

Outside the Work: A Tasting of Hydrocarbons and Geological Time

Marina Zurkow, Lucullan Foods (Lauryn Tyrell and Anna Rose Hopkins), and Michael Connor.

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Presented by the School of Visual Arts, in collaboration w/ Boston University's Programs in Food & Wine.

We have a ROLLING CART for the water bottle pyramid and the glasses, at the center of the U-shaped table, and can be rolled out after the service.

A server pours water from the pyramid of bottles.

Marina and the servers are instructed to leave the empty bottles in the middle of each table, which, over the course of the meal will accumulate and pile up with salt, silverware and dishes. All speakers should try slightly to channel Robert Smithson in the film Spiral Jetty with a touch of Laurie Anderson and speak loud and clear, but with softness.

0. WELCOME

Welcome, everyone, to Outside the Work. Thank you so much for coming!

This evening takes its name from a literal translation of the French phrase “Hors D’Oeuvres.” The first known use of the term was in 1714, and referred to an “extra dish” presented before the meal, that was set apart from the framework of the dinner.

This evening, we borrow the term “Outside the Work” to refer to a novel sequence of small plates and tangled narratives about food and fossils.

This meal is a way of encountering the slow flow of geological time.

The courses follow the chronology of how a tiny marine creature becomes a particle of pure energy, a hydrocarbon, a fossil fuel. Each huge geological step is mirrored by a particular kitchen technique, and each course examines petroleum in alliance with, proximity to, and formation of the food itself. All these labors are very much inside the work, and we invite you to savor the fusion and compression of tastes, techniques, and time.

I'd like to introduce my collaborators Lauryn Tyrell and Anna Rose Hopkins, the chefs and magicians behind the meal tonight. We will be leading you on the time-food continuum as it unfolds.

Introduce Lauryn and Anna

LT- On your plates tonight will be five small courses, all of which underwent pressure, manipulation and change to get here. We have employed kitchen techniques that mirror Marina's geological narrative; from salt compression to fermentation, caramelization to separation. Much of what we see along the journey of “becoming petroleum” is found in the day to day of our kitchen.

AR- The foods we have prepared will also contain petrochemical components that are either regarded by the FDA as “safe” to eat or not regarded at all, as you will find for many “natural” additives upon a closer look. These petrochem food elements appear ubiquitously in cuisines of the western world. We invite you to enjoy and savor the food, but we also hope to heighten your awareness of what you are in fact consuming, be it simple, even precious, or more complex and controversial in its origin and preparation.

00. THE FOUNDATIONS OF LIFE

ICEBERG WATER:

Before we raise our glasses, does everyone have liquid for our first toast?

Prologue. In the beginning, water.

Icebergs break from glaciers. Some are bigger than Manhattan. The glacial ice that forms them may be more than 15,000 years old. Impermeable to saltwater, as dense as concrete and with inside temperatures of -20 degrees Celsius, their interiors preserve ancient environments, with a level of impurity near or at zero parts per million.

Most icebergs in the North Atlantic come from the glaciers of Greenland. An iceberg that calves off this ice shelf drifts into the Labrador current, towards the shores of Newfoundland; this is the source of the water you hold in your glass.

Bottling an iceberg sounds like magical thinking - like bringing sunshine home from a Caribbean holiday. Bottling an iceberg sounds like cynical positioning – leveraging the boom on bottled waters with a luxury product, soon to be very scarce.

Berg, the Newfoundland company that produced this iceberg water, tells us that

(Quote) Harvesting is mostly done by hand in small quantities, so the impact in the environment is almost non-existent. Icebergs melt naturally in the ocean, so instead of exploiting springs or underground aquifers we collect the water before it disappears into the sea. (End quote)

Berg's bottle is designed to look like an iceberg, and it's made from shatter-proof PET: Polyethylene Terephthalate, a petroleum-derived plastic, used to make polyester fabrics and bottled packaging. You can see PET on the walls around you, as false eyelashes, sail cloth, eyeglass frames, ace bandages and flocked Teletubby costumes.

We begin the evening with this purest water, from a time before humans began tussling with hydrocarbons, long before petroleum became the single most life-changing environmental input since oxygen. This water is a fossil of taste, transported to your table in a fossil fuel-based vessel.

And as the idiom goes: "Like water and oil, they don't mix."

Raise Glass

A toast: As the world rapidly disassembles and re-forms, as icebergs melt, as the planet reconfigures, let's not be wasteful. Let's drink this iceberg – – to change.

Guests make a toast and drink some water.

1. PETROLEUM BEGINS ITS JOURNEY AS MARINE LIFE

Geological time: Step One. The tiny gigantic kingdom, and marine microorganismic death.

The immensity of microscopic plant and animal life includes algae that bloom and expire, as well as plankton. 95% of living matter in the ocean is plankton. Despite their watery habitat, these creatures depend on sunlight for energy. When they die, they sink, and mix with sediments at the bottom of seas, swamps and lakes.

ALGAE:

Carbon and Hydrogen are the primary constituents of organic material, both plant and animal. As we decay, we all become hydrocarbons over time.

We begin tonight's meal with a shot of blue-green algae. This particular microscopic proto-plant is (AFA) (Aphanizomenon flos-aquae), which was wild-harvested in Upper Klamath Lake, Oregon. Blue-green Algae is considered a superfood, full of protein, B vitamins, minerals, and antioxidants.

Lift your glass to the light, and squeeze the contents of the dropper into the Boston water. Watch it bloom.

Raise Glass

Let's drink to the power of the bottom of the food chain.

Guests prepare and then drink the algae shot.

Glacier water is refilled at table by servers.

2. SEDIMENTARY LAYERS

Servers bring out cured salmon amuse.

Geological time: Step Two. The accumulation of time and the desiccation of the seas.

Microscopic organisms die and settle on the sea floor forming successive layers of organic-rich sediments, which harden over time. As the sea dries up, a salt crust forms.

SALMON:

Marina:

The salmon in traditional cultures symbolizes prosperity, renewal, and determination. Abundant at one time, runs of salmon fed tribal nations, and nations revered the fish in turn. Wild salmon spend years at sea, only to return, cannily, to the stream from which they spawned in order to lay their eggs and die.

Salmon is inextricably linked to the color of its flesh, which comes from eating carotenoid astaxanthin (ASTAZANTHIN) present in their wild diet of krill and shrimp, the same diet that gives flamingos their pink hue.

Most farmed salmon are fed a diet of pellets composed of fish, corn, antibiotics and colorant. The latter two ingredients are derived from petrochemicals. Farmed salmon flesh would be grey, were it not for Carophyll, a synthetic dye made by DSM; it comes in a spectrum of salmon shades, which aquaculturists can pick from this Salmo-Fan selector chart. **(SHOW SALMO FAN)**

Chefs introduce cured salmon / gin amuse.

LT – This first amuse is made of HiddenFjord's Faroe Island sustainably farmed "boutique" salmon which, in contrast to industry standards, feeds on krill and an otherwise vegetarian and additive-free diet. Using a cure of gin, gin botanicals, and salt, we've compressed it beneath a weighted layer, then rinsed and sliced it for your pleasure. Compression, time, and the chemical heat of the salt have gently "cooked" the fish, while the aromatics contributed flavor. The salmon is accompanied by a pickled cucumber salad, the skin of the salmon itself, and a cucumber and citrus muddled gin, the same gin we used to cure the salmon.

Raise Glass

LT- Let's raise our glasses to the salt of the seas, and to sustainable fishing practices that aspire to maintain balance.

Guests eat.

Servers bring out salt crusted salmon as people are finishing.

AR- This half of our salmon course viscerally and aesthetically connects us to the drying seas of the Permian Era, when our earth was covered by one land mass, Pangea, encased in the global ocean Panthalassa. For this preparation, we have encased a Canadian farmed salmon, (whose feed does include color enhancing additives), first in a banana leaf (to act as a barrier from the salt) and then, in a crust of egg white and coarse salt before baking at a very high heat. We now invite you to roll up your sleeves and do a bit of work. If everyone will take a knife and crack open the salt, you will find the food buried beneath it. Unfold the banana leaf, and please help yourselves to the fish. *Be especially mindful of escaping steam!*

Guests eat.

Servers come out in rubber gloves and scrape the table-- pushing salt and dishes to the center of the tables. The table starts to get cluttered and the space left open for guests' new courses gets smaller and smaller.

3. FERMENTATION/ANAEROBIC CONDITIONS:

Geological time: Step Three. Heat and liquefaction in airless spaces.

In the dark and airless sediment, the fallen marine life is protected from the decomposing effects of oxygen. It is heated gently, not higher than 302°, and subject to extreme compression.

Over millions of years, a transformation is effected. We are now halfway to oil.

Chefs introduce cheese course

LT- The next course is a tasting of fermentation and caramelization. Each element on this next plate heat and/or liquefy in airless spaces. Furthermore, they require one common catalyst - lactobacillus. The bread, made from an old sourdough starter, needs lactobacillic bacteria and sugars that are eaten by yeast and turned into carbon dioxide. As the crust of the bread forms, it contains the process of carbon emission within the bread's doughy structure, and little holes appear, evidence of temperature, pressure and time in an anaerobic condition. Beer undergoes an almost identical fermentation process, sometimes giving it the nickname "liquid bread".

AR - Shoyu, too, requires lactobacillus as part of a culture mix added to a soy and wheat base, before fermentation can occur, giving us soy sauce, or shoyu, which we have here further reduced. Meanwhile, for the cow's milk to be processed, lactobacillus must react with the sugar of the cow's milk to coagulate and curdle the milk protein.

LT- We have garnished this dish with caramelized kumquat skins --Besides being delicious, caramelization is a kitchen technique that parallels the transformation of organic matter into ... something else. As sugar heats up, the molecules holding it together begin to break down. It gets hotter and hotter, and the molecules soon move fast enough to break apart and form something new. In this case, a nutty sweet caramel that goes really well with the cheese!

CHEESE:

Marina

A few words from Mateo Kehler, the founder of Jasper Hill Farm in Vermont, and the producer of the Winnimere cheese you are about to eat:

(Quote) We did a full Carbon Life Cycle Analysis and looked at the footprint of every product from the animals and the farm, from production through distribution to retail.

Highlights included a surprise for us, in that shipping and transport even to the west coast was nearly insignificant. "Food miles" is a red herring in food production. Agriculture itself is the largest emitter of greenhouse gasses, the biggest polluter, the greatest consumer of water, the biggest consumer of pharmaceuticals. And most of the emissions produced on the farm are by the animals and the grain and forage production associated with them. Processing, aging, storage and distribution are minimal.

"Organic" has a significantly higher carbon footprint because the yields on grain and milk are lower. Animals grow slowly without inputs of hormones and pharmaceuticals (both made from petrochemicals), meaning they have a lot more time to consume more grain and produce more methane. Cows are much gassier than goats.

Smaller operations have a much larger footprint than the medium to larger producers in our group. (End quote)

The illusion of virtue, and the efficiencies of scale.

But that said, I'm neither taking down the good guys, nor enlisting you to despair; there are big upsides to minimizing industrial agriculture, to replicating small farm models, to not growing ever larger. Farms like Jasper Hill can minimize methane by tweaking the microflora of their cows and adjusting the feed; and maximize methane as a fuel to heat water for their cheese production. The animals are treated better. And slow-growing, sustainably managed grazing pastures actually sequester carbon.

Raise Glass

A tribute, to the culture in agriculture. Please eat.

Guests eat.

4. LIQUIFICATION/OIL PARTICLES FLOAT UPWARDS

Geological time: Step Four. The migration of liquid and gas.

Layers of sedimentary rock fold, fracture and collapse, and petroleum is expelled. Floating upward, the hydrocarbons may leak to the surface, or become trapped in porous rock that is capped by impermeable strata, forming a petroleum reservoir.

SOUP:

Chefs introduce soup course.

AR- In your bowl, you will find a mochi rice cake, inside of which lies a poached quail egg, sautéed field mushrooms, and marine algae (commonly known as hijiki), with shiso leaf and bonito flake for attitude. Over these elements, our servers will pour a broiler chicken consommé.

LT- For the consommé, we make a rich stock with the bones of broiler chickens, then clarify with egg whites and chicken

protein. The protein and egg white mixture floats to the top as the broth heats up. The impurities then cling to this mixture, so we can then syphon the clarified stock from beneath. As the consommé is poured into your bowls, we'll dot with truffle flavored oil.

AR - Before you sample the soup with its strong truffle aroma, please give your nose to the Australian Reisling we are also pouring, applauded by aficionados and consumers of aged Reislings for its petroleum scent. During the aging process of the wine, acid hydrolysis and carotenoid create the compound TDN, which causes the petroleum note. While the petrol note is entirely artificial in the truffle oil, it is a natural occurrence in the wine.

Marina

Truffles are so, so seductive to humans because their aroma is composed of chemicals that mimic mammalian reproductive pheromones. But truffle oil is dollars on the penny. Most truffle oil has never encountered a truffle. It's made from a combination of olive oil and bis(methyl-thio)methane. Eugenia Bone in her book Mycophilia writes that

(Quote) You can spot a fake truffle oil easily. Labels list truffle aroma and truffle essence as an ingredient. Aroma and Essence are not USDA-approved food descriptions. . (End quote)

Since truffle oil isn't consumed in large quantities, it's not likely to poison us. At a going price of \$8 an ounce, the glass and bottle cap cost more than the ingredients, and the aroma itself costs about 40 cents.

The soup's broiler chicken stock has also been in cahoots with petrochemicals. This is the broiler fan from DSM's feed additives division (show fan). The quail egg is exempt, although most commercial egg yolks also benefit from a boost of color (show fan).

Raise Glass

A few words of praise: to the grammar of wines, and the sweet scent of crude.

Guests eat.

5. WE DRILL, IT GUSHES

Geological time: Step Five. Gushing, splitting, and cracking.

Drilling begins with a prospect: if conditions are right, wells are drilled. It may end in bankruptcy, ruin, abandoned fields and rusting equipment in far-flung corners of the earth. Or, it may end with a discovery.

Once discovered, crude oil is pumped from the earth and into a Pandora's Box of products and processes, many of which we depend on to grow food, heal our ills, power our lives, and endlessly entertain ourselves. Without petroleum inputs or an energy alternative as developed and cheap, human activity would take place on a much smaller scale.

CHOCOLATE:

The myth of Sisyphus.

Rick and Michael Mast make artisanal chocolate in Williamsburg Brooklyn. Last year, they sailed 20 metric tons of cocoa beans – enough for half their yearly supply – from the Dominican Republic, in order to avoid using petroleum. They brought the beans on The Black Seal, a 70' schooner, built over 25 years by a ship captain in his front yard in Maine. In the two-week, 3000 mile, round trip voyage, the Black Seal consumed less than 50 gallons of fuel. After 3 days awaiting clearance in the NY Harbor, the schooner docked in Red Hook Brooklyn and was greeted by 18 armed guards from the Department of Homeland Security. Who sails cargo to port? The Mast Brothers. As their sailed cargo fulfilled ½ their yearly need in beans, the trip wasn't a green gimmick.

70% of the world's cocoa comes from west Africa, from many of the same countries engaged in petroleum production: Nigeria, the Ivory Coast, Cameroon, Ghana. These are nations troubled by both human and environmental overexploitation that yield resources extracted in exchange for the creation of monocultures, poverty, pollution, drought, soil loss, and both child and slave labor.

The chocolate we are eating tonight comes from The Mast Brothers' fabled journey by sail. The beans were grown by small farm cooperatives and traded fairly. The chocolate contains only two ingredients: cocoa nibs and cane sugar. Those two

ingredients possess a host of natural properties that in small doses interacts with your brain chemistry, to make you sharper, speedier, and happier.

Ralph Waldo Emerson said: Do not go where the path may lead, go instead where there is no path and leave a trail.

The Mast Brothers self-describe as Emersonian. They love Mark Twain. They have civil war beards. Everything about their venture is cared-for, eccentric, difficult, and pure. They are fighting against the tide. And their chocolate bars cost \$10. This trail that the Mast Brothers are leaving, who is it for?

It isn't meant for every man and child. The Aztecs never served it to women. This is the price, a return to the Mayan-Aztec origins of kakaw and xocolatl, Food of the Gods.

LT - We melted the Dominican origin, sailboat imported Mast Brother's dark chocolate gently with butter, adding milk, sugar, egg yolk and gelatin bloom. We spread, cooled and cut the chocolate, before rolling in a salty, crunchy batter, and now we invite you to crack open the hard outer shell and let the warm chocolate flow. To be enjoyed with a golden fork.

Guests eat.

6. POSTSCRIPT, PETROLEUM PRODUCTS

Prologue. The rise of slime.

We humans now understand ourselves as a geophysical force. We recognize our co-creation of changes in the natural world that are taking place at a geological time scale. This includes a phenomenon that's become known as The Rise of Slime – the return of creatures who dominated the primordial oceans tens of thousands of years ago. Jellyfish, algae, and bacterial organisms are gaining advantage over the seriously depleted biodiverse environment. We return, this earth, dust to dust, and algae to algae.

HONEY STRAWS:

When you recover from this meal, please enjoy – or at least consider – these straws of honey, produced by bees in an apiary in Red Hook Brooklyn last year. They were supping on the wastewater reservoirs at a Maraschino Cherry plant nearby. Red dye #40, the benzene-based petrochemical dye that gives the cherries their saturated red hue, infused the bees' honey as well.

In Northeastern France last year, bright blue and neon green honeycombs began appearing in apiaries; these bees were consuming waste from an M&Ms factory. When we create a colorful candy or an eye-catching garnish for a cocktail, we also create a colored honey. Our inputs and outputs are connected in complex ways. The bees labor alongside us.

Now think not only of the M&M, but of corn sugar, packaging, distribution, dyes and flavorings, advertising, corporate bottom lines, and carbon emissions: a web of systemic connections among inputs, outputs and contexts.

It's important to say that small doses of many of these petrochemical products will *not* harm you as an individual body. But at scale, at the scale of global capitalism, they are harmful to humans and other species.

For instance, producing vast volumes of benzene with petrochemicals is cheap. You can produce benzene from the bark of a tree, as it once was, and it was precious. Using petroleum means you pay for that benzene in far greater ways: at a species and at an environmental level. Tonight, we discussed issues of small-scale production and massive human populations. In theory, we are all entitled to the same inputs and outputs; but are any of us really entitled?

The problem is outlined by Paracelsus, the 16th century physician and alchemist who stated "It's The Dose That Makes the Poison." But on a planetary scale. Our use of petrochemicals has brought geologic and human time scales into a strange synchronicity. Patterns and processes that once took millions of years to unfold now play out within the short span of a human life. By consuming this meal, we participated in this petro-chemical time shift, and we are implicated in its effects. But this meal is not unique: all of our meals, these days, are geological.

Thank you to everyone involved in project:

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