

ENTANGLED CULTURES

How Humans and Microbes Co-create through Fermentation

Curated by Toni Gentilli



READING & RESOURCES

 Maxwell Museum
of Anthropology

 THE UNIVERSITY OF
NEW MEXICO

READING & RESOURCE LIST

BOOKS

Ancient Brews: Rediscovered and Re-Created. Patrick E. McGovern, 2007.

Ancient Wine: The Search for the Origins of Viniculture, Patrick E. McGovern, 2018.

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I Contain Multitudes: The Microbes Within us and a Grander View of Life, Ed Yong, 2016.

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Our Fermented Lives: A History of How Fermented Foods Have Shaped Cultures & Communities, Julia Skinner, 2022.

Revolt, Fervent Friends: Stories, Spells and Poems of Pickles and Ferments, Edited by Mercedes Villalba and Martin Lowenstein, 2019.

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Wildcrafted Fermentation: Exploring, Transforming, and Preserving the Wild Flavors of Your Local Terroir, Pascal Baudar, 2020.

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WEBSITES

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Center for the Social Study of Microbes

<https://www.socialmicrobes.org>

Fermentation – Principles, Types, Applications, Limitations

<https://microbenotes.com/fermentation/>

Fermenters Club (Austin Durant)

<https://fermentersclub.com>

Fermentology. On the Culture, History, and Future of Fermented Foods

<https://fermentology.pubpub.org>

Patrick E. McGovern

<https://www.biomolecular-archaeology.com>

Puratos Sourdough Library

<https://sourdoughlibrary.puratos.com/en>

Maurizio Leo

<https://www.theperfectloaf.com/new-baker-start-here/>

Mercedes Villalba

<https://mpvillalba.hotglue.me>

Microcosm: Publication of the American Society for Microbiology

<https://asm.org/a/Microcosm-Digital-Magazine>

Noma Projects Journal

<https://nomaprojects.com/blogs/journal>

Rob Dunn

<http://robdunnlab.com/projects/wildsourdough/>

Sandor Ellix Katz

<https://www.wildfermentation.com>

Siv Watkins

<https://www.microanimism.com/>

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WEBSITES (continued)

What is Fermentation? (Excerpt from *The Noma Guide to Fermentation* by René Redzepi and David Zilber. Illustrations by Paula Troxler)

<https://nomaprojects.com/blogs/journal/what-is-fermentation>

Garum: Got to Have the Funk (Excerpt from *The Noma Guide to Fermentation* by René Redzepi and David Zilber. Illustrations by Paula Troxler)

<https://nomaprojects.com/blogs/journal/garum-got-to-have-the-funk>

Setting the Table for Microbes (Excerpt from *The Noma Guide to Fermentation* by René Redzepi and David Zilber. Illustrations by Paula Troxler)

<https://nomaprojects.com/blogs/journal/setting-the-table-for-microbes>

Lacto-Fermentation: Noma's Not So Secret Ingredient (Excerpt from *The Noma Guide to Fermentation* by René Redzepi and David Zilber. Illustrations by Paula Troxler)

<https://nomaprojects.com/blogs/journal/lacto-fermentation-nomas-not-so-secret-ingredient>

About Vinegar (Excerpt from *The Noma Guide to Fermentation* by René Redzepi and David Zilber. Illustrations by Paula Troxler)

<https://nomaprojects.com/blogs/journal/about-vinegar>

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PODCASTS

Emergence Magazine – Fermentation as Metaphor: An Interview with Sandor Katz
<https://emergencemagazine.org/conversation/fermentation-as-metaphor/>

Emergence Magazine – Fermenting Culture: An Interview with David Zilber
<https://emergencemagazine.org/conversation/fermenting-culture/>

Ferment Radio: Episode 47 – To Exist You Have to Resist (with César Iván Linares and Juan Escalona Meléndez)
<https://open.spotify.com/episode/5nOVjtUaWymwJDBhw4Qj4f>

Episode description: In this episode of The World in a Pickle, we delve into the world of pulque—a fermented drink made of agave sap, or “aguamiel”, which has been consumed in Mexico for centuries, and is now threatened by urbanization, climate change, and crime. Our guests, César Iván Linares, an ethnobiologist specialized in Traditional fermented beverages, and Juan Escalona Meléndez, a chef and scientist behind projects like Coyota, share their work with ESPUMA—an initiative dedicated to keeping pulque alive. Through a fusion of biology, agroecology, and creativity, ESPUMA builds a resilient ecosystem around fermentation. They harvest urban agaves in and around Mexico City and cultivate new plants on a micro-farm. They also work closely with pulqueros, the people who make and sell pulque, and tlachiqueros, who harvest the agave sap, to preserve their precious knowledge and create a strong community around this beverage. But what makes ESPUMA truly special is how they blend science with pulque-making. Instead of bringing pulque into the lab, they bring microscopes to pulque farms.

Ferment Radio: Episode 46 – The End of Many Worlds with Paula Neubauer
<https://open.spotify.com/episode/6HkELFVQoAb8tmK69NGieZ>

Episode description: Join us on a fermentation journey with Paula Neubauer, a Brazilian award-winning chef and educator, as we explore the complexity of sacred fermented chicha and the fascinating people who make it. The Guarani-Kaiowá are the people of Mato Grosso do Sul, a Central-West region of Brazil. It translates as “Thick Forest of the South”, and as the name suggests, nature has protected the Guarani-Kaiowá and their culture from colonization. Particularly, the ancient tradition of chicha making—a sacred white corn drink that can also be fermented. The Guarani-Kaiowá believe that if they stop making chicha, the world will end. Today, this thick forest has been turned into a vast monoculture of soy plantations, and the Guarani-Kaiowá have nowhere to go and continue their ancestral cultural practices. Perhaps the end of the world is closer than ever.

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PODCASTS (continued)

Gastropod: Season 5, Episode August 8, 2016 – Kombucha Culture

<https://gastropod.com/kombucha-culture/>

Episode description: If you haven't tasted kombucha yet, you probably will soon. The sour-sweet, fizzy, fermented tea is becoming ubiquitous in trendy cafes, workplaces, and health food stores across America. Where did it come from, and how did it get so popular? And what in the world is the slimy, beige blob that produces it? From German POWs to Lindsey Lohan to a kombucha zoo at Tufts University, this episode explores the history and science of summer's hottest drink.

Gastropod: Season 17, Episode July 19, 2022 – How Ketchup Got Thick

<https://gastropod.com/how-ketchup-got-thick/>

Episode description: Ketchup is the crowd-pleaser of condiments—a ubiquitous accessory on dinner tables throughout the United States, and, increasingly, the world. But this kid-friendly classic actually has its roots in a much funkier food: fermented fish sauce! So how did the salty, pungent, amber-colored seasoning that gives Southeast Asian cuisine its characteristic flavor turn into a thick, red sauce typically found atop hamburgers and French fries? It's a saga that involves the fall of the Roman empire, eighteenth-century fish sauce knock-offs made from green walnuts and vinegar, and the marketing genius of one Henry J. Heinz. Listen in now for that story, plus the 1981 ketchup scandal that shook the Reagan White House, in our love song to ketchup's weird backstory and underrated culinary sophistication.

Gastropod: Season 17, Episode December 20, 2022 – Champagne Wishes: The Tastes of Celebration

<https://gastropod.com/champagne-wishes-the-tastes-of-celebration/>

Episode description: We pop it at weddings and pour it for the holidays, gift it to congratulate and sip it to celebrate—but, if we're being honest, Gastropod will seize any occasion to drink champagne. In the second episode of our two-part miniseries on the tastes of celebration, we tell the story of how this sparkling wine went from an unwelcome accident—winemakers considered fizz a flaw!—to a global brand associated with quality, luxury, celebrity, and, above all, fun. Along the way, we explore the science behind the bubbles, get to the bottom of the difference between prosecco, pét-nat, and Perrier-Jouët, and tell the stories of the original Dom Perignon and Veuve Clicquot. Join us now for all that, plus the answer to the question we all secretly wonder: Is champagne really worth the big bucks? Cheers!

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PODCASTS (continued)

Gastropod: Season 18, Episode March 14, 2023 – Meet Taro, the poke bowl's secret ingredient

<https://gastropod.com/meet-taro-the-poke-bowls-missing-secret-ingredient/>

Episode description: When Polynesians first arrived in Hawai'i some 1,500 years ago, they found islands that were lush, beautiful...and nearly devoid of anything to eat. Luckily, those sailors had packed a very special snack for their 2,500-mile voyage: a starchy, carbohydrate-rich root called taro, which ended up becoming as essential to the isolated Pacific archipelago as rice or wheat elsewhere. It was the original partner to cubed fish in Hawai'i's traditional poke bowl—which today has become super popular.

Green Dreamer: Episode 408 – Siv Watkins: Intimacy with the microbial world

<https://www.greendreamer.com/podcast/siv-watkins-microanimism>

Episode description: In this episode we are joined by Siv Watkins, founder of [Microanimism](#): a platform for examining how human beings and human culture engages with microbial organisms. Inviting us to deepen our intimacy with the complex, multi-faceted microbial world, Siv deploys the lenses of science, mysticism, and animism to advocate for some of the smallest, and most mysterious, beings on the planet.

Green Dreamer: Episode 445 – Sandor Katz: Fermentation as a catalyst for social transformation

<https://www.greendreamer.com/podcast/sandor-katz-wild-fermentation>

Episode description: What does it mean to recognize that so much of the world has become “anti-microbial”? Why is it that some bacteria make us sick while others are vital to our wellbeing? And how can we understand social transformation as a form of fermentation? In this episode, we are joined by fermentation revivalist Sandor Katz, who guides us through the foundations of what fermentation is. Sink into this discussion as we explore the ways that wild fermentation invites us to deepen our relationship to place and our local environments.

Unexplainable: Episode February 5, 2025 – How umami blew up taste

<https://www.vox.com/unexplainable>

<https://open.spotify.com/episode/5ENCcJ2E35evhTBhMLUthY>

Episode description: For thousands of years, there have been four basic tastes recognized across cultures. But thanks to Kumiko Ninomiya (a.k.a. the Umami Mama), scientists finally accepted a fifth. Could there be even more?

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PODCASTS (continued)

Ologies with Alie Ward: Episode 026 – Zymology (BEER) with Quinton Sturgeon

<https://www.alieward.com/ologies/zymology>

Episode description: If you like booze, you'll love... fungus! Alie goes Rogue and takes a field trip to a brewery in Newport, OR where she smells vats of bubbling beer slop and learns about the microorganisms that are the workhorses of the brewing industry. Learn about yeasts, how beer is made, the hardest part about being a beer maker, the thick history of beer, some home brewing tips and also a nugget about bungholes. Let's get yeasty.

Ologies with Alie Ward: Episode 138 – Gastroegyptology (BREAD BAKING) with Seamus Blackley

<https://www.alieward.com/ologies/gastroegyptology>

Episode description: Sourdough starters! Ancient yeasts! Why we need/knead dough! And why you don't need to buy a starter to start. Polymath, particle physicist, inventor of the Xbox, and truly delightful fermentation nerd Seamus Blackley joins to chat about his kitchen adventures resurrecting dormant yeasts from 4,000 Egyptian baking vessels, plus wild yeasts, the infuriating myth of "yeast scarcity," the beauty of everyday objects, the debt we owe our ancestors, the joy of getting to know your dough plus tons of tips for newbie and experienced bakers. The first half is all about the history of baking and yeasts and some hot Egyptian gossip, then we roll up our sleeves in the second half for how-tos. Forward this episode to anyone who bakes, who wants to bake, who lovingly feeds their jar of yeasts, who is intimidated by it or who just needs a lesson on how to slow down and enjoy the dormancy period we're in right now. This episode's got it all. Including some truly shameless bread puns.

Ologies with Alie Ward: Episode 219 – Ciderology (DELICIOUS APPLE BEVERAGES) with Gabe Cook

<https://www.alieward.com/ologies/ciderology>

Episode description: How ya like them apples?! Well, liquified. And fermented. Author, podcaster, cider-maker and globally lauded beverage historian Gabe Cook, aka The Ciderologist, is an enthusiastic champion of this tragically overlooked drink, and he joins with a bushel full of facts, well-spun yarns and tasting tips. Belly up for a foaming glass of friendly competition, bucolic farmhouses, DIY cider tips, film flam busters, cider recommendations from a pro, and a little ASMR. Cider: that cool friend in the corner who is too shy to boast about itself, so its wingman speaks up.

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PODCASTS (continued)

Ologies with Alie Ward: Episode 293 – Indigenous Pedology (SOIL SCIENCE) with Dr. Lydia Jennings

<https://www.alieward.com/ologies/indigenousspedology?rq=microbes>

Episode description: Soil! Dirt! Earth. Dr. Lydia Jennings, aka Native Soil Nerd, breaks down the stuff under our feet and explains everything from mining to why soil can be different colors. Also: medicine from microbes, giving back to the land after extractive processes, collecting samples in urban rivers, elders' ecological knowledge, planting hot Cheetos, potting soil mysteries, lung fungus, the smell of rain and why gardening makes you happy. Oh and running hundreds of miles for your science.
