
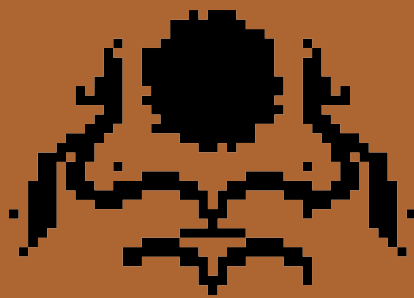




Mindy Seu



ON ANCESTRAL TECHNOLOGY



Serpentine
Synthetic Ecologies Compendium
Season 1 Microbial Lore
Jul 07, 2022

CELLULAR TROMPE L'ŒIL
SENSORY INTIMACY
NON LINEAR TEMPORALITIES
STEWARDS OF KNOWLEDGE

Letter from the Editor

Serpentine Synthetic Ecologies Lab presents Compendium, a growing collective archive of resources, reflections, sketches, conversations, and content that support artistic and critical inquiry into ecology and life sciences. The inaugural season is Microbial Lores curated by Angela Dimayuga and a guild of extraordinary thought leaders. With focus on fermentation the archive deep dives into broad histories of knowledge and the invisible scales of life that govern not only our kitchens, but also our contemporary science, culture and technology.

Bringing artistic and scientific communities into experimental exchanges through iterative narrative building, and by contributing to the emergence of Synthetic Ecologies we are creating an intersectional field that investigates the interconnectedness of cultural inquiry and living systems in relation to adapting biological developments.

We believe that creativity is connecting the dots, sharing and building collectively paths less crossed. There is no wrong way of seeing. We invite you to walk along a path with us, and share your compendium of compendiums.

— Yasaman Sheri

The Compendium Guild who has collected and created the archive is made up of:

Yasaman Sheri
Angela Dimayuga

Nadia Berenstein
Namita Patel
Joshua Evans

Lucy Chinen

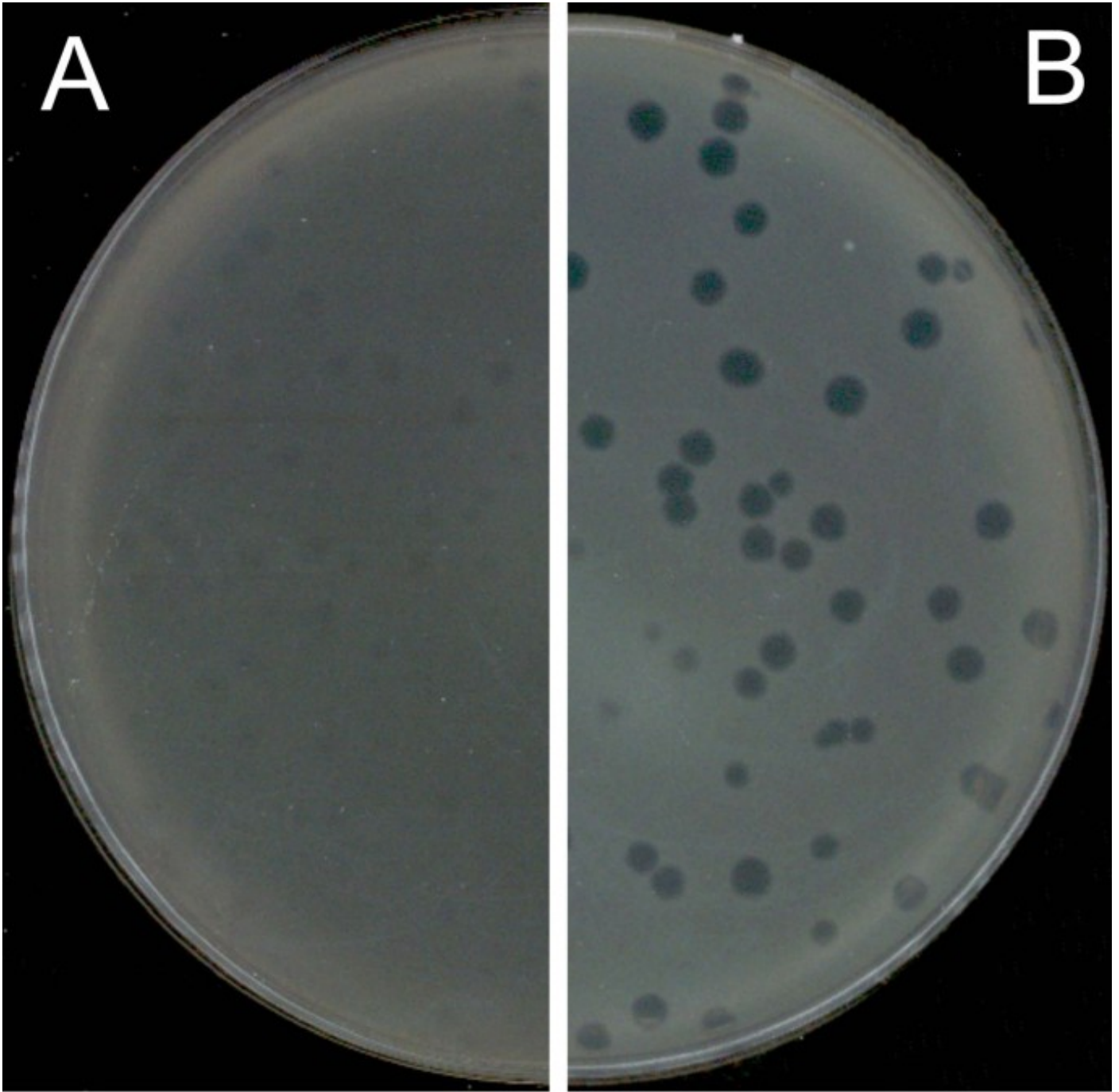
Seetal Solanki
Claire L. Evans
Chiara Di Leone
Alexander Boyes
Charles Broskoski

Principal Investigator
Chef, Cultural Producer,
Transdisciplinary Artist
Flavour Historian
Fermentation Scientist
Novel Fermentations
Researcher
Bio-based Materials
Practitioner & Researcher
Materials Translator
Writer & Musician
Writer & Researcher
Integrated Producer
Co-founder Are.na

Table of Contents

- 1 Phage Detection Methods
- 2 BATTLES WITH BACTERIOPHAGE (Part 3)
- 3 Producing recombinant protein using the yeast *Pichia pastoris*
- 4 Using yeast in biology
- 5 Insect Cells
- 6 NYture natto founder, Ann Yonetani
- 7 Tempeh google offerings
- 8 tentative science around establishing 'new' tastes—what constitutes a taste conceptually? Typically I think it is often seen to require identifying a specific receptor (or receptors) in the mouth and a specific molecule (or molecules) that stimulate...
- 9 NPR episode of tempeh making
- 10 5.5 million views for natto, sticky and divisive food
- 11 The Sound of Barrel Fermentation
- 12 Myth Introduction: Radical Becoming In The Ongoing Now Alexandra Neuman
- 13 Yeast aroma and disbursal
- 14 Intergenerationally shared indigenous taiwanese ferment from Cat Yeh: fermented fish
- 15 The Ancient Connection Between Women and Wine

- 16 Regarding phages—there are also some super interesting recent studies showing how phages can also be important to food-based fermentation going well or awry. eg. <https://www.mdpi.com/2079-6382/6/4/27>
- 17 Excavated Imported ceramic fermentation vessels
- 18 You must rest like bread
- 19 Banana beer making with grasses as a filter tool (Mwenge Bigere)
- 20 Fungi diet
- 21 The Early Path, from the Sacred to the Profane in Fermented Beverages in New Galicia, New Spain (Mexico), Seventeenth to Eighteenth Century

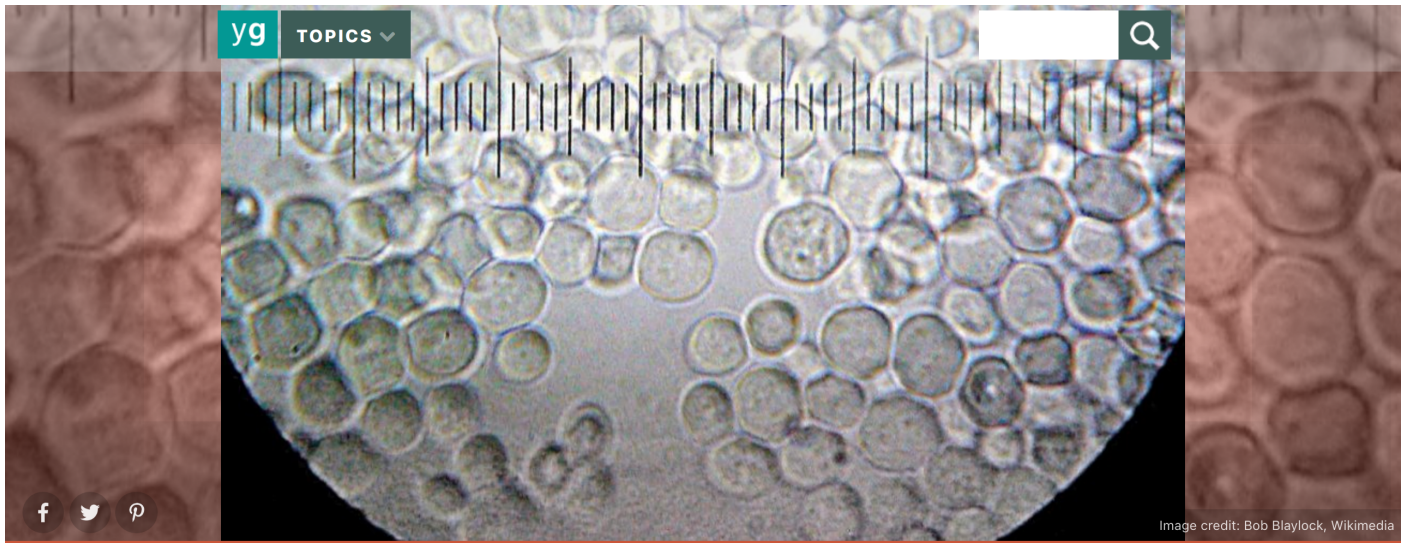
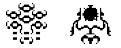


BATTLES WITH BACTERIOPHAGE (Part 3)



Producing recombinant protein using the yeast *Pichia pastoris*





In: **STORIES** Animals and Plants

Using yeast in biology

Yeast is one of the simplest eukaryotic organisms but many essential cellular processes are the same in yeast and humans. It is therefore an important organism to study to understand basic molecular processes in humans.

Baker's or budding yeast (*Saccharomyces cerevisiae*) has long been a popular **model organism**² for basic biological research. In the lab it is easy to manipulate, can cope with a wide range of environmental conditions and controls **cell division**² in a similar way to our **cells**². In 1996, it was the first **eukaryotic**² organism to have its **genome**² sequenced.

However, since Baker's yeast was discovered, other yeasts have been found to have equally useful properties.

KEY FACT

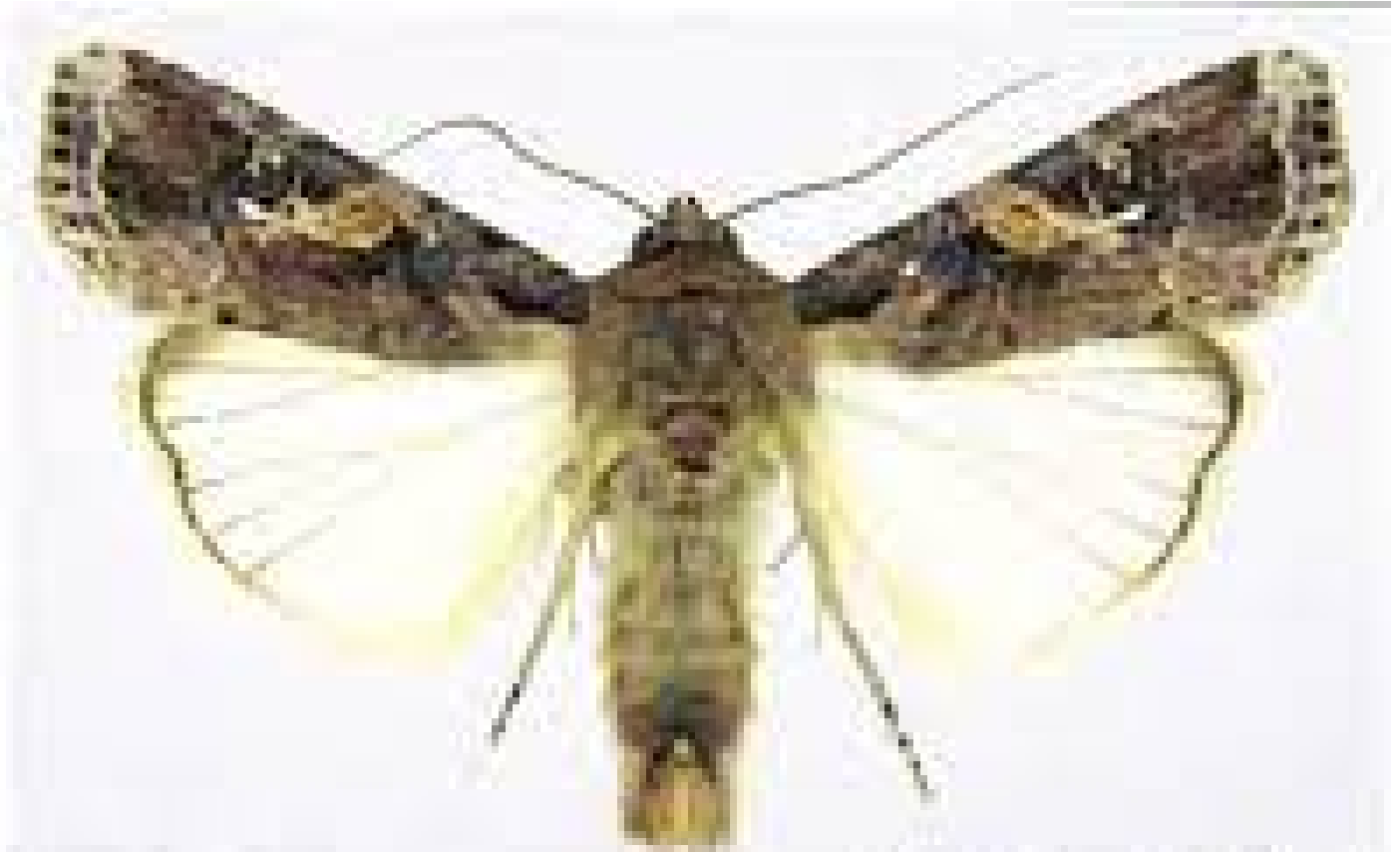
Yeast was the first eukaryotic organism to have its genome sequenced.

“

Yeast

chromosomes share a

Fission yeast (*Schizosaccharomyces pombe*) has become a popular system for studying cell growth and division. It is useful partly because it is easy and inexpensive to grow in the lab, but also because its cells have a regular size and grow only in length, making





Welcome to our blog

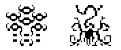
Life is full of surprises. I could not have predicted natto would become my passion and singing its virtues my calling.













I first encountered natto during childhood summers visiting family in Japan, but it wasn't until I grew up and became a scientist that I truly fell in love. As I learned about the cool biology and the wealth of research evidence showing real clinical health benefits of this amazing food, I became convinced to make it my mission to create access to fresh natto here in America.

This blog is a collection of little stories about natto from lots of different perspectives -- biological, medical, culinary, cultural and personal -- that we hope will inform, inspire and entertain you.

Thank you & enjoy!

Tempeh google offerings



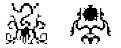
			
<p>Turtle Indonesian Style Tempeh</p> <p>\$5.49 15% Off Orders Over \$109 \$39 minimum order Umamicart Delivery by Wed, Jul 20 4.8/5 ★ (1.4K store reviews)</p>	<p>Organic Indonesian Tempeh by Tofurky</p> <p>\$4.19 GTFO It's Vegan Delivery by Mon, Jul 4</p>	<p>Lightlife Tempeh, Buffalo - 7 oz</p> <p>4.6 ★★★★★ 13</p> <p>\$4.99 \$3.26 below typical Target 13.0 mi · In stock Trusted store · 4.5/5 ★ (1.8K)</p> <p>Compare prices from 5+ sto...</p>	<p>Lightlife Tempeh, Original - 8 oz</p> <p>4.3 ★★★★★ 245</p> <p>\$3.20 \$0.71 below typical Walmart 13.2 mi · In stock · Curbside Trusted store · 4.4/5 ★ (1.6K)</p> <p>Compare prices from 5+ sto...</p>
			
<p>Original Soy Tempeh Organic 2 x 8 oz Tofurky</p>	<p>Wegmans Organic Tempeh, Original - 8 oz</p>	<p>Tofurky Vegan Tempeh Marinated Strips Smoky Maple Bacon - Essex Farm</p>	<p>Tempeh Starter/Culture (Ragi Tempeh)- (1x20 gram) Vegan, Vegetarian, Organic</p>
<p>\$4.69 Azure Standard \$11.95 delivery 4.4/5 ★ (12.4K store reviews)</p>	<p>\$4.09 \$10 minimum order Instacart Delivery by today</p>	<p>\$6.49 \$35 minimum order Mercato.com +Shipping 4.4/5 ★ (2.5K store reviews)</p>	<p>\$5.99 Etsy - Seller Free delivery</p>
			
<p>Franklin Farms Original Tempeh 8oz (Pack of 12)</p>	<p>Tempe Chips (Soybean/Tempeh) - Paprika</p>	<p>Marigold Gluten Free Tempeh in Can 170g</p>	<p>Canvas Print Fried Tempeh, Indonesian Food, Vegetarian</p>

tentative science around establishing 'new' tastes—what constitutes a taste conceptually? Typically I think it is often seen to require identifying a specific receptor (or receptors) in the mouth and a specific molecule (or molecules) that stimulate it/them. But there might also be controversy here.



Soybeans are then boiled in industrial-size barrels. In Kebun Jeruk, a village in west Jakarta, Indonesia, a cooperative of more than 1,400 local households produces nearly 2 tons of tempeh daily.

5.5 million views for natto, sticky and divisive food



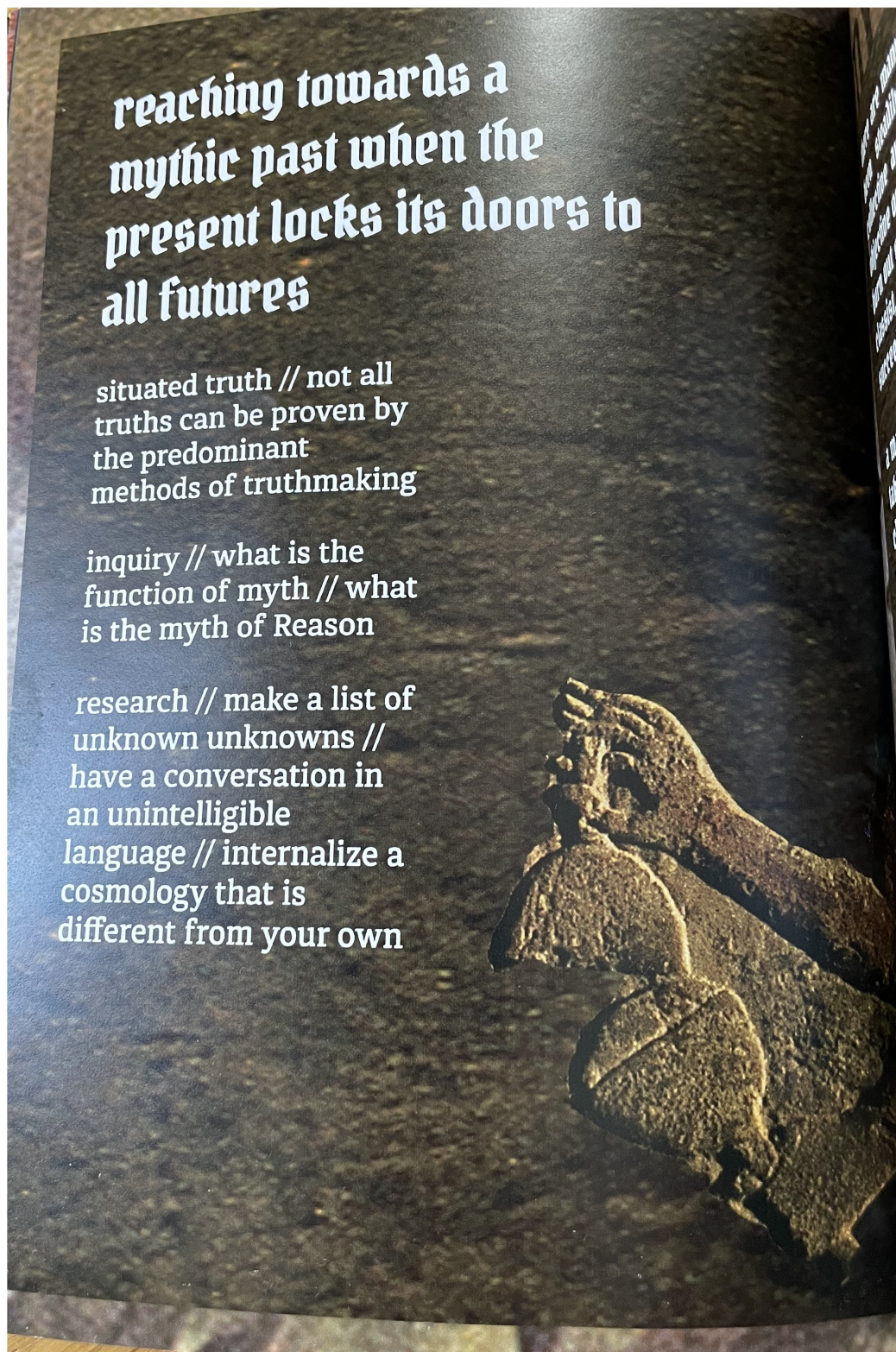
The screenshot displays the TikTok mobile application interface. At the top, the TikTok logo is on the left, a search bar with 'Search accounts' is in the center, and '+ Upload' and 'Log in' buttons are on the right. The main content area shows a video by 'bayashi.tiktok' (verified) with 5.5M views. The video features a man eating natto with the text 'LIFEHACK' overlaid. Below this video is a section titled 'Browse more For You videos' featuring a video by 'dr.chocolate.colombia' (verified) with 6886 views. The video shows a man with a red nose and the text '¿Tienes mucho'. On the right side of the second video, a pop-up window titled 'Introducing keyboard shortcuts!' lists: 'Go to previous video' (up arrow), 'Go to next video' (down arrow), 'Like video' (heart), and 'Mute / unmute video' (M). The left sidebar contains navigation options: 'For You', 'Following', 'LIVE', and 'Log in'. Below these are 'Popular topics' (Comedy, Gaming, Food, Dance, Beauty, Animals, Sports) and 'Suggested accounts' (badbunny, shakira, selenagomez, edsheeran, postmalone). At the bottom, there is a 'Discover' section with various hashtags and music tracks.

The Sound of Barrel Fermentation



Myth Introduction: Radical Becoming In The Ongoing Now

Alexandra Neuman



“The identity and relative abundance of aroma compounds vary widely among strains of *S. cerevisiae*, and, more broadly, across species of yeasts (Christiaens et al., 2014; Steensels et al., 2014b). Variation in aromas may relate to the adaptive diversification of yeast strains and species in as much aroma compounds play important physiological and ecological roles in yeasts, including regulation of growth, communication, and signaling to insect vectors (Richard et al., 1996; Bruce et al., 2004; Leroy et al., 2011; Becher et al., 2012; Davis et al., 2013). The attraction of insect vectors has been shown to mediate important yeast life history traits including outcrossing and dispersal (Reuter et al., 2007; Christiaens et al., 2014; Stefanini et al., 2016; Madden et al., 2018). As a result, non-human animals may be important in engendering the diversity and abundance of aromas produced among yeast strains.”

Intergenerationally shared indigenous taiwanese ferment from Cat Yeh: fermented fish





>"So what are the implications of these ancient connections between women and wine? Why have the ancient wine goddesses been lost in the history of time? Is it because the culture changed towards a more masculine image, which gave rise to the male wine gods? Is this why in the period of the Roman Empire, women were banned from drinking wine? Indeed, a husband who caught his wife drinking wine could legally kill her on the spot. And the depiction of the raging Bacchanalia rites, in which women chased after Bacchus in drunken ecstasy while they tore animals to shreds is hardly flattering to women."



Regarding phages—there are also some super interesting recent studies showing how phages can also be important to food-based fermentation going well or awry. eg.

<https://www.mdpi.com/2079-6382/6/4/27>

Excavated Imported ceramic fermentation vessels





Figure 8. Storage feature (no. 196) in the Pungnap Fortress in Seoul, Korea (adapted from Kwon et al. [2011]). 1, Reconstructed distribution of pottery based on the excavation (gray, imported Chinese ceramic vessels; white, local Baekjae ceramic vessels). 2, Original context of excavated pottery sherds. 3, Imported ce-



"Thinking with fermentation requires thinking with the durational processes of decay and rot, time and rest. It means thinking with cultural foodways that have been violently altered by colonization and extractive capitalism, as well as neoliberal discourses of sustainability and care, and the concomitant cultural normalization of eating disorders, orthorexia, and greenwashed dieting. Thinking with fermentation requires a curiosity about the subversive possibilities of food and fermentation practices, including wheat/gluten fermentation in sourdough bread." — Lauren Fournier and Greta Hamilton, "Fermentation for the Spirit: Auto-reflections on the rise of sourdough art and other glutinous practices"

Banana beer making with grasses as a filter tool (Mwenge Bigere)



Fungi diet



“The red-backed vole is primarily an herbivore, although it eats small invertebrates infrequently. A diet of fruit, succulent vegetation, and especially fungi that it excavates from the forest floor”

The Early Path, from the Sacred to the Profane in Fermented Beverages in New Galicia, New Spain (Mexico), Seventeenth to Eighteenth Century



Fig. 3: Tejuino is the urban version of indigenous Tesgüino (photos by the author)