

## Food Futures: Speculative Performance in the Anthropocene

A new food cart appeared on Rivington Street in Manhattan in May 2015, serving up a brand-new confection. Living up to their reputation for pursuing the latest food trends with unbridled passion, here New York City residents encountered a new culinary delicacy: smog meringues. Using a combination of scientific techniques and culinary processes, chefs whipped up a number of egg meringues infused with sulfur, nitric oxide, nitrogen dioxide, and hydrocarbons, all air pollutants. Visitors could choose from three smog varieties; different combinations of chemicals replicating the air quality of several global cities, each meringue infused with the taste of Mexico City, Los Angeles, or Beijing. An installment of the ongoing performance piece *Smog Tasting*, this food cart is the invention of the artist think tank Center for Genomic Gastronomy. Since its founding in 2010 by artists Zach Denfeld and Catherine Kramer, the Center has worked internationally, creating lectures, performances, exhibitions, and publications. Each of their pieces is designed “to map food controversies, to prototype alternative culinary futures, to imagine a more just, biodiverse and beautiful food system.”<sup>[1]</sup> Casting themselves as “food phreakers,” Center artists are committed to open access, operating under the principle that food technology and culture should be open and available to all, not kept secret within scientific laboratories or corporate offices.

I turn to the work of The Center for Genomic Gastronomy in order to examine how a politics for the Anthropocene, a practice of ecological thought and radical coexistence, might be approached through performance. Geologist Paul Crutzen suggested in 2000 that the weight of human action on Earth has been so massive that it has altered the geological record, necessitating the delineation of a new geological era. The essential definition of the Anthropocene, as indicated by its etymology, is the age of the human. However, as Jedediah Purdy rightly claims, “to define the Anthropocene is to emphasize what we think is most important” in the relationship between humans and nature.<sup>[2]</sup> Some have pushed back against a perceived universalization of the human within scientific discourses of the Anthropocene. For example, Christophe Bonneuil and Jean-Baptiste Fressoz argue that depicting the Anthropocene as “the new epoch of humans, the age of man,” simplifies the diversity of humanity and glosses over the complex historical, social, and economic processes that compose and create ecological change.<sup>[3]</sup> In particular, Bonneuil and Fressoz point to the sharp increase in income inequality and take so-called anthropocenologists to task for not adequately including discussions of wealth disparity in their analyses.<sup>[4]</sup> Others, such as Donna Haraway and Jason W. Moore, have favored the term “Capitalocene” over Anthropocene as a mechanism to foreground the contributions of capitalism to environmental change.<sup>[5]</sup>

Although capitalism is inextricably bound up in the Anthropocene, Haraway and Moore’s formulation of the Capitalocene is not sufficient to address its effects. As Dipesh Chakrabarty eloquently demonstrates, any critique of the Anthropocene that *solely* addresses global capitalism remains lacking: “these critiques do not give us an adequate hold on human history once we accept that the crisis of climate change is here with us and may exist as part of this planet for much longer than capitalism or long after capitalism has undergone many more historic mutations.”<sup>[6]</sup> A history of the Anthropocene must also take the long view of deep history and consider humans as a species. The challenge of such a history, as Chakrabarty explains, entails holding together “intellectual formations that are somewhat in tension with each other: the planetary and the global; deep and recorded histories; species thinking and critiques of capital.”<sup>[7]</sup> A politics for the Anthropocene, then, necessitates both a practice of critiquing capital while also pursuing species thinking. Recognizing the impact of manmade economic systems on the infinitely interconnected

global ecological system, paired with an epistemological shift that reconceives humans as *species*, might begin to address the urgencies of the current ecological and historical moment.

The exigencies of the Anthropocene demand not just a new political party plank or proposal. What we need, as Bruno Latour writes, is “the total transformation of what it means to do politics (so as to include nonhumans) and what it means to do science.”<sup>[8]</sup> But how might such a transformation be accomplished? What does this politics look like? Latour’s particular instantiation of politics involves taking the agency of nonhuman agents seriously, and allowing for their participation in the political process. Unsurprisingly, this is a difficult concept to imagine: how can entities as dissimilar (and nonhuman) as Artic foxes, the Pacific Ocean, and electrical grids equally participate in a political process? While I do not profess to have an answer to this dilemma, Latour’s focus on composition can also provide a useful beginning place for imagining a new politics for the Anthropocene. In *Politics of Nature: How to Bring the Sciences into Democracy*, Latour defines politics as “the entire set of tasks that allow the progressive composition of a common world.”<sup>[9]</sup> Under the threat of global warming, shrinking polar ice caps, and food and water scarcity, the common world, that shared by humans and nonhumans alike, must be collectively composed anew to ensure the continuation of life on the planet. This common world should take seriously the agency of nonhuman entities, not merely for their use value for human progress, but as deserving of surviving and thriving.

In tandem with the recognition of the value of the nonhuman should be a reconceptualization of the position of humans within the global ecological system and the scale of deep history. This is what Chakrabarty calls species thinking. Thinking humanity as a species helps destabilize the long-held nature-culture divide. Casting Nature as pristine, green, and largely undisturbed by human intervention prior to the Industrial Revolution is neither productive nor accurate. As Purdy explains, “Because we shape everything, from the upper atmosphere to the deep seas, there is no more nature that stands apart from human beings. There is no place or living thing that we haven’t changed.”<sup>[10]</sup> Any politics for this new geological epoch will necessarily involve rethinking the place of humans within the global ecological system and the very meaning of nature. Throughout his work, Timothy Morton has argued for replacing nature with ecology, particularly because the idea of Nature as “a holistic, healthy, real thing” actually prevents environmental justice. He advocates for replacing Nature with ecology, with “radical coexistence.”<sup>[11]</sup> Ecological thought, then, means thinking through the sheer interconnectedness of the global ecological system—Morton refers to this as “the mesh.”<sup>[12]</sup> A practical politics for the Anthropocene must begin with the realization that humanity does not stand outside of the environment, but rather is a species woven into this mesh. As “a *practice* and a *process* of becoming fully aware of how human beings are connected with other beings—animal, vegetable, or mineral,” thinking ecologically can begin the political project of balancing human flourishing with that of the planet as a whole.<sup>[13]</sup> The question of what non-anthropocentric environmental justice will look like in practice, and on the global scale which the crises of the Anthropocene necessitate, is only beginning to be explored.

These Anthropocenic crises can be difficult to apprehend because of the scales of deep history and global ecology. For example, Morton calls global warming a “hyperobject,” something withdrawn from humans because of its massive space and time scales. Therefore, hyperobjects “exhibit their effects *interobjectively*; that is, they can be detected in a space that consists of interrelationships between aesthetic properties of objects.”<sup>[14]</sup> For example, I cannot feel global warming *directly*. I cannot touch it or taste it. But I can feel the unseasonably warm February temperatures recently recorded in Pennsylvania. Both thinking ecologically, a recognition of the interconnectedness of humans *as a*

*species* within the global ecological mesh, and apprehending hyperobjects, entities with spacetime scales so massive that they cannot be directly encountered, can be achieved through art. Through their particular aesthetic characteristics, the performances created by the Center for Genomic Gastronomy *enact* ecological thought and *reveal* the hyperobject of climate change. By questioning contemporary capitalist consumption and gesturing toward radical coexistence, the performances I consider here point to a future in which humans, as individuals and as species, might inhabit the world differently in the Anthropocene.

Specifically, the Center addresses the challenge of a politics for the Anthropocene through food. Simultaneously an individual and social practice, eating is one of the most evident ways in which human activity is wrapped up in global ecologies. We all have to eat. More than simply the relationship between food producers and consumers, as researchers Lisa Chase and Vern Grubinger have argued, global food systems involve a “much more complex and broad-reaching set of interactions that go far beyond the production, processing, and distribution of food to include the connection of food to the health of people and the environment.”<sup>[15]</sup> Particularly in the last 150 years, food systems have become increasingly industrialized. Food has become a commodity produced and controlled by a small number of corporate entities with a vested economic interest in marketing particular (often processed) foodstuffs to global markets.<sup>[16]</sup> The industrialization of food systems, coupled with the exponential growth of the human population, is a major cause of climate change. G. BeVier of the Gates Foundation reported in 2012 that global agriculture, including both crops and livestock, use approximately seventy percent of fresh water resources.<sup>[17]</sup> Livestock agriculture constitutes the single largest use of land on Earth, occupying “30% of the world’s ice-free surface, contributes 40% of global agricultural gross domestic product...all while using vast areas of rangelands, one-third of the freshwater, and one-third of global cropland as feed.”<sup>[18]</sup> At the same time, ecological change has contributed to food insecurity for some populations, particularly in the global south, as the effects of climate change result in the reduction of certain crops like wheat.<sup>[19]</sup> In spite of the very real agricultural impacts of climate change, environmentalist movements advocating for sustainability have proven unable to provoke large-scale political action.

For Eduardo Mendieta, politics describes, “that which has to do with the creation of *collective possibilities* through deliberation, in which a collectivity addresses itself both as subject and object of its deliberations.”<sup>[20]</sup> The political is “about projecting and making possible collective or communal futures. The future is always the product of politics. But there is no future that is not projected from some actuality, some present.”<sup>[21]</sup> A politics for the Anthropocene, then, must apprehend the present to project a possible collectively composed future. Crucial first steps to this political project include recognition of the urgencies of global ecological change (global warming is real), consideration of nonhuman entities beyond their usefulness as resources for human activity, thinking ecologically, and taking the long view of deep history through species thinking. While they do not advocate a complete overhaul of current politics, the Center’s performances enact these first steps, showing us a glimpse of a politics for the Anthropocene through performance, a glimpse through a projection of the future from the present.

Following Mendieta’s provocation, I will explore three of the Center for Genomic Gastronomy’s performances: *De-extinction Deli* (2013), *Planetary Sculpture Supper Club* (2011-3), and *Smog Tasting* (2015). These pieces both reveal the operations of current global food systems and imagine what future ones might look like. As what I term speculative performances, they call forth and embody possible ecological futures and alternative culinary presents. I take inspiration for this term from the genre of speculative fiction, most often popularized as science fiction or sf. As science fiction scholars have demonstrated, the critical capacity of speculative fiction lies in its ability to juxtapose the familiar and the

strange. Darko Suvin, following Brecht, called this cognitive estrangement in his seminal 1979 work *Metamorphoses of Science Fiction*. Works of speculative fiction are “always already critical theory,” encapsulating both the realistic, or cognitive, and the marvelous, or estranging.[22] Gerald Alva Miller has argued that via cognitive estrangement, science fiction narratives create virtual spaces in which critical discourses are not only illuminated or explicated, but enacted and performed.[23] Science fiction critic L. Timmel Duchamp postulates that the significant distinction between works of narrative science fiction and philosophy is the process of “fleshing out the experiment,” making social, political, and scientific changes “personal, intimate, and emotionally authentic.”[24]

If, as Duchamp argues, speculative narratives can flesh out critical discourse for readers, speculative performances, like those created by the Center, quite literally give critical discourse flesh. Through performance, the interactions and encounters of bodies in action, the Center gestures toward the critical futures of the Anthropocene, enacting a practice of species thinking and capitalist critique. By navigating the complexities of current food systems through performance, the Center for Genomic Gastronomy projects multiple possible futures through gastronomic interventions, asking participants what their place within those futures might be. Ultimately, through these performative imaginings, the beginnings of a more connected, more just, more thoughtful politics for the Anthropocene might emerge.

### **“Yesterday’s Meat Tomorrow:” The *De-extinction Deli***

A neat wooden market stand sporting a black and white striped bunting is the centerpiece of the Center’s performance *De-extinction Deli* (2013) and its second incarnation *De-extinction Deli (To-Go)* (2016). Reminiscent of a butcher’s counter or a food cart, the *De-extinction Deli* is “a fantastical market stand designed to highlight the emerging technologies, risks, and outcomes of the growing movement to revive, rear, and possibly eat, extinct species.”[25] Visitors to the stand have the opportunity to learn about and engage with the discourse of de-extinction in a number of ways. Center artists, co-founder Zack Denfeld clad in a butcher’s apron in particular, attend to the market stand and answer questions about this newly emerging scientific endeavor. Butcher paper take-aways featuring infographics and artistic renderings of extinct species also serve to inform visitors of various ongoing de-extinction efforts. The *Deli* also displays several glass vials of “Certified De-Extinct Habitat,” samples of the foodstuffs and botanical species necessary for several extinct species to survive. Visitors can cast their votes in a public poll consisting of three questions: Should humans revive extinct organisms? Would you eat a de-extinct organism? If so, which of tomorrow’s specials would you choose: Passenger Pigeon, Aurochs, or Pyrenean Ibex? The votes are publicly tallied on a chalkboard, and visitors receive a small button bearing the image of their preferred de-extinct culinary special to display on their lapels.

The *De-extinction Deli* features a number of paper placemats explaining the various methods of de-extinction currently employed by scientists and the various species that they target in their efforts. These methods include the modification of existing species with genetic material from extinct species and the use of genetic material to breed clones of species that have more recently disappeared. The most popular de-extinction endeavor, spearheaded by Dr. George Church and the Harvard Woolly Mammoth Revival team, seeks to introduce particular genetic traits to Asian elephants to “revive” the extinct Woolly Mammoth and repopulate the Siberian tundra. In 2014, the team successfully spliced mammoth DNA into the genome of an Asian elephant, a significant step toward creating a mammoth embryo. Other de-extinction groups are working on so-called Revive and Restore projects under the auspices of The Long Now Foundation. Specific projects include The Great Passenger Pigeon Comeback, ongoing since 2012,

and the Heath Hen Project, in progress since 2014.[\[26\]](#)

Efforts such as these tout potential benefits for biodiversity and conservation by casting these particular animals as keystone species essential for the survival and/or restoration of their ecosystems. Praised as a particularly fashionable conservation effort, with its science fiction resonances, de-extinction is attractive. As ecologist Josh Donlan explains, de-extinction may be successful precisely because it has the support of “average citizens.” As many as fifty percent of Americans believe that scientists will bring back an extinct animal via cloning by 2050.[\[27\]](#) By focusing on “charismatic” species like the Woolly Mammoth or Passenger Pigeon, however, the de-extinction discipline seems to ignore the long history of extinction and the human actions that contributed to it in the first place. The growth of the human species at the beginning of the Holocene, about 12,000 years ago, coincided with the mass extinction of megafauna, including the Woolly Mammoth. While scientists remain divided on the exact role of human hunting practices in this extinction, some scholars have cited these events as the beginning of the Anthropocene itself. For example, in *Extinction: A Radical History*, Ashley Dawson argues that the extinction of megafauna marks the beginning of humanity’s significant alteration of the planet. Approximately 60,000 years ago, as the rapidly increasing human population spread across the globe’s landmass, facilitated by the invention of language, they hunted megafauna into extinction.[\[28\]](#)

Of course, the Woolly Mammoth extinction predates the institution of global capitalism. However, rapid population and industrial growth has resulted in an increase in species extinctions. In 2014 the World Wildlife Fund announced that half of the planet’s animals had disappeared in the previous forty years. The same report found that to sustain the current rate of global consumption, one and a half Earths would be needed. Four planets are needed to match the U.S. rate of consumption.[\[29\]](#) *De-extinction Deli*, by advertising mammoth meat for future consumption, forces participants to consider the purpose of reviving extinct species or reinvigorating disappearing populations. I do not mean to suggest that Dr. Church intends his resurrected Woolly Mammoths to become the latest culinary trend. But by casting them as such, the Center prompts the question: if the social, cultural, and economic practices that lead to extinction persist, why revive and restore extinct species at all? Through speculative performance, the Center exposes these practices and opens up the rhetoric of de-extinction to critical interrogation by “average citizens” who are not necessarily part of the de-extinction discipline, but who *are* part of the global food system. The past, present, and future of human food systems collapse within this small market stand, as *De-extinction Deli* draws from the evolutionary past to envision a culinary future through contemporary practices of consumption.

As yesterday’s meat, each of the species on offer once served as a food source, not just for humans but for other species. By advertising them as soon-to-be available for human consumption, this performance strikes at critiques of capitalism that de-extinction rhetoric ignores. Practices of consumption are intricately entwined with extinctions, one of the most visible consequences of massive ecological change. Precisely because they were yesterday’s meats, targeted for consumption by the human population, several of the species showcased at the *De-extinction Deli* were destroyed. Scientists behind the de-extinction movement, like Dr. George Church, while rightly advocating for the ecological importance of said species, do not address the potential impact of contemporary consumptive practices on any de-extinct species. By asking participants not only whether species should be de-extincted, but also if they would consume such an animal, the Center brings human culinary practices into the debate.

One of the takeaways the *Deli* provides visitors is a butcher paper infographic depicting a Woolly

Mammoth as a butcher's chart, delineating the twenty-two different cuts of meat that could be taken from a single animal. Casting the present practice of butchering cattle onto the past species of the Woolly Mammoth, the *Deli* performs a possible culinary future in which once-extinct animals not only re-inhabit the Earth but also embody a new gustatory possibility. As "tomorrow's special," de-extinct species become analogous to products like Kobe beef: relatively rare, prohibitively expensive, and only available to those with the resources to pay for them. By asking participants to place an order one for the species and publicly display that order with a badge, the Center opens up space for critical examination of de-extinction rhetoric in light of human consumption. Moving the de-extinction discourse out of the realms of scientific possibility and conservation into niche gastronomic production foregrounds the contemporary consumptive capitalist impulse that continues to contribute to species extinction. Moreover, by professing their desire to consume a future de-extinct species, participants become implicated in the flow of capital intertwined with the Anthropocene. If scientists are successful in their efforts to undo thousands of years of human action that contributed to extinction, and the Woolly Mammoth, Aurochs, and Pyrenean Ibex reappear, "will they have a place on deli shelves?"<sup>[30]</sup>

With the inclusion of samples of "Certified De-Extinct Habitat," *De-extinction Deli* also prompts questions of the resources necessary to maintain possible populations of Mammoths and Aurochs. Will the future ecological system be able to support any de-extinct species, particularly in light of currently disappearing habitats that are a major cause of the current uptick in loss of animal species? Might market demand for these new culinary delicacies result in destruction of other species' habitat, reminiscent of the domination of cattle production within the United States, a major contributor to a number of ecological challenges, including water scarcity and air pollution? In its future-oriented speculative form, the *De-extinction Deli* both educates participants and complicates the discourse of de-extinction by bringing in questions of capital, consumption, and consumers.

The Deli made another appearance several years after its debut as *De-extinction Deli (To Go)* inside London's Victoria and Albert Museum. All of the components of the original market stand remained, with the addition of another interactive piece. Visitors could choose to write and mail a postcard to researchers within the de-extinction field. The postcards featured images from the Deli's butcher paper infographics and photographs of hypothetical dishes made with de-extinct species: the Passenger Pigeon accompanied by a banner reading "See why they went so fast the first time," the Pyrean Ibex by "(B)Raising the Dead," and the Heath Hen by "Revive and Reheat."<sup>[31]</sup> Visitors checked a box indicating whether they believed we should not de-extinct these species, de-extinct, or de-extinct and eat them. Additional space was provided for visitors to explain their choice. Postcards were addressed to The Long Now Foundation, Revive and Restore, the Harvard Woolly Mammoth Revival team, San Diego Frozen Zoo, and the North East Science Station.<sup>[32]</sup> The Center borrows this tactic from Stewart Brand. In 1966 Brand led a postcard campaign that targeted NASA and demanded they release satellite images recently taken of the whole Earth. Brand is now President of the Board of Directors of The Long Now Foundation, one of the organizations leading de-extinction efforts. The Center claims to parallel Brand's "hopeful/paranoid" question by asking exactly who de-extinct species are for and why they are being revived.<sup>[33]</sup> By sending these postcards, the Center provokes both critical thinking about human consumption and direct political intervention into de-extinction discourse, facilitating an interaction between scientists and citizens, a divide that has proven difficult to bridge. The *De-extinction Deli* uses present culinary practices to interrogate the possibilities for de-extinct species in global food systems. As a speculative performance, the *Deli* entails hypothetical rather than actual consumption, projecting a gustatory future from the actualities of the present. Although each of the future specialties at the *De-*

*extinction Deli* is hypothetical, the performance interrogates the *possible* act of consuming them: the ethical, social, scientific, and political ramifications at the intersection of de-extinction and consumption. Through *De-extinction Deli*, in the absence of actual eating of food, Center artists and *Deli* visitors enact critical thought on the practice and meaning of human food systems. In light of the ecological changes we are currently witnessing, what will sitting down to dinner in the Anthropocene look like?

### **Coming to the Table: *The Planetary Sculpture Supper Club***

The Center's recurring performance installation *The Planetary Sculpture Supper Club* first convened in July 2011, in Portland, Oregon. Center artists collaborated with Special Snowflake Supper Club and Gorilla Meats Co. to create an eight-course meal designed to point toward the numerous ways that humans sculpt the planet and the biosphere. Since its debut, the *Supper Club* has been convened in Bangalore, India (2011); Leiden, Netherlands (2012); Pittsburgh, Pennsylvania (2013); Portland, Oregon (2013); Lisbon, Portugal (2013). Although the menus featured at each performance vary, the questions the Center claims guide their design inspire all the meetings of the *Supper Club*: "What preferences, constraints, biases or assumptions determine the genomes that comprise our food system? Which food system? How big is it? What role should individuals, communities, governments, or businesses have in determining the genomes that make up our food systems and ecological-systems?"<sup>[34]</sup> Reminiscent of *De-extinction Deli*'s butcher paper infographics, the menus and placemats given to participants of the Supper Clubs explain the ingredients of each dish and, perhaps more importantly, the culinary and scientific discourses they are imbricated in. At some meetings of the *Supper Club* Center artists (including Zach Denfeld in his ubiquitous apron) guide diners through their experience of the meal as a supplement to the detailed menus also provided. As explained on the *Planetary Sculpture Supper Club* placemat, these dinners are "an opportunity to explore the co-evolution of gastronomy and larger ecological, technological and political systems."<sup>[35]</sup> Venues for the *Supper Club* have included museum spaces, festivals, dining halls, and pop up restaurants. No matter the venue, each convening of the Supper Club has a similar dramaturgy: participants sharing a meal around one or several large tables in a communal experience.

I will focus on the 2013 performance at Pittsburgh's Center for PostNatural History. The supper was held within the Exhibit Hall at a large table placed amidst the Center for PostNatural History's collection of photographs, taxidermic animals, and other ephemera cataloguing humanity's various interventions into the natural world.<sup>[36]</sup> Like each *Planetary Sculpture Supper Club* menu, the Pittsburgh menu was designed to reveal attitudes toward food and to lay bare the often invisible ways that scientists, farmers, and consumers have altered the genomes of our food. Center artists worked with students from Richard Pell's PostNatural Art Studio at Carnegie Mellon University to design the following menu:

- *Apéritif*: Three Milks: Alive, Dead & Resurrected
- *Tasting Flight*: A Selection of Five Sugars
- *Amuse bouche*: Invisible: Root Vegetable Stew with Waxworm Roux, Imposter: Lumpia 'Wax Moth' atop a Honey-Chile Sauce, Immaculate: Waxworm Soft Shell Taco with Chile Marrón
- *Main*: Producer: Seaweed Salad, Primary Consumer: Boiled Shrimp Tossed in an Old Bay Blend, Secondary Consumer: Pan-Fried Catfish, Secondary Consumer: Seared Lemon-Pepper Pike, Tertiary Consumer: Blackened Alligator in a Citrus Honey Sauce
- *Digestif*: Frackfluid and Baileys
- *Dessert*: Lemon Curd, Avocado & Sour Cream Tartlet served with a Miracle Berry.<sup>[37]</sup>

Through the act of consuming these dishes, coupled with the pedagogical tool of the menus, the Center strives to recast humans as “agents of selection,” revealing the ways in which food choices, even on an individual level, can impact global ecology.

Whereas the *De-extinction Deli* performed the possibility of the new culinary specialty of de-extinct species in the absence of any actual consumption of food, the *Supper Club* performs a speculative gastronomy by reassembling actual ingredients in new combinations. None of the ingredients here are hypothetical. Instead, via techniques of cognitive estrangement in which familiar foodstuffs are reshaped via strange, unusual culinary techniques, the Center aims to provoke diners to see themselves as a *part* of a global ecological system, rather than *outside* or *superior to* it. The Center takes advantage of a recent trend in high-end dining, an intense focus on the scenography and dramaturgy of the dining experience. As Joshua Abrams explains, “few encounters are simultaneously as intimate and as social as eating.” Because they “[draw] focus to taste through a Brechtian process of making-strange alongside a conscious engagement with the visual arts of design,” chefs challenge diners to actively engage with their experience of eating and reconsider what it really means to fulfill a biological need as basic as eating in the Anthropocene.[\[38\]](#)

The scenography of the Pittsburgh *Supper Club* in particular contributes to the kind of estranging effect that Abrams identifies. It is precisely this estrangement that the Center deploys to provoke questions about humanity’s role in the global food system through this performance. The meal takes place among a plethora of ephemera that represent how humanity has changed the natural world. One of the Center for PostNatural History’s primary specimens, for example, is the taxidermic body of a BioSteel goat genetically modified to produce spider silk in its milk for the purpose of manufacturing pharmaceuticals. This *mise-en-scène*, by foregrounding the degree of human action in the biosphere, will hopefully spark a similar interrogation of the courses being served. The meal’s second course particularly reflects the Center’s focus on food changes on a molecular scale. A tasting flight of five sugars, this course pairs the natural sweetener sucrose, derived from plants like sugar cane, with the artificially created aspartame, sucralose, and saccharin. Each of these substances is created by molecular manipulation within scientific laboratories. Tasting them alongside naturally derived sucrose ideally forces consideration of how scientific technology is changing our food, not only on the visible scale of which varieties of vegetable are available year-round, but also on the invisible, molecular level. The tasting presentation includes the brand names under which these substances can be found in grocery stores (Sweet’N Low, Equal, Splenda, Truvia), recognizing the role that capitalist free markets play in this food system.

As the Pittsburgh *Supper Club*’s scenography highlights humans’ interventions in the food system on a molecular scale, some of the dishes themselves prompt diners to recognize how they are interwoven into the macrocosm of the planetary ecological system. By creating the food chain, the Pittsburgh meal’s main course facilitates the self-recognition the Center calls for, accepting the impact of our food choices on the global ecosystem: “*Producer*: Seaweed Salad, *Primary Consumer*: Boiled Shrimp Tossed in an Old Bay Blend, *Secondary Consumer*: Pan-Fried Catfish, *Secondary Consumer*: Seared Lemon-Pepper Pike, *Tertiary Consumer*: Blackened Alligator in a Citrus Honey Sauce.”[\[39\]](#) This course itself encapsulates the structure of the food chain into a single plate, reinforced by its description on the menu. Beginning with the producer species, in this case seaweed, the course follows the chain of links between producer and consumer species. A culinary microcosm of the food web, the synthesis of seaweed, shrimp, catfish, pike, and alligator within a single course is a gastronomic manifestation of the macrocosmic ecological system. The links of the food chain are revealed through the practice of cooking and underlined by the

explanation of the course on the menu. In the act of consuming this course, producer and consumer species alike, the human participant becomes the quaternary consumer, the apex predator.

I argue that participants' consumption of this course, accompanied by the menu description that underscores the ecological connections between these particular species as part of the food web, is an exercise in "species thinking." Dipesh Chakrabarty aligns species thinking with deep history, recognizing that as a particular kind of species, humans, "in the process of dominating other species, acquire the status of a geologic force."<sup>[40]</sup> By positioning humans *as species* in relation to others, the Pittsburgh *Supper Club*, and the main course in particular, facilitates species thinking. Through the consumption of all of the links in this particular food chain the diner's place in it becomes clear: seaweed->shrimp->catfish->pike->alligator->human.

At the same time, other courses in the *Supper Club* highlight the disproportionate impact humans as a species have on the biosphere. Humans are both like other species (they are part of the food chain) and not like other species (they exercise massive influence at all levels of the biosphere). Bruno Latour describes this particular condition of the Anthropocene: "micro- and macrocosm are now *literally* and not simply symbolically connected."<sup>[41]</sup> The ecosystem of the seaweed plant which composes the *Supper Club's* Seaweed Salad no longer simply contains its habitat and consumers—shrimp, catfish, pike, alligator. Now the economic pressures of the global seafood industry, market demand, environmental activists, and governmental regulatory policies are part of that ecosystem. In this particular dish, capitalism shows itself in the trademarked Old Bay Seasoning, a blend of seafood seasoning manufactured by Fortune 1000 company McCormick & Company. As captured by this particular dish, the realm of human action does not sit above or outside of ecological systems. Instead, human tastes and choices, both on the individual and corporate scale, are entangled within the ecological structures of the food chain. The Center underscores these connections through the dinner's menus and placemats, and the artists' presence at the event. By recasting meals in this way, the Center prompts questions central to ecological change: how do humans, as individuals and species, influence the genomes of the global food system? Once this question is considered, diners can then begin to determine whether their roles are effective for the continued survival of the global ecosystem, or not.

Through the microcosm of the dinner table, *Planetary Sculpture Supper Club* interrogates food systems on both the micro and the macro scale, from the minutiae of sugar molecules to the intricacies of the food chain. As an exercise in species thinking, participants in the *Planetary Sculpture Supper Club* might reconceptualize themselves as agents of selection that are part of the food chain, not outside of it. Both *De-extinction Deli* and *The Planetary Sculpture Supper Club* take on the politics of human food systems through speculative performances, as practices of consumption and culinary choice have played a central role in the ecological change that marks the Anthropocene. In the Center's particular speculative style, food can also become a tactic to intervene in the discourse of climate change.

## Tasting Smog

In their 2011 *Smog Tasting* project, Center artists took culinary techniques out of the kitchen, making egg meringues in areas with high air pollution. Center artists Zack Denfeld and Catherine Kramer were on location in Bangalore, India, when they were inspired by Harold McGee's seminal culinary book *On Food and Cooking: The Science and Lore of the Kitchen*. McGee describes meringues, a light dessert made from beaten egg whites and sugar, as up to ninety percent air. Any particulate matter hovering in

the air becomes trapped inside the meringue. Armed with egg whites and whisks, Center artists went out into the streets of Bangalore and whipped up meringues flavored with the air pollution from several locations around the city.

In 2015, the Center built a Smog Synthesizer, an “experimental food cart” that used scientific techniques to recreate the air pollution from a number of cities and times to infuse them into meringues. Scientists often replicate the atmospheres of different locations within the lab for research purposes. This process is achieved by injecting precursor chemicals into a chamber and exposing them to UV light. The Smog Synthesizer food cart features several such chambers. By whipping the egg whites into a meringue within them, the manufactured air becomes infused into the dessert. With support from the Finnish Cultural Institute and the New Museum’s IDEA CITY festival, this cart debuted at the 2015 meeting of the World Health Organization in Geneva, followed by an appearance on New York City streets for the Ideas City Festival. Center artists, with collaborator Nicole Twilley of Edible Geography, recreated a London peasouper, a 1950s Los Angeles photochemical smog, and present-day Atlanta under an air quality warning. Each of these smogs has a particular chemical makeup as well as contemporary resonances as they have come to represent particular types or genres of pollution that scientists use to categorize air quality. The London fog, with a high sulfur content, is quite common in present day Beijing, and the Los Angeles smog resembles the air quality of contemporary Mexico City. [\[42\]](#) Center artists took the Smog Synthesizer cart out onto New York City streets and served up these three unique meringues to festival-goers and passersby.

Here, rather than performing a speculative future of food, the Center deploys a gastronomic device, the egg meringue, as a tactic in an act of speculation. What if we ate air pollutants instead of breathing them? Would there be further action to ameliorate the effects of air pollution? Via the culinary vehicle of eggs, air, and sugar, in *Smog Tasting* the Center makes visible the complex and often invisible consequence of major global industry. Through the whipped eggs and sugar, the hyperobject of air pollution is captured and tasted. *Smog Tasting* opens up the space in which the hyperobject can be seen, thought, experienced, and tasted. The relationship between the “aesthetic properties” of the meringues and the air, to use Morton’s term, captures the hyperobject, making it intelligible to human participants. The most common reaction that people participating in the smog tasting cart performance have had, according to Center co-founder Zack Denfeld, has been a questioning one: are the meringues safe to eat? He responds by asking whether it is safe to breathe. [\[43\]](#) Because the medium of air is largely invisible, and the hyperobject of climate change difficult to grasp, the question of whether the air is safe becomes obscured in daily life. The properties of the meringue, its composition as ninety percent air, renders it an aesthetic object capable of gesturing toward the hyperobject that is climate change. As a bodily function, breathing is largely unconscious, automatically controlled and regulated by the brain. Eating, however, is a conscious act. Smog meringues remove pollution from the air, the medium of the unconscious physical process of breathing, and infuse it into a consumable object, revealing the pervasiveness of air pollution through the act of eating. And through the performative action of consuming a smog meringue participants taste the consequences of climate change.

This performance in particular takes on a DIY flavor. On their website the Center encourages students or community groups to use egg meringues to capture the air quality in their own environs. The materials necessary to create a smog meringue are readily accessible: eggs, sugar, bowl, whisk, oven, and polluted air. Hypothetically, anyone could hypothetically create their own smog meringues. The batter can be tested for its pollutants and then mobilized as a sort of “Trojan treat.” By mailing the confection to

politicians and business magnates, the smog meringues can secret the consequences of air pollution to those bearing more responsibility for climate change, or with more power to fight it.<sup>[44]</sup> The Center hopes that the gustatory experience of tasting smog can spur critical self-examination on the part of those in power.

By recreating location-specific air outside of their original contexts in the Smog Tasting Cart, the Center also performs a speculative geography, asking what if the air in New York or Geneva was as polluted as the London peasouper? This speculative geography reveals one of the most complicated aspects of the Anthropocene: climate change is simultaneously local and global. While its causes are tied to global economic systems, and its effects are entwined within the global ecosystem, the consequences of these massive environmental changes are not distributed equally across the world's locations or populations. As major metropolitan centers both Geneva and New York City have their own issues with pollution. State and national governments monitor air quality daily and will issue warnings about traveling outside. Consuming an egg meringue with the taste of other cities' air pollution draws attention to local air quality as well as necessitates consideration of the states of other, more distant, locales. The Smog Tasting Cart collapses the local and global, gesturing toward a critical pitfall in the idea of the Anthropocene that must be addressed in the pursuit of ecological justice and any politics for the Anthropocene: unequal distribution of effects and responsibility for climate change. The ecological and economic consequences of the pervasion of capital into nature, of which air pollution is just one example, are unequally distributed to lower-income populations. Bringing the air quality of Mexico City to New York City via the vehicle of an egg meringue lays bare the sometimes-invisible network of capital, in this instance between the United States and Mexico, making visible its ecological effects. Recreating the air from one locality to another provokes the question of whether it is safe for the people of Atlanta, Beijing, and Mexico City to breathe as well.

Regardless of whether the International Union of Geological Sciences decides to officially declare that we are living in the epoch of the Anthropocene (as of this writing that designation has not been officially made), the realities of massive ecological change cannot be denied. In Bonneuil and Fressoz's words, "we have passed the exit gate from the Holocene. We have reached a threshold."<sup>[45]</sup> Many of the changes we are currently witnessing are potentially irreversible. The Arctic ice is melting. Species are disappearing, whether or not scientists might resurrect them, along with their habitats. Fossil fuel extraction continues largely unabated. The question becomes, then, how to survive in the Anthropocene, and what a politics for this new era looks like. While a complicated and complex thing that is difficult to apprehend and comprehend, like climate change or quantum physics, this politics begins with thinking of or speculating about alternative ways of being. Or, in the case of the Center for Genomic Gastronomy, alternative ways of eating. Their subversive use of culinary customs first implicates audiences in their participation within flows of capital. By playing with possible food futures in *De-extinction Deli*, revealing the enmeshment of the human species within the food web in *Planetary Sculpture Supper Club*, and discovering what air pollution tastes like in *Smog Tasting*, the Center's performances expose their participants' place within global systems so that they might renegotiate that place in the future. Their speculative performances encapsulate a multiplicity of possible food futures, twisting existing culinary practices to project different ways of seeing the connectivity, the mesh, of global ecology. Not simply an intellectual exercise, not just *thinking* of interconnectedness, but an embodied practice of species thinking that opens up critical questions of how humans and nonhumans alike might survive the Anthropocene.

In 1973, prolific science fiction novelist Ursula K. Le Guin urged the need for more speculative cultural production, because “an improbable and unmanageable world is going to produce an improbable and hypothetical art. At this point realism is perhaps the least adequate means of understanding or portraying the incredible realities of our existence.”<sup>[46]</sup> The Anthropocene is nothing if not improbable and unmanageable. Speculative performances, like those created by the Center for Genomic Gastronomy, can not only make sense of the immensity that is global ecological change, in all its manifestations, but also point the way toward a politics of the Anthropocene. And perhaps, as Donna Haraway has written, “make possible partial and robust biological-cultural-political-technological recuperation and recomposition.”<sup>[47]</sup> By simultaneously encapsulating anti-capitalist and species thinking, as a move toward a politics for the Anthropocene, performance can begin that process of recomposition.

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<sup>[1]</sup> “About,” *The Center for Genomic Gastronomy*, accessed December 2, 2016, <http://genomicgastronomy.com/about/>.

<sup>[2]</sup> Jedediah Purdy, *After Nature: A Politics for the Anthropocene* (Cambridge, MA: Harvard University Press, 2016), 2.

<sup>[3]</sup> Christophe Bonneuil and Jean-Baptiste Fressoz, *The Shock of the Anthropocene: The Earth, History, and Us*, trans. David Fernbach (London: Verso, 2015), 4.

<sup>[4]</sup> *Ibid.*, 70-1.

<sup>[5]</sup> Both Jason W. Moore and Donna Haraway have developed this term. See Donna Haraway, “Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin,” *Environmental Humanities* 6 (2015): 159-165; and *Anthropocene or Capitalocene?: Nature, History, and the Crisis of Capitalism*, ed. Jason W. Moore (Oakland, CA: PM Press, 2016).

<sup>[6]</sup> Dipesh Chakrabarty, “The Climate of History: Four Theses,” *Critical Inquiry* 35, no. 2 (2009): 212.

<sup>[7]</sup> *Ibid.*, 213.

<sup>[8]</sup> Bruno Latour, “An Attempt at a ‘Compositionist Manifesto,’” *New Literary History* 41 (2010): 476.

<sup>[9]</sup> Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy*, trans. Catherine Porter (Cambridge, MA: Harvard University Press, 2004), 53.

[10] Purdy, *After Nature*, 2-3.

[11] Timothy Morton, *The Ecological Thought* (Cambridge, MA: Harvard University Press, 2010), 10.

[12] *Ibid.*, 5.

[13] *Ibid.*, 7.

[14] Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World* (Minneapolis: University of Minnesota Press, 2013), 1.

[15] Lisa Chase and Vern Grubinger, *Food, Farms, and Community: Exploring Food Systems* (Durham, NH: University of New Hampshire Press, 2014), 1.

[16] See Anthony Winson, *The Industrial Diet: The Degradation of Food and the Struggle for Healthy Eating* (Vancouver: UBC Press, 2013).

[17] G. BeVier, "Global Food Systems: Feeding the World," *Reproduction in Domestic Animals* 47, suppl. 4 (2012): 77.

[18] Mario Herrero, et. al., "Biomass use, production, feed efficiencies, and greenhouse gas emissions from global livestock systems," *Proceedings of the National Academy of Sciences of the United States* 110, no. 52 (December 24, 2013): 20,888.

[19] See Bonneuil and Fressoz, *Shock of the Anthropocene*, 24.

[20] Eduardo Mendieta, "Globalization, Cosmopolitics, Decoloniality: Politics for/of the Anthropocene," in *The Bloomsbury Companion to Political Philosophy*, ed. Andrew Fiala (London: Bloomsbury Academic, 2015), 217, emphasis mine.

[21] *Ibid.*, 217-8.

[22] Gerald Alva Miller Jr., *Exploring the Limits of the Human through Science Fiction* (New York: Palgrave Macmillan, 2012), 3, 15.

[23] *Ibid.*, 16.

[24] L. Timmel Duchamp, "How to Do Things with Ideas," in *Sci Fi in the Mind's Eye: Reading Science through Science Fiction*, ed. Margret Grebowicz (Chicago: Open Court Publishing Company, 2007), 69.

[25] "De-extinction Deli," *The Center for Genomic Gastronomy*, access November 23, 2016, <http://genomicgastronomy.com/work/2013-2/deli/>.

[26] See <http://reviverestore.org>.

[27] Josh Donlan, "De-extinction in a crisis discipline." *Frontiers of Biogeography* 6, no.1 (2014): 27.

[28] Ashley Dawson, *Extinction: A Radical History* (New York: OR Books, 2016), 34-5.

[29] Carrington, Damian. "Earth has lost half of its wildlife in the last 40 years, says WWF." *The Guardian*. September 30, 2014.

[30] "De-extinction Deli."

[31] "De-extinction Deli (To Go)," *The Center for Genomic Gastronomy*, accessed January 2, 2017, <http://genomicgastronomy.com/work/2016-2/de-extinction-deli-to-go/>.

[32] Each of these organizations participates in the de-extinction movement in some way. Under the auspices of The Long Now Foundation, Revive and Restore contributes to biodiversity and conservation specifically through genetic rescue of species. The Northeast Science Station, led by director Sergey Zimov, oversees the Pleistocene Park, a conservation habitat for species like reindeer and bison. Zimov hopes to eventually populate this area with revived Woolly Mammoths (see <http://www.pleistocenepark.ru/en/>). The San Diego Frozen Zoo, part of the Beckman Center for Conservation Research, houses over 10,000 different samples of genetic material from approximately 1,000 species groups. The True Nature Foundation, a loosely associated group of scientists and local research groups, is spearheading the project to de-extinct the Aurochs out of their office in The Netherlands.

[33] "De-extinction Deli (To Go)."

[34] "Planetary Sculpture Supper Club: Portland," *The Center for Genomic Gastronomy*, accessed November 30, 2016, <http://genomicgastronomy.com/work/2011-2/supper-club/>.

[35] "PSSC: Dublin Grow Your Own," *The Center for Genomic Gastronomy*, accessed January 2, 2017, <http://genomicgastronomy.com/work/2013-2/pssc-dublin-grow-your-own/>.

[36] See <http://postnatural.org>.

[37] "Planetary Sculpture Supper Club: Pittsburgh," *The Center for Genomic Gastronomy*, accessed November 30, 2016, <http://genomicgastronomy.com/work/2013-2/planetary-sculpture-supper-club-pittsburgh/>.

[38] Joshua Abrams, "Mise en Plate: The Scenographic Imagination and the Contemporary Restaurant," *Performance Research* 18, no. 3 (2013): 11.

[39] "Planetary Sculpture Supper Club: Pittsburgh," emphasis mine.

[40] Chakrabarty, "The Climate of History," 214.

[41] Latour, "An Attempt at a 'Compositionist Manifesto,'" 481.

[42] Nicola Twilley, "Smog Meringues," *Edible Geography: Thinking Through Food*, May 30, 2015, <http://www.ediblegeography.com/smog-meringues/>.

[43] Ibid.

[44] "Smog Tasting," *The Center for Genomic Gastronomy*, accessed December 8, 2016, <http://genomicgastronomy.com/work/2011-2/smog-tasting/>.

[45] Bonneuil and Fressoz, *Shock of the Anthropocene*, xiii.

[46] Ursula K. Le Guin, "1973 National Book Award Acceptance Remarks" (speech, New York City, April 12, 1973), K.U. Gunn Center for the Study of Science Fiction, [http://www.sfcenter.ku.edu/Ursula-K-Le-Guin\\_NationalBookAward-Speech\\_1973.pdf](http://www.sfcenter.ku.edu/Ursula-K-Le-Guin_NationalBookAward-Speech_1973.pdf).

[47] Haraway, "Anthropocene, Capitalocene, Plantationocene, Chthulucene," 160.

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