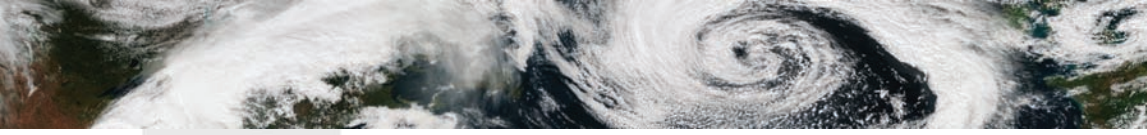


Openings and Retrospectives



CONDITION—SUSPENSION

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A curious thing, this Anthropocene. The term hails the age of the human—that is, an age characterized by an inconvenient truth, an inescapable fact of life, that humankind has pressed itself into the earth's very workings, that *anthropos* has become a world-geological actor. Perhaps that trucks with too many definite articles—not *the* human, we should say, not humankind, but particular humans, maybe capitalist humans, or maybe an anthropogenic assemblage of industrial and postindustrial production and consumption. Regardless of how general or specific we make that human, however, we are faced with the proposition of an anthropogenic predicament, a world-geological change whose genesis is Man.

This emphasis on anthropogenesis, on the human origin of this creation, seems curious. Not only because, like Victor Frankenstein's abandoned creature/creation, this world-geological order lives on, autonomously, turning to its makers for a care they may no longer be able to provide. But also because, unlike the creature who might be spurned when seeking Victor's touch, the monster/creation of the Anthropocene continuously holds its creators in suspension. Their changed air: it is their life support. It is their turbulent medium.

The question of suspension conditions our provocation. This question is offered as a dilution of anthropocenic preoccupation: a shift of concentration. Suspension turns attention from the powers of the makers to the powers of their monster: the contents and discontents of modern atmosphere. To pursue a condition of suspension is a way of posing the question of the present as an atmospheric condition rather than the expansion of anthropogenic powers. Inquiry into suspension is to wonder what it is, in changed times, to be in this air, held and distributed differentially through it as particulate in a medium, thrown into the mix of its compositions. What kind of message inheres in this medium, what kind of subject/particulate? Scenes in which air's qualities, composition, or movements come to be of concern are easy enough to find: mobilizations around an area's atmospheric load of particulate or sand; questions into how specks of substance may drift before settling to the ground or in a lung; experimental explications of weight, diameter, composition, toxicity, or climate-changing activity of potentially and potently airborne matter.

In such scenes we discern a growing form of thought and being. We call this form atmospheric, and we think it merits attention. It is, perhaps, an exhortation to a form of attention that is also a mode of relation, a way of being suspended. This form of thought looks up and around, at plumes, clouds, and sky.¹ It looks inward through the vital interiors that render bodies channels, containers, and filters for airs and the things they hold. More significant than the directionality of its gaze, however, is its manner of attunement to the potentials of substances to shift from states of settlement or condensation to ones of airborne agitation, to settle again in time, or to activate a reaction, somewhere else. The wrong air of the Anthropocene trains our attention to the mechanics of suspension, to how things lift and settle in mediums, to how things exist in atmospheres.

We can discern growing concern in the social sciences and humanities with questions of atmosphere. Much of it has been an accounting of atmospheric violences, fast and slow.² Increasingly explicative attunements to the air track its defilement from gas warfare and gas chambers through a roster of toxic airborne events wherein atmospheres are forced into explicitness in a thanatopolitics of compromised life: Cold War mushroom clouds, windblown radioactive isotopes, chemical leaks, nuclear accidents, tear gas assaults on an agitating crowd; these and others compose a repertoire of atmospheric trespasses, mapping a proliferation of airspaces filled with danger.³ These resonate closely with students of, and agitators for, environmental justice, for whom the differential distribution of good and bad air has long mattered in a socio-atmospherics of power.⁴

Attuned to atmospheric endangerment, these works together might be understood as an array of explicative responses to a changed feeling of life in the air.⁵ Taken with declarations of the Anthropocene as a geohistorical thematization of life and time in changed air, they imply not only an attention to the air but an investment in considering the identification of our long contemporary as a material and existential embroilment in atmospheres.⁶ Yet, in a history of damages, might there lurk other ways of exploring atmosphere? The question of the Atmospheric Anthropocene might thus be reframed—from who holds responsibility for the air’s contents to what it means now to attend to those contents, to conditions of and for being held and moved in air.

So we take this occasion to ask, what is it to be in suspension?

We offer the term *suspension* as a way to orient in an atmospheric problem-space, taking several of the word’s valences, as well as several of the physical and chemical properties of the mixtures that it names, as pivots. This space, like the air and its quiet or roiling mixtures, contains volumes. *Suspension* here tethers to the ethnographer’s method, a procedure that works to render staid common sense into an opening of possible worlds: ethnography constitutes a work of suspension, of assumptions and disbelief, one that not only describes worlds but holds them in such a way as to allow them to settle into different arrangements, possibilities.⁷



Figure 1. *Gran Vía 2*, from the architect Nerea Calvillo’s project, *In the Air*, visualizes Madrid’s cityscape as an embroilment of atmospheric concentrations. With air explicated as an undulating topography of suspended matter in time, Calvillo’s city is a shifting composition of architectural, particulate, and meteorological things. Source: <http://www.intheair.es/>.

But suspension can also be an injunction to an art of noticing, of living in and thinking with atmospheres, their capacities and contents.⁸

In what follows we offer two stagings of suspension, ways of grasping toward being clasped in a gaseous medium. Each of these urges an attunement to the moment of phase shift, where physical bodies disperse into the particulate populace of air. In the chemical sciences, suspension names a form of mixture in which particulates are carried as a distribution in the fluid body of something else, their moving medium. Suspension is a becoming-atmospheric, a capacity elicited in effective atmospheric relation. Among mixtures, suspensions, as opposed to colloids, are unstable once formed; particles in suspension will eventually settle out of their medium. Though the threshold between colloid and suspension can dim—it requires a judgment and a scaling of temporal measure—atmospheric suspension denotes both a condition and a process with a tempo proper to its specific mixes: first, the event in which particles are dispersed into medium, agitation, and next the eventual re-separation of medium and particles, settlement. Up, out, and down. And maybe up again.

Here then, in this Opening to “Life above Earth,” suspension serves as a reminder that the upness of a particular air of concern has a duration. The moment may be long or short. To attend to conditions of suspension is to orient not simply to vertical location, but to what potentiates substances to disperse, to shift state, relation, and relative concentration so one might become held in another. To ask after subjects of suspension is to ask what beings are in becoming in thickening atmospheres.

OF SANDS AND SMELLS

In the wind tunnel of the Chinese Academy of Sciences’ desert research labs in Lanzhou, Aeolian physicists prepare to build a dust storm. They load samples of sandy soil, gathered during field research in their desertified sites across China, into one end of the long, Plexiglas tunnel.⁹ With a special rake, they shape this pool of sand into a flat sheet, the bed of a tiny purpose-built desert, a metonymic enactment of the potential dust storm source area that the sample comes from. Activated by computer from an adjacent room, the wind tunnel’s large wooden fan begins to turn, gaining speed as it pours air in a flowing stream over the carefully prepared dirt.

At first, this fan-driven wind passes over the sandy bed, a sheer force skimming and scraping its surface. This is an in-between time, where the earth and air of this experimental desert remain a terrestrial and an atmospheric volume,

adjacent and separate at the sand's surface. As the fan-blown air continues to work over this represented desert, however, the sand begins to quiver as particles entrain in the air's traction. In motion, the air and ground shift from discrete spaces into interacting substances, and the horizon that divides them becomes a site of geo-atmospheric activity, of Aeolian processes. At this turbulent surface, sand and wind organize as particles in a fluid medium, a flowing substance that the physicists call blown sand.¹⁰ While the larger particles in the sand fan along the tunnel's bed, moving forward in a chain of dry waves, or bouncing and crashing frenetically in the air, the finest dusts pour forth as an emission off the fluid microtopography of blown sand.

This suspension of particles in the mechanical air is a tiny dust storm rolling through the conditioned airspace in the wind tunnel's clear walls. Its plume is a material enactment, in elegant miniature, of the massive dust storms that have, in recent decades, drawn political attention in China and places downwind as a fretted harbinger of the northeast Asian springtime; preempting their formation depends on modeling it as the phasing of sand and dust into mobile, particulate clouds. Tracing their trajectories reveals sites at which the earth is revealed as a mass of latent particulates, ready to distribute into the atmosphere. In the wind tunnel, the genesis of a dust storm is given as a matter of suspension itself, a relationship between soils and airs as interacting things. Where the wind tunnel makes the air appear as a medium that holds the earth, the solidity of sandy lands appears as one phase of a substance that can creep like a liquid or disperse into dusty atmosphere. Wind makes terrestrial things into atmospheric ones. While the tunnel's air blows dusts in coursing suspension, the earth becomes a virtual plume whose propensity to suspension might become activated in proper and problematic relationship with the wind.

Forestalling dust storms emerges politically and technically as a matter of intervening in the conditions and interactions in which land and air become interacting substances. In suspension, the earth is above ground. It is a matter of controlling the conditions of suspension through, to borrow an ecological construction slogan in desertifying Inner China, blocking wind, holding sand (*fangfeng gusha*), the determination of an environmental politics geared toward the relationship between earthy and airy things. Chinese dust-storm politics organize against the phases of suspend-able earth, organized around a politics of materials aimed at preempting the moment at which dust and wind become a suspension, lifting up in a perversion of the boundaries between things on and above the ground. They cast the surface of the earth, the horizon, not as the break between

terrestrial planes and atmospheric volumes, but as a fluid and susceptible interface between fine geological particles and their airy medium, to be locked in place, lest the earth become a sky.

The wind tunnel as experimental apparatus focuses and forces attention to the moment at which wind and sand arrange, physically, into medium and dispersed internal phase. In creating a condition of suspension—a state of hanging and holding in medium—sand and metonymized land become evident as suspension's *preconditions*. The tunnel as a suspension-machine forces an atmospheric recognition, drawing attention to the powers of wind to phase sand into blown sand. It is an attunement to a susceptibility of things to their vaporization in the proper air conditions. Subjects of suspension are agitated into atmospheric recognition by proximity, into episodes and dealings with the condition of being surrounded and filled with the particles with which they share a medium, as well as with others who share this condition.

Becomings-atmospheric are multiple and unequal—some are urgent, others are chronic, some hurt, some delight. Some pass unnoticed while others arrest the senses. Some sense connection or the politics of atmospheric difference in a planetary airscape, others become trained to discern the movements or qualities of very small things. These beings and doings are aesthetic in that they pertain to sensing and sensation.

In a laboratory at Ewha University in Seoul, scientists are getting ready to vaporize a mushroom. They aim to characterize the chemical composition of the matsutake mushroom's ineffable aroma, but first they need to reduce the mushroom body.¹¹ Reducing here means concentrating. Concentrating to be able to concentrate on the mushroom's aroma. This is one way of dealing with an atmospheric object, one that wants to disperse: to increase its density.

The chemists identify exemplars of different grades. They freeze them. They slice them, and they broil some of the slices. These slices of mushroom, cooked and uncooked, are then dipped in liquid nitrogen. After the slices harden, the scientists grind them to a fine powder. The freezing manages hardness, the grinding reduces size and maximizes surface area. The mushroom has been pulverized, rendered powder.

The powder is swirled in dichloromethane to make an infusion, a mushroom tea. The tea is then filtered, to leave behind the mushroom solids, the grounds. The elixir is now subjected to explicit atmospheric attention: a vacuum draws out the air above the tea and, crucially, what that air comprises. That is, it claims the volatiles, whatever tends to vaporize from the matsutake extract. The vacuum

pulls fragrance from the extract that was itself pulled from ground slices of the solidity of the mushroom body.

Now this matsutake air is dehydrated, evaporated, and concentrated still more, yielding an even richer extract. This extract will be vaporized again in a gas chromatograph, injected into a carefully heated chamber through which a stream of helium runs at a constant velocity. The sample vaporizes—becomes dispersed and suspended in a streaming mixture. The chemists have cut, seared, frozen, pulverized, steeped, and filtered to get here: a concentrated and contained mix of volatiles. Fragrances are volatiles. Volatile organic compounds. Volatiles evaporate easily, they tend to vapor, passing easily into gas at a relatively low temperature. Volatility denotes a chemical situation where substance tends toward vapor, tends skyward.¹²

While volatiles, like the compounds to which sensations of smell are attributed, conventionally gloss a category of substances that disperse into the air, as if spontaneously, *volatility* as a measure of something's tendency to escape liquid or solid state, upward and outward, is always asserted in relation to given conditions, the pressure and temperature of the atmospheric surround. The distances and heights volatiles may be transported before they dissipate, to make or break another chemical being, depends on the size and movement of an air's volume. These are emergent and relational potencies of substances and air conditions.

The careful reduction of matsutake mushrooms into a volatile tea is, like the fanning of sand in Lanzhou, the preparation and anticipation of an atmospheric condition. Unlike the sands before liftoff, fragrance already tends to suspension, but, as a negative atmospheric pressure meets a concentrate, the vaporization of fungal fragrance accelerates. Cleaved and reduced from its solid aspect, the mushroom becomes pure, concentrated atmosphere.

ANTHROPOLOGY IN SUSPENSION

Attention to suspensions and volatiles draws focus to the moment in which airs become mediums, where dusts lift off the earth as a stream or mushrooms become a vapor for the smelling. Notice how substances, exposed to felicitous air conditions, are drawn into relation with their atmosphere, how they disperse and distribute into its hold. How phases shift and bodies become vapors, particles arrested into their atmospheres. Notice, too, the care of building apparatuses of attention elicited by the lure of atmospheric sensing.¹³

If we began this Opening with suspension tethered to ethnographic method, we release it by considering how anthropology might enter suspension. For the

scientist-historiographers of this humanized age, the declaration of the Anthropocene might itself be a claim that filters through an atmospheric attunement forced by the substances that comprise modern air. If “the global-scale transformation” to which the anthropocenic moment is tracked is “nowhere more evident than in the atmosphere” (Steffen, Crutzen, and McNeill 2007, 616), this massively circulating designation of a human moment can be read not simply as the act of a sovereign and anthropocentric science but as a painstakingly developed attunement to an air condition.

What and who are becoming in such an air condition? In asking this, we turn the agitation of the fretted self-interpellation of a too-powerful species to a contemporary attunement to the mediums and mixtures in which life is clasped. At this place where geology and history converge, to respond grandly to the epochal gesture,¹⁴ we endeavor to witness a vaporizing of the human. Not an obliteration, but a shifting of phase, a distribution into concentrations, burgeoning spheres of sensitivity. Who are these vapors rising, falling, thrown in this place above the ground?

Suspension is an opening—not a portal nor an exit that trades the ground for that above it, but a becoming-open. The condition of suspension is one condition of an Aeolian, atmospheric anthropology. It attends to the techniques, experiments, and practices animated by the problems and potentials presented by living as an element among others in the turbulences and volatilities of a ubiquitous air. The scenes of acceleration that we have noted reveal intervenings as followings, moments of suspensive mimicry and concentration. Scenes at once of atmospheric subjectification and objectification, they yield sensing bodies and machines coming ever closer to rendering suspended states. In such moments, training the attention is an entrainment in which one is moved and pulled with the air.

Suspension holds more, though, than this contemporary—more than these geological and chemical forms in their changes, more than spectators moved into noticing it. The air has never been unoccupied, its suspensions never limited to particle, droplet, vapor, and volatile. It suspends microorganisms and insects, carries sonic vibration,¹⁵ and holds us, too, as one thing among other mixtures, dispersed and maintained in a particulate fellowship with suspended and suspensible others. Becoming-atmospheric is a susceptibility and embeddedness in airs through being gathered in a shared medium.¹⁶ In suspension, I am diluted, part of an ordinary and exceptional composition. To think and pause with suspension might open something different for inhabiting a populous airtape. But how a

condition of suspension opens a redefinition of the constitution of a critique,¹⁷ or portends a decolonial planetary politics to come, will depend on how the freighting of an expansive medium comes to settle, in configurations and susceptibilities of elements in an atmospheric admixture to the air and to each other.¹⁸ This would be an anthropology in suspension, one subject to dilution and arrest in the power of mediums that might hold us otherwise, drawn together as travelers and constituents of a mixing atmosphere.

ABSTRACT

Atmospheric scenes compel anthropology into a dilution: a shift in concentration. Working through suspension as a condition through which to ask into life in the air, this Opening pauses with moments of arrest, distribution, and deposit by various airs. Such moments compel a reorientation of attention toward airy things even as they model a recomposition of anthropological inquiry by atmosphere. Exploring how sands shift and settle in a Chinese wind tunnel and how matsutake mushroom solids become aromatic vapors in Seoul, we move from considering materials in airborne states to a condition of suspension in atmosphere to which particulates and people alike are held. What could an anthropology in suspension become when its anthropos is subject to vaporization into a thing among others in the atmosphere's composition? [air; Anthropocene; atmosphere; environment; suspension; vaporization; volatiles]

NOTES

Acknowledgments Thanks to Cymene Howe and her fellow editors of *Cultural Anthropology* for inviting this piece and providing an opportunity for us to think and write together.

1. See Eyal Weizman (2012), especially in his discussion of the "politics of verticality," as well as Vivian Choi's (2015) discussion of securitization in post-tsunami Sri Lanka, where attending to the skies for potential meteorological disaster and attending to possible military insurgency by so-called terrorist organizations are held together in modes of state and everyday anticipation, so that reading the sky becomes part of an island security apparatus oriented toward various emergent threats.
2. See Michelle Murphy (2013) on latency and the distributed conditions and effects of chemical infrastructure. See also Kim Fortun and Mike Fortun (2007) on epigenetics and asthma. On time, duration, and violence, see Lauren Berlant (2007) on slow death, Rob Nixon (2011) on slow violence.
3. See Peter Sloterdijk (2009a) on gas warfare and the weaponization of air, and Joseph Masco (2006) on the nuclear uncanny and afterimages of bomb testing, as well as on the tracking of isotopes (Masco 2009) wherein the air bears a nuclear signature that gestures at various atmospheric vulnerabilities. See Kim Fortun (2009) on Bhopal, and Adriana Petryna (2013) on Chernobyl. And of course, see Don DeLillo's (1999) harrowing literary rendering of the chemical cloud of the Airborne Toxic Event in *White Noise*.
4. See Julie Sze (2007) on environmental inequity and air quality in New York and Gregg Mittman (2007) on the social and spatial conditioning of pollen allergy in the United States.

5. Air, in Peter Sloterdijk's (2009b, 63) account of modernity, is subject to increasing explication, especially through its weaponization; in its transformations, he suggests, "we trace a historical arc of increasing explication in the problematization of human dwelling in gas and radiological milieus." Dwelling in an explicated and dangerous atmospheric milieu spurs emergent problematizations of dwelling to create new sites of atmospheric urbanism. For techniques and technologies of atmo-respiratory sheltering in polluted air conditions, see Jerry Zee (forthcoming). On sun, wind, and sky as objects of longing in a changing cityscape, see Nicholas D'Avella (2012, chapter 3).
6. Elias Canetti (1979, 11, 12), writing after the horrors of gas warfare during the First World War, thinks through his friend, the author Hermann Broch, to consider the revelation of the atmosphere as, among other things, an incitement to a "literature of the atmospheric," in which characters become airy points that the author "has to float away from," as if characters become gradients of diluting concentration in splintered airtspaces.
7. We think of and with Kathleen Stewart's (2011, 447) "atmospheric attunements" in this Opening. Though we approach the problem through a different ambient—atmospheric matters through air's substantiations (Choy 2011, 2012)—we too follow and write the gathering of atmospheric sensation as a compositional process. We draw ourselves across the problem-space of sensing atmospheric affects and affective atmospheres (MacCormack 2009), where "writing and theorizing . . . tries to stick with something becoming atmospheric" (Stewart 2011, 454), streaking it with modes of atmospheric suspension. "Things hanging in the air," we agree, "are worth describing" (Stewart 2011, 447).
8. On noticing as an anthropological orientation, see Anna Tsing (2010, 193).
9. For a description of the tunnel, see Xue-Yong Zou et al. (2001).
10. The study of blown sand was inaugurated in the monumental work of the British army engineer and self-described "amateur" R. A. Bagnold (1941).
11. Thanks to the Matsutake Worlds Research Group (MWRG), including Tim Choy, Lieba Faier, Michael Hathaway, Elaine Gan, Miyako Inoue, Shiho Satsuka, and Anna Tsing, for trainings and experiments with the richness of matsutake smell, some capacities of which are noted in MWRG 2009a and MWRG 2009b. Our love of the smell is poached here. On poaching as collaboration, see Faier 2010.
12. The experiment is Cho et al. 2007. Also see Cho et al. 2006. For a treatment that follows the volatiles on through the establishment of instrument-sensory correlations, see Choy n.d.
13. On apparatus, we think with Chris Kortright's (2013) C4 growth chambers, Karen Barad's (2007) diffractory apparatus, Hans-Jörg Rheinberger's (1997) experimental system, and Giorgio Agamben (2009, 14), for whom an apparatus is "literally anything that has in some way the capacity to capture, orient, determine, intercept, model, control, or secure the gestures, behaviors, opinions, or discourses of living beings." Our thinking on sensing moves through Natasha Myers and Joe Dumit (2011), Rachel Prentice's (2012) work on visualization and haptics, as well as through Nerea Calvillo's work on air-pollution sensor data and visualization (see the *In the Air* website, <http://www.intheair.es/>) and Stefanie Graeter's (forthcoming) work on lead exposure and embodiment in Peru.
14. See Dipesh Chakrabarty (2009, 2012) on the challenge of humankind's new status as a geohistorical agent for a philosophy of history, and then, for postcolonial studies. For a more rakish reflection on historiography in climate change, consider Naomi Oreskes and Erik Conway's (2013) sci-fi history of the future after the collapse of Western civilization. And Jerome Whittington's (2013) consideration of several epistemic figures in climate change as an opening into a speculative anthropology offers a take on this apparent convergence of geology and history.
15. Heather Paxson's (2012) writing on microbiopolitics in cheese production reveals the air as part of the conditions and atmospheric substrate for microbial action. Hugh Raffles (2010) notes how in surveying vertical columns of air, the apparent emptiness of air

- becomes a living density of insect matter. Histories of air are proliferating. Peter Adey (2014) charts air's course through Western science and art. Certainly, too, noticing the air is not a modern condition; if air is coming to a specific explication, this is part of a history of shifting attentions and orientations to it. For instance, Shigehisa Kuriyama (1994, 33), in his discussion of wind in Chinese medical conceptions of the body, notes, "The nature of the self that slipped out of phase was ultimately the same as that of the environment it emerged from: the self was itself windlike."
16. Mel Chen's (2012, 202) account of toxicity characterizes it most immediately as an attunement to the atmosphere as the medium of a material continuity. People and other constituents of the landscape become sources of particulate effluents to which one is exposed, and which, in order to negotiate, one "must follow the moment-to-moment changes in quality of air" (see also Chen 2011).
 17. Hirokazu Miyazaki (2006, 165) urges a willingness "to redefine radically and imaginatively the constitution of a critique rather than defend one's own critical practices in a morally empowered manner." Miyazaki calls for an approach to critique as a practice of reimagination rather than an extension of given critical techniques to new objects and situations. Continuing with this sensibility, the critical task at hand is not simply the mobilization of an attention to atmosphere as a new object in an untransformed practice of critique; it calls instead for working through atmosphere, perhaps by allowing atmosphere to work on us.
 18. Our examples in this essay channel suspension sciences, but airy attunements precede and exceed the technical explication of atmosphere as a recent technoscientific phenomenon. The ethnographic catalog is replete with such atmospheric attunements. Among others, we think with Shigehisa Kuriyama's (1994) account of Ancient Greek and Chinese theories of winds, *qi*, and bodies and Jessica Cattellino's (n.d.) recent account of Wind's necessity for Bird and Panther clans to lead and heal in Seminole political theory.

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