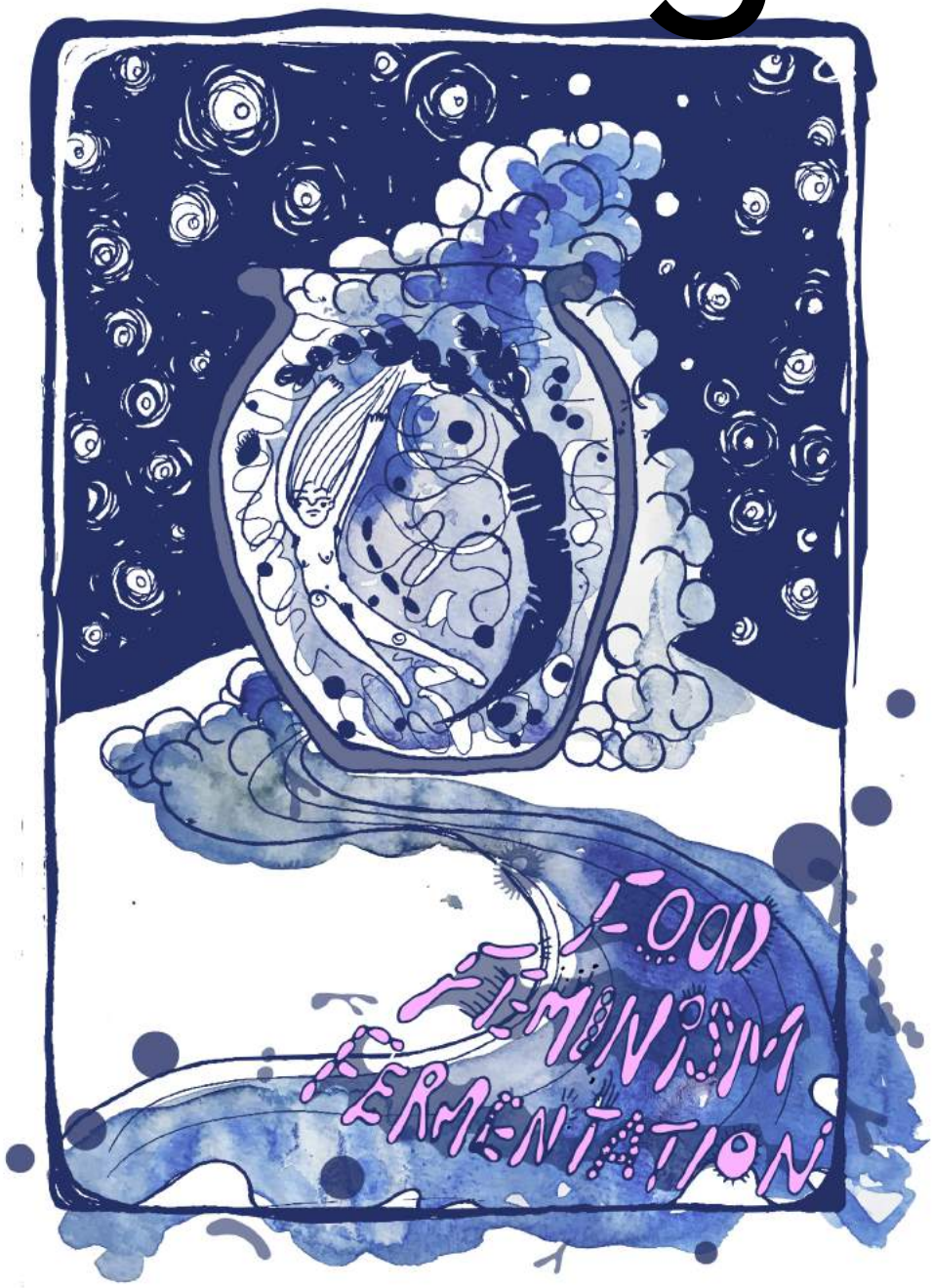
musings



2019 edition

musings 2019

food
feminism
fermentation

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About
fff is an organization dedicated to bringing the three themes of food, feminism, and fermentation together.

Food-making affects how we make our bodies and our selves. Feminist thought critically connects power & ethics across embodied difference. And, fermentation transforms how we eat, how we think, and how we live.

With these ideas in mind, we aim to invite discussants, and engage in conversations across culinary, health, and educational sectors.

musings

2019

stories with food, feminism, and fermentation

Kathryn Fraser • Caroline Granger • Maya Hey • WhiteFeather Hunter
Sandor Katz • Michaela Kennedy • Alex Ketchum • Alanna Lynch
Lucia Solis • Salla Sariola & Matthäus Rest • Arianna Sikorski

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Foreword

2019 has been a rough year. For many of us, the pressures and burdens of everyday life (let alone the global uprisings and environmental disasters of late) have been relentless enough to make December yet another month of bumbling, stumbling through. In our collective sigh of '*are we there yet?*' it seems that the new year and new decade cannot come soon enough. Yet, herein lies the sobering reminder that, perhaps, the December of yesteryear was equally heavy and we were probably trudging through it all with the same glurk and mire. It is not the times that must change but our outlook on it.

But this preface isn't meant to be a toxic positivity message; and, if the themes of food, feminism, and fermentation can help us to think through anything, it is to critically engage with questions of how to get to next. Earlier this year when life events threatened my own safety and wellbeing, I considered moving to Berlin or Melbourne, as if starting over was the answer to clear the literal and mental detritus that weighed me down. When I was reminded by my community that perhaps I should stay in Montreal (because *community*), I moved house, taking all of my ferments with me, even the ones that were themselves on the brink of questionable safety. Faced with the option of picking through the rot to excavate a potentially viable starter or simply starting (or buying) anew, I thought about the value of working through the muck.

Echoing what Donna Haraway describes as staying with the trouble, the lessons garnered from being present with calamity are in engaging with layered truths, sometime difficult truths, and knowledges that don't have clear-cut or convenient answers. It is learning to participate because of precarity and uncertainty, not in spite of it. It is playing with the imaginative and the generative when all else seems asunder and awry. It is believing that another world(view) is possible and worth cultivating even if it is not a guarantee, and to keep doing so under extreme duress.

The pieces included in this collection demonstrate such engagements. Each piece agitates a worldview, pushing against the boundaries of what can and can't be done, what ought or ought not to be expected. The contributors in these pieces offer new ways of seeing, being, and living with others who we cannot easily see or understand. Some provide historical context; others offer poetic, artistic inspiration. It is my hope, dear reader, that we can work through this shit together. I suggest that we take our cues from the cultural, microbial fervor around us and organize resilient communities in the year ahead.

M.Hey
30 November 2019

1 Culturing Creativity, and a little bit of shit stirring

In early 2017, I began a series of collaborative projects that investigated the material nature of the bacterial cellulose that is produced when fermenting tea in a symbiotic culture of bacteria and yeast (SCOBY). I wasn't interested in the popular SCOBY byproduct of the kombucha beverage itself, and its 'probiotic' effects. Rather, as a biotextile artist-scientist, my interest is mainly in the applications of that cellulosic mat, and how it can be explored as a biomaterial.

Fig. 1: Process of growing Bucci with 3D printed embellishment, 2017. WhiteFeather Hunter photo.

Fig. 2: Detail of Bucci *skirt, 2017. WhiteFeather Hunter photo.*

In 2011, designer, Suzanne Lee popularized the notion of a SCOBY biomaterial through her construction of a (temporarily) wearable garment[1], but her project doesn't seem to have actually gone anywhere long-term productive after its initial splash. This, of course, left plenty of room for many curious, creative types to then pick up the idea and try to run with it. Indeed, SCOBY 'bioplastic', as it is now commonly referred to in fledgling biomaterials research communities, has, in the past few years become all the rage. An international crowd of biomaterials enthusiasts, post-humanist practitioners and would-be, next gen entrepreneurs proliferate on Instagram, self-promoting experiments and building on each others' discoveries, post by post.[2]

My first wearable bioplastic project, entitled *Bucci*, with biodesigner, Théo Chauvirey, involved the production of a hybrid cellulose material. Together, we brewed hundreds of litres of kombucha in inflatable kiddie pools placed all around the laboratory floor.[3] During the brewing process, we laid 3D-printed designs (designed and printed by Chauvirey) onto the top of the pool-shaped pellicules, or thick biofilms that were newly forming (Fig. 1). The designs were printed flat using polylactic acid (PLA), at a mere 1/8mm thick. As the *Acetobacter xylinum* sp. built up its spongy metabolic byproduct (the pellicule), it meandered through, over and around the 3D-printed patterns to completely encase and solidly incorporate them into the overall 'mother'.[4] PLA is a plant-derived cellulose bioplastic, so the end product was a hybrid of two forms of cellulose, into a novel bioplastic that I constructed into a garment (Fig. 2). However, like Lee's garment, *Bucci* proved to be a bit unreliable, somewhat ephemeral and fragile--it would slightly re-wet and droop in humidity, and crackle or tear in more arid conditions (Fig. 3).

Fig. 3: Detail of Bucci shirt, after desiccation and deterioration, 2018. WhiteFeather Hunter photo.

The next collaborative project, entitled, *Plump and Pliant* (short title)[5], was with art conservator, Courtney Books. Courtney was interested in experimenting to discover if it is possible to extend the life of kombucha cellulose works like *Bucci*, and more generally, ephemeral biomaterials that artists work with. We continued with the same kiddie pools of ferment that Théo and I had initiated, using excess (waste) pieces that hadn't made the cut for *Bucci*. Courtney and I methodically tested dozens of different formulas in various proportions and percentages on the raw cellulose, combining organic and chemical stuffs based on her knowledge as a conservator, and my experience as a biomaterials researcher and artist (Fig. 4).

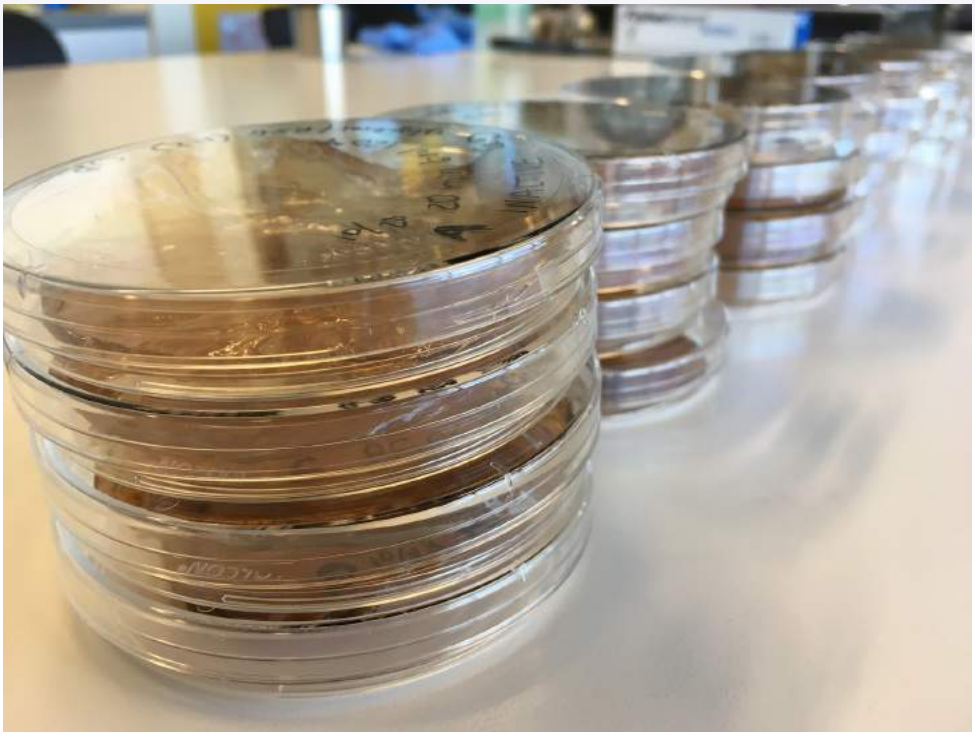

Fig. 4: Test samples of Plump and Pliant experiments, 2017. WhiteFeather Hunter photo.

Together we invented a new treatment that changed the properties of the kombucha cellulose to that of a 'plump' and 'pliant' material that effectively: resists rewetting, resists losing moisture mass, stays flexible and rubbery even when dry, and is significantly stronger than without the treatment. Essentially, our formula retains the allure of a wet 'mother' without being wet, and fuses with the structure of the cellulose mat to stabilize it.[6] Our invention led to the next project, with artist, Tagny Duff. Tagny had been witness to some of the experiments and ongoing refinement of results that were taking place in the lab during my work with Courtney, and immediately saw the value in the new material. She asked if our new invention could be immediately applied to art production, a real world proof of concept put to the test outside of the lab and under the hot lights of a gallery. I agreed to work with Tagny, to co-design and solely construct two new bags that would encase some of the vessels she'd had produced for her project. As a collaborator, I creatively interpreted two images of (pre)historic carrying containers, materializing her idea to make the vessels wearable by future humans (Figs. 5 and 7).[7]

The new bioplastic fabric performed extremely well: no tearing, which meant that the glass vessels full of fermenting feces it carried would be secure.

Fig. 5: One of the bioplastic bags co-designed and constructed by WhiteFeather for the Wastelands project by Tagny Duff, 2018. WhiteFeather Hunter photo.

Fig. 6: Detail, bioplastic bag co-designed and created by WhiteFeather for the Wastelands project by Tagny Duff. 2018. WhiteFeather Hunter photo.

Drawing on my background of 20 years as a textile artist and educator, I used the newly invented bioplastic as both a leather-like fabric, as well as twisted some of it into a new form of rope, to construct two completely different carrying containers that would make Tagny's glass biogas generators wearable. For the first, I hand-stitched together a purse using needle and waxed linen thread (Fig. 6). The new bioplastic fabric performed extremely well: no tearing, which meant that the glass vessels full of fermenting feces it carried would be secure.

Using the new rope to construct the second bag, I bound the rope pieces together to form a net meshwork that was tightly knotted at the bottom. Again, I was pleased to see how strong and durable it was, meaning no spilled shit, when the fragile biogas generator it contained was worn.

Fig. 7: One of the bags co-designed and constructed by WhiteFeather for the Wastelands project by Tagny Duff, 2018. WhiteFeather Hunter photo. Shown here with empty laboratory reagent bottle prop, not used in the final work.

This progression of ever-more successful collaborative projects also formed a net meshwork amongst a number of human actors who amplified each other: artists, designers, conservators, curators, gallerists, fashionistas, students, but also, of course, some nonhuman actors: microbes. I am, however, highly resistant to referring to the microbes we work with as, "collaborators" despite my desire to acknowledge their role in the process and meshwork.

As an artist, I consider collaboration as something requiring the free will and intent of all autonomous parties involved. In a human understanding of the world, there is no sure way to know that the microbes or other living systems 'want to' make art or anything else with us. Their carrying out of their normal life processes in coordination with our manipulations is not enough indication to draw such a conclusion, and while fun and useful in some regards, we also need to temper our anthropomorphism.

One may theorize that *animism* might lend micro- or other organisms some agency enough to be "collaborators" but this is problematic for a couple of reasons. For example, the extreme of assigning autonomy to all single-celled organisms has the potential to be extrapolated to draw conclusions that run dangerously close to anti-choice (anti-feminist, pro-life) sentiments. While some single or organized cells, such as microbes, do seem to function as autonomous agents, not all do. Others are dependent entirely on larger systems, such as a woman's body or a laboratory incubator and the electricity that powers it, and are therefore inarguably nonautonomous.

Also, to believe in friendly collaborator micro/organisms who wish to help make human experiences (art, architecture, etc) would be to perpetuate human exceptionalism, antithetical to the kind of work post-humanists mean to engage in. We are producing these objects ultimately for human pleasure (Fig. 8), or as a form of solutionism to continue human experience on the planet, after all.

While our work as artists et al. can indeed be quite spectacular, and culturing creativity is a wonderful endeavor that can involve multiple species and things in different ways, I think we must be careful when promoting our work within accelerationist, capitalist biotech paradigms such as 'the next big thing', 'lifestyle' or even 'save the planet'. We simply don't know enough yet. We still have a lot to learn together.

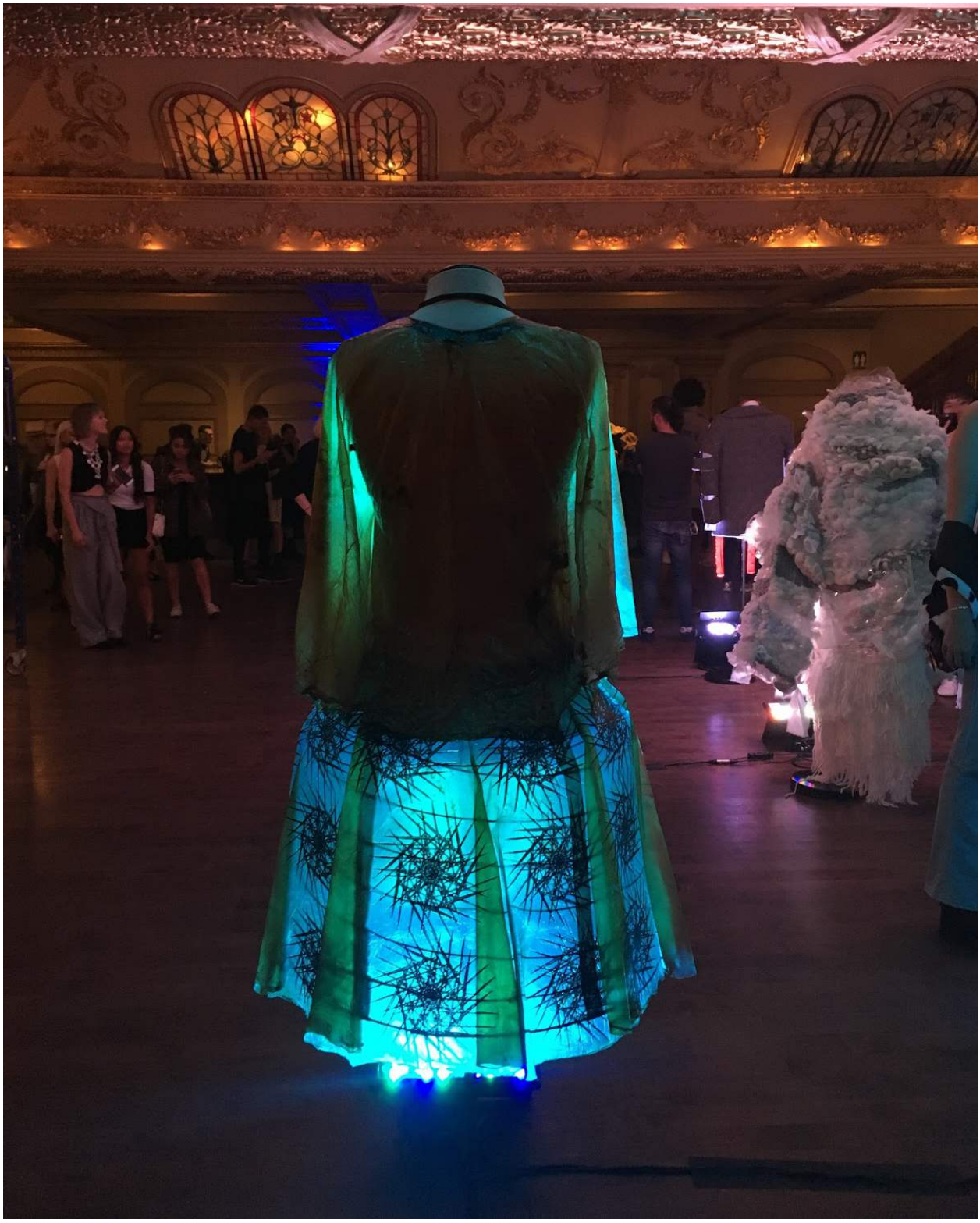

Fig. 8: Bucci presented at POP Montreal's Fashion POP event, 2017. WhiteFeather Hunter photo.

Fig. 9: Detail of the mesh bag co-designed and created by WhiteFeather for the Wastelands project by Tagny Duff, 2018. WhiteFeather Hunter photo. Shown here with empty laboratory reagent bottle prop, not used in the final work.

The string of collaborative and generative projects that I have outlined here: *Bucci* with Théo Chauvirey, *Plump and Pliant* with Courtney Books and *Wastelands* with Tagny Duff were developed amongst a milieu of researchers and artists at various stages of their careers, between faculty member and independent professional, to technical staff and student researchers. In my collaborative arrangements, my intention is always to flatten hierarchical norms to equally value all forms of contribution, whether they be concept, labour or technical expertise. I might say, then, that the bacterium *Acetobacter xylinum*, rather than function as a "collaborator" or solution to any global or future problem, instead acted as a metaphorical leavening (and levelling) agent within my human collaborations—fermenting new levels of transformational, transdisciplinary work that both elevated and re-calibrated each collaborator and our creations.

Notes

1. Suzanne Lee: Grow Your Own Clothes. Performed by Suzanne Lee. YouTube. May 6, 2011. Accessed March 31, 2019. https://www.youtube.com/watch?v=3p3-vl9VFYU.

2. Some examples include @makegrowlab, @tiareribeaux, @superficie_fermentada, @scobytec on Instagram.

3. The lab referred to here and in all of the mentioned projects is the Speculative Life BioLab, part of the Milieux Institute for Arts, Culture and Technology at Concordia University, Montreal, Quebec, Canada.

4. Another common lay term for the cellulose pellicule.

5. The full project title, which comes from the title of Courtney Books' thesis proposal (2017, unpublished), is Plump and Pliant: experimental fluid retention for keeping formerly living biofilms life-like.

6. Our exact formula has not been published yet, but will be made freely available through forthcoming publications.

7. Wastelands by Tagny Duff was an artistic production with a number of support people, towards the exhibition, MATTER(S) matter(s): Bridging Research in the Arts and Sciences at the Eli and Edythe Broad Art Museum at Michigan State University, exhibited October 2018 - March 2019.

WhiteFeather Hunter *is a multiple award-winning Canadian artist and scholar, as well as an educator, curator and writer. She is currently a SSHRC Doctoral Fellow, Australian Government International RTP Scholar and University of Western Australia Postgraduate Scholar. She presents her work internationally, most recently at Ars Electronica (AT), École Polytechnique Palaiseau (FR), University of the Arts Helsinki (FI), KIKK Festival (BE), the Australasian Animal Studies Association Conference (NZ) and in numerous North American cities.*

Sandor Ellix Katz

2 The Fermentation Revival in Historical Context: A Feminist Perspective

Every year since about 2011, various trend-tracking entities have declared fermentation to be a new trend in food. This always strikes me as absurd, because the products of fermentation have enjoyed enduring popularity since long before our lifetimes, or those of our great-great-grandparents. Wine did not suddenly become popular in the new millennium. Nor beer, nor bread, nor cheese, nor yogurt, nor chocolate, nor coffee, nor vinegar, nor soy sauce, nor fish sauce, nor even kraut, pickles, and other fermented vegetables.

Fermentation is so fundamental to food traditions around the world that almost every individual in almost every part of the world eats and drinks products of fermentation every day. There is nothing new about fermentation. It is a natural phenomenon long preceding (and probably facilitating) the emergence of aerobic life forms such as ourselves, which human cultures observed and have made use of and elaborated for thousands of years, to make alcohol, and to make food more delicious, more stable for storage, more digestible, more nutritious, and less toxic.

Although fermentation has been an important aspect of food culture around the world for thousands of years, it cannot be denied that there is renewed interest in the phenomenon. To some degree this is due to growing awareness of the microbiome. The earliest triumphs of microbiology involved identifying pathogenic organisms, which led to a war on bacteria which indoctrinated people raised in the 20th century to associate bacteria with danger, disease, and death. The 21st century perspective has become more nuanced, recognizing that we are host to elaborate microbial communities, which are essential to our functionality and well-being. Foods that had been there all along became sought after for their probiotic value, with promise for treating digestive problems, stimulating immune function, improving mental health, and more.

Photo: Hex Schlossman. Used with permission.

In my frequent interactions with many different people around the topic of fermentation, I have come to recognize another important reason why so many people are becoming interested in it: a broad desire to be more connected to the food they eat. I see this as a historical pendulum swing, an inevitable reaction to more than a century of people becoming increasingly distanced from the food they eat. Over the course of the 20th century (and earlier), fewer and fewer people were involved in agriculture, and the production of food became more distant. Food began to be mass-produced, and increasingly pre-processed. Refrigeration and chemical preservatives meant that food could be transported further and stored longer.

But these forces all made food more of a mystery, as food production disappeared from the fabric of daily life. And in recent decades people began to recognize that certain illnesses could be attributed to the quality of our food; certain environmental declines were due to agricultural methods, as well as the transportation of food; and that removing food production from the fabric of our communities was part of our economic problems. Increasingly people have begun interrogating their food: Where was this grown? How was this grown? What ingredients are in this? How is this processed? And once people begin asking questions like this, fermentation is part of the answer, because really quite a limited proportion of what we eat is raw products of agriculture.

When I reflect upon how these historical forces manifested in my own family, feminism is an important part of the story. Betty Ellix, my mother's mother, the grandmother I knew and loved growing up, was born around 1910 in what is now Belarus. She came to New York with her family as a child, in 1920, escaping anti-semitic pogroms. She met my grandfather Sol, another Jewish refugee from Belarus, on Coney Island in the early 1930's, where each had rented a bungalow with friends for a beach getaway. My mother Rita was born in 1936, the first of three sisters. They lived in Crown Heights, Brooklyn.

Betty was a housewife, who cooked lots of elaborate old-world foods. Every year for Passover she would make us delicious gefilte fish and light fluffy matzo balls, everything from scratch. When I was a kid, periodically, she would come over to our apartment and spend a day making blintzes. This involved many steps: making the lightest eggy crepes, cooling them on tea towels, then filling each one with a peppery cheese mix, folding, individually wrapping them, and filling our freezer with them. Then, for months we could pull one down and heat it for a quick meal. Grandma also made chopped liver and many other delicacies, without recipes, as she had learned from her mother and grandmother, and so on.

My mother and her sisters came of age in the 1950s and 1960s with zero interest in learning their mother's time-intensive old-world culinary techniques. My mother had feminist yearnings not to be limited by her gender, and career ambitions that were quashed by her father, who considered them inappropriate. She and her sisters saw the long hours their mother spent in the kitchen as a form of subservience that they rejected, like her role as a full-time mother and housewife. For them, like countless other women of their generation, simpler dishes, convenience foods, and take-out restaurants represented liberation. Even grandma loved some new convenience foods. Whenever we visited her, she would buy Jiffy Pop and we kids would gaze with wonder and delight as the package exploded and swelled on the stovetop.

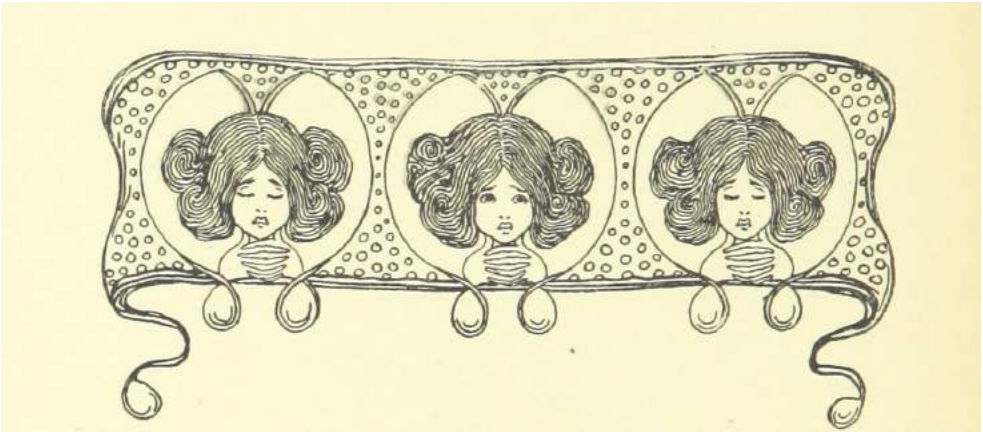

Image: H. Stratton, 1896, Courtesy of The British Library

I don't mean to suggest that my mother didn't cook at all. She cooked dinner most nights, and generally I enjoyed her cooking. She loved food, and she found food interesting, and she liked learning about food and trying new things. But she generally liked to keep it simple, and often served canned vegetables, frozen French fries or fish sticks, or other convenience foods. As a feminist working mother, she made sure all her children were trained in the kitchen. My regular assignment from a young age was salad dressing. My father liked to cook too, though (while they were married) he mostly cooked on weekends and my mother managed our everyday feeding.

A corollary to my grandmother's long hours in the kitchen was my grandfather's utter unfamiliarity with it. When they got old, especially after my mother's death at age 51, my grandmother rapidly slid into dementia, and at some point it was determined that she could no longer safely cook or take care of herself. She was moved into a nursing home, leaving my grandfather for a time alone at home. It turned out that he didn't know how to make coffee, boil water, or reheat leftovers. I've now seen this happen to many old men unlucky enough to outlive the wives who had always taken care of them. Rigid gender roles not only burden women, but also infantilize men.

…the most important quality of food
is its universality: We all need it.
Men need it, women need it,
the most straight and narrow families need it,
the most marginalized queers need it,
transgendered people need it, we all need it.

As someone who calls himself a fermentation revivalist, I find it very interesting that in most cultural contexts, throughout history, fermentation has primarily been the domain of women. The late American beer writer Alan Eames recounted an exchange he had with a group of Quechua women brewing chicha, after he asked them whether men ever brewed beer. "My question was met with gales of raucous laughter. The women howled. Bent over in hilarity, one replied, 'Men can't brew! Chicha made by men only makes gas in the belly. You are a funny man, beer is women's work.'" The Quechua are hardly unique in this view. "Worldwide, women are recognized as the original brewers of fermented drinks," writes feminist theorist Judy Grahn. It is ironic that brewing specifically, in the Western cultural context, has become such a male-dominated practice and bastion of bro culture. There are plenty of accomplished brewers who are women, but few enough that they are something of a novelty.

As a feminist man deeply committed to breaking down gender roles and opening up opportunities to all who are interested, I do not believe that there is anything intrinsic to brewing or any other type of fermentation that makes it better for it be performed by men, or women, or any particular gender, gender being more a spectrum than a binary. As a result of a brief reference in my book Wild Fermentation to a transgender friend who was experimenting with kefir, I received my proudest negative review on Amazon, simply "Transvestites and other miscreants do not belong in a cookbook!" And quite to the contrary, in the foreword to Wild Fermentation, food and nutrition writer Sally Fallon wrote supportively of "iconoclastic, free-thinking individuals—so often labeled misfits—uniquely qualified to perform the alchemy of fermented foods."

I appreciate the sentiment, but I think the most important quality of food is its universality: We all need it. Men need it, women need it, the most straight and narrow families need it, the most marginalized queers need it, transgendered people need it, we all need it. My wish for the growing fermentation movement, and for all the overlapping movements for sustainable agriculture, fair trade, and food justice, is that people everywhere have the opportunity to be liberated from rigid gender roles, and that we recognize the production of food at every level, from the field to the brewery to the home kitchen, as something we all must participate in and share.

Photo: Roqué. Used with permission.

Sandor Ellix Katz *is a fermentation revivalist. His books Wild Fermentation* and *The Art of Fermentation, along with the hundreds of fermentation workshops he has taught around the world, have helped to catalyze a broad revival of the fermentation arts. A self-taught experimentalist who lives in rural Tennessee, the New York Times calls him "one of the unlikely rock stars of the American food scene." Sandor is the recipient of a James Beard award and other honors. For more information, check out his website www.wildfermentation.com.*

Lucia Solis

3 The Hidden Power of Coffee Fermentation

I'm Lucia, a former winemaker turned coffee fermentation designer. I teach principles of microbiology to encourage coffee farmers and producers to adopt a fermentation practice. I was born in Guatemala and moved to California at a young age. I studied Viticulture and Enology at UC Davis and trained as a winemaker in the Napa Valley, working my first vintage in 2007.

After an opportunity with a yeast company in 2014 I was introduced to the coffee industry. I decided to leave the wine industry and switch over to coffee where I saw a lack of female representation. All along the value stream from barista champions to roasters to farm owners, most of the conversations are lead by men. Men are the most visible but the picture of coffee is incomplete without the women who pick and process the coffee. In many countries the women tend the farms and harvest the cherries and they are underrepresented as business owners even though they are part of the foundation.

Roasted coffee is colloquially referred to as a "bean", but it is not a bean - it's the seed of a fruit. The coffee fruit looks very similar to a cherry, and is often called a cherry or grape (it is called "uva" in Spanish). To extract the seed for roasting, one traditional method used around the world is to remove the skin mechanically and allow a spontaneous fermentation to remove the sticky fruit pulp (called mucilage). The microbes found in the environment metabolize the pulp, which allows the seed to dry and make it ready for export and roasting. This process can happen without the intervention of the coffee producer but spontaneous fermentation is inconsistent and can sometimes lead to defects. Due to the increased risk of defects, many producers have opted out of fermentation all together.

When the fermentation step disappeared, so did the complexity of coffee — but it is also for this reason that some producers are interested in bringing it back to differentiate their coffee with intention.[1] My background in microbiology allows me to provide insights into fermenting with control and intention.

In 2014 I began traveling to Central America working with producers to shift the spotlight from roasting to processing and the origin of coffee. These photographs give a glimpse into the nature of my work visiting coffee farms and mills.

COLOMBIA – Planning with coffee producers. 2017.

GUATEMALA – Checking pH of fermentation. 2019.

GUATEMALA – Checking water source. 2019.

RWANDA– Washing coffee. 2018.

HAWAII – Adding yeast to coffee tank. 2016.

Washing coffee after fermentation.. 2019.

PERU – Adding yeast to tank. 2015.

Notes

Credit for all photos: Lucia Solis.

1. Coffee's complexity was not always prized; it is not something that has been lost and is being rediscovered. It is something that is happening for the first time. Coffee is not native to many parts of the world where it grows; it was brought over and set up as a colonial crop and treated as a commodity for the last 200 years. So, it is only recently that producers have been able to escape this model and differentiate their product and get paid according to quality, not just volume.

MEXICO– Monitoring drying. 2016.

Lucia Solis *studied Viticulture and Enology at UC Davis. After graduating she worked at various Napa wineries including Domaine Chandon, Cliff Lede Vineyards and Opus One. After 9 years of working in the wine industry she decided to try a new adventure and apply the winemaking principles that she had learned to the coffee industry. She traveled to 13 countries with yeast in a backpack and began to experiment by inoculating coffee fruit tanks to control the fermentation. Today she is a fermentation and coffee processing specialist and licensed Q-Grader with clients throughout Central America, South America and Africa.*

Michaela Kennedy

4 Embodying Cultures of Cultures

My connection to fermentation started in my mother's kitchen. My parents have made yogurt since I was a small child. They bought a "Yogotherm" brand yogurt maker at a yard sale in 1993. I wasn't involved in the yogurt making when I was a kid, but I observed it as an everyday process; it was part of the weekly rhythm of our life. When I was a teenager, my mom explained to me how to make yogurt. The process involves heating up milk in a microwave or a double boiler. You want the milk to come to a boil and then you cool it down again to a warm-hot temperature, similar to bath water. My mom calls it finger-hot. This means it is cool enough that you can hold your fingers under the water (or in the milk) for a few seconds, but hot enough that you can only stand it for that long. Using a process called backslopping, and only after the milk is finger-hot, you add yogurt from your last batch to the hot milk and keep its temperature for four to eight hours, transforming your milk into yogurt.

Learning about yogurt demonstrated to me the importance of embodied fermentation knowledge. This knowledge must be reclaimed to preserve and (re)kindle human, bacterial and cultural diversity. This is diversity that has been lost through the industrialization of food processing. Industrialization has taken food processing out of the realm of the home, out of the realm of women's work. In many instances, such as yogurt temperature testing, there is a technological replacement for the human hand: you can use a thermometer. However, there is not a technological replacement for all things, and there is no substitute for embodied knowledge and careful observation.

Industrialization of Fermented Foods and the Loss of Embodied Knowledges

While one can follow recipes and use measuring instruments, fermentation can be unpredictable and often the only way to learn and improve your process is through using your senses and learning with the ferments. With many vegetable ferments, the embodied knowledge you need is of the texture, smell and appearance of the

Punching cabbage
Photo taken by Ronit Jinich.

vegetables: you need to trust in your own sense of taste. Gaining this embodied sense of knowledge in vegetable fermentation is a process that takes time. The industrialization of fermented food broke off the tradition of fermentation as an embodied form of knowledge. Following Lisa Heldke, Maya Hey describes fermentation as a form of cooking that is a "mentally manual activity" that integrates mind and body in order to catalogue senses into experience.[1] Hey writes, "I can hear when a batch of beer is 'done' with its primary fermentation, and my hands know when a batch of bread has been sufficiently kneaded."[2] Likewise, with sauerkraut and kimchi I make, I can taste when it's sour enough to be done (for me), and I know how the cabbage should feel before it goes into the jar to ferment. With yogurt, I am learning to feel what the optimal temperature milk temperature is to add the yogurt starter (or backslopped yogurt) to it.

The empirical and embodied knowledges work together to give us a more complete picture of how the transformative process of fermentation happens.

With the industrialization of fermented foods, however, we lost a lot of these embodied knowledges. Instead of fermenting by touch, taste, smell, hearing, and sight, fermentation became strictly measured, using lab-made bacterial starters, thermometers and strict timelines. The separation of head and hand-work goes along with the Cartesian mind/body dualism where head work is valued over body work, mind over body, intellect over manual labour. This divide is also highly gendered as "mind is rendered equivalent to the masculine and body equivalent to the feminine."[3] So, fermentation was taken out of the kitchen, out of the realm of women's bodies in which it was an embodied activity and into the realm of the laboratory where it became scientized. It became a process that was categorised as either a mental or manual activity, instead of both together.

When I do fermentation workshops I make a point to have participants experience the embodied knowledge that comes with the process: the saltiness of the cabbage, how liquidy the kimchi looks/feels, the temperature of the temperature of the yogurt etc. However, I include the scientific information that goes along with this too — the names of bacteria, temperatures of milk, ratios of vegetables and percentages of salt — because the science of fermentation serves as another way of knowing safety. The empirical and embodied knowledges work together to give us a more complete picture of how the transformative process of fermentation happens.

The Slow Rise: Fermentation as a Kinship of Time

Fermentation is a cyclical process. This is best demonstrated in the process of backslopping that yogurt and other ferments used. However, commercial lab-made yogurt cultures lack the biodiversity of heirloom yogurt and can only be backslopped two or three times before the culture is no longer viable.[4] Part of the kinship of fermentation is the time involved; the waiting and checking and the continuous perpetuation of culture; industrialization often shortens these fermentation processes, and removes the hands-on element.

At a fermentation residency in Tennessee with Sandor Katz, every kitchen surface became a breeding ground for a variety of bugs, scobies, sourdough cultures, country wines and fermented sodas. The sourdough culture needed daily stirring and feeding and frequently made its way into sourdough pancakes. The more we fed it, the more it became one with our kitchen and not where it came from. The sodas needed burping multiples times daily in the Tennessee heath to keep from exploding. The country wine needed stirring and tasting daily. These daily cycles force you to slow down and pay attention. Furthermore, the foods they produce influence and change your eating habits. Buying store bought bread is much removed from the daily commitment that sourdough requires: of feeding, watering, waiting, stirring, kneading, rising, waiting, baking, rising, waiting, rinse-repeat.

You change the sourdough and it changes you.

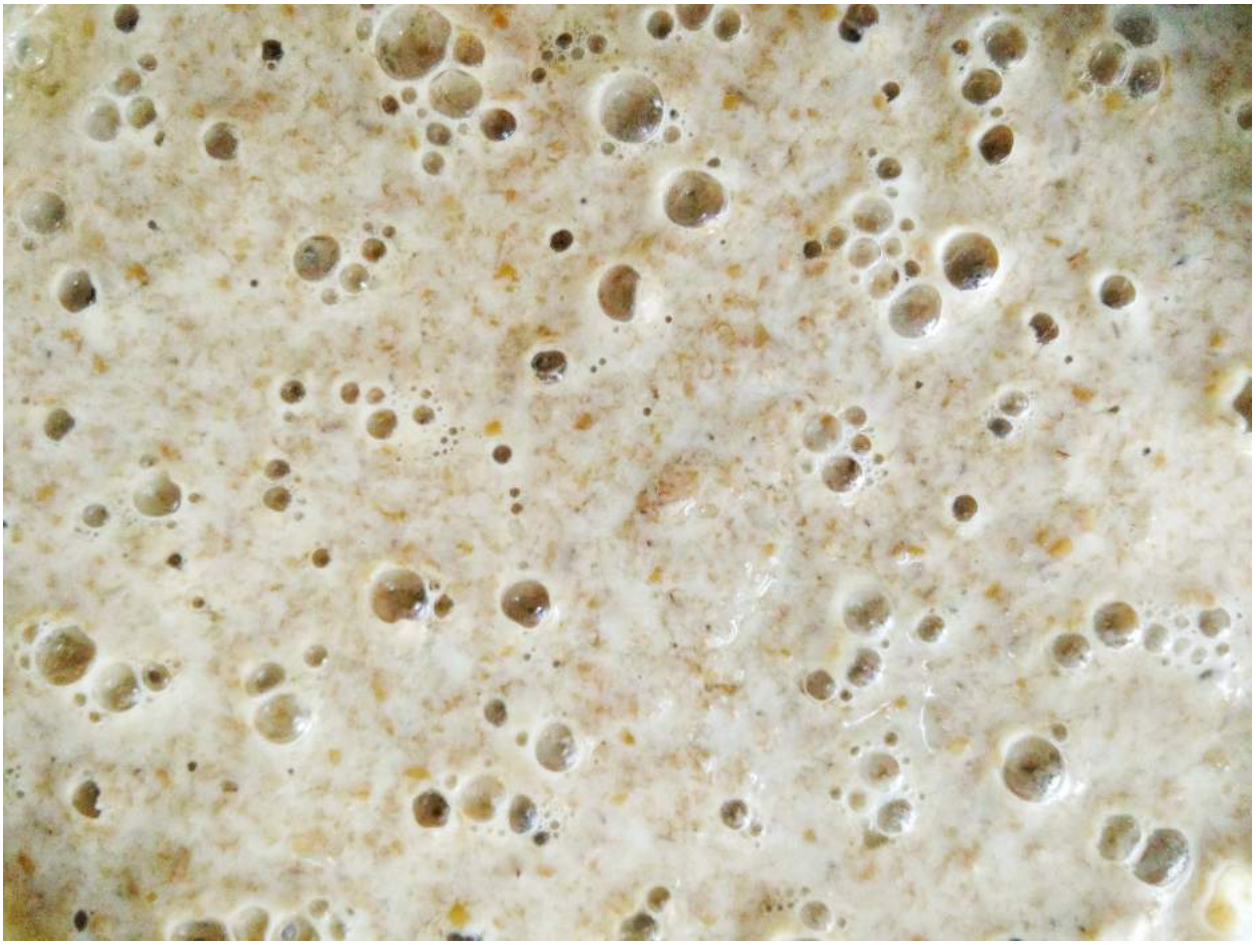

Photo: Maya Hey. Used with permission.

Yogurt was industrialized in larger Bulgarian cities in the 1920s and 1930s, though it was not until the 1950s that industrialized yogurt had reached smaller towns and rural areas.[5] It had been a product made on farms, primarily by women, before this time. In Bulgaria, male scientists then scientized the process. This was done after observing women partaking in traditional yogurt making. While the Western European scientists claimed that the yogurt method they had written down is what from observing the peasant women's methods, something was lost in this translation. Despite trying to be accurate the scientists' description actually transformed the technology.

Before yogurt became industrialized it was made in large five kilogram batches and there was a sense of magic involved in its making: before it was inoculated with the backslopped maya, "magical words, drawing a cross over the milk, and producing special sounds" were used to ensure the success of the maya.[6] In industrializing yogurt making, we not only lost the magic of the process, but scientists required precise measurements of starter culture, scaled down proportions and thermometers to be used. Gone were the large buckets, embodied temperature measurement, and proportions and portions that ebbed and flowed with the availability of milk. In the beginning of yogurt industrialization, the backslopping technique was still used, however later on laboratory-made yogurt starter cultures began to be developed and employed. Male scientists deemed these laboratory-made yogurt cultures to be safer than traditional women-dominated home yogurt making because of the purity of the cultures. The reasoning seemed to be that without unknown bacteria, "pure cultures" were safer. Much of this logic stems from a Pasteurian narrative, where there is a belief in the overall danger of microbes.[7] It seems like scientists believed that the laboratory-made "pure" starter cultures were safer, and that they were protecting people from the dangers of unknown bacteria in traditional yogurts.

Upgrading and industrializing processes doesn't always make things safer, though it does make them look safer and easier to measure. One of the best examples of this is the cheese-making nun. The famous cheese-making nun Noella Marcellino's experience and research with cheese-making, showed that using a stainless steel container for holding the cheese-making milk in, instead of the more traditional wooden barrel, is in fact more dangerous. This is because in the stainless steel container, the milk is not acidified as quickly, which allows pathogenic bacteria to more readily thrive in the less acidic milk environment. She even inoculated both barrels with *E. coli* and found that the *E. coli* died in the wooden barrel while thriving in the stainless steel container.[8] What happens in the wooden barrel is that the bacteria that live in the wood more quickly acidify the milk, which then forms an inhospitable environment for pathogenic bacteria. There is safety in bacterial communities. In aiming to sterilize and purify our way to safety, we can easily neglect the passed-on embodied knowledges that have kept food safe and flavourful for generations.

The process of re-learning embodied knowledge is a reclaiming of what has been lost in the industrialization of food production where embodied knowledge was transformed by the scientific process. My goal in teaching fermentation workshops is to make this knowledge accessible and bridge the divide between the scientific and the embodied.[9]

Notes

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9. Parts of this piece were adapted from the author's graduate thesis completed at York University.

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Alanna Lynch

5 Gut Feelings: A Performance

A long glass container stands on a table, filled to the brim with 18 litres of liquid, inside skin-like substances floating.

I stand up above the table and plunge my arm in.
As I do, my arm displaces the liquid.

It overflows out of the container, onto the table and out onto the floor.

The excess liquid drips, forming pools.
A smell arises and spreads.

As Elizabeth Grosz states, body fluids demonstrate the permeability of the body and "affront a subject's aspiration toward autonomy and self-identity." Without any stable form "they are engulfing, difficult to be rid of; any separation from them is not a matter of certainty… Body fluids flow, they seep, they infiltrate; their control is a matter of vigilance, never guaranteed."[1]

This liquid, kombucha tea—produced by a symbiotic culture of bacteria and yeasts, has been fermented for many months, so the smell is very acidic. It's also sweet from the sugar and there is another smell, slightly unpleasant, like stinky feet. It is composed of bodily smells, from microorganisms related to and residing in the body.

The smell is intense; it takes up space and imposes its presence.

Performance as part of the exhibition Fraud, Fake and Fame – Goldrausch 2016, St. Johannes-Evangelist, Berlin, Germany, 2016. Photo: Christoph Hey. Used with permission.

Performance at Art Laboratory Berlin, Germany, 2017.
Photo: Tim Deussen. Used with permission. www.tim-deussen.de

Smells are molecules of matter suspended in the air. Propelled by the movement of the displaced liquid these molecules disperse outwards and enter bodies through the nose. They make contact with the olfactory receptors, which send a message to the brain, where the signal is processed and the smell perceived. This is the same area of the brain that processes memory and emotions, so the smell may trigger an association or strong feeling. Smells can also influence thoughts and behaviours even when they are not consciously perceived. We communicate through smells.

Within a symbiosis, whether between bacteria and yeasts or the many organisms of human microbiota, organisms living together must communicate. They do this via chemosignals, which are volatile organic compounds, or more simply, smells. Bacteria communicate with each other using this language of smells. They receive smell signals and produce biofilms in response. They can also communicate with other organisms. Similarly we humans also communicate through smells. Our bodily smells, themselves produced by metabolic processes of bacteria that feed off our waste products, communicate information related to health, age, gender, personality type and emotions although often we are not consciously aware of them.

From out of the glass container I pull the material, weighed down by the liquid that seeps out.

I unfold it and stretch it out.

These slabs of matter (cellulose biofilms, housing the microorganisms and produced via the fermentation process) are slimy, stinky, both thick and thin with trailing brown stringy yeasts.

I hang them on a line, out to dry where they continue to drip—further diffusing smell and making puddles.

As I leave the scene what remains is a huge wet mess on the floor. It will take much labour to clean up, not only to contain and absorb the liquid, but the smell and stickiness that linger.

Performance at Art Laboratory Berlin, Germany, 2017.
Photo: Tim Deussen. Used with permission. www.tim-deussen.de

Notes

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Alanna Lynch *is a Canadian artist and researcher based in Berlin. She has exhibited and performed internationally and is a founding member of the artist collective Scent Club Berlin. Her work has been supported by the Canada Council of the Arts and she was awarded the 2018 Berlin Art Prize.*

Alex D. Ketchum

6 Brewing Change: Gender and Labour in Historical Texts

Fermentation appears historically in cookbooks but also in medical guides. It passes in and out of discussions of science, housework, domesticity, business, and the law. Debates around the healthfulness of fermentation practices are not restricted to nutritional science. Rather, similar to theorist Michel Foucault's understanding of biopower, the ideas about what makes fermentation healthy has as much to do with nutritional content as to do with ideas about who are healthy citizens and what are "healthy" or "proper" gender roles. This brings up questions of who should be fermenting? Who should be making money from these practices? Whose knowledge about fermentation is seen as valid? And how is this knowledge regulated and validated?

The themes of food, feminism, and fermentation merge in the ways that certain labour practices are made digestible. While there is nothing inherently masculine or feminine about brewing beer, the way that people write about and discuss fermentation practices grants cultural legibility and social legitimacy to certain individuals' brewing over others. Specifically, this essay will focus on the ways that food and ferment production are rendered culturally appropriate by examining medical, scientific, and culinary texts which mark the shifting gender roles of who dominates beer brewing in Canada, with special attention to Montreal. Second, this essay charts the spaces where brewing took place, shifting from the home to industrial scale and returning partially to the home with the resurgence of homebrewing at the end of the twentieth century. This essay also examines changes around the gender of who brews in order to denaturalize the gendered labour divisions that continue to exist in the world of beer brewing.

A Gendered History of Canadian Brewing

Ideas about the gender of who was allowed to make beer and whose knowledge

about beer was considered legitimate changed over time and place. In Medieval Europe, beer brewing was a household activity. While, according to historian Richard Unger, by the 14th and 15th centuries, pubs and monasteries began to brew for mass consumption, brewing was still primarily a task done by women. European women continued to make beer through the 16th and 17th centuries until beer production industrialized. Men took over brewing activities when more money was to be made in the sale of beer. Increasingly in the 18th century, women were blocked from the business of brewing and were restricted to the role of barmaids or "publicans," licensees running pubs. During this same period, female brewers were depicted as either witches or as incapable of brewing. Expert knowledge about beer production then shifted from the feminine to masculine domain. This transformation was marked by changing language in brewing texts. Texts devoted to women's beer making prior to the end of the 18th century, focused on beer making as part of housework and culinary practices, marked by language of instinct and care. As men became more involved in brewing, texts focused more on ideas of control, medicine, and science. This phenomenon is apparent in Jean-Antoine Huguetan's (1607) *Le Thresor de santé, ou, Mesnage de la vie humaine : divisé en dix livres lesquels traictent amplement de toutes sortes de viandes & breuvages, ensemble de leur qualité & preparation* in which he discusses brewing beer as part of a medical and health practice (112) and in John Richardson's 1788 *The Philosophical Principles of the Science of Brewing*. While timelines vary depending on geographic regions, these major shifts around beer making impacted not only European beer history, but also North American.

As part of colonization, when Europeans immigrated to Canada and settled into rural areas devoid of an established beer industry, brewing again became primarily the responsibility of women. Immigrant guides, such as Catherine Parr Traill's *Female Emigrants Guide* (1855), which were directed at female settlers, explained that brewing was a household responsibility, coupled with bread-making. Although Traill was unimpressed by most Canadian household's beer brewing practices by the mid- 19th century (136), she "cordially recommended [doing it alongside breadmaking] to the attention of the Canadian housewife" (97). Historical household guides and cookbooks directed at women audiences which included beer making alongside recipes for stew and cleaning tips granted authority to women as brewers again.

While on the frontier women were the primary beer makers, in settlements such as Montreal and Quebec a few men attempted to industrialize Canadian beer for over a century. One of the first commercial attempts was the establishment of Louis Prud'homme's brewery in 1650 near Fort Ville Marie. However, the venture was financially unsuccessful. In 1667, Jean Talon, the first appointed Intendant of New France, received royal permission to begin a brewery in Quebec, which he named La Brasserie du Roy. However, it was

not until John Molson began selling beer in Montreal in 1786 and established Molson Brewery, that beer became a truly industrialized process in parts of Canada.

By the 1970s, most Canadian beer production was on the industrial scale and dominated by three companies: Molson, Labatt, and Carling O'Keefe. Industry guides produced from the mid-20th century onward, such as Edward H. Vogel's *The Practical Brewer : a Manual for the Brewing Industry* (1947) and James Richard Allan Pollock's multiple volumes of *Brewing Science* (1979), were directed at an assumed male audience, as men were the chief industrial brewers during this period. Here again we see a dominance of scientific language and an emphasis on quantification and replication.

The craft beer and homebrewing revolutions in the last third of the 20th century led to the publication of numerous home beer making guides. As brewer Frank Appleton, explains in his history of craft beer in Canada, *Brewing Revolution: Pioneering the Craft Beer Movement* (2016), these guides fostered the education of a new generation of beer makers both within the homebrew and craft beer industry. The guides, however, were written primarily by men with an intended male readership. These guides either focused on the scientific and technical aspects of brewing or included sexualized images of women or sexist jokes, denoting that the intended readership was straight men. Now in the 21st century, these two traditions continue with John J. Palmer's informative *How to Brew* (2006) books and website which focus on quantitative measurement and Randy Mosher's *Radical Brewing* (2004), which includes objectifying images of women (35) and exclusive essentializing language such as the line that "today's homebrewers tend to be men, mainly as I believe, as hobbies tend to be more captivating for men" (11). Men continue to produce most of the texts around beer making in North America, however a few authors have written homebrew books with an assumed female or gender neutral audience such as Emma Christensen's *True Brews* (2013). These books reflect the tone of previous household guides directed at women that position brewing alongside cooking and are written with language that encourages experimentation.

Although men continue to dominate the Canadian beer industry, more and more women have risen to roles of master-brewers, founders of breweries, and other positions of power within the beer industry. Organizations like the Pink Boots Society and podcasts such as Marisa Sandlin's "Harpy Hour" highlight women's current contributions to the industry. Groups such as Lady Brew Winnipeg/ Brew Babes Winnipeg seek to increase women's participation in homebrewing yet again. While women have begun to make inroads in home, craft, and industrial brewing in Canada, the multi-century historical transformation of brewing from a woman's household task to men's industrial production, continues to influence cultural ideas about who can brew beer today.

Denaturalizing Gender Divisions in Brewing

When the responsibility of who is in charge of making beer shifts, the language in brewing texts shifts as well. When women were responsible for brewing, writers wrote guides proffering advice for homebrewing, treating it in the same manner as other household chores. Just before beer making would move to the industrial level, men of science would call into question women's brewing practices under the guise of safety and health. When men controlled brewing processes, authors described men's relationship with beer as natural.

Although fermentation is a naturally occurring process and there is nothing inherently gendered about making beer (or even consuming beer!), the gendering of the process of producing beer correlated with the economic power that could be derived from that process. Books discussing brewing reflected these gendered attitudes, both historically and at present times.

The history of Canadian brewing texts demonstrates that hegemonic cultural and social norms can enact power upon our understandings of fermentation practices, influencing the ways we understand these histories of labour and production. Unpacking these histories can help us challenge gendered divisions within the world of home, craft, and industrial brewing that continue to exist today.

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Arianna Sikorski

7 Not Just Yeast: How One Sourdough Starter Bubbled Out Feminism

Socks. Walking shoes. Bathing suit. Layered clothing. Work gloves. Purse. High heels. Sourdough. Of all the things to pack as a first-time solo female traveler headed to live and work in New Zealand in 2014, sourdough was not the oddest item in my suitcase. It seemed natural to have my 100+ year-old Alaskan sourdough starter along for an unknown adventure as it already held a long heritage of exploration. The starter was bestowed by a friend to my parents in the 1970s and was taken with them up the ALCAN Highway when they first moved to Alaska. Not only did it become a cornerstone of their Alaskan adventures and pioneering life building a cabin together, the sourdough also came with tales of their friend's grandmother's brother who used the same starter as an original "sourdough" while mining in the 1890s for Klondike gold. For me, the starter was purely a call to my childhood, evoking memories of my simple log cabin days, birthday parties, community gatherings, and my introduction to the world through the lens of an unforgiving Alaskan wilderness. As an adult, I would use it to serve my family's sourdough recipe of blueberry pancakes while entertaining my California friends with stories of moose attacks, camping with bears, or volcanic ash storms. But the sourdough was only sentimental during those times and sporadically used in adulthood to entertain, that is, until my international adventures began in New Zealand.

By traveling with it on my own and cooking for others around the world, I gained a new relationship with this live culture. I discovered its free spirit of sustenance, the silly joys from bubbles in a well-fed dough, and my heart for home and safety when living the unknown and foreign. After four years, fourteen countries, and over sixty homes of sharing this starter, it, in turn, has allowed me to absorb new cultures, stories, and traditions while continuing to hold my own identity and Alaskan heritage. It's become a powerful instigator for cultural exchange and understanding. Little did I know, however, that my personal connection to female strength and identity would also change through this sourdough and be an inspiration to other women along my journey.

Photo: Invercargill, Arianna Sikorski, 2014.

Up until I began my travels with sourdough, I did not personally identify with feminism. It was a term muddled by varying branches of historical movements, gendered opinions, stereotypes, academic definitions, and diversified cultural commentary. I was not a feminist, I thought. I was curious. I was independent. A doer. Adventurous and interested in practical skills. But never, feminist. Anything I wanted to try or learn had to do with curiosity and ability alone. I wanted to prove to myself I could, if the task interested me. The decision of solo travel, for instance, was a personal challenge, not an attempt to make a broader gender statement or discover a role in female empowerment. Along the journey, however, sourdough became an internalized manifestation of my own feminine awareness and accomplishments. When I buried it in the geothermal grounds of Iceland, experimenting with an Icelandic baking method, I learned to combat failure with time and experience. I was empowered to try new things and interests seemingly outside my reach in Chile when I discovered the sourdough could, indeed, bubble up at 17,000 ft. In the moment I needed an oxygen mask, the sourdough needed nothing but warmth and flour to continue to rise. If it could make it, so could I. This became my relationship with sourdough: moments of life metaphors, removing fears, and encouragement to delight in what makes one happy, no matter the limitations surrounding the idea.

…the true motivator of tension was not necessarily only gender, but fear in many forms. And fear was far more possible to remove from a situation, even with something as simple as sourdough, than my gender and identity.

The one limitation I did not expect to encounter so starkly and have to overcome in all this personal discovery with the sourdough: being female. Many times my gender was established as an obstacle in certain interactions with men that I was innocently oblivious to in my original motivation for personal growth. Not all, mind you. I owe a great deal to many men who supported and encouraged me along my travels. But being female was often made into an issue I did not seek. Mild questions from men like, "Are you sure you can do this?" to more drastic challenges where I was called derogatory names, yelled at, diminished sexually, physically harassed, or diverted from a job that was verbally classified as male-only. As one example, taking apart cars was an experience where my ideas were rejected repeatedly until a younger and less experienced male would suggest we try what I said (which ended up being the solution). My expressing interest in cars was literally dismissed to the kitchen. I would be called to a task like a dog with a whistle and taunting remark, "Come here, bitch, come here." I was accused of being bossy when teaching other males about a job or task, even though I had been instructed to "show them the ropes" by another male manager. Being female remained palatable with these men only if I was in a teachable role, never a knowledgeable or experienced one. These types of obstacles were always surprising to me and fueled my determination to persevere until I could work without a snide tease and be called by my name to go take out a brake booster. It was frustrating, however, to experience the friction between my free spirit and the assumed gender expectations put upon me as an impediment to what I classified as personal interests, not gendered ones.

Ironically, getting in the kitchen with sourdough often opened communication about these negative confrontations in different ways and acted as a peace offering to those who found my strength and determination uncomfortable. Eventually, what I came to accept was to look beyond personal attacks and realize that the true motivator of tension was not necessarily only gender, but fear in many forms. And fear was far more possible to remove from a situation, even with something as simple as sourdough, than my gender and identity. By removing fear, I made more opportunities for constructive communication, growth, and safety, which I now realize emboldens the very nature of feminism. Feminism is the ability for all to discover without limitations from internal or external blockades. Or, more simply put, it is a freedom of self.

Photos: Iceland, Arianna Sikorski, 2015.

This is sourdough. It became my story, my strength to forge out on my own, explore my female narrative and abilities in this world, but it also continues to grow and pass on to others. From little girls in my sourdough classes exclaiming they want to travel like me, to a woman keeping some of my starter and traveling to bake with her mother in Bolivia, the sourdough continues to inspire unhindered curiosity, bubbles, and exploration. It is a companion, a witness to the tales of female discovery. Each time the sourdough grows in a new environment, I see those bubbles, I smell its sweet aroma, and I am delighted, encouraged and strengthened. And this image continues to pass on to many more through the simplicity of what is a basic fermenting yeast, offering a legacy of wild enchantment, underestimated ability, and the food comforts of tradition.

Photo: Santiago, Arianna Sikorski, 2016.

"It's just yeast!" I always say, but I am still learning about the impact of these encounters and sourdough self-discoveries. One of my New Zealander friends recently shared with me her first attempt at life on her own after splitting from her partner and the significance of sourdough. "He got the house, but I got the sourdough. Can I pass some of your starter onto a female friend who has really helped me during all of this?" she asked. It was her first time on her own since she was seventeen and she was encountering the difficulty of supporting herself and her two-year-old daughter; as well as navigating a new identity and freedom in her forties that comes with stepping out from living under bully behaviour.

As I listened to this woman's story about keeping my sourdough, feeding her daughter with it all the way on the other side of the globe, asking my permission to pass it to her female encouragers who helped her step out of an abusive relationship, I realized – the "just" is limiting. The sourdough itself holds its own unique connection between food, fermentation, and feminism outside of my relationship with it. Its history, its essence, its story has the ability to extend beyond my hands and reach others in need of strength.

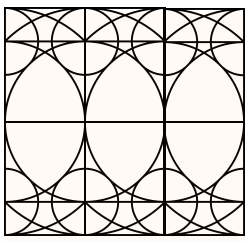
It continues to be a tradition of independence so seemingly outside of my own doing, that I feel privileged to be able to say to another woman "Yes, pass it along."

Arianna Sikorski *is founder of Taste My Culture and spent two years traveling solo through New Zealand, Australia, Europe, and South America. Her sourdough starter was selected in 2018 for permanent preservation and study at the Puratos World Heritage Sourdough Library in Belgium and is featured in the library's "Quest for Sourdough" short film episodes. She currently works in the arts and cultural heritage field as a producer, curator, and consultant specializing in foodways programming. Visit www.tastemyculture.com, or see more visuals on Instagram @tastemyculture.*

Kathryn Fraser

8 Find Your Sacred

Find your sacred
in sunlit kaleidoscopes, flickering and slashing green triangular
making peace with shadowed stone and being this
warmth to the touch
not too hot or too cold, 22 degrees exactly according to my friend
and we have much in common
more than differences can bind us or break us
into schismed incisions across landscapes or ideological divides
because we have found our sacred
in red idas fragrant heat snapping right off the tree
and burgeoning love for bodies we have betrayed
so many times before
with subtle criticisms and too many standards which I have
failed to meet, and somehow
still continue to do so when I run away from my responsibilities
throat tightening under the weight of high expectations
pushed pendula running up that hill into nowhere just to convince myself
in windblown grass and rustling reminders that
darling
we have found our sacred



Don't get me wrong, it's absolutely a work in progress
but I am done with all this ruminating momentum
sucking in my stomach at the end of a cut-short meal, feeling
every imaginary spotlight turn full circle
to burn its way through my bloodstream when I feel my flesh
push back against the boundaries of the shirt that I swear to god fit me last year
among the patting of backs and congratulations for the
coincidentally suddenly completely vegan and the weight she left behind just in time for internship selections
because we just want to be healthier
as the discussion trails off over her friend's breakfast
consisting of egg whites, red bell peppers, and the unspoken sentiments of
who would take a fat dietitian seriously?
salt and peppering every moment of silence for our fallen comrades
daisies laid down for dignity and every body that does not fit the mass indexed definition of worthy

And honestly, I am tired of giving nutrition advice
being someone's academic idol when I can't even keep myself together long enough to question why a non-representative average single grade point decimal deeming who is most valuable
is worth more than living our lives
because I know you, in that
through knowing myself, and how many times vitamin C
could not cure the common cold, let alone my insatiable desire
to fix this ache of
I am never going to be enough, am I?

maybe next time it will be almonds, skinless chicken, skim milk, 2 servings of fatty fish a week, whole grain rice, 5 pounds of kale, ½ cup of kidney beans, and precisely
1 tablespoon of olive oil
which cures me
of this all too common insecurity, comparison bear trap bleeding neurotic hematoma
time stamped best after and never before
what exactly
when will it be enough?

Certainly not when I ask her, a complete lack of butter spread
much too thinly over no bread
this living simulacrum of society memberships, memorization, massive overtime,
multiplicity 136 hours of volunteering, spare time exercising,
perfectly polished professional, by which I mean
the feminine martyr eating with moderation cessation and certainly
never gustation
fingers in every single pie and never quite swallowing
pangs in my own stomach, asking
are you okay?
well she must be,
nodding regardless of the slumped over pale, chronic exhaustion,
personal disconnection
and the five predictable internship offers, because who are we kidding
the combination of barely there and also somehow everywhere
is a true showstopper for this crowd
in a competition for belonging where even the winners are losing
and baking cookies for a friend
makes me a temptress downright enabler
but somehow after all this pressure cooking Christ on the cross
I am considered disabled
except no one is the disabler
I cannot breathe in these tight lines and
networked paths to some glossy patina patchwork predictable which only
exists in international units of beta-carotene interchangeable
carrots on a single stick

And I can't do this anymore
and I'm going to say it again while I have your attention
because no one seems to be listening so much as waiting for
an opportunity to tell me I'm wrong
this is not about capability or confidence
this is about the fact that I can't do this anymore in that
I don't want to be these
contradictory conceptualizations of supportive
social determinants of neoliberalistic health
where a need for income, equity, job security, and social safety
does not apply to us
practice what you preach or sister tell me a different story,
because I am done with this

breakneck body wrecked bottle-necked cautionary tale against
just another survival of the fittest
pretending that striving for the best and brightest
battling it out in a gladiator pit
is somehow just what we need to be the
future leaders of collaboration empathy diversity equity inclusivity
neglectfully ignoring every indication that
we are only as good as our neighbours
likewise vice versa if I have learned anything from dead mad women it is that
the public and private are inseparably connected
and to imply that we can negotiate two separate ways of being is
just as failingly dualistic, blame the individualistic
as splitting the head from the heart
means from the ends with
well-meaning dismissals of "take care of yourself" just to
hand me some lipstick and send me back off to the beauty pageant

And here I am yet again trying to define something
fluctuating, contextual, experiential, relational,
inherently unstandardizable
because god knows I would control that too if I could
that is who I am
who we are
the multiplicity of standards and definitions to post on a board
and demand expectations be met for the
all-too-familiar destruction of the very concept which is supposed to defy
judgement
criticism
comparison
and give new life to the idea that maybe it's time to put down our checklists and
look across the table for a moment
whether into the eyes of our incredibly common humanity or
the silver sheen sensation creeping tendrils of doubt
wide-eyed beholder
begging for us to let down our guards and actually feel the suffering of
all these bodies needing a kind hand to hold while shaking uncontrollably
until the moment breathes into another and high-rise terminates
the competition that I can't seem to shake from my bones no matter how hard I
try
these trembling inadequacies seeking shelter from the onlooking crowd
silently turning away yet again with
fear seeping through my fingers and staining everything I touch
feeling accomplished as long as I hit the target regardless of the shrugging
shoulder walking away gut punching casualties
both by name and exhausted dismissal

And for a single moment,
I wish I could say his name again
confidentiality pen slashed permanent fixtures be damned
because he deserved more than the sterilizing erasure of objective reporting
permanent records of his so-called personality flaws
and problems blamed on his
inability to magically manufacture money and a cheery attitude while hanging at the end of his lifelong rope countdown just waiting to tighten
thirty seconds to acknowledge a complete waste of impoverished potential reduced to
a collection of Medi-tech judgementals
this biomedical problematic list of all his failings without ever acknowledging his humanity
or my crying on the phone while he took the time from falling apart just to comfort me
more than 'inadequate oral intake related to' honestly who gives a shit
sobbing out the air in my lungs and hoping
it finds him through the telephone lines
so that maybe he can feel what it's like
for at least one person to breathe more than a sigh of relief
at his impending death
in the middle of his whole life dissolving and my
complete inability to make it better
I can only hope that for a second I was there for him

Now returning to washing linen with ink and hoping for anything except the colour grey
on days when that is the only feeling I know, unable to stop
pulling the spirit from the spiritual
just to taste the ethereal
for a split second before coming back to a
haunted house and
I hear they wonder why we're so damaged
years of chronic conditions blamed on our bodies instead of
the social virality that is oppression or poverty
and the gradual erosion of hope
narrowing my ability to see a future for so many of us

only tunnel vision in the tarot cards, among the
memories of pulling me up by my bootstraps and wrapping them around my throat
this absent body
and just another set of reductionist implications
stealing the souls of all our good intentions
asking me 'how do we make this better?'
I don't know
So instead I stand here with no good answers
And enough questions to fill an entire ballot box with
some piece of meaningless political crying out for mercy
the demand for humanity to be given a second chance to be more than
an expert-driven list of accomplishments at a pre-set optimal
My pleading to be

flawed again

And darling
do not fall prey to this mass delusion
gradual structural psychosis which tells you anything other than
you are more than the buttons, bows, and curriculum vitae accolades
the impression you can't help but make
in the body you can't stop from speaking
hand wringing, cuticle picking, hair pulling,
pacing, silent screaming in the dark
five thousand hours spinning worry into your pillows when you should have been dreaming
more than this permeating stomach clenching panic-stricken perforation of

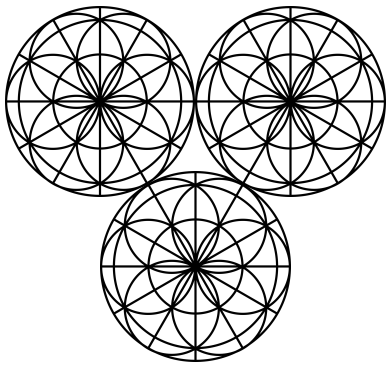
what is wrong with me?

because the answer is nothing
I repeat, just in case you were definitely distracted, the answer is nothing
there is no subset selected sumptuous harvest
mathematical collection of greater than differentials
more or less appropriate personage and better fits based on our ability
to perform this people-pleasing ubiquity
because you too are worth so much more than this objective erasure
this arbitrary list of acceptables, soul-soothing wine,
and desperation turpentine
please do not feel the need to squeeze into that box
spread out in your space and push back against
that corrugated cardboard claptrap
until it bends blissful against your body's borders, crooks, crannies, and idiosyncrasies
and, if you ever feel lost, alone, or unlovable
know that you aren't the only one

most of all, know that you are fine just the way you are
regardless of praise and type-written legitimacy
and if, my darling, on the days you cannot breathe through the fog anymore
know that there are those of us who will be here holding out in your stead
with hands joined round the table summoning up all our courage to be
loved again for everything that we are and never will be
and loving ourselves again for everything that we are and never will be
and loving others again for everything they are and never will be
at the beginning of meeting ourselves where we stand and
taking a risk in

scavenging for exactly three cherries to split between three people
an insistent midnight phone call reassurance that we are not broken
half a tuna sandwich to soothe someone's sadness and
finding love in seemingly insignificant actions
the persistent hope that one day we will all

Find our sacred



Notes

This spoken word poem was written as a means to access and voice embodied knowledge relating to the experience of dietetic education. It is continually evolving, and meanders through personal experience, dietetic education and practice, as well as the broader social forces which impact health.

Kathryn Fraser *is currently completing her MSc AHN at Mount Saint Vincent University. Her research interests focus on embodied, relational pedagogy and practice in dietetics; discourse and ideologies around food, health, and bodies; social conditions which uphold health inequities; and arts-based methods of research.*

Salla Sariola & Matthäus Rest

9 Attuning Entanglements: Notes on a Fermentation Workshop

In the darkest hours of a damp autumn night in 2018, we met in front of a late-night grocery store at the end of Oxford's Corn Market Street. We had both arrived from elsewhere in Europe that evening with minimum luggage and now our mission was to source the final equipment required for a fermentation workshop that we were about to organize the next day: milk, flour, salt, a mixing bowl, and tubs for workshop participants to take home the goods. We heard the nearby church bells chime for midnight as we walked our bags to Balliol College where Matthäus was lodging. We immediately got to work: making preparations for the microbes to thrive on time for the workshop in the morning.

Many fermented food practices require the use of old batches of cultures to activate the fermentation in a process called 'back-slopping'. We both had brought with us starter cultures, which, however, was not straightforward given that microbes need time and care to work; international regulations for transporting microbes restrict possibilities for giving microbes the attention needed. A few days earlier, in Jena (Germany), Matthäus's colleague Jessica Hendy had given him some of her sourdough mother that he transported to Oxford in hand luggage in a transparent ziplock bag among his toiletries (in German aptly called *Kulturtasche*, 'culture bag'). While he was unsure if sourdough starter qualified as a liquid, airport security hardly took notice. Also, thankfully, pressure differences on the plane did not lead to any explosion. At Balliol, Matthäus proceeded with the dough, adding more flour, water, and salt - this was necessary for the sourdough needed time to rise before the next day. We didn't know if the air travel had impacted the culture; it looked lively upon mixing it. Tuning in on the dough in the morning, it became clear that it was alive and well.

Salla had equal concerns about the state of her microbes, and had worried how to get them across borders. She had brought a starter culture of viili, a Finnish fermented dairy product, distinct from the more well-known yoghurt, sour cream, skyr, sour milk, or quark. When settled, viili has two layers on it, a creamy thick top layer, and ropey, guey, sour, and more translucent, bottom. As carrying liquids over 100ml in hand luggage is prohibited, Salla had opted to smear a lunch box with the viili culture and planned to use these stains as a starter culture for a new batch.

Vilii, sourdough, milk and salt at the beginning of the workshop, 2018. Photo: Matthäus Rest. Used with permission.

At Balliol, she mixed organic whole milk onto the viili culture and hoped that the room would be warm enough for it to ferment the entire amount. A full tub of viili was needed as a starter culture for the workshop participants the next day.

In the aftermath of the workshop, we wondered about human-microbe entanglements and their relation to time, and in this chapter, we will reflect on the discussions that ensued. Altogether around fifteen people attended the workshop, zipping in and out between other lectures of the conference. These were people who either fermented themselves, or studied fermentation practices, or both. In the absence of scientific tools to 'see' microbes, we tuned into microbes in their processes of fermentation and specifically, their souring effects over time. We made sourdough, cheese and viili and talked about fermentation. Specifically, the chapter will focus on the conversations regarding temporality and attunement as a feminist form of care for microbes.

It takes time to make things with microbes... Crucially, however, this is not time dominated by human schedules. Instead, one needs to attune to the specific requirements of the microbes required for each of the fermented products.

Attuning to Microbial Times

"Fomenting Fermentation" was a four-hour workshop at the Conference of the Association of Social Anthropologists in September 2018. One of the conference organisers, Marcus Banks met us at the venue before the workshop, bringing along his personal pots and kitchen utensils for us to use. As we were setting up the kitchen, he told us about his fermentation practices and the memories collective fermentation evoked. With Marcus it was as with many others: it only takes a few minutes of fermentation talk and our interlocutors are taken back to the tastes and smells of their childhood, the neighbourhood they grew up in, and the social meshworks their families were entangled through the making and sharing of fermented foods. Microbes are never just about microbes.

As our preparations demonstrate, fermentation workshops work only if microbes are given the time to do their thing in their social contexts. It takes time to make things with microbes: kneading, leavening, cutting, baking, eating, and planning ahead. Crucially, however, this is not time dominated by human schedules. Instead, one needs to attune to the specific requirements of the microbes required for each of the fermented product. In order to fit the half day slot, we had selected fermentation practices that we knew would be doable in the time available. This necessarily excluded practices such as pickling vegetables, and making hard cheese, wine, kombucha, beer, etc. that require considerably more time to culture. Thus, key to the successful fermentation at the workshop was to know the various time-scales of the microbes and then to work around this. For the *viili* and sourdough bread, it was necessary to start the preparations in advance as otherwise it would have not been possible to make them. As we work with material agents that we don't have full control over, the best we can do is to nurture the conditions that they need in order to thrive and crucial to this process is to allow the microbes to take the time it takes for them to do what they do.

Attuning to Microbes Across Times

The rationale behind our workshop was to revisit age-old microbes and fermentation practices. Today, many of these multi-species collectives that have been fermenting together, often in unbroken chains for hundreds of human generations, are under a threat of extinction. Key drivers of this have been the radical impacts of capitalist production on the environment, often in short defined as Anthropocene, and more specifically the industrialization and standardization of agriculture and food processing. At the same time, human fermentation knowledge and practices are quickly disappearing. As industrialisation has changed how milk is collected and manufactured, for example, milk culturing that was traditionally women's work has shifted from small-scale home-based activity to corporate style large farms and industrial dairy corporations that are regulated by strict standards of food hygiene. Salla described through examples of her own rural family history in Finland how *viili* making was a daily custom and sourdough rye bread and butter something that her female relatives did weekly. Every day, some of the milk was used to make *viili* in red clay pots, back-slopping with batches of *viili* from the day before.

The bloated culture bags upon arrival in Oxford, 2018. Photo: Matthäus Rest. Used with permission.

Sourdough bread was made in large wooden buckets (called *tiinu*, or *juurisaavi*, the root bucket) that were not washed in between bakes. Crusts of old dough would dry in the edges of the bread bucket and when topped up with rye flour and water, in time, a new dough would start to rise again. If for some reason the dough did not rise, *viili* was used to add cultures to strengthen it again. Since the 1980s, however, when dairy production was corporatized, supermarkets with rye bread in plastic bags became commonplace and elderly generations aged, these fermentation practices ended. One of the objectives of the workshop was to activate these customs, loop across generations and memories and to ensure that the cultures are not forgotten or lost. Simultaneously, we discussed the flipside

of the industrialisation that was often enthusiastically embraced by peasant women as it saved them hours of daily labour and — in many regions for the first time – gave them direct access to money from the sale of the milk to the dairy. Matthäus told the story of an elderly peasant woman and poet from his region in rural Austria who once told him how happy she was as a girl when her family started selling the milk bulk to the dairy processor which meant that her and her sisters no longer had to walk from neighbour to neighbour trying to sell their milk.

It is not just the social traditions, however, that are at stake with time. One of the topics discussed at the workshop concerned how social cultures are connected to the existence of microbial cultures. Elise Demeulenaere, one of the workshop participants, described how in the eyes of the French raw milk producers she is working with the quality of the milk has deteriorated. With hygienic practices imposed by European regulations, the milk has become too 'clean', to the point where it is virtually impossible to make certain traditional raw-milk cheeses without adding starter cultures. Cheese makers across Europe today complain that raw milk behaves like pasteurized milk. This leads to a widespread concern about the microbial potential in raw milks. When traditions are lost to standardization, also go the microbial cultures, leading to simplification and homogenisation of microbes; monocultures.

Matthäus's work in the Heirlooms Microbes project has set this microbial loss as a scientific research question: how have dairy microbes changed since they started fermenting together with humans some 10,000 years ago? Which habitats did they inhabit before they found a new home in milk? How are present-day strains from Jordan, the Alps and Mongolia related to each other? What can this tell us about the early spread of dairying across Eurasia? Combining methods from biomolecular archaeology and socio-cultural anthropology, the project scopes the various kinds of bacteria that are and were used to preserve dairy in various cheese-like and yoghurt-type forms across Eurasia. In light of the threat of microbial loss, Heirloom Microbes is in the process of establishing culture collections across Eurasia in order to contribute to the persistence of microbial diversity. Similarly to back-slopping on the household level, creating non-commercial repositories for cultures becomes a form of care for the future of multi-species fermentation entanglements.

Postlude

In this chapter, we have reflected on a collective fermentation workshop as a feminist modality of caring for microbes over time. The objective of the workshop was to re-invigorate past fermentation traditions and keeping microbes vital by attuning to microbial timescapes. The discussions at the workshop made explicit the gendered relationships of fermentation that traditionally was part of women's work and labour - this was not so in the present day fermentation practices of the people attending the workshop—and the detrimental effects of upscaling through industrialisation that moved these practices to

masculine domains. Importantly, however, attuning to microbial entanglements is not merely about the gendered labour of fermentation but practices of care for microbes should be understood in contrast with an antibiotic, industrial approach to microbes that are main drivers of the microbial extinction to begin with. Modernizing attempts to eradicate undesired microbes has lead to the diminishing of microbes and the social traditions that maintained them.

Caring for microbes in a co-productive workshop meant caring for microbes on their terms and attuning to the conditions that cheese, sourdough and *viili* needed: for microbes to do what they do, we needed to nurture their requirements for nourishment, time, and temperature. All the better, workshop participants got to enjoy the products that we fermented together – we had a nice meal of bread, Indian *paneer,* Swiss *ziger* and *viili* afterwards. The cultures and recipes introduced at the workshop stood the test of time – we were sent pictures of the dishes prepared by participants many months after the workshop. By sharing the cultures, the strains became more wide-spread, and thus more resilient. Attuned microbial cultures are thus entanglements where humans and microbes form more-than-human ecologies where different participants entangle across times and places. These entanglements are fraught, however, and require on-going care, lest contributing to the broader destruction of the Anthropocene.

Salla Sariola *is an adjunct professor of Sociology at University of Helsinki. Her background is in Science and Technology Studies and Medical Anthropology and her current research concerns the social study of microbes that includes fermentation, composting, and making enquiries into the changing scientific practices concerning microbiota and antimicrobial resistance. She is the author of Research as Development: Biomedical Research, Ethics and Collaboration in Sri Lanka (Cornell University Press 2019) and Gender and Sexuality in India: Selling Sex in Chennai (Routledge 2012).*

Matthäus Rest *is a social anthropologist interested in the relations between environment, economy, and time. Currently based at the Max Planck Institute for the Science of Human History in Jena (Germany), he works with biomolecular archaeologists on an interdisciplinary research project concerned with the past and present of dairying microbes across Eurasia. His earlier work dealt with unbuilt water infrastructures in Nepal and the state of suspension their unfinishedness produces.*

Maya Hey

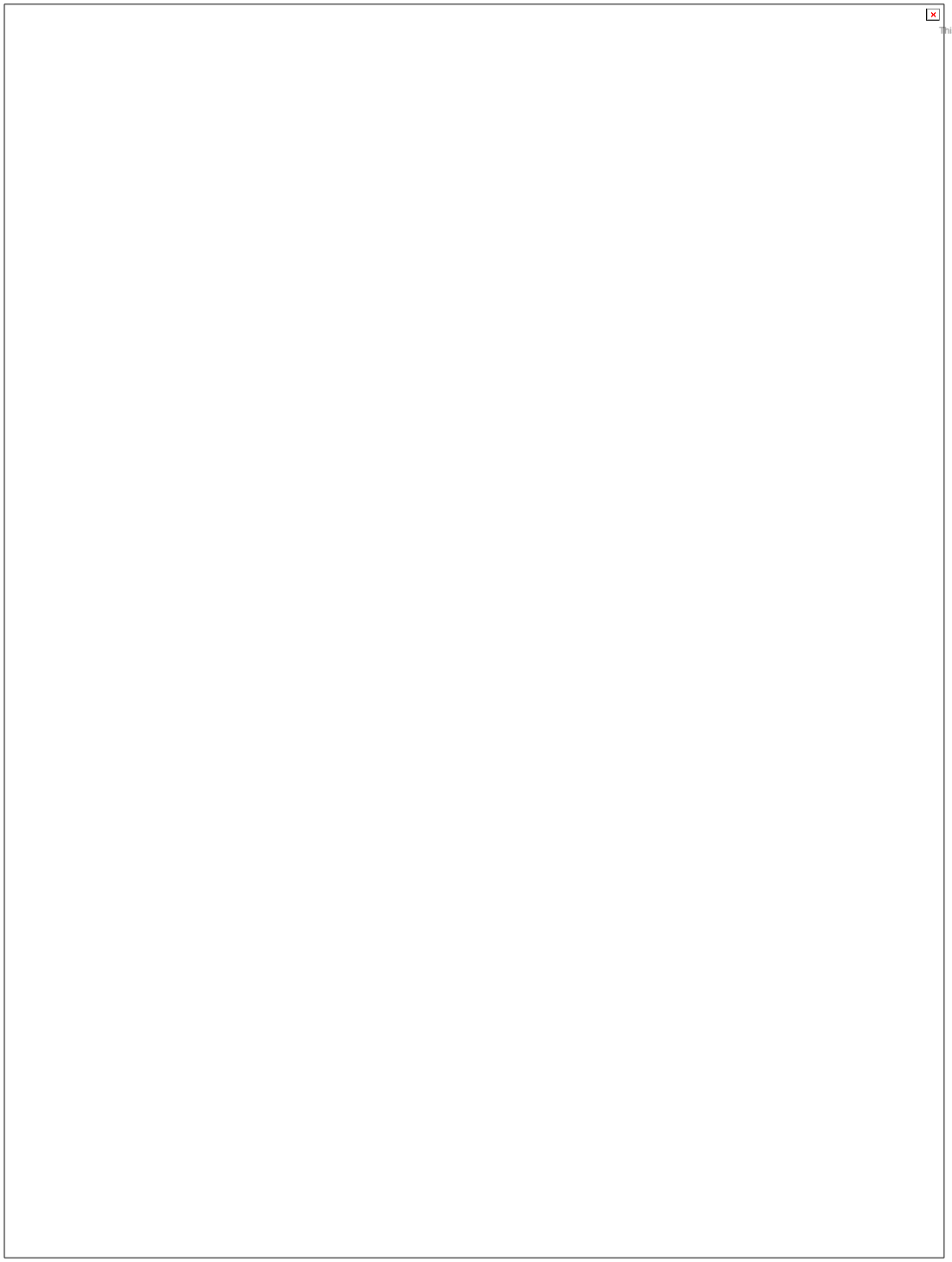
10 Tuning to the Invisible

Terada Honké is a saké brewery with a 400-year history of brewing and fermenting. They follow a hands-off approach to *let* fermentation happen, naturally, as opposed to manipulating and forcing each of its steps. This approach is most evident in how they cultivate bacteria and yeasts from the ambient environment, relying on invisible forces to encourage wild fermentation.

The following images play with the themes of invisibility and scale, to muse through the question of how we live (and work) with that which we cannot easily see. While microbial life is too small for the human eye, they're always present. The incremental transformations that we call fermentation indicate that they're active on scales difficult to detect at the human register. Conversely, we-humans might be imperceptible to the microbe. From their perspective our surfaces are too expansive to delineate borders (making wandering microbes 'unruly') and our actions can be too self-centered and drastic that microbes swap genetic advantages to survive (as in the case of antimicrobial resistance). In other words, we are always already tangled up with microbes, but we do not see each other eye to eye.

Sight can calm our anxieties towards what fails to make sense (informing adages like 'seeing is believing'), which, as Rosi Braidotti explains, has justified turning "visualization into the ultimate form of control."[1] At the same time, Donna Haraway reminds us that ""all eyes, including our own organic ones, are active perceptual systems, building in translations and specific ways of seeing, that is, ways of life."[2] Sight, perspective, and speculation are not passive, especially when one must collate and synthesize a holistic image.

This multimodal way of seeing becomes particularly crucial when species meet: approaching species "takes us to seeing again, to *respecere*, to the act of respect. To hold in regard, to respond, to look back reciprocally, to notice, to pay attention, to have courteous regard for, to esteem […]. To knot companion and species together in encounter, in regard and respect, is to enter the world of becoming with, where *who and what are* is precisely what is at stake."[3] To see, then, means more than participation. To regard is to respect, and one becomes inextricably linked to the ethics of tuning to the invisible.



Snow slowly piles on the brewery grounds in January. Saké preparation takes place during winter because the colder climates ward off opportunistic fungi that thrive in summer's sweltering humidity. The brewers take advantage of the cool air in the outdoor temperatures that range from -2 to 8 degrees Celsius. What is a workable temperature for one species is arresting and chilling for another.

The brewery is less of an enclosed facility with clear borders and walls than it is like an open gazebo with sections loosely defined by task and objective. The vents and doorways enable the winds (and the species carried on those winds) to enter and exit as they please. The microbes that encourage wild fermentation tend to stick around and live inside the crevices of brewery beams and walls.

Halos emerge over steaming baskets used to prepare rice for one of three trajectories: to make koji, to feed wild yeast starters, and to mash as a fermentable substrate. In some fermentation circles it is thought that lamps (specifically other electronics, but also music and words) generate frequencies and vibrations that can be conducive or detrimental to the fermenting microbe.

Brewers strain some lees to transfer live yeasts into what will become a naturally sparkling saké. Rather than rely on the lab-purified yeast cultures, the brewery relies on the ambient yeasts that have gathered inside the mashing tanks. By completing this task by hand, the naturally occurring yeasts on the brewers' hands also make their way into the final product.

Invisible outputs surprise the brewers when oil droplets form at the top of a saké that is being tested for quality control. The oil came from the fish-based fertilizer (an input) used in the fields from where the rice was harvested and subsequently fermented by the brewery. The oil, however, remained invisible until the mash was pressed.

A small shrine sits atop the two thermal tanks safeguarding the premium ginjo and daiginjo sakés. The brewery itself sits at the foot of a hill upon which Kozaki Shrine sits. Combined, these structures encourage the brewers to express gratitude to the invisible—sometimes cosmic—forces of saké production.

Wild yeast starters are prepared using song and lyric to express gratitude and joy for preparing saké ingredients. The song ensures steady rhythm and coordinated mashing amongst the brewers without having to rely on timers and machines. Brewers frequently take the starters' temperature to tune into microbial activity.

Brewers conduct daily chemical analyses of umami, acidic, and alcoholic transformation of starch, but these markers are used secondarily to the immediate sensations of touch, smell, taste, and gut.

Notes

Credit for all photos: Maya Hey, 2019, with many thanks to the kurabito at Terada Honké.

1. Braidotti, Rosi. 2006. "Posthuman, All Too Human: Towards a New Process Ontology." Theory, Culture & Society 23 (7–8): 204. doi:10.1177/0263276406069232.
2. Haraway, Donna. 1991. "Situated Knowledges." In Simians, Cyborgs and Women: The reinvention of nature. New York: Routeledge. 190.
3. Haraway, Donna. 2008. When Species Meet. Minneapolis: University of Minnesota Press. 19.

Maya Hey *works internationally and across disciplines as a researcher, foodmaker, and educator with backgrounds in the culinary arts, health sciences, and community engagement. She is a doctoral candidate (Communications) at Concordia University, and she is the convener for Food, Feminism, Fermentation. She is committed to open access publishing and public scholarship.*

Caroline Granger

11 Harvest Musings

Harvest has begun again on the farm; startling me out of the pregnant pause I always feel in September while I wait, at times with patience, for the fields to finish their work.

This year, I thought it would be late: after all we were late to start and late to flower and late for veraison[1]; why would the harvest come on time, or even, it would seem, early. Just a month ago we were still tracking a 10 day delay in progress.

And yet harvest started on the first day of autumn with Pinot Gris defying all the rules, and I drop everything to pick these grapes today because it has decided it is time.

I Feel, I Trust, I Know

I am a winemaker as I suppose this is the title most often given to people who are responsible for managing the transformation of grape juice into wine. Really though, I think of myself as a farmer first and a caretaker. I do not make the wine; a yeast culture does, and it is a culture that grew naturally on the skins of the fruits as they matured on their vines from grapes that the beautiful plants made from rain and sun. I do not make either but I try to take care of both, protecting the grapes and their yeast from harm when I can and providing a healthy environment in which they can realize their full potential.

This year was different for so many reasons I think because I, like my farm, am struggling to find balance in a rapid climate change where arguably there is none to be found. In years like this one when the cycle of the season is broken, our usual spring tasks were delayed an unprecedented 4 weeks because it was so cold. I feel uncomfortable as if somehow things have become unsynchronized. My vines were late to break bud and late to flower this year, not just days but *weeks* late; meanwhile, all around, the native plants struggled as well. Lilacs were late but surprisingly sumac seemed untroubled, strawberries were late but somehow the raspberries seemed to come on right on time. Golden rod bloomed in abundance but there were only a few bright purple asters to keep them company as they would most years, coming later almost reluctantly. It has, and continues to be, disorienting. From where else am I to take my cues?

Rarely do our thoughts rest in the present moment, but our bodies and our senses always do. My body knows what I need and takes me there without the need for thought. I settle into my body realizing that my wisdom may not in fact lie solely or at all in fact in my thoughts. This new way of "thinking" helps me with a new understanding of my place on the farm, one that is deep in my bones. I trust my body when it tells me the air smells like rain. I trust the periphery of my vision where subtle cues spark my intuition to change the vineyard schedule, to know when exactly to pick the harvest. I trust that a walk will lead me to discover something unexpected. During that interminable stretch of hot weather in July, I was chatting with someone while sitting under the shade of two silver birches. I told them that I take my cues for vineyard care as much from the hedgerows as from the vines themselves. It was hard for me to describe what I really meant because it has everything to do with feelings and relies on little else." When the young sumacs in the hedgerows are early to bud I know we need to dehill the vineyards quickly in the spring, while if the hedgerows seem tight and closed in early summer we may be heading into a drought. Or, when the songbirds are quiet in the hedgerows, a storm is coming even if the skies are blue. There is also a certain smell to the farm when the threat of mildew is potent enough that the air almost has a taste to it like licking the forest floor. It is hard to describe the feelings that arise; I sometimes pass the hedgerows and *know* that they just feel wrong somehow.

We do not live in a time or place that has a culture where feelings are valued for their wisdom though: in fact, feelings have been relegated to the realm of the feminine and so are easily dismissed as unimportant. Instead, from our earliest days we are taught to think and to value our thoughts but our thoughts are unreliable stories we tell ourselves, pulling threads of memory from our past to weave stories of our future. I think that in the centuries since patriarchy took root and feminine wisdom so slandered, even *we* came to doubt ourselves. This world lost a precious gift, the feminine perspective so we might live wisely and well. True equality between the sexes will only exist when our trust in ourselves is restored and we can take our place not in the shadows of the patriarchy but in partnership armed with a strong and wise *trust* in our innate sense of feeling that can restore the balance to our world.

Harvest: Willing hands welcome, 2018. Photo: Johnny C.Y. Lam. Used with permission.

There are rules to follow in growing a vineyard, some can be bent but none can be broken.

> Rule #1: In order to turn sunshine into wine the plant must have viable buds to create shoots to bear flowers; these buds are formed and developed in the previous year and are needed to weather our County winters, so the weather in the 12 months before the emergence of this year's buds matters. Whatever happened during the previous season affects the potential for fruit this season.
>
> Rule #2, the plants need sufficient leaves to ripen the fruit, especially in what has been considered a marginal region for growing grapes. It is important because our season is shorter but somewhat more intense. For me this meant that having a larger canopy would allow my plants to carry more productive leaves throughout the season and capture more sunlight in a shorter period of time to turn sunlight into carbohydrates (sugars) to sweeten their fruit and store in their roots. To maximize the leaves ability to access the sunlight, avoid shading so the width of your row separation should be more than the height of the trellis you wish to fill.
>
> Rule #3: a balanced vine will produce balanced fruit and that will make the best wine, but getting to balance is something one has to negotiate with the plants. The factors that will impact your plants' success will be extreme weather variations, primarily including cold in the form of late spring and early summer frost and deep freezes or, even worse, long deep freeze thaw cycles in the winter, excessive heat, excessive humidity and excessive rain. (Not that different from other farmers growing perennial plants.) Those who grow the annuals escape the winter angst but not much else.

I know some people who like to think that farming is Man's struggle to triumph over Nature, that She must be tamed and subdued and they rely on an arsenal of chemicals, fertilizers and equipment to safeguard their investments. To be fair, it is often effective, resulting in relatively consistent crop loads year after year. Though, I wonder what might be sacrificed in approaching a relationship with nature in this way: is this simply my industry's iteration of industrial farming? Can the fruit be considered an offering from nature if it is decided and forced each year, not according to the season but according to the will of the farmer? Is the application of macronutrients derived from fossil fuel somehow an anathema to the unique flavours a field might offer?

The only model that is sustainable does not deplete the soil and nature's gifts must be one of reciprocity. So, how is it possible for a human to interact with this system in a way that is beneficial to both human and plant as well as generally within the micro and macro ecosystems present? It is this question I seek to answer each year in our fields, accepting the crop offered by the vines rather than trying to force a model of production according to some industry standard. I want to allow the plants' wisdom to determine what it should carry. Our efforts focus on providing whatever protection we can offer the plants from weather that is beyond their natural tolerances.

Taking Risks, Taking Root, Taking Time

20 years ago I returned to the family farm after an absence of almost the same length and I was not alone: I returned with three small children and a diaper bag. I came home to rest and heal. I came home to find shelter and freedom, to reconnect with my roots and help my children to find some of their own. Long walks with the children down the farm lanes, across meadows and fields into the marshes and woods were the first steps to discovering where my road might lead and a small idea took root in my thoughts. I wanted a way for us to stay on the farm, to reconnect with a life lived close to the land, and to raise my children in the embrace of a natural world that would allow them to learn and value the gifts our world so freely offers. With this in mind, I decided to plant a vineyard on the family farm, adding to the biodiversity to the land. One crop that would succeed more often than the traditional cash crops might as Prince Edward County's penchant for droughty summers challenges yields in corn and soybeans. In the past, while we could always count on one cut of hay, two were not a given when the long hot days of July turned lawns brown, and shrubs and gardens wilted. Not the trees, though. Deeply rooted, they weathered the long dry spells and—I thought—so might the vines *if they too could root deeply over time*. If I could use the fissure in the highly friable calcium based limestone to access another water source, maybe they could thrive.

The first vines I planted were Chardonnay, Pinot Noir, and Gamay Noir, good cool climate grapes with reasonable ripening periods.[2] Most of the early vineyards in Prince Edward County planted Chardonnay and Pinot Noir, but there was not much Gamay planted in those days and fellow growers came by more than once to tell me there was no market for Gamay in Ontario. "People don't even know what it is," they would say. I always thought a simple rustic red would be great for the way most Ontarians ate and, anyway, I like Gamay wine. It's like Pinot Noir's little brother. Turns out that Ontarians *do* like Gamay and once folks figured out the varietal it became our top selling wine for some time. On our farm it always ends up being sold by allocation with none left over for the tasting bar. Some of those naysayers are planting Gamay vines themselves now. Go figure. But it really was hard to take that risk because everything was so new and all I had to rely on were my instinct and my palate. I worried because my ideas were so different from my colleagues. I worried because, try as I might, I could not adopt the industrial model of production the idea that one should make what people want, maximize your production, improve your margins, and make a profit.

My daughter Maggie grew up with the vines working in the fields and helping to harvest. Later she helped in the tasting room sharing our harvest with visitors from cities, sharing our story and offering up a taste of a moment in time and place. She left for university and—at the time—neither of us thought she would be coming home again. It seemed her wings would take her to exciting places to learn new things and discover who she was beyond the narrow focus of a small farm in Ontario. But she came back to the farm in 2010, slowly at first for harvest and then frequently for vintage and then to stay. It seemed her roots were here as well; the vineyards were in her bones.

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Maggie and me under the cherry tree, 2015.
Photo: John Cullen. Used with permission.

What followed was a period of upheaval as we struggled to try and discover how we would be together in this place, caring for the vines and the land with the little business that was dependent on each fragile harvest. As it is in nature, the changes that happened were small, incremental and built season after season upon the work done before. The things on my mind, having been the architect of this project, were not the things on hers. I was mired in my thoughts caught in the sticky clay of our soils, tired from learning so much so quickly. I resisted change. She did not value the work of the last decade and she had little patience for my reticence. I realized that I had become like my vines, carrying wood I no longer needed and she was a sapling growing too quickly in search of her patch of sunlight.

Throughout this time other things were changing as well, proving I suppose, that I should always follow my feet. As she and I explored the nature of our new working relationship, a new culture at the winery was blossoming under our feet. Those years saw the transition towards a predominately female environment on the farm. Women were hired to fill vinification roles, creating a unique microclimate increasingly suited to female ways of working. Although I never thought about it at the time, it seems in hindsight I was naturally building an environment to allow my daughter to flourish. But it did so much more, creating new opportunities for many women and changing the way we make decisions. This kind of environment lends itself to allow us to feel, to balance, and to trust the process and accept that it takes time to make these kinds of decisions. Compromise is difficult because it leaves all involved diminished, however consensus decisions can be very time consuming and result in project delays. But I am a farmer; I am used to cultivating patience and to accepting that I am not the only partner in the dance.

Notes

1. Veraison is the period of ripening when the skins of the grapes turn colour and begin to thin. It is a critical marker in determining days until harvest and a fragile time for the crop because bright colours attract predators and thin skins mean increased vulnerability to hostile microorganisms.
2. It is interesting that these vinifera vines must be grafted onto rootstocks containing native North American Riparia genetic material in order to flourish in our phylloxera infested soils. Riparia is well adapted to growing here and its roots are resistant to the soil lice. In a way with the vines being grafted in France and shipped back here was a bit of a homecoming of sorts. But how they would fare in these new conditions was hard to predict.

Caroline Granger *is a winemaker, vineyard sage, mother, and founder of the Grange of Prince Edward Estate Winery. It was her farming roots that spawned Caroline's independence and entrepreneurship and prepared her to lead her parents, her family into a brand new industry. Over the ensuing years Caroline and her daughter have redefined viticultural and oenological practices to develop their own sustainable wine program focused on the discovery of the beauty their farm has to offer while reducing waste on the farm by 95% (one bag every two weeks is all the entire winery produces these days) and creating a dynamic environment for women to work.*