still in New York, you are only 13 thousandths of a light-second away, so in our remaining lifetime, we must be linked by myriad strings of causation, however remote, indirect, and invisible.

But your silence makes me feel that you are not in any meaningful sense in my future light cone—no longer in my universe.

With today's rendering, when I ask about our relationship, if I turn around and look at the anterior nappe of my light cone, extending back into the past, there is an intense blue region, representing the world-states in spacetime where we entangled our minds and bodies together for those precious two years in New York.

Then, if I turn sideways and look along the plane of the present that extends from the here-and-now apex to left and right and up and down, you are there, as I write this. But to me, you might as well not be there at all—you are in “the elsewhere,” a region of spacetime with which I, at the vertex can have no possible interaction or meaningful relation.

And then, if I turn and look forward again, out into the flare of my future light cone, there seems to be no future event including me that could also include you. A cone that ends at a vertex is a half-cone; a line with one end is a half-line; now I feel like a half-person, bereft of you and of a future with you.

I take what cold comfort I can in staring at the light-like relations along the cone surface expanding forward away from me, where there is no passing time, no space, and no color—not even black.

Daniel

Thursday December 6, 2035

Dearest Anna,

I hear from mutual friends that you are still in New York, and they say that you seem okay—so that is a relief at least. But I haven't heard from you for weeks. My mind is still reeling with what this might mean and how I can possibly go forward from here.

To cope, I've thrown myself back into the Futurescope project proper, and the original plan to move it even further away from classical futuristics and take a quantum turn. I thought initially that this would distract me from thinking about you and about us—but it seems that my yearning to get us back together is now the beating heart and driving force in my work. I cannot help it; I cannot give up either—and increasingly I'm finding it impossible to separate the two.

My mood, like the season here, is no lighter, but has become clearer, more focused—the environment seems to reflect and shape my frame of mind. Now that the temperature has dropped below freezing, I feel a new sharpness of purpose. The broadleaf trees on my morning walk are now bare, their branches more visible. And now, as I look at the visualization, the cones have been replaced with a far more complex pattern—braided, branching, intertwining. And I have to tell you what this has done to my thinking—about you, about the breaking of our entanglement in space and time, and about the iridescence of the future.

Bear with me, Anna—I need to explain some details so that you can understand what I'm saying. To do the quantum implementation, I went back to my first iteration of FC- and UC-mode visualizations, but completely rewriting them to incorporate quantum indeterminacy. The visualization in the holo-room is now a rendering of how the universe evolves forward in time in Hilbert space—the space of all possible wave functions. Of course, the fully postclassical, quantum approach means that passing time is no longer treated as a fundamental feature of reality—but for us earthly creatures it remains so, so in the renderings the “x” axis backward and forward still represents experienced time, and the “y” and “z” axes left and right, and up and down, are together still a chosen reduction of the myriad dimensions of future variability.

But now the Timescope calculates the changing world-state using the Schrödinger equation—which predicts the evolution of the wave function of any coherent quantum system not as a single outcome but as a spread of probabilities of all

possible future states. I started off following Bohr's Copenhagen interpretation, which says that when quantum systems become entangled with their macroscopic environment (such as when they are observed by a creature like us), they decohere and the wave function collapses from a spread of probabilities to a single certainty—a singular, realized “future present.”

Yet now, standing in the holo-room and looking forward in time along the “ x ” axis, from the point that represents the world-state at the present moment—the realized, singular world-state resulting from the most recent collapse of the wave function—I see a shape that reminds me of standing under one of those huge ancient trees and looking up: a complex, dizzying branching and interweaving of possible futures, as the rapid sequence of quantum decoherences concatenate in their implications.

And if I switch on the new version of the “uncertainty-cone” mode—with its cone that is wide in the present and slowly narrows to a point as I approach the future moment being asked about—it is as if I am suspended above that tree and sinking down, through a vast thicket of possible futures that slowly weave and combine into a solid trunk which then slowly narrows toward a point as all other possible futures are closed off, one by one.

My colorization now captures the Schrödinger equation's distribution of possibilities in vibrant hues. In both modes—the backward-opening cone of the UC-mode and the future-opening one in FC-mode—the apex ($p = 1$) is a bright blue, fading across the spectrum to red for very unlikely world-states ($p < 1$) and then finally black for world-states outside the range of possible futures ($p = 0$), given the present world-state.

My expectation was that, in UC-mode, as we move forward toward any future moment x_1 , the wave function would progressively collapse, the cone of branches would narrow and narrow, and the colors would shift toward the blue—until we reach the moment itself, the pure, blue, dimensionless vertex of the reality that we will actually experience at time x_1 .

But instead, the colors once more iridesce as I move my point of view around laterally between world-branches, or backward and forward in time. I have been up all night, thinking about what this might mean, and am increasingly feeling that the solution lies in Everett's “many-worlds” interpretation of quantum mechanics. Everett said there is no justification for the idea that the wave function collapses from a spread of possible states to a single state when anyone observes

it—instead, he insisted, we should assume that *every possible future state comes about*. Yes, the entanglement of a quantum system with its environment causes decoherence—but this does not force the world to choose between futures; it causes the world (and us within it) to branch.

So, if Everett is right, at a fundamental level there is no collapse of the potential into the actual, the imagined into the real, or of uncertainty into certainty. Each possible forward evolution of the universe, each possible future present, is realized, with a probability of 1. The Schrödinger probability ($p < 1$) for any given future branch is just the likelihood that this is the branch that any observer (or that branch of the observer) finds themselves in.

As I move around the holo-room, I can make the branches writhe and the future iridesce—and as I do so repeatedly, I find that I can slowly build up in my mind a picture of this “level III” multiverse in all its intricacy and magnificence. In this rendering, the best way to understand the fundamental nature of time seems no longer to be grounded in the human experience of having an animal body moving “forward” through space. Instead, it is surely the trees outside—which experience space not by moving through it but by *filling* it: by expanding, branching, dividing themselves without end—which are best placed to understand the vast temporal space that my cavorting around the holo-room can only reveal in momentary glimpses.

In some ways, the world as it branches gets thinner and thinner, with less and less “weight” as its reality is divided at every moment of quantum decoherence. The shifting colorization makes that visible. But in another sense, each branching path is its own deterministic block universe—whichever one we are in, we and the things we share our branch with are there from cosmic beginning to cosmic end, and it never becomes less real. Viewed by time-based creatures like us, this many-world universe is like a massive braided cable that starts out with all strands united, identical in attributes so sharing the same origin in possibility space, but slowly unravels during the life of the universe. Any two branches start off together, but at some point in cosmic time, split off from each other. And at the end of the universe, presumably, each strand is finally untwined, naked, and alone.

I cannot really tell you why, but this strange vision of time has given me new hope. It's true that, in some branchings of the world, versions of us have been sundered, never to be together again, like the strands of that vast cable. But somewhere in the present moment, in this multiverse that I am trying to retain

in my head as I dance around the room, there are world-branches where we stayed together—where I, or you, or both of us, acted differently. In some, I stayed in New York; in others, you joined me here in Oregon; perhaps in others we are together somewhere else entirely.

But also, deep in the iridescent future, I can sometimes discern what look like regions of possibility-space where you and I are together. But are *this you* and *this I* on a world-branch whose future reaches enter those regions of hope? Or is it only on branches that have already diverged from *our* world-branch that versions of you and I have a future together?

Later—I have been thinking about what I wrote above. I feel clearer now. Even if there are other worlds with a “me” and a “you” that are together and happily so—what *this I* in *this* world-branch cares about is whether *this I* is with you in the future—whether there is a path forward, from this world-branch that we you and I are in, to a world like that.

And *then* I realize that my only chance of identifying that path forward to a life with you is if I stay here with the Timescope and search for it. In the vertiginous, shifting multicolored canopy of the multiverse, it is only if I keep on world-branches in which I stay in Oregon and continue to use the Timescope that I have any chance of finding and navigating to a world where we are together. I *have* to stay here if I am ever to find a world-branch in which we are united again.

But what does the iridescence signify? Is iridescence the color of freedom, agency, and choice? Is it a sign of hope—of the possibility that I can find a viewpoint where at least one version of our life together goes from black, to red, to blue—and of the possibility of me navigating along the branching of worlds to that best of all possible world-branches?

Or does the iridescence actually mean that the faith I am putting in the Timescope is misplaced? Are the shifting colors just an artifact produced by my own obsessional tendencies? Am I deluding myself, simply rationalizing the choice to stay here, working day and night—rather than getting on the first flight or Greyhound to New York to find you?

Once, now, and always yours, in every world-branch,

Daniel

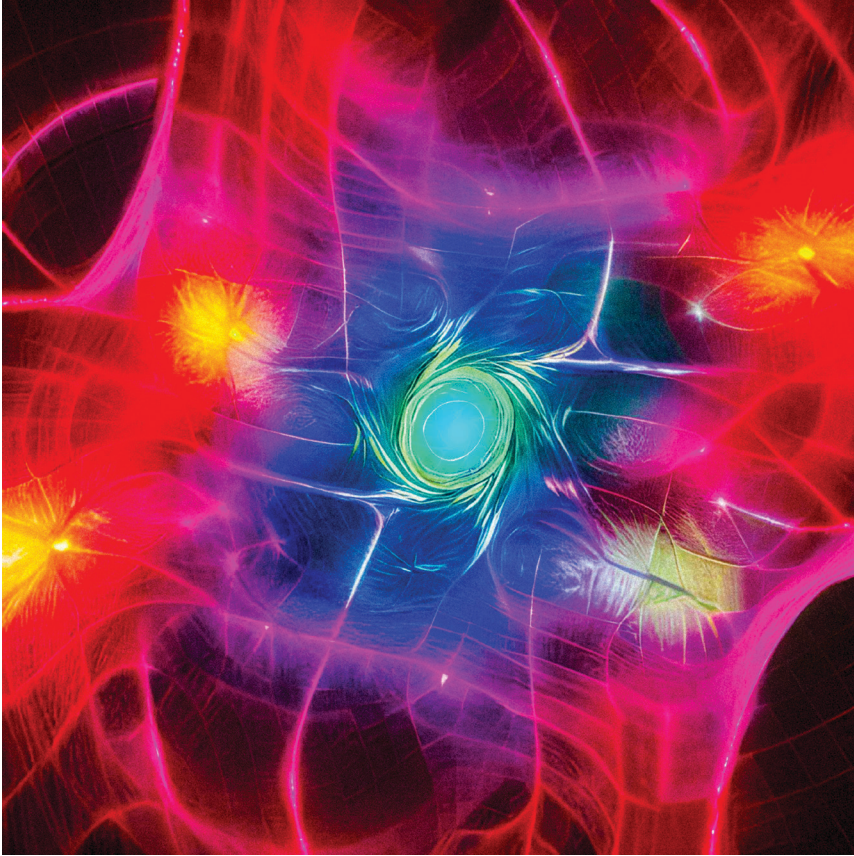


Figure 21.1 “The future iridesces.” All images by Adam York Gregory, using Stable Diffusion deep-learning text-to-image model.

Wavelength (Khaki): 575.4nm∞ Wavelength (Dark Gray)-nil

Soliloquies of a Lone Diner and the Specters of Thomas Sankara

Kuti Ezebiro

Introduction

Ouagadougou, again. The city has changed in a manner that only three Burkinabe decades could midwife. However, the seven-minute drive from the National Museum of Music to Hotel Les Fleurettes was an experience of a strange newness of a past that has managed to retain its familiarity to the smallest details. It was as if Derriere Fidelis Sector 4, District Zaca, Koulouba, Ouagadougou was frozen in time while its surrounding urban contexts managed to transform, age, or change one way or the other. Hotel Les Fleurettes was the epitome of this time stasis. Nothing has been done to tamper with the simple, earthy, brown modernist high-rise building. Even the monochrome painting on the west wall of the reception is still hanging there, and the cavorting dancers in the canvas are still enthralled by the drummers drenched in rustled sands and kinetic dust. While negating a “state of decay,” this modernist piece of architecture has survived by negating the forms “that society expects of it, by transgressing the limits that history has set for it.”¹ The spectral conversations with discarnate entities from books and papers which Senior Reporter Ubuntu had read built up gradually, and the hauntological oscillations between what he could see of this building and the presence of an absence rooted in his last visit to this place infused him with an eerie feeling. “Architecture,” states Sara Luria, in a teacherly and measured tone, “invariably encircles an irreducible virtuality, a hauntology, where the familiar turns disruptively unfamiliar, and vice versa.”² As

if to buttress Luria, Wolfreys declared that hauntology is not about absence but a sore sense of inhabitation, of something that “manifests” itself not as arriving from elsewhere but instead making itself felt.³ In a sense, Ubuntu felt that this was more or less an appropriate picture of this environment. He had lived an experience here and must have carried with him a residue of deeply embedded memory that something about this space is now excavating from deep within him. The old and the new, the alien and the familiar, past and present, engulfed in a dialectical interchange that spectralizes this visit.

He picked his way through a spacious lobby that separated the reception from the two bars on the ground floor. Instinctively, he opted for the one overlooking the entrance. He relived that first feeling of warmth and tropical grandeur he felt in 1987 when he first visited Burkina Faso. He had lodged here and fell in love with this bar, lavishly paneled out in acacia wood, floor and walls alike. He had flown in from Nigeria to cover the news of the coup that so brutally ended the life of Africa’s youngest revolutionary and most charismatic leader of his time. He had never met Thomas Sankara, but, like most Africans of the time, he had somehow connected with the tall, dark, handsome, and brilliant leader whose love for his homeland was reminiscent of the patriotic heroics of epic stories. He would never forget that foul taste that rose in his throat as unannounced tears welled up in his eyes through which he beheld faces masked in the bitterest countenances he had ever seen as they milled around him and fluttered across the TV screen in this same bar like ghosts in a funerary parade. The opening line of the article he was eventually going to write for this report was born at the throes of this visceral anguish: “In pain and grieving, we are one.”

Specters and the Portal on the Wall

Approximately thirty-five years after, fate has returned him to the same place, and he found himself ensconced in the mystique of an inexplicable *déjà vu*. A spectral flashback. A pervasive feeling of reliving an episodic experience. *Déjà vu*. He mused on the word again. If the revisitation of the ghost of a person from the past is considered a specter, then *déjà vu* must be the ghost of some past situational experience re-emerging in the present. He wondered if he had somehow walked into some hauntological spacetime. He agonized over making sense of this strange phenomenon, gradually unfolding around him and enveloping him like smoke from beneath his feet. Derrida declared that the

subject that haunts is not identifiable . . . one cannot see, localize, or fix any form; one cannot decide between hallucination and perception, there are only displacements; one feels oneself looked at by what one cannot see.⁴ He finally took his seat on a black leather square chair directly overlooking the TV by the coffee bar and caught himself wondering if this very seat was not the same one he sat on thirty years ago. He marveled at the uncanniness of the bar as he took in the entire space. How can a place be so old and yet look spic-and-span new? Anyone with an eye for architectural decor can tell that the material with which the bar was designed was not recently installed. Not even the patina of age on materials, of innumerable small scratches on surfaces, of varnish that has grown dull and brittle, and of edges polished by use⁵ would witness to how old this bar is. And yet, there is not a clue to suggest it was recently refurbished. He ordered his favorite Ethiopian coffee and while the bartender worked at it, the music from the TV caught his attention not by its lyrics or melody but by the *crackle of vinyl*⁶ which trailed in the foreground of the song—a telltale that the song is a re-recording from a past, an analog past, and now re-grafted into a more modern recording format. Fisher's conception of the hauntological body comes to mind. The body creates a dynamic between the new and old as inseparably connected by the former's parasitism of the latter. The crackle of vinyl or the whirr of VCR, for instance, act as *sonic signatures*⁷ of hauntology, recalling an archaic, analog past.⁸

This trip to Ouagadougou is fast unfolding as a spectral loop through time. Wolfreys agrees with Fisher by declaring that the concept of the specter makes possible reproduction even as it also fragments reproduction and ruins the very possibility of reproduction's apparent guarantee to represent that which is no longer there fully.⁹

For something to be haunted, the memory of absence must be activated, just as for something to haunt, it must especially be not present. What haunts is an untimely event of non-presence. To be haunted is to be troubled by the non-presence of what is yet to arrive, a revenant that does not arrive at all,¹⁰ or, as Jacques Derrida put it, something that inhabits without residing.¹¹ Gently placing his cup of coffee on the table after his habitual three rapid sips, Ubuntu mulls Chatterjee's declaration that hauntology is nothing but the ontology of non-presence.¹² Hauntology imbricates mourning and preservation of the specter; a processualism uniting the mourner and the mourned, haunting and haunted, time and timelessness. In his mind's eye, he regards Chatterjee as he further enunciates his averment that "haunting is anachronistic; occurs outside historical time, but as a consequence of historical factors."¹³

Ubuntu's reverie was interrupted by the TV. The barman had switched to a news channel and, mid-program, a speaker's speech filled the room:

the issue of unstable governments and truncated democracy in Burkina Faso cannot be divorced from the tragedy of 15th October, 1987. The dastardly manner in which a man who embodied the spirit and aspiration of our nation was killed along with other patriots was not only fortuitous, but the heretic wickedness and affront on the nation by way of denying the deceased a burial site, a grave, a final resting place was an inadvertent sentencing of an entire country to a period of restlessness and turmoil. We are haunted by the spirits of our fallen heroes who have not ceased to engage with our enduring struggles for liberation.

Ubuntu shivered as goosebumps sprouted on his arms. Why has the day suddenly turned spectral the moment his flight touched down in the home country of Thomas Sankara? From the ghostly voices in his head chipping in conversational quotations of writings on specters, spectralities, and hauntology, to the uncanny ambience of *déjà vu* around this district and the Hotel Fleurettes, the sonic signature crackling from the past and re-registering a presence in a recording of an old song and now the television on the wall morphs into a portal through which the past beckons in the nowness of the present. Ghosts are either real or reality itself validates specters through the undeniability of embodied feelings. Whether he likes it or not, he is already here and must go through with covering the latest news story of the new junta led by Capt. Ibrahim Traore, the man that the whole country now sees as the second coming of Sankara. The similarities are uncanny; both men are tall, dark, handsome, and took power at the same age of thirty-four years. Both men are of the rank of Captain, and both wear the red beret. Both men are gifted speakers and passionately motivated ideologues, and share the same vision and passion for the total emancipation of Burkina Faso. Thomas Sankara was killed along with his comrades in 1987, and the putschist, Capt. Blaise Campaore—fearing the slain men may rise to martyrdom—a spectral phenomenon that could haunt him and his regime, refused to have the remains of the men buried in any known or marked grave site. However, it would seem that whereas Capt. Campaore held on to the bodies of the slain men, their ghosts roamed free. Their bodies died, but their ghosts refused to stay down. Capt. Sankara died in 1987, and in 1988, Captain Ibrahim Traore was born. As he grew and joined the army, the activities of this young revolutionary began to unfurl a hauntological connection with the past while unraveling a future's past in the present. Both Sankara and his incarnate specter are bitterly opposed to French and other Western imperialism. This spectral

postcoloniality characterizes the dramaturgy of a people's struggle for historical meaning and self-determination in all its complex and confusing ramifications until this precipitous moment in time-space when all ghosts become "real." And how can this be? Real ghosts? Aren't ghosts supposed to be figures of ambiguity, of liminal instability between different dimensions?¹⁴ Yes, it can be this and it can be more, the voices in Ubuntu's head argue, hauntology supplants its near-homonym ontology, replacing the priority of being and presence with the figure of the ghost as that which is neither present nor absent, neither dead nor alive . . . a wholly irrecoverable intrusion in our world, which is not comprehensible within our available intellectual frameworks, but whose otherness we are responsible for preserving.

Ubuntu contemplated the words of the talking head on the TV show: ". . . we are haunted by the spirits of our fallen heroes who have not ceased to engage with our enduring struggles for liberation." Now fully engaged with conversational interjections from spectral textualities—specters of the ideas he had consumed in books and other forms of the written text, he heard Kwhawaja declare that, though the past has been changed, the textures of tragedy persist, suggesting that the emotional residue, if not the material, of the past will always linger.¹⁵ The whole experience is turning into one grand episodic quicksand; the more he wriggles his feet in it, the deeper he sinks. Whether haunted by the unanswered questions of the past—questions his article raised and left hanging in the minds of his readers—or, enchanted by the spectral suspense of the unfolding plot in this corner of the West African sub-region, he is certain of his resolve to follow this hauntological saga to wherever it takes him. After all, the desire to undo the past while still residing in the comfort of its ruins is intrinsically human.¹⁶ The specter of Derrida resident in his head recalled that contrary to what we might believe, the experience of ghosts is not tied to a bygone historical period . . . but on the contrary, is accentuated, accelerated by modern technologies like film, television, the telephone. These technologies inhabit, as it were, a phantom structure.¹⁷ If we want to find today's ghosts,¹⁸ declared Buse and Scott, we should look to the workings of telecommunications, the activities of the media, the omniscient absence-presence, in which our "contemporary" spectrality is to be found.¹⁹ Ubuntu stared at the TV on the wall like he would an upgraded version of a familiar device.

As if to provide practical proof for the submissions of Derrida, Buse, and Scott, the voice of the newscaster rang out from the TV: "Tonight at nine. Capt. Ibrahim Traore returns from Russia amid a grand welcome by thousands of Burkina Faso citizens who had lined up on the streets of the capital, Ouagadougou."

“Wow!” exclaimed Ubuntu, at no one in particular. He has been alone in the room, save for the bartender, who seemed lost in a world of his own. “History does truly repeat itself!” he said aloud. Derrida reminded him that the specter is simultaneously from the past and the future, returning like a repressed memory which must be recognized and acknowledged to enable a move forward.²⁰ This paradoxical nature of the specter as “always both *revenant* (invoking what was) and *arrivant* (announcing what will come)”²¹ is what empowers the spectral to straddle the past, present, and the future. The spectacle he had just watched on the television showing the heroic reception given to Capt. Ibrahim Traore was an uncanny replica of a similar scenario in 1984 when Capt. Thomas Sankara returned from New York, USA. Again, the television interrupted his thoughts:

Yesterday (July 27), President Vladimir Putin announced that (free) grain would be shipped to Africa. This is pleasing, and we say thank you for this. However, this is also a message to our African heads of State. At the next forum, we must not come here without having ensured the self-sufficiency of the food supply for our people. We must learn from the experience of those who have succeeded in achieving this.

declared Capt. Traore, in his military fatigue and red beret, contrasted against the rest of the heads of State, who dressed formally in civilian attire. His remark bears a spectral resemblance to the statement by Sankara on October 1984 in an equally major international forum—the United Nations General Assembly, at which he declared: “Our economic ambition is to use the strength of the people of Burkina Faso to provide, for all, two meals a day and drinking water.” The Pan-African revolutionary who changed the name of his country from Upper Volta to Burkina Faso (Land of the upright people) would go ahead to win the hearts of most of his countrymen and women and walked his talk by introducing measures to address foreign debt and extreme hunger that had caused excessive suffering. Looking up from his cup of coffee, his fifth one, he heard a commentator saying that “the similarities between the two Captains are amazingly uncanny. Already, on social media, Traore has been described as Sankara incarnate.” Lorek-Jezinska & Wieckowska, trailing his thoughts, opined: the appearance of ghosts complicates the field of vision and modes of perception, and inevitably breeds questions, not only of what or who the ghosts are, but also of who can and should see them . . . there is indeed a link between trauma and haunting, presenting ghosts as reminders of some historical injury or an unassimilated past event.²²

Ghosts, Hauntings, and Exorcism

If twenty-seven years of military rule by Blaise Campaore—the president that slayed Sankara and twelve others—his refusal to grant the families of the fallen heroes closure by allowing for a befitting burial for the slain men, meant that the ghost of Sankara and his comrades haunted Burkina Faso, the trauma and melancholia induced by the death of persons so loved by many, have generated specters of bitterness, vengeance and resistance on a mass scale so that Burkina Faso can be likened to a society of ghosts.

The Present Is a Future's Past

Perhaps this realization led to the new junta's move to exhume the bodies of the men hitherto buried in secret grave sites, sequestered and forbidden to the public, placed in new coffins draped in the national flag and paraded for full military honors in the public square before finally laying them to rest in a cemetery dedicated to them—a national monument accessible to tourists and the general public alike. Will these rites exorcize the spirits of the dead, tame the specters of the past, and quell the hauntings that have plagued the private and public lives of individuals, groups, and communities since October 15, 1987? Or, have their ghosts given birth to other specters and spectralities that now roam Burkina Faso's well-delineated hauntological sites and spaces? Gericke fairly well addresses these posers in the tradition of the binary construct of Derridean hauntology: spectrality is not about spiritual activity but a metaphor for the way the living present is scarcely as self-sufficient as it claims to be, and we would do well not to count on its density and solidity, which might under exceptional circumstances betray us.²³ As metaphors, specters (visible ghosts) challenge basic binary oppositions such as “alive/dead,” “present/absent,” “past/present,” and in this sense can be said to be “deconstructive” in nature.²⁴ Lorek-Jezinska and Wieckowska agree with Gericke, albeit in a slightly different light: the spectral seems to represent the conceptual and cognitive space between the past and the future. It disorganizes the chronological order, reframes time reference, dislocates the past from its pastness, and introduces a radical discontinuity into the present, making it not contemporaneous with itself . . . in these collective contexts, spectrality, melancholia, and trauma bear upon the processes by which groups, communities, or nations construct their versions of

the past and the future and engage in cultural practices of commemoration or forgetting (Figure 22.1).²⁵

Conclusion

It would seem that ghosts reflect the lives of the living who gave birth to them when they died. They are not shorn of the defining factors of the material existence that preceded their spectral becoming. This social denomination of spectrality was explored by Blanco and Peeren in *Spectropolitics: Ghosts of the Global Contemporary/Introduction*. In a comparative analysis, they examined Derridean hauntology as a binary explication of spectral phenomena—a largely Western perspective on spectrality on the one hand, and the precept of multidimensionality of spectrality in postcolonial societies on the other hand. They examined the reach of spectrality in a geographical and theoretical sense . . . on the basis that every society will have oversights and disavowals that reverberate below the surface²⁶—a hauntological binarity well-articulated by Gordon, who refers to haunting as a generalizable social phenomenon.²⁷ In contrast, Blanco and Peeren examined Achille Mbembe’s “Life, Sovereignty, and Terror in the Fiction of Amos Tutuola,” which deals with spectrality in an explicitly non-Western manner. Confronting a political present that, particularly in previously colonized parts of the world, establishes “*extreme forms of human life, death-worlds, forms of social existence in which vast populations are subjected to conditions of life that confer upon them the status of the living dead (ghosts)*” is thought to require a departure from dualistic Western modes of thought grounded in the separation of the rational and the irrational, and all the other oppositions tied to these binaries, including that of the real and the spectral.²⁸

Blanco and Peeren explicate further: Mbembe invokes a non-Western realm in which ghostly beings—in the literal sense—are part of the ordinary and exorcism (in the sense of completely doing away with them) is not an option; in such a realm, spectrality, even when taken as metaphor or concept, occupies a different ontological and epistemological position and mobilizes other meanings, effects, and affects. Most importantly, unlike Derrida’s *hauntology*, it does not serve as a counterweight or corrective of a stable, unitary sense of self but exemplifies a pervasive lack of permanence and singularity that was never otherwise. Whereas Gordon and Derrida focus on the haunted and how they should handle ghosts,



Figure 22.1 Robin Gibbs, *Backs to the Wall* 1918, 1929; oil on canvas; 1620 × 2440 mm; acc. no. A1978.275. © ANGUSalive Museums & Galleries.

which are always other to them, Mbembe takes the perspective of those who (are made to) live *as* ghosts. At the same time, he stresses how the ghost may also conceptualize the way power (especially when manifesting as terror and violence) is itself spectral (unpredictable, unassailable, unaccountable), making it virtually impossible to challenge or escape.²⁹

The TV screen went blank, white light awash with pixelated static emitting that off-key hissy sound that suggests that telecast transmission has been terminated. The day's programming is over. Ubuntu drank the remains of his coffee and spoke aloud to himself: If Mbembe's deposition" (as brilliantly enunciated by Blanco and Peeren) is anything to go by, it follows therefore that the spirit of Thomas Sankara and his twelve comrades will remain irrepressible, unappeasable, and indefatigable. They will remain inalienable participants in the hauntological struggle to liberate Burkina Faso. Dead, they may be; lie down, they won't.

Contributors

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Mitchell Akiyama is a Toronto-based scholar, composer, and artist. His eclectic body of work includes writings about sound, metaphors, animals, and media technologies; scores for film and dance; and objects and installations that trouble received ideas about history, perception, and sensory experience. He holds a PhD in communications from McGill University and an MFA from Concordia University and is Assistant Professor of Visual Studies in the Daniels Faculty of Architecture, Landscape, and Design at the University of Toronto. Mitchell and collaborator Maria Yablonina are the founders of MAYB studio, an interdisciplinary art and design practice.

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Studies, 2019). He has also helped conceive the joint BSAM and NY LIVE Arts Curating the End of the World online exhibitions (2020–1). Reynaldo recently served as a member of the curatorial council for Carnegie Hall's Afrofuturism festival in 2022, and is a curator for the 2024 Carnegie Hall exhibition, the Democracy Project.

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Asia Bazdyrieva is a researcher and writer with a background in art history and analytical chemistry. She is currently an associate member of the Critical Media Lab Basel and research fellow at the Faculty of Media at the Bauhaus University of Weimar. She produces writing and artistic research, contributing to media theory, STS, and visual culture. In recent years her focus has been on the relation between sociotechnical imaginaries and bodies and lands that are rendered as resources. In 2018–22 Bazdyrieva co-authored *Geocinema*—a documentary-led project that explored the infrastructures for Earth observation as co-producing forms of cinema. *Geocinema* has been nominated for the Schering Stiftung Award for Artistic Research (2020), and the Golden Key prize in the Kassel film festival (2021). Bazdyrieva was a Fulbright Fellow in 2015–17 in The City University of New York.

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During the Covid pandemic, he conceptualized and curated (together with Lasse-Marc Riek) the international arts project © *Ovid's metamorphoses*, which was released with the label *meakusma* this year. It contains work by Lee “Scratch” Perry, Richard Reed Parry, Scanner, Bill Morrison, Jane Bennett, Rosi Braidotti, Lucrecia Dalt, and so on <https://meakusma.bandcamp.com/album/c-ovid's-metamorphoses>

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the Anthropocene: Eco-Realism for Turbulent Times (2018), *The New Lives of Images: Digital Ecologies and Anthropocene Imaginaries in More-than-Human Worlds* (2025), and the anthology *Terra Invicta: Ukrainian Wartime Reimaginings for a Habitable Earth* (2025).

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Bronislaw Szerszynski is Professor Emeritus of Sociology at Lancaster University, UK. His research situates social life in the longer perspective of human and planetary history, drawing on the social and natural sciences, arts and humanities. He is co-author with Nigel Clark of *Planetary Social Thought* (2021), author of *Nature, Technology and the Sacred* (2005), and co-editor of *Risk, Environment and Modernity* (1996), *Re-Ordering Nature* (2003) and *Technofutures* (2015). As well as academic publications, his outputs include performances, creative writing and art-science exhibitions and events. He was co-organiser of *Between Nature: Explorations in Ecology and Performance* (2000), *Experimentality* (Lancaster/Manchester/London, 2009–10), and *Anthropocene Monument*, with Bruno Latour and Olivier Michelon (2014–15).

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Notes

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- 3 “Art is thought from the future. Thought we cannot explicitly think at present. Thought we may not think or speak at all. If we want thought different from the present, then thought must veer towards art.” Timothy Morton, *Dark Ecology: For a Logic of Future Coexistence* (New York: Columbia University Press, 2016), 1.
- 4 Gilles Deleuze, *Difference & Repetition*, trans. Paul Patton (New York: Columbia University Press, 1994), xx.
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Chapter 1

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Chapter 9

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Chapter 10

- 1 This stylistic methodology of ultra-association emulates the astounding eleventh-century book *Ghayat al-Hakim* (The Aim of the Sage), a compendium of talismanic instructions, elixirs, venoms, and hermetic magical tests attributed to multiple potential authors—from the mathematician and astronomer Maslama ibn Ahmad al-Majriti to a mysterious “man of charms” known as Maslama bin Qasim al-Qurtubi to alleged unknown followers often simply called “Pseudo-Majriti.” See, Maslamah ibn Ahmad Majrīfī, *Picatrix: A Medieval Treatise on Astral Magic*, trans. and ed. Dan Attrell and David Porreca (Pennsylvania: The Pennsylvania State University Press, 2019).

Chapter 11

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- See also Vaclav Smil, "Population Growth and Nitrogen: An Exploration of a Critical Existential Link," *Population and Development Review* 17, no. 4 (1991): 569–601. Incidentally, high concentrations of sedimented diatoms linked to eutrophication have been proposed to become a marker of the Anthropocene. See Colin Waters, Jan Zalasiewicz, Mark Williams, Michael Ellis, and Andrea Snelling, "A Stratigraphical Basis for the Anthropocene?," in *A Stratigraphical Basis for the Anthropocene?* ed. Colin Waters, Jan Zalasiewicz, Mark Williams, Michael Ellis, and Andrea Snelling (London: Geological Society, 2014), 16.
- 9 See Stephanie Dutkiewicz, Anna E. Hickman, Oliver Jahn, Stephanie Henson, Claudie Beaulieu, and Erwan Monier, "Ocean Colour Signature," *Nature Communications* 10, no. 1 (2019): 578.
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 - 12 The possibility of the unstoppable growth of an unknown form of green matter somehow akin to terrestrial vegetation is a common theme in science fiction. See for instance the classic short story by Isaac Asimov, *Misbegotten Missionary* (*Green Patches*), or Ward Moore's novel, *Greener Than You Think*. On other roles of plants in science fiction, see Katherine Bishop, David Higgins, and Jerry Määttä, eds., *Plants in Science Fiction: Speculative Vegetation* (Cardiff: University of Wales Press, 2020).
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 - 14 This notion of ocean system follows Melody Jue's discussion of the concept of interface, "a new conception of interface in terms of both space and time," in the context of the different surfaces involved in the encounter of oceans and air: "as a distributed volume rather than a surface, and as a duration effect of breathing air at higher pressures." See Melody Jue, *Wild Blue Media: Thinking through Seawater* (Durham: Duke University Press, 2020), 36.
 - 15 Evangelista Torricelli, *Opere di Evangelista Torricelli Vol III*, ed. Gino Loria and Giuseppe Vassura (Faenza: G. Montanavi, 1919), 186.
 - 16 See Giulia Rispoli, "Between 'Biosphere' and 'Gaia': Earth as a Living Organism in Soviet Geo-Ecology," *Cosmos and History* 10, no. 2 (2014): 78–91.

- 17 Vladimir I. Vernadsky, *The Biosphere*, trans. David B. Langmuir (New York: Copernicus, 1998), 59.
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- 22 Irmgard Emmelhainz, "Conditions of Visuality under the Anthropocene and Images of the Anthropocene to Come," *e-flux* 63 (March 2015), <http://www.e-flux.com/journal/63/60882/conditions-of-visibility-under-the-anthropocene-and-images-of-the-anthropocene-to-come/>.

Chapter 12

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- 3 Валентин Оноприенко, "Исследовательская энергетика Василия Васильевича Докучаева в раскрытии творческого потенциала Владимира Ивановича Вернадского," *История наук о Земле. Коллективная монография, вып. 6, под ред. В. А. Снытко and В. А. Широковой* (Москва: ООО «Акколитъ», 2017), С. 227–36. [Valentin Onoprienko, "Issledovatel'skaya energetika Vasilya Vasil'evicha Dokuchaeva v raskrytii tvorcheskogo potentsiala Vladimira Ivanovicha Vernadskogo," *Istoriya nauk o Zemle. Kollektivnaya monografiya, vyp. 6, pod red. V. A. Snytko and V. A. Shirokova* (Moscow: LLC "Akkolit," 2017), 227–36.] [Valentin Onoprienko, "The Research Dynamics of Vasily Vasilievich Dokuchaev in Revealing the Creative Potential of Vladimir Ivanovich Vernadsky," *History of the Earth Sciences. Collective Monograph, vol. 6, ed. V. A. Snytko and V. A. Shirokova* (Moscow: LLC "Akkolit," 2017), 227–36].

- 4 Валентин Оноприенко, “Исследовательская энергетика Василия Васильевича Докучаева в раскрытии творческого потенциала Владимира Ивановича Вернадского.” [Valentin Onoprienko, “Issledovatel’skaya energetika Vasilya Vasil’evicha Dokuchaeva v raskrytii tvorcheskogo potentsiala Vladimira Ivanovicha Vernadskogo.”] [Valentin Onoprienko, “The Research Dynamics of Vasily Vasilievich Dokuchaev in Revealing the Creative Potential of Vladimir Ivanovich Vernadsky.”]
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- 18 Василий Докучаев, *Наши степи прежде и теперь* (Санкт-Петербург, 1892). [Vasilii Dokuchaev, *Nashi stepi prezhde i teper’* (St. Petersburg, 1892)]. [Vasily Dokuchaev, *Our Steppes Then and Now* (St. Petersburg, 1892).
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- 31 See David Moon, *The Plough that Broke the Steppes: Agriculture and Environment on Russia’s Grasslands 1700–1914* (Oxford: Oxford University Press, 2013).
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- 35 Minakov, “Between Fire and Fire: From Flash to Flash of the Ukrainian Revolutions,” 122.
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- 37 Here we are thinking of Deleuze and Guattari’s writing on the “war machine,” in Gilles Deleuze and Felix Guattari, *A Thousand Plateaus*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987). But also of the more “emplaced” readings of nomadology, such as Krim Benterak, Stephen Muecke, and Paddy Roe, *Reading the Country: Introduction to Nomadology* (Fremantle, Australia: Fremantle Arts Center Press, 1996). And see Adrian Ivakhiv, “Becoming *Tuteishyi*: Ukraine in the New Global Climatic Regime,” in *East/West: Journal of Ukrainian Studies* 11, no. 1 (2024), and the various contributions to Adrian Ivakhiv, ed., *Terra Invicta: Ukrainian Wartime Reimaginings for a Habitable Earth* (McGill-Queen’s University Press, 2025).

Chapter 13

- 1 The Argus, Saturday, May 30, 1908.
- 2 Industrial wastes are “tricky indicators,” just like microplastics—Inta Dimante-Deimantovica et al., “Downward Migrating Microplastics in Lake Sediments are a Tricky Indicator for the Onset of the Anthropocene,” *Science Advances* 10, eadi8136 (2024). doi:10.1126/sciadv.adi8136.
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Chapter 14

- 1 See: Christine Reeh-Peters, “What Happens to Reality in Film?” in *Being and Film—A Fictive Ontology of Film in Tarkovsky’s Solaris* (Newcastle upon Tyne: Cambridge Scholars Publishing, 2021), 37–47.

- 2 We use here Donna Haraway's expression (2016) to highlight her invitation to engage with speculative and fictional elements, as well as with the creation of a narrative that links the current everyday with a story that may become real—or not. See: Fabrizio Terranova, *Donna Haraway: Storytelling for Earthly Survival* (Film, 2016).
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- 4 Bazin, *What is Cinema? Volume I*, 14.
- 5 See: Andrei Tarkovsky, *Sculpting in Time* (New York: Knopf Publishing, 1987).
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- 7 See: Gilles Deleuze, "The Crystals of Time," in *Cinema 2: The Time-Image* (Minneapolis: University of Minnesota Press, [1985] 1989), 68–97.
- 8 Karen Barad, *Meeting the Universe Halfway—Quantum Physics and the Entanglement of Matter and Meaning* (Durham and London: Duke University Press, 2007), x.
- 9 Barad, *Meeting the Universe Halfway—Quantum Physics and the Entanglement of Matter and Meaning*.

Chapter 15

- 1 Michel de Montaigne, *Les Essais. Livre III*, chapitre 13, "De l'expérience." Édition établie par Pierre Villey, revue par V.-L. Saulnier (Paris: Presses Universitaires de France, Collection Quadrige, 1965), 1045–80, 1075, my translation.
- 2 The term is still used in Russia for the period of the Second World War after the Third Reich's invasion of the Soviet Union.
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- 4 My own literal translation—*A. L.*
- 5 The original French saying, dating back to at least the 1820s, states: *Grattez le Russe, et vous verrez un Tartare* (Scratch a Russian and you will see a Tatar). This phrase is often credited to Charles de Mestres, although other potential authors include Charles Josef de Ligne and Astolphe de Custine.
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- 7 Alexei Yurchak, *Everything Was Forever, Until It Was No More: The Last Soviet Generation* (Princeton and Oxford: Princeton University Press, 2005), 230.
- 8 Maurice Merleau-Ponty, *The Visible and the Invisible*, ed. Claude Lefort, trans. Alphonso Lingis (Evanston: Northwestern University Press, 1968), 255.

Chapter 16

- 1 David Batchelor, *The Luminous and the Grey* (London: Reaktion Books, 2014), 88–9.
- 2 Emily St. James, “Colors: Where Did They Go? An Investigation,” *Vox*, January 20, 2022.
- 3 Jeffrey J. Cohen, “Grey,” in *Prismatic Ecology: Ecotheory Beyond Green*, ed. Jeffrey J. Cohen (Minneapolis: University of Minnesota Press, 2013), 270.
- 4 Cohen, “Grey,” 272.
- 5 Batchelor, *The Luminous and the Grey*, 70.
- 6 Batchelor, *The Luminous and the Grey*, 64.
- 7 Jasper Fforde, *Shades of Grey* (London: Hodder & Stoughton, 2011), 83.
- 8 Fforde, *Shades of Grey*, 3.
- 9 Fforde, *Shades of Grey*, 173.
- 10 Fforde, *Shades of Grey*, 92.
- 11 Paul Klee, *The Thinking Eye: The Notebooks of Paul Klee, Vol. 1* (San Francisco: Wittenborn Art Books, 2013), 3.
- 12 Klee, *The Thinking Eye*, 60.
- 13 Fforde, *Shades of Grey*, 95–6.
- 14 Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 2014), 312.
- 15 My thanks to Batchelor’s *The Luminous and the Grey* for introducing me to this story.
- 16 Italo Calvino, “Without Colors,” in *The Complete Cosmicomics* (London: Penguin Books, 2010), 59.
- 17 Cohen, “Grey,” 271.
- 18 Cohen, “Grey,” 270.
- 19 Michael Ende, *Momo* (Harmondsworth: Puffin Books, 1985), 14.
- 20 Fforde, *Shades of Grey*, 206.
- 21 Henri Bergson, *The Creative Mind: An Introduction to Metaphysics* (New York: Carol Publishing, 1992), 11–18, 149, 179.
- 22 Bergson, *The Creative Mind*, 198.
- 23 Ende, *Momo*, 148.
- 24 Ende, *Momo*, 120.
- 25 Ende, *Momo*, 237.
- 26 Bergson, *The Creative Mind*, 137–8, 179.
- 27 Paul Klee, *On Modern Art* (London: Faber and Faber, 1966), 21–3.
- 28 Klee, *The Thinking Eye*, 76.
- 29 Deleuze and Guattari, *A Thousand Plateaus*, 337.

- 30 Klee, *On Modern Art*, 47.
- 31 Batchelor, *The Luminous and the Grey*, 73.
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- 33 Deleuze and Guattari, *A Thousand Plateaus*, 337; Klee, *On Modern Art*, 55.
- 34 Calvino, "Without Colors," 53.
- 35 David Batchelor, *Chromophobia* (London: Reaktion Books, 2000), 51.
- 36 Cohen, "Grey," 286.
- 37 Ende, *Momo*, 234.
- 38 Klee, *On Modern Art*, 17.
- 39 Fforde, *Shades of Grey*, 218.
- 40 Calvino, "Without Colors," 59–60.
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- 42 Cohen, *Stone*, 66.
- 43 Jussi Parikka, *A Geology of Media* (Minneapolis: University of Minnesota Press, 2015), 124.
- 44 Parikka, *A Geology of Media*, chapter 4.
- 45 Cohen, "Grey," 273.
- 46 Cohen, "Grey," 273, 280.

Chapter 17

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- 4 Steve Oko, “Killings by Unknown Gunmen: Is South-East Becoming a Failed Zone?” *Vanguard*, February 19, 2022, accessed June 1, 2022, <https://www.vanguardngr.com/2022/02/viewpoint-is-southeast-becoming-a-failed-zone/>.
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- 6 Rowland Pesch, “The Dogon and Sirius,” *The Observatory* 97 (1977): 26–8.
- 7 Edward Evans-Pritchard, “Burial and Mortuary Rites of the Nuer,” *African Affairs* 48 (1949): 56–63.
- 8 Femi Alamu, Halleluwah Aworinde, and Walter Isharufe, “A Comparative Study of Ifa Divination and Computer Science,” *International Journal of Innovative Technology and Research* 1, no. 6 (2013): 524–8.

Chapter 18

- 1 This piece actually predates Kapoor’s controversial trademarking of Surry NanoSystem’s *Vantablack*, then the blackest black available to artists and which received criticism across the art world. Subsequent blacker-blacks followed most notably by Diemut Strebe in 2016 (made available to everyone except Kapoor). In 2023, *National Geographic* posted a video of a new substance made from tiny carbon nanotubes being used to reduce reflection off the surface of satellites, a nanotechnology they tout in the headline as being “Blacker than Black.” See Jennifer Chu, “MIT Engineers Develop ‘Bblackest Black’ Material to Date,” *MIT News*, September 12, 2019, <https://news.mit.edu/2019/blackest-black-material-cnt-0913> and “Blacker than Black,” *National Geographic*, MA, video, accessed April 15, 2024, <https://education.nationalgeographic.org/resource/blacker-black/>.
- 2 Using the digital tool *Maya* to design the work and inspired by a queer Chicago bathhouse near where Ross used to live, the work immerses viewers in virtual architectures of “underground spaces for queer being togetherness, and my practical interest in having spaces for people—queer, trans, Black, brown, Asian people—that just feel good. Spaces where you are able to exercise your agency feel good, feel free.” See Ross’s text for Iceberg Projects Chicago, October 16, 2021, <https://icebergchicago.com/Amina-Ross-Man-s-Country>.
- 3 Caitlín Kiernan, “Tidal Forces,” *Sirenia Digest* 55 (June 2011).
- 4 Kiernan, “Tidal Forces.”
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- 25 Serpell, "Black Hole."
- 26 Wallace, "Variations on Negation and the Heresy of Black Feminist Creativity."

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- 30 Grace Dillon, *Introduction to Walking the Clouds: An Anthology of Indigenous Science Fiction* (Tucson: University of Arizona Press, 2012), 205.
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- 32 Dillon, *Introduction to Walking the Clouds*, 207.
- 33 Robinson, "Terminal Avenue," 209.
- 34 Dillon, *Introduction to Walking the Clouds*, 205.
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- 38 Hannah Skrynsky, "From Dystopic to Decolonial: Reconciling the (In)Determinate Dystopia of Eden Robinson's 'Terminal Avenue,'" *Extrapolation* 61, no. 3 (2020): 317–36.
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Chapter 19

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- 7 John Luther Adams, quoted in Amy Mayer, “Northern Exposure: A Museum Exhibit Converts Activity in the Alaskan Environment into an Ever-changing Sound Show,” *Boston Globe*, April 16, 2006, n.p.
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- 9 John Luther Adams, “Sonic Geography of the Arctic. An Interview with Gayle Young,” (1998), accessed March 10, 2024, <https://www.johnlutheradams.net/interviews/2>.
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- 11 *Strange and Sacred Noise* is a concert-length cycle of six movements for percussion quartet. Its first and last movements (“ . . . dust into dust . . . ” and “ . . . and dust rising . . . ”) are based on the Cantor set and Cantor dust (the two-dimensional version of the Cantor set). These fractals model the behavior of electrical noise, which Adams takes as a diagram for the percussion set.
- 12 A direct Leibnizian reference can be found in his *New Essays on Human Understanding*: “To hear this noise as we do, we must hear the parts which make up this whole, that is the noise of each wave, although each of these little noises makes itself known only when combined confusedly with all the others, and would not be noticed if the wave which made it were by itself . . . we must have some perception of each of these noises, however faint they may be; otherwise there would be no perception of a hundred thousand waves, since a hundred thousand nothings cannot make something” (55). Such a “sonorous ocean,” it can be argued, the becoming-perceptible of micro-sounds “underneath the [human] radar,” also provides a more materialist version of the Pythagorean idea of “sphere music”: contrary to a harmonious universe rotating according to well-tempered intervals, it would refer to the multiplicity of sounds of the world—nature changes constantly, everything moves, and everything that moves oscillates according to a certain frequency, the total result of which would be white noise (the murmur of the universe). Gottfried W. Leibniz, *New Essays on Human Understanding*, 2nd ed., ed. and trans. Peter Remnant and Jonathan Bennett (New York: Cambridge University Press, 1996).
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Chapter 20

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