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AEROIR

A TASTE OF PLACE

Headlands Center for the Arts
Thursday, Nov. 19th, 2016

Preface

A WORD ON AEROIR

Today, the food on the average American dinner plate has traveled at least 1,500 miles from farm to fork. In response to this faceless, globalized food culture, growers and eaters, particularly in Northern California, have begun to value and cultivate terroir: the taste of place. This movement began with wine in the 1970s, before spreading to grass-fed beef, artisanal cheese, produce, and, even more recently, to seafood such as oysters, where it is known as “merroir.” Tonight’s dinner extends this concept to another element—the taste of air, or aéroir.

After all, the air from different places, seasons, or eras has its own, unique flavor, created by a combination of anthropogenic activity, geology, weather, topography, and biology.

— Air has a flavor, which we can experience through taste, smell, and even touch.

— The air from different places tastes different. Aéroir is a way to taste place—to compare different locations around the world, but also to know and value one unique location in an entirely new way.

— Aéroir has a vintage. The air from different places tastes different at different times and seasons.

Mignardise

SYNTHESIZED SMOG MERINGUE

Different places tend to have different, characteristic smogs, based on the reactions that occur when the particular emissions of that region are combined under the prevailing atmospheric conditions. These emissions can consist of the chemicals and particulate matter released by human activities, such as car exhaust or coal combustion, or those from biogenic sources, such as the terpenes that evaporate from pine needles or methane-rich cow farts.

Smog is formed when these primary pollutants then undergo a series of chemical reactions in combination with water droplets suspended in the air (a London-style fog) or through exposure to UV light (Angeleno sunshine) to form a toxic atmospheric haze.

Scientists synthesize smog in the lab in order to understand the chain of chemical reactions that lead to smog formation, so that they can design and test ways to prevent or mitigate against it. We follow the D.I.Y. version of their synthetic smog recipes in order to recreate the atmosphere above Beijing, Mexico City, and California’s Central Valley. We then whip egg whites inside the chamber as a way to harvest the smog (as Harold McGee noted in *On Food and Cooking*, at the stiff peak stage, meringue batter is ninety-percent air). The resulting meringues offer an unusual chance to taste of smogs from different locations, side-by-side.

Dessert

SWEET PRESSURE

For the final course of the evening, our attention turns to the taste of global atmospheric redesign, otherwise known as climate change. As human activity raises the levels of carbon dioxide and other warming gases in Earth's atmosphere, regional climate patterns have begun to shift, as well become more extreme, affecting food production (and much else, besides).

Since 2012, the state of California has experienced an acute drought that has been made significantly worse by climate change. (Scientists attribute between 15 and 20 percent of the drought's severity to the effects of global warming.) One side-effect of this pressure on water resources can be tasted in the state's abundant fruit crop: this year's stone fruits were between 10 and 20 percent smaller than usual. According to University of California agricultural extension specialist Kevin Day, "When a crop's hydration is restricted, it leads to lower water content and higher sugar content—hence more flavor."

Climate change has also begun to affect the state's Sierran conifer population, shrinking their habitat and increasing tree mortality. In this dish, shrunken strawberries are sprinkled with White Fir sugar, as a sweet taste of the scary implications of our shared transformation of global aéroir. The tragedy of the commons never tasted so good.

— The taste of air, or aéroir, is a combination of anthropogenic design (car exhaust, power plant emissions), weather (fog, sun), geology (dust), topography (altitude affects taste), and even biology (pollen, spores).

— Aéroir is a kind of seasoning: the atmosphere in which we consume food affects its flavor. Inhaling smog, for example, diminishes our ability to smell and taste food.

— The act of consuming air through our digestive apparatus, rather than passively inhaling it through our respiratory system, offers an entirely new way to experience the atmosphere all around us.

How does air contribute to taste and reflect place—and how might our relationship with the atmosphere all around us change, as we create new ways to interact with and experience it? This dinner is a chance to explore the most intangible, elusive, and overlooked element of place-based flavor: aéroir. Over the course of the evening, we will move from the local to the global, exploring the tastes, textures, and stories that are created at the intersection of air and food.

Welcome Cocktail & Snack

HYPERLOCAL HEADLANDS AEROIR



These cocktails and welcome bite offer a taste of the particular aéroir of the Marin Headlands. The cocktails incorporate condensed atmosphere in the form of fog-harvested water, as well as lace lichen, an air plant that hangs like a veil from the area's oak trees, absorbing nutrients from the air and fog.

As warm air moves over the cold waters of the Pacific, the temperature difference causes the moisture in the air to condense into a thick, low-hanging "marine layer," in which the Headlands is often shrouded. Fog harvesters use a mesh-like netting to capture those molecules of water vapor, where they accumulate into droplets and run down the net into a collection gutter under the force of gravity. The design mimics the strategy of the region's coastal giant redwoods, whose needle-shaped leaves provide an even more effective collection surface.

Lace lichen is not only the official state lichen of California, but is also used by scientists as an indicator species for air quality, as it changes color in the presence of atmospheric pollution.

To accompany the drinks, air-popped multi-colored heirloom popcorn is served with a selection of toppings that offer a flavor connection to the Headlands' former inhabitants: the butter of Portuguese immigrant dairy farmers of the late 1800s, augmented by the Douglas Fir spring tip tea of the Coastal Miwok or the powered Meal, Ready-to-Eat (MRE) Sloppy Joe, an echo of the site's recent history as an active military base.

Entrée

FOREST FIRE FORECAST



Aéroir is seasonal as well as geographical. In much of the west of the United States, wildfires are a natural seasonal occurrence that are essential to forest regeneration and growth. However, in recent years, the legacy of decades of fire suppression combined with drought conditions have led to a longer, more intense fire season, typically peaking in the summer and early fall.

During forest fire season, the atmosphere in many Western states is characterized by the unpredictable movement of smoke plumes. In addition to giving the air a unique smell and taste and creating a haze that leads to spectacular sunsets, the fine particulate matter in smoke poses a particular threat to health. A fire burning within fifty to one hundred miles of a city typically results in air quality that is five to fifteen times worse than normal, meaning that a wildfire in the San Gabriel mountains can make Los Angeles' aéroir resemble that of Beijing.

Forest fires can also affect food—crops such as wheat can be scorched or smoked while growing in proximity to fire, leaving them unfit for human consumption, while ranchers in the Pacific Northwest have already lost entire herds of grass-fed beef during the 2015 season.

In this forest-fire inspired course, guests are served salt-baked beef, whose crust, when ruptured, will release a plume of hot air and smoky spices. The vegetable accompaniment can be enhanced by cold manzanita smoke, upon request.

Bread

MICROBIAL MAPPING

Sourdough bread is made with flour that has been fermented in a starter culture—a mixture of bacteria and wild yeasts captured from the air—prior to baking. Every starter culture is a unique microbial ecosystem, based on the aerial biodiversity of its location and reflected in the flavor and texture of the resulting bread. In 2007, scientists in Belgium showed that the microbial composition of a sourdough starter culture is, indeed, primarily shaped by the in-house aerial microbiome of the bakery environment (rather than, say, the flour type or processing technology).

For this course, we have baked three identical loaves using sourdough starters sourced from around the Bay Area: San Francisco, the East Bay, and the Headlands itself. Can you taste the contribution of each place's aerial microbiome to the flavor and texture of the resulting bread?

The bread is served with cultured butter, and local eucalyptus honey, itself an expression of *aeroir* that reflects the honey bee's flight from tree to tree, gathering nectar and transporting pollen.

Hors d'Oeuvre

THE SECRET LIFE OF DUST

“Every time you inhale, thousands upon thousands of motes swirl into your body. Some lodge in the maze of your nose. Some stick to your throat. Others find sanctuary deep in your lungs.” In her book, *The Secret Life of Dust*, science writer Hannah Holmes characterizes dust as both global and local, spicing the air we breathe with Saharan sand and scales from insect wings. This course focuses on the atmospheric rivers of microspheric aeolian dust that flow around the world, invisible but essential, seeding nutrition, spreading spores and pollen, and precipitating rain.

This suspended, spherical “dust-ball” cracker contains edible dust: sea salt, dried mushroom powder, dukkah, stir-fried crickets, coconut ash, bonito fish flakes, dried calendula flowers, and citrus peel chips. Once smashed, the cracker releases its contents, to be scooped up with schmears of sunflower kefir cream and a charred lime and shallot paste. The dust and schmears also reference the flavors of Gobi and Saharan desert regions, whose sands together release more than a billion tons of dust into the air each year. Kefir, for example, is a fermented milk drink popular in Mongolia, while dukkah is an Egyptian seed and spice mix.

Soup

KARL THE FOG SOUP

The Bay Area is famous—some might say infamous—for its fog, which creeps inland, pooling in valleys and cooling down even the sunniest of summer days. It freezes unsuspecting tourists, inspires poets and artists, and has even been made into beer. Since August 2010, the fog has maintained a popular account on Twitter: @KarltheFog. On social media, the fog frequently shares fog puns and dirty fog jokes (“this wind can blow me”) with its 107,000 followers.

In the 1980s, scientists realized that, as a result of car exhaust emissions and industrial pollution, the city’s iconic fog had become more acidic than acid rain—indeed, on the worst days, it was more acidic than toilet bowl cleaner. Easily inhaled, acid fog damages lungs, but also eats away at stone and steel, reduces crop yields, and injures trees. This basic cabbage soup can be transformed with the addition of a teaspoonful of acid fog, represented by a lemon foam, in an interaction that makes the pH of aeroir visible.

The dish is accompanied by a Mirin and soy-marbled onsen style-egg, representing the California gull flyway that connects the Marin Headlands and Bay Area with Mono Lake, in the Eastern Sierra. As birds migrate along well-defined and long-standing corridors on their annual travels between breeding and wintering areas, they provide a reminder that aeroir is both local and global, reflecting unique places but also connecting them.

Appetizer

MEXICO CITY SMOG PAIRINGS

At this point in the meal, we shift our focus from local aeroir to explore the aeroir of Mexico City. This course asks the question: is street food so spicy and boldly flavored to make up for the aeroir in which it is served?

Recent research conducted by Dr. Robyn Hudson at the National Autonomous University of Mexico has shown that smog radically changes the flavor of food by reducing the sensitivity of both people’s sense of smell and that of their trigeminal receptors (these are oral touch nerves, which sense the tingling heat of chili peppers, wasabi, and menthol).

Dr. Hudson’s current research focuses on Mexico City’s street food vendors—the hundreds of thousands of men, women, and children who sell tamales, tacos, and tortas from the city’s busiest intersections, where they are exposed to even higher levels of air pollution. Intriguingly, she and her colleagues have already found that these vendors’ severely blunted senses can be restored to their original sensitivity after just a few weeks’ exposure to clean air.

To experience the effects of smog on flavor for themselves, guests are served twin tacos: one taste-impaired and one fully flavored. They are then welcome to visit the smog synthesizer in order to experience Mexico City’s unique aeroir, as well as “spice up” their taste-impaired taco with housemade habanero hot sauce and lime, as a sort of “anti-smog seasoning.”