

**FOOD PHREAKING**  
**ISSUE #00**

*Published by*  
*The Center for Genomic Gastronomy*

## PREFACE

In early 2012 the Center for Genomic Gastronomy wrote:

*“Singapore can be described as a food utopia; simultaneously a ‘perfect place’ with an abundance of affordable and diverse foods, and a “no-place” where most things are imported. Eaters, not farmers, are the major agents of selection. Singapore’s multicultural food system, is driven by cultural and economic flows as much as biospheric flows.*

*How will Singapore’s unique agri-eco-culinary system adapt to the challenges of the 21st century? What kinds of changes can we expect in the composition of genomes and biotechnologies that makes up the human food systems in Singapore?”*

Based on these questions, the Center for Genomic Gastronomy was invited to spend a month in Singapore in the autumn of 2012. We roamed widely, visiting individuals and exploring institutions in every corner of the island nation. We met architects, entrepreneurs, students, farmers, chefs, eccentrics and scientists. We visited hackerspaces, gardens, kitchens, parties and classrooms. We would meet and talk with the food people on a Tuesday. Then, we would hang out with the technology people on a Wednesday. But there was very little overlap.

All this roaming about and discussion showed us the need for a space where food and technology people can mingle as equals. We left Singapore with the basic outline for creating a forum where food and tech communities could come together to critically and creatively explore the potential overlaps between their work.

You hold our first attempt at this interdisciplinary forum in your hands.

We would like to thank Lonce Wyse, Denisa Kera, Tembusu College and the National University of Singapore for hosting us during our visit. This artist book was generously funded by the Arts and Creativity Lab at NUS through the Art/Science Residency in 2012.

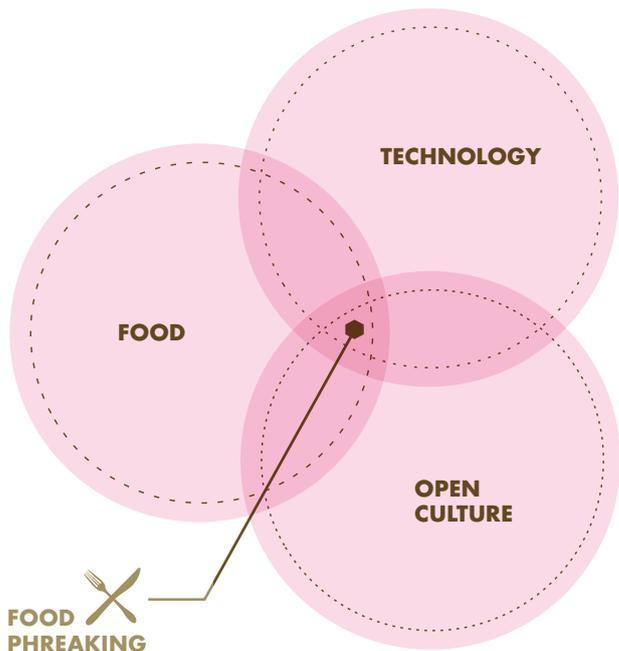
## INTRODUCTION

### FOOD PHREAKING: EXPERIMENTS, EXPLOITS AND EXPLORATIONS IN HUMAN FOOD SYSTEMS

This book contains stories that might be useful to Food Phreakers. Who are Food Phreakers? They are individuals and groups interested in experimenting with human food systems at multiple scales. Food Phreakers believe that food culture should be open, free and accessible. Some Food Phreakers have professional skills as farmers, seedsavers, chefs, biohackers and food scientists. Others just tinker in their backyard, basement, kitchen or home lab. The Food Phreaking journal aims to connect foodies who care about sustainability with the scientists and hackers who care about open culture. Food Phreaking is where food, technology, and open culture meet.

Food Phreakers not only observe natural systems, they also explore, experiment, and seek exploits in the human food system. They breed, mutate, grow, harvest, sell, process, cook, celebrate and serve food.

This book documents 38 concise examples of what Food Phreaking might be, and what it most definitely is not. These examples have been grouped into four themes, and are organized into four quadrants.



*Food Phreaking is where food, technology,  
and open culture meet.*

**A LEGAL & OPEN**

*Open Source Food Science & Participatory Food Design*

**B ILLEGAL & OPEN**

*Culinary Civil Disobedience & Outlaw Ingredients*

**C ILLEGAL & CLOSED**

*Black Hat Food Hacking & Food Crime*

**D LEGAL & CLOSED**

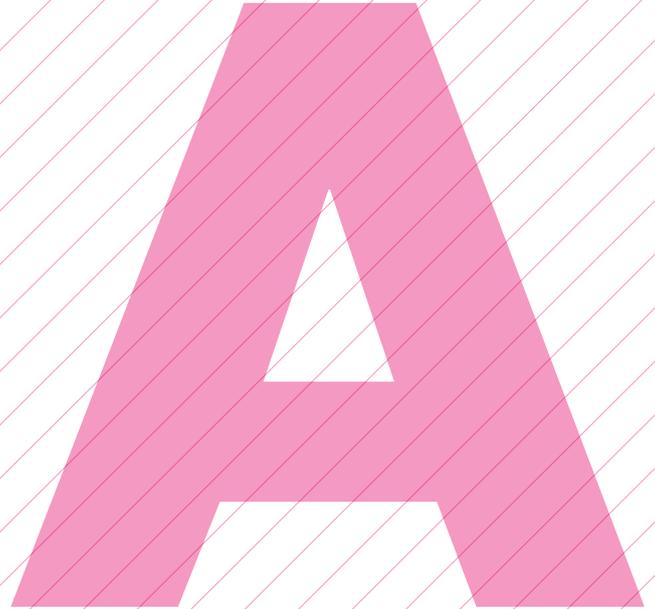
*Proprietary Food Engineering & Closed Source Food Design*

Not all of the examples contained in this book are cause for celebration. Many examples catalog the methods used by transnational corporations to privatize human food cultures and to design snacks that maximize profit at the expense of human and environmental health. Other stories feature some of the biohackers, mad chefs, betatasters and open source seed savers that are attempting to keep food culture open. Partly by design and partly by circumstance human food systems are less open than they have ever been.

The Food Phreaking journal is a platform for research, action, intervention, reflection and foresight. We hope you enjoy the #00 issue, and contribute to issue #01, which will be launched later in 2013.

QUADRANT

**LEGAL & OPEN**  
**OPEN SOURCE FOOD SCIENCE**  
**& PARTICIPATORY FOOD DESIGN**

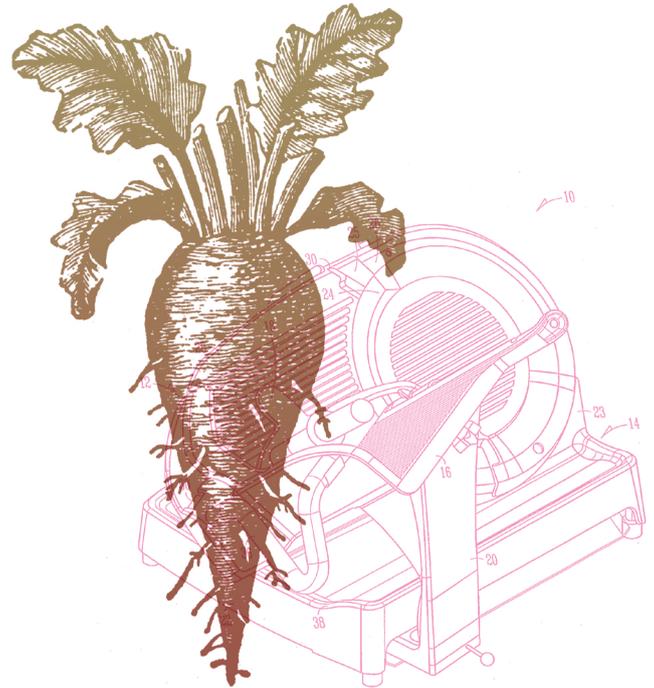




A  
1

**2013  
U.N.  
INTERNATIONAL  
YEAR OF  
QUINOA**

Quinoa's ancient South American neighbors, potato and chili, spread during the Columbian Exchange. In 2013, this whole-grain, gluten-free, protein-rich, NASA-approved seed-crop is finally making its global leap.

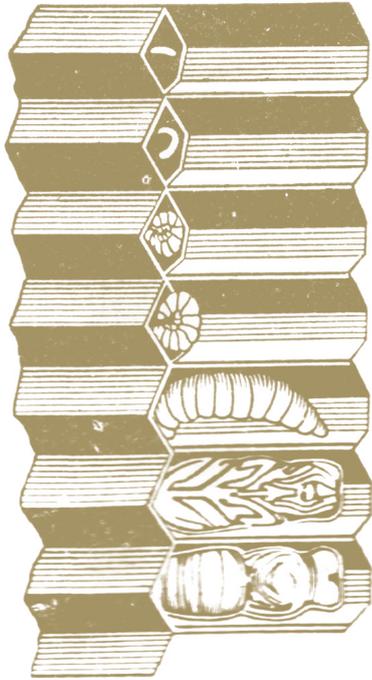


A  
2

- 1.Steam with Aromatics. 2.Dehydrate.
- 3.Refrigerate. 4.Vacuum seal. 5 Freeze.
- 6.Shave. 7. Eat.

The process is not short. Neither is curing a ham. Why should we be afraid of taking time with vegetables?

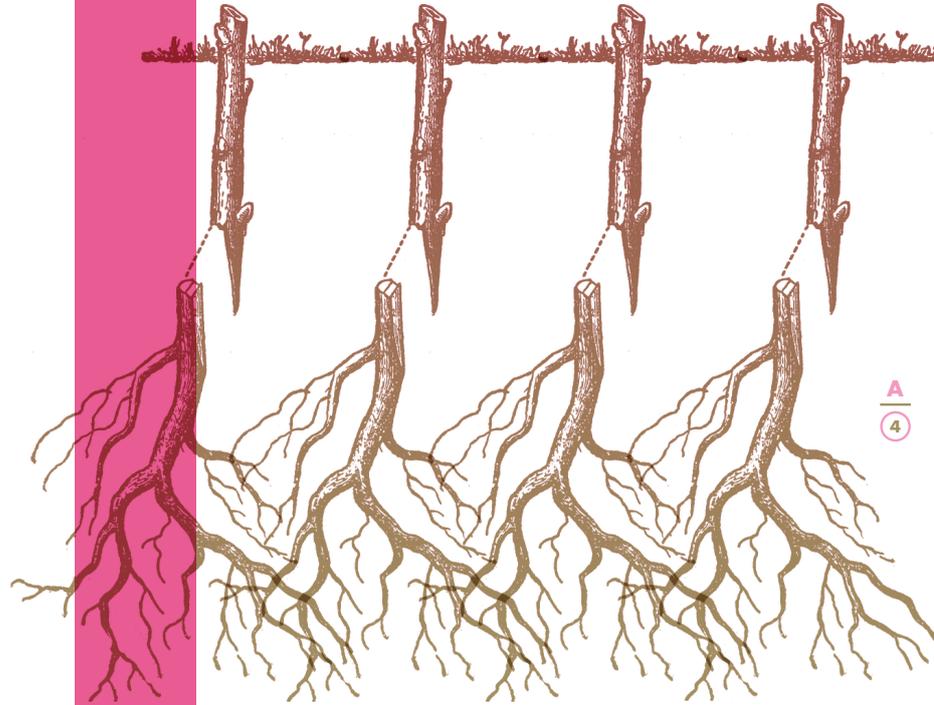
**BEET PETALS**



A  
3

**COLONY  
COLLAPSE  
CUISINE**

We still don't know exactly what is causing Bee Colony Collapse Disorder (CCD). Why not limit yourself to a diet of non-bee-pollinated ingredients? Taste the future, today. And be prepared for bio-adversity.



A  
4

**FRANKEN  
FRUIT**

Seed companies like Burpee are creating new products such as 'Big Rainbow Tomato' by grafting the heirloom fruiting parts to disease-resistant and stress-tolerant rootstock. You can even see the scars!

A  
5



**GASTROBRICKS**

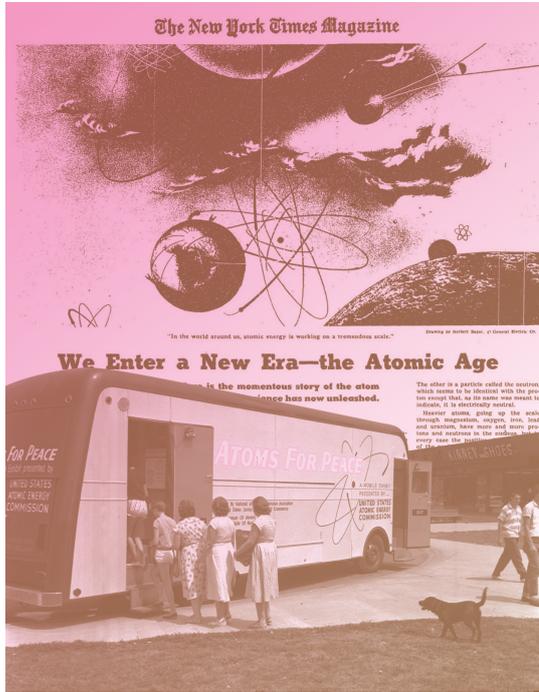
Chefs and gastronomic entrepreneurs are moving ingredient preparation from simple chemistry to molecular assembly and biophilic culturing. Isolating and purifying the essential elements of regional cuisines.

A  
6



**GLOWING  
SUSHI  
COOKING  
SHOW**

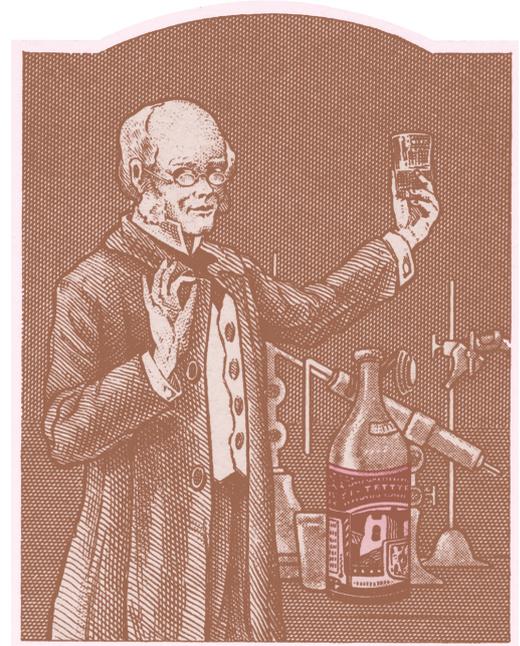
Eating GloFish® sushi may be unexpected, but it's not illegal. But make sure to read the terms of service on patented animal ingredients because breeding them is not allowed.



A  
7

**MUTAGENIC  
MINT**

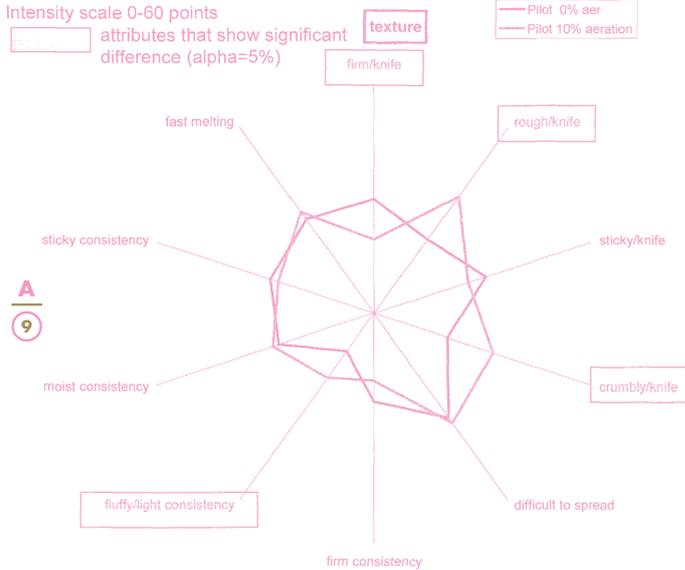
Todd's Mitcham Peppermint may be the most ubiquitous radiation-bred food, but you can look up thousands of other mutagenic varieties using the IAEA's handy META Database.



A  
8

**OPEN SOURCE  
MINERAL  
WATER**

You too can clone natural mineral waters by adding a clever cocktail of salts and carbonating. Use lookup tables to mimic water from specific places and corporate brands. Or create your own liquid remix.



A  
9

## PROPRIETARY PROVISIONS

A list of ingredients can't receive a copyright, but that doesn't stop some people from seeking out legal methods for privatizing common food culture.



A  
10

Forcing chefs to simulate the cruelest dish in France using only non-animal ingredients is fun! However, you still have to eat it with a sheet over your head to hide your shame.

## VEGAN ORTOLAN COOKING CONTEST

QUADRANT

**ILLEGAL & OPEN**  
**CULINARY CIVIL DISOBEDIENCE**  
**& OUTLAW INGREDIENTS**

**B**

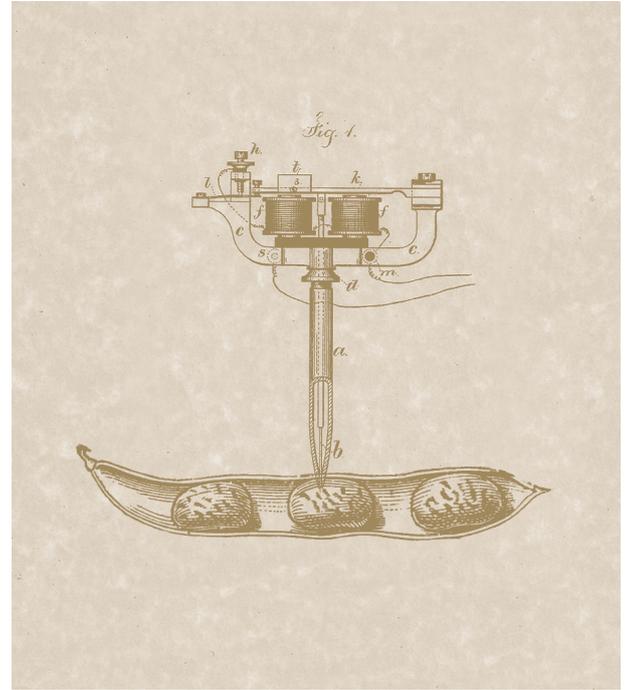




B  
3

**EVENT 32:  
ACCIDENTAL  
RELEASE**

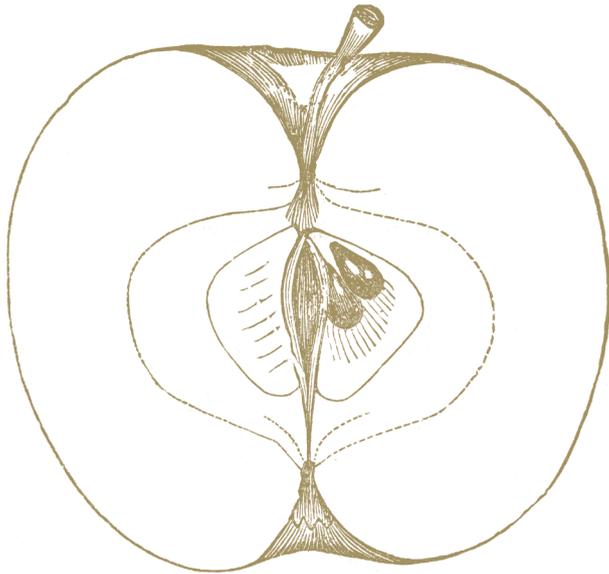
In 2011, Dow AgroSciences paid a civil penalty for moving and selling corn seed containing low levels of an unapproved genetically engineered (GE) plant-incorporated protectant (PIP).



B  
4

**GENE  
TATTOOED  
BEANS**

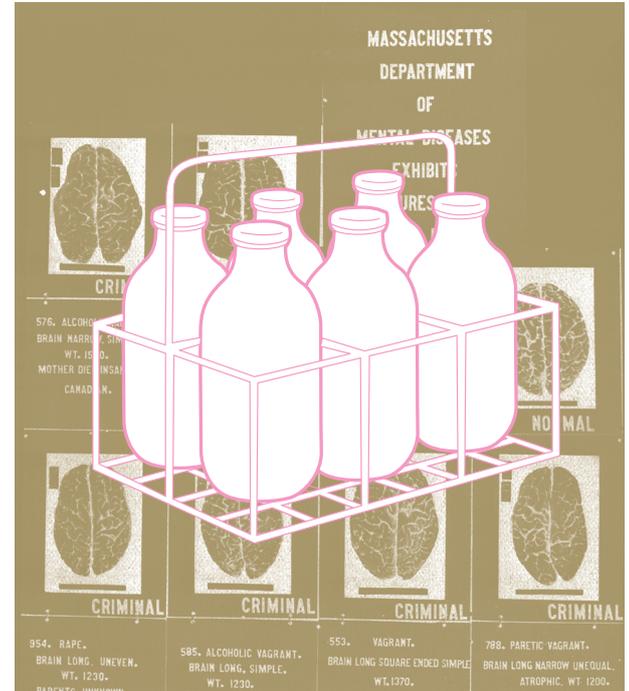
In 2011, the artist Adam Zaretsky let participants take home sprouted beans they had tattooed with DNA-laced ink, so they could grow their own edible mutants.



B  
5

**NON-BROWNING ARCTIC APPLES**

Okanagan Specialty Fruits Inc. is currently seeking approval in the US and Canada to sell GM apples that use gene silencing to inhibit the expression of polyphenol oxidase enzyme.



B  
6

Raw milk is illegal in some states of the U.S., and in Canada, Australia and Scotland. However, there are many advocates who drink raw milk illegally.

**RAW MILK CLUBS**



B  
7

**SEED  
SAVING  
REBELS**

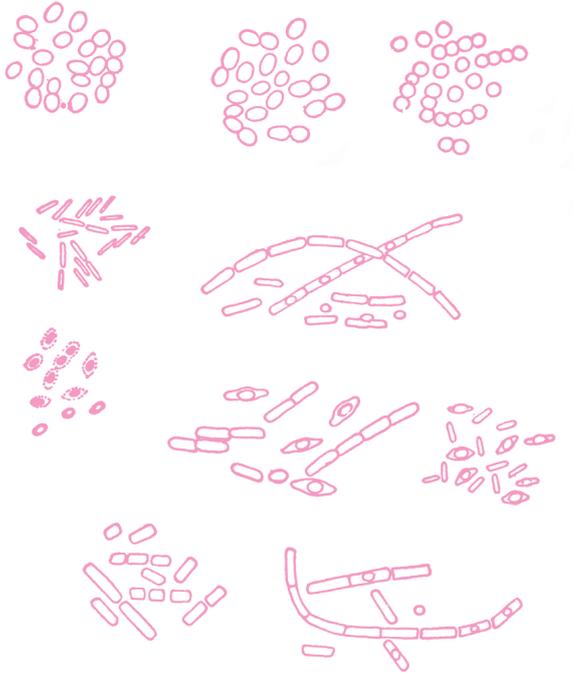
Only registered seed varieties may be commercially traded and grown in the EU. For agribusiness, the high seed registration fee is trivial. Meanwhile, seed savers associations championing biodiversity are criminalised.



B  
8

**SHRINKING  
THE STOMACH**

Instead of supersizing the food, why not shrink the human? NASA began research into breeding smaller humans for more efficient long distance space flight.



**TRANS-  
MOGRIFIED  
MILK**

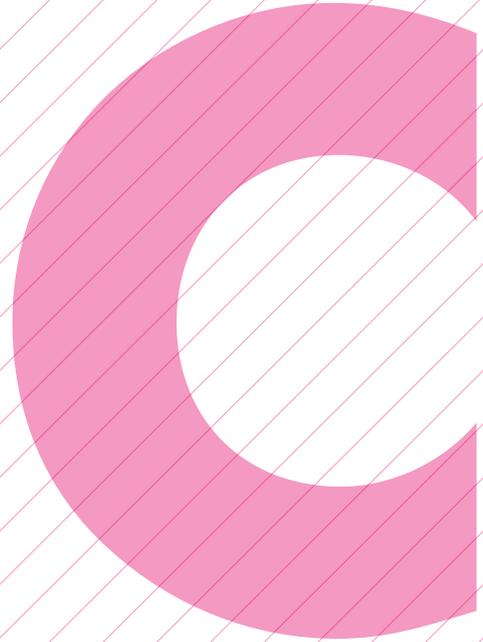
In 1991, poisoned milk resulted from a herd of cows eating a bag of insecticide. The milk was going to be dumped on the ground, but then an artist turned the milk into cheese and exhibited it as sculpture.



**WANDERING  
BREW**

Newcastle Brown Ale was granted Protected Geographical Indicator status in 2000, cementing its local ale provenance into law. In 2007, it was forced to cancel its status when the brewery moved to North Yorkshire.

QUADRANT



**ILLEGAL & CLOSED**  
**BLACK HAT FOOD HACKING**  
**& FOOD CRIME**



C  
1

**BROKEN  
HEARTS  
OF PALM**

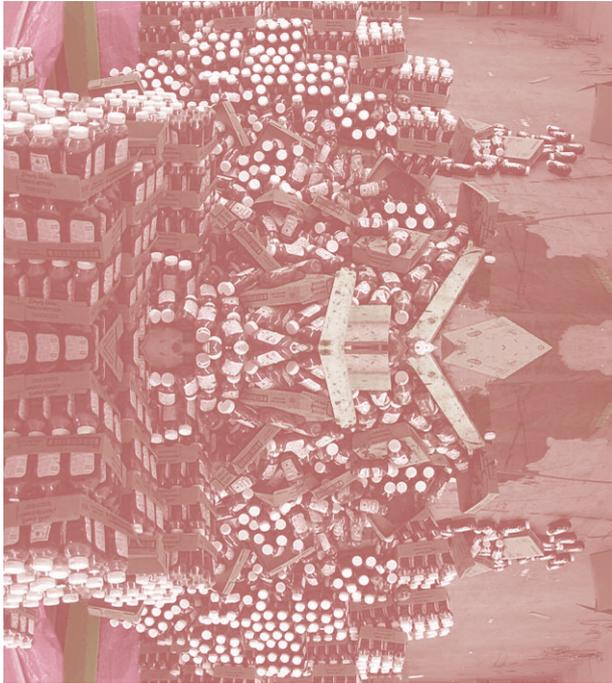
The 1980s smelled like Obsession and heart of palm salad. When every fashionable restaurant in New York and L.A. featured the core vegetable, Amazonian landscapes were ravaged with unsustainable palm poaching.



C  
2

Twenty tons of poisonous glass noodles were destroyed after it was discovered that some Chinese companies cut costs by using corn starch instead of mung beans and added lead to make the adulterated noodles more transparent.

**CLEARLY  
FAKE  
CELLOPHANE  
NOODLES**



C  
3

**COUNTERFEIT  
KETCHUP**

A would-be food-forgoer was caught red-handed when he used cheap glass containers to bottle his bulk-buy. Exploding upon shipment, his edible (but non-designer) ketchup spilled on designer tables everywhere.



C  
4

**ORTOLAN**

Considered by many to be one of the cruelest dishes in the world, sale of this bunting bird dish is no longer legal, but some say Ortolan is still consumed in the dark shadows of professional French kitchens.



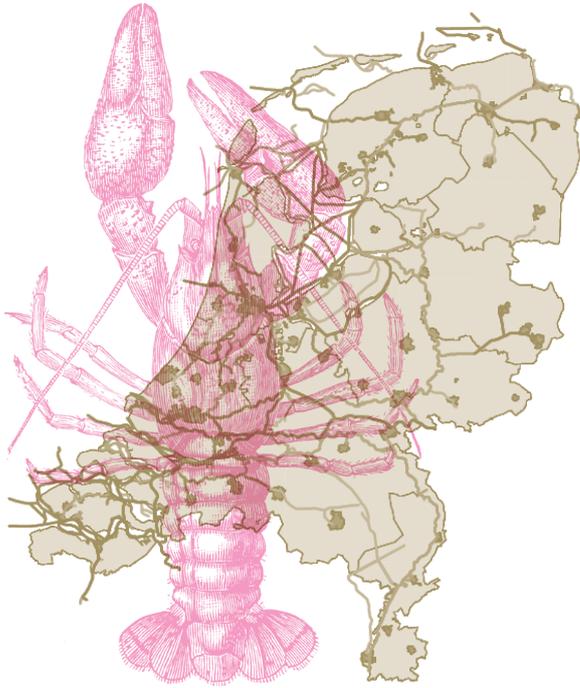
PEER-TO-PEER  
SOYFARMING

Soy is easier for farmers to save and replicate than other crops because 2nd-generation beans don't lose hybrid vigor. Cue Dupont sending in the cops to prosecute soy piracy and Monsanto siccing their lawyers in the supreme court.



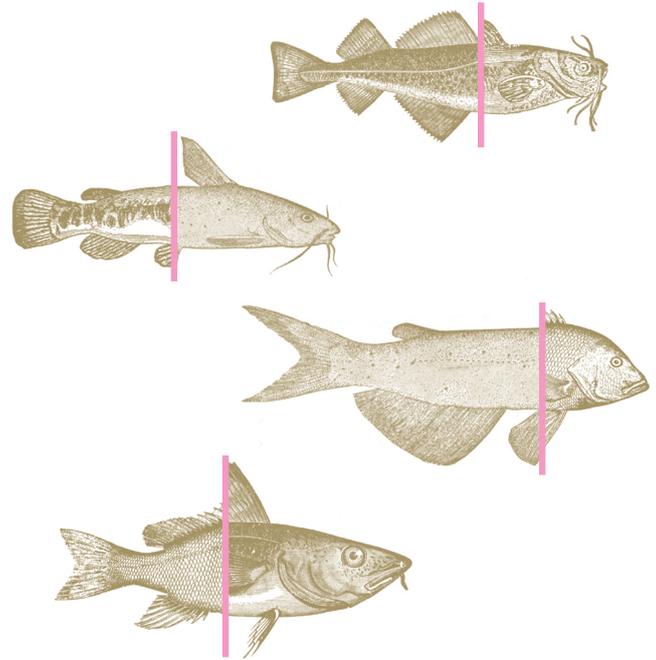
PREPARED  
CHEESE  
PRODUCT

In 2002, the USFDA told Kraft that Velveeta® was not fully a "Pasteurized Process Cheese Spread." Instead of complying with dietary minimums, Velveeta became a "Pasteurized Prepared Cheese Product," a term which has no legal status.



**RESCUE  
RELEASE  
INVASIVORISM**

A restaurant in the Hague released *Procambarus clarkii* alive into a canal. The invasive crustacean promptly expanded throughout the Netherlands, challenging the structural integrity of riverbanks nationally.



Unannounced genetic testing by advocacy groups like Oceana have shown that many fish are being intentionally mislabeled at restaurants, sushi bars and supermarkets. Do fish really taste that similar?

**THERE IS  
SOMETHING  
FISHY  
AROUND  
HERE**

QUADRANT



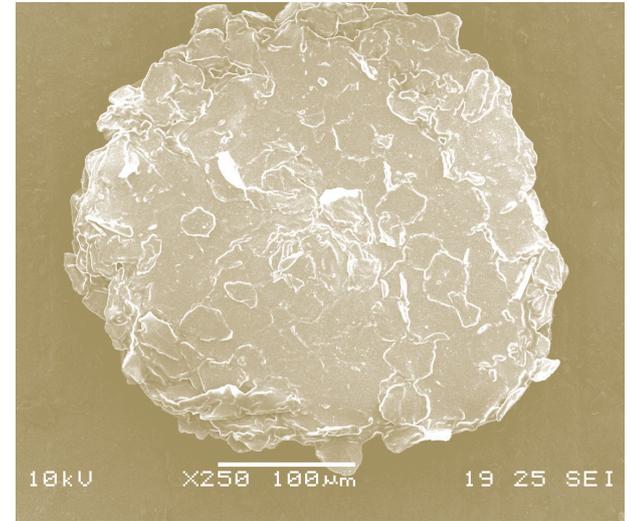
**LEGAL & CLOSED  
PROPRIETARY FOOD ENGINEERING  
& CLOSED SOURCE FOOD DESIGN**



D  
1

**5-HOUR  
ENERGY DRINK  
(OF DEATH)**

Thirteen “fatal reactions” to 5-hour energy drink consumption have been reported to the USFDA. According to the product’s creator it’s like this: “Water is good, but if you have too much you drown.”



D  
2

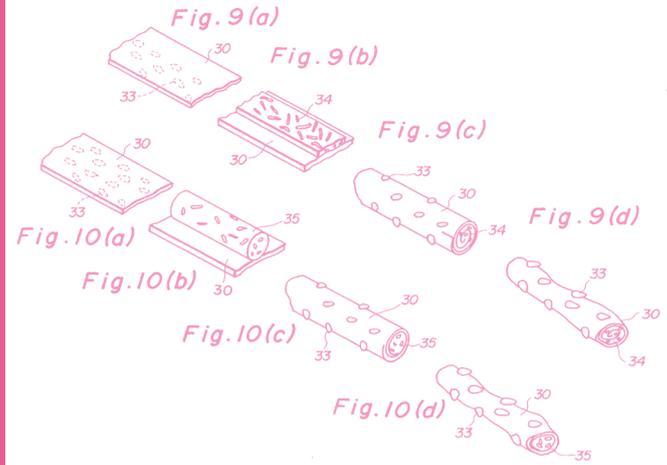
**CRYPTO  
PARMIGIANO-  
REGGIANO**

The U.S. ignores international food naming standards, allowing companies like Kraft to market their dairy flavoured dandruff as “Parmesan.” In Europe, Parmigiano-Reggiano knockoffs range from “Pamesello Italiano” to “Rapisan.”



Remember when some pranksters suggested that KFC had to change their name because they had started serving genetically modified non-chickens that had no beaks, feathers or feet? Now you do.

**FAST FOOD  
RUMOR MILL**



Japan's Sugiyo Co., Ltd. (スギヨ) first produced and patented crab sticks in 1973. The spread of the California Roll helped Krab Sticks go global. Next up: LobNobs from Norway.

**KRAB STICKS  
& LOB NOBS**

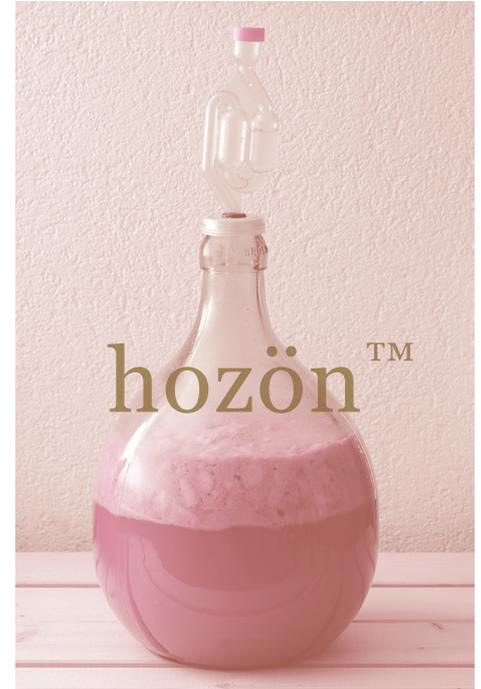


D  
5



L'EAU  
DE TROIT

U.S. federal labeling regulations don't require bottling companies to list the source or method of water purification, and many brands simply bottle and resell municipal tap water.



D  
6

They are trademarking Korean words to be used as product names, AND patenting biological processes in order to own recipes, all in secret unmarked labs!?!? Say it ain't so!

MOMOFUKU  
IS THE NEW  
MONSANTO?



D  
7

**REDUCED GUILT  
PROTEIN  
PRODUCTS**

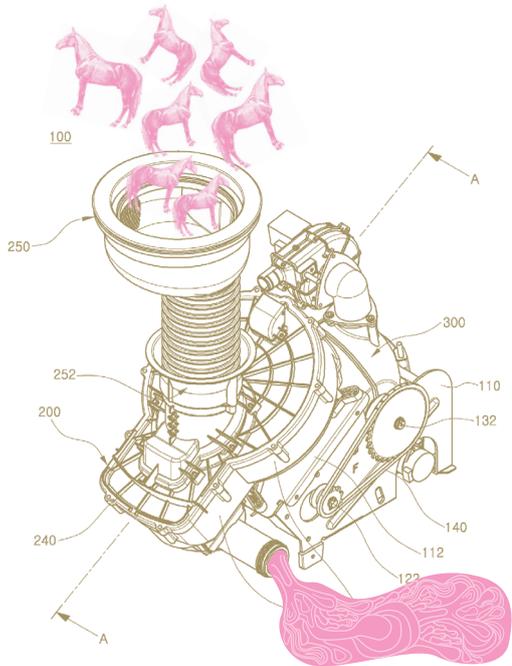
Combine 20% lupin flour with 80% ground beef to and feel 20% better. Save money too! According to Meatless®, most eaters can barely detect hydrated vegetable fibers when blended with meat, cheese and fish.



D  
8

**SHENZHOU  
SPACE POTATO  
LOVE**

Purple sweet potatoes from aboard the Shenzhou 6 space flight are the latest Valentines Day Food Fad. Buy your lover a meal that tastes more “glutinous.”



D  
9

**SOYLENT  
PINK SLIME**

Lean finely textured beef (LFTB) and boneless lean beef trimmings (BLBT) are heat-centrifuged and ammonia-purified beef products—originally used in pet food and cooking oil and approved for human consumption in 2001.



D  
10

**TASTE THE  
CAVE FUNK**

By law, Roquefort cheeses must be aged in the Combalou caves of Roquefort-sur-Soulzon, France and be made from the milk of the Lacaune, Manech and Basco-Béarnaise breeds of sheep.

## IMAGE CREDITS

**ALL IMAGES LISTED BELOW ARE CREATIVE COMMONS LICENSED OR EXIST IN THE PUBLIC DOMAIN.**

### A LEGAL & OPEN

**Title:** *Landscape with Chenopodium quinoa Cachilaya Bolivia Lake Titicaca.JPG*  
**Author:** Michael Hermann & http://www.cropsforthefuture.org/  
**Source:** wikimedia commons

**Title:** *Common Beet*  
**Author:** L. Brent Vaughan Hill's Practical Reference Library of General Knowledge (New York, NY: Dixon, Hanson & Company, 1906)  
**Source:** http://etc.usf.edu

**Title:** *Bee Larva*  
**Author:** Alvin Davison, Practical Zoology (New York: American Book Company, 1906) 53  
**Source:** http://etc.usf.edu/

**Title:** *Root-Grafting*  
**Author:** The Encyclopedia Britannica, New Warner Edition (New York, NY: The Werner Company, 1893)  
**Source:** http://etc.usf.edu

**Title:** *Gastrobricks*  
**Author:** Center for Genomic Gastronomy

**Title:** *Stop & Glow Roll*  
**Author:** Center for Genomic Gastronomy

**Title:** *Atoms for Peace*  
**Author:** Ed Westcott/DOE  
**Source:** http://www.theatlantic.com/infocus/2012/06/the-secret-city/100326/

**Title:** *Hungarian mineralwater firms' advertisements before 1920*  
**Author:** Takkk  
**Source:** wikimedia commons

**Title:** *Maria*  
**Author:** Lucia lunamaria  
**Source:** flickr

### B ILLEGAL & OPEN

**Title:** *Salmon*  
**Author:** Sarah Cooper, Animal Life: In The Sea and On The Land (New York: Harper & Brothers, 1887)  
**Source:** http://etc.usf.edu

**Title:** *Perch*  
**Author:** Buel P. Colton, Zoology: Descriptive and Practical (Boston:D.C. Heath & Co., 1903)  
**Source:** http://etc.usf.edu

**Title:** *Milchtankstelle Familie Fehr in Tannheim*  
**Author:** Cholo Aleman  
**Source:** flickr

**Title:** *flickr\_tkw954\_50957372\_54\_163bb46343\_b.jpg*  
**Author:** tkw954  
**Source:** flickr

**Title:** *Bean*  
**Author:** Joseph Schäk, Drittes Lesebuch (New York: Fr. Pustet, 1874) 158  
**Source:** http://etc.usf.edu

**Title:** *Westfield Seek-No-Further Apple*  
**Author:** Commissioner of Agriculture Report of the Commissioner of Agriculture for the year 1864 (Washington D.C.: Government printing office, 1865)  
**Source:** http://etc.usf.edu

**Title:** *Milk Bottles*  
**Author:** Center for Genomic Gastronomy

**Title:** *Criminal brains.jpg*  
**Author:** Pennsylvania State University Libraries  
**Source:** wikimedia commons

**Title:** *Aristide M..jpg*  
**Author:** Arn756875  
**Source:** wikimedia commons

**Title:** *"Save Seed For Victory. Start Right- Now- In the Field Good Seed Wins. From unknown seed Defeat. From Home- grown, Field- Selected Well- Preserved Seed Victory.", ca. 1917 - ca. 1919*  
**Author:** Unknown, FDA  
**Source:** wikimedia commons

**Title:** *Milk Bacteria*  
**Author:** Albert F. Blaisedell Our bodies and How We Live (Boston: Ginn &, 1904) 308  
**Source:** http://etc.usf.edu

**Title:** *Newcastle Brown Ales öletikett*  
**Author:** LokkoRobson  
**Source:** wikimedia commons

### C ILLEGAL & CLOSED

**Title:** *Djerba Island Palm Trees*  
**Author:** François Besch  
**Source:** wikimedia commons

**Title:** *Korean Sweet Potato Noodles.jpg*  
**Author:** Stilfehrer  
**Source:** wikimedia commons

**Title:** *Emberiza hortulana 2.jpg*  
**Author:** Drawing by Wilhelm von Wright (1810 - 1887)  
**Source:** wikimedia commons

**Title:** *Patrolling in the Field 8*  
**Author:** divinenephron  
**Source:** flickr

**Title:** *Crayfish*  
**Author:** J. Arthur Thomson, M.A., LL.D. Outlines of Zoology (New York, NY: D. Appleton & Company, 1916)  
**Source:** http://etc.usf.edu

**Title:** *Nederland en de scheepvaart op de binnenwateren 2002*  
**Author:** Michiel1972  
**Source:** wikimedia commons

**Title:** *Red Snapper*  
**Author:** Federal Writer's Project, Florida Seafood Cookery (Tallahassee: Florida Department of Agriculture, 1943) 30  
**Source:** http://etc.usf.edu

**Title:** *Codfish*  
**Author:** Buel P. Colton, Zoology:  
Descriptive and Practical  
(Boston:D.C. Heath & Co., 1903)  
**Source:** <http://etc.usf.edu>

**Title:** Catfish  
**Author:** The Teachers' and  
Pupils' Cyclopaedia (Kansas City:  
The Bufton Book Company, 1909)  
**Source:** <http://etc.usf.edu>

**Title:** *Salmon*  
**Author:** Buel P. Colton,  
Zoology: Descriptive and Practical  
(Boston:D.C. Heath & Co., 1903)  
**Source:** <http://etc.usf.edu>

## D LEGAL & CLOSED

**Title:** *Causse Mejean*  
*Lacaune ovins*  
**Author:** Myrabella  
**Source:** Wikimedia Commons

**Title:** Speed Horse  
**Author:** G. F. Warren, Elements  
of Agriculture (London,  
MacMillan and Co., Ltd., 1913)  
**Source:** <http://etc.usf.edu/>

**Title:** Hakket-oksekoed  
**Author:** Gajda-13  
**Source:** Wikimedia Commons

**Title:** Shenzhou 6  
**Author:** Sreejithk2000  
**Source:** Wikimedia Commons

**Title:** Dandruff  
**Author:** Horoporo  
**Source:** Wikimedia Commons

**Title:** From the Dance of Death  
by Michael Wolgemut (1493)  
**Author:** Il Dottore  
**Source:** Wikimedia Commons

**Title:** Gray's Anatomy Plate  
**Author:** Arcadian  
**Source:** Wikimedia Commons

**Title:** Chicken Nuggets  
**Author:** Ludovic Bertron  
**Source:** Wikimedia Commons

**Title:** Strawberry wine  
fermentation  
**Author:** Simon A. Eugster  
**Source:** Wikimedia Commons

## CREDITS & THANKS

This book was created by  
Cathrine Kramer and Zack  
Denfeld at the Center for  
Genomic Gastronomy.

This artist book was generously  
funded by the Arts and Creativity  
Lab at NUS through the Art/  
Science Residency in 2012.

Printed by Ditto Press, London

### Many Thanks To:

Gabrial Harp for ideas, multiple  
edits and image finding.

Lonce Wyse for his support  
and endless patience.