

Dairy Queen

IN THE MIDST OF A GREEK-YOGURT BOOM, JEFFREY STEINGARTEN TRACKS DOWN THE BEST OF THE BEST, SOUNDS THE ALARM ON WHEY, AND WHIPS UP HIS OWN SUPPLY. PHOTOGRAPHED BY ERIC BOMAN.

Like most disasters, it all began innocently enough. It began with yogurt. Yogurt is fermented milk, one of the many forms of fermented milk we're fond of eating, which also include cheese, cultured butter, sour cream, crème fraîche, and buttermilk. Three pillars of Western gastronomy—bread, cheese, and wine—are triumphs of fermentation. I'd guess that fully one-third of everything we eat and drink is created through some form of fermentation. Just think of coffee and chocolate and vanilla, vinegar and pickles and soy sauce, salami and other aged sausages, sauerkraut and sourdoughs of every kind, and every drop of alcohol that has ever passed your lips.

Milk is always eager, impatient even, to ferment. If you leave a glass of milk overnight on the kitchen counter, it begins to taste tart, then grows sour. People used to think that this was simply a chemical reaction. Then Louis Pasteur and other French scientists of the mid-1800s discovered that the transformation of food (and other substances) we call fermentation is the work of micro-organisms—bacteria and yeasts that eat sugar and produce lactic acid or alcohol or gases such as carbon dioxide or methane (depending on which kind of micro-organism it is and what's in the world around it). Actually, to say that micro-organisms “eat” sugar is an error. Bacteria are not little tiny people. I should have said that they “metabolize” sugar.

Making yogurt is child's play. Maybe that's why there is so much of it on the market. You slowly heat a pot of milk to 185° F., leave it there for a while, let it cool down to 115° F., stir in some yogurt from the last batch you made or from the grocery, keep it nice and warm for four to six to 24 hours, then refrigerate it for a day. And there you have it—yogurt. If you'd like to turn it into Greek yogurt, just strain it.

The liquid that flows through the strainer is called whey. And there's the rub, the potential disaster I mentioned at the start. The U.S. Census Bureau tells us that per capita

yogurt-eating has tripled over the past 20 years, and so, presumably, has the production of whey. That the yogurt frenzy has reached irrational levels became clear when my wife, Caron, and dog, Jesse, returned from the nearby Pet Central store with a box of Yöghund, “real frozen yogurt all-natural dairy treat for dogs with banana & peanut butter.” Inside were four paper cups of something frozen solid that could well have once been yogurt. Although Jesse did appreciate the new treat, her reaction was more measured, less emotional than when her shiny wet black nose detects, for example, a bubbling pan of mac 'n' cheese or even just a dollop of plain yogurt in her bowl. To discover why, I asked her if I could borrow a spoonful of her Yöghund. It struck me as distasteful and gummy. But then again, I'm only human.

Who will drink the whey expelled in the creation of Jesse's frozen Greek-yogurt treat? Yogurt whey is a watery, cloudy, pale, yellow-green, acidic liquid. And nobody can figure out what to do with it all. Until now. Following the lead of three Sicilian shepherds I watched fifteen years ago, I think I have a plan.

But first, a few indispensable footnotes about making yogurt. The tablespoon of yogurt you add after the milk has been heated and partially cooled is called a starter, and in order to start anything, it must contain a live bacterial culture, preferably probiotic, which refers to friendly micro-organisms that promote the growth of other friendly micro-organisms way down in our digestive tract. (A probiotic is roughly the opposite of an antibiotic.) And so when you add live yogurt to milk, you expect that the creatures living in the yogurt will be fruitful and multiply, and that you will soon have cloned that colony of bacteria—and passed on its influence to your new yogurt's taste and texture. The choice of starter is crucial, totally crucial.

Then how do you explain our glass of milk that begins fermenting overnight on the kitchen counter spontaneously and without a starter? The bacteria that acidify milk are called lactic acid bacteria or lactobacilli, and they are ubiquitous in the world around us. But wild fermentation can be a chancy proposition. You never know which little creatures will predominate. Spontaneously soured milk may taste pleasant, but it's just as likely to be repulsive. That's why we prefer to add a

GREEK TO ME

Americans are eating more yogurt than ever—and the fastest growth is among producers of supercreamy Greek yogurt like Fage (pictured).



spoonful of familiar yogurt to supply the colony of bacteria that will ferment our milk into yogurt. Then, if we like the result, we can use our own yogurt to start the next batch. We can treat bacteria like useful pets, companion creatures.

But what if they go bad? Can you imagine the horror that some people, people like you and me, must have felt when they first heard about Pasteur's discoveries? Fermentation becomes a creepy, sinister activity, the stuff of bad dreams. Whenever you make a batch of bread dough and it bursts out of its bowl during the night and flows down to the counter, you begin to wonder. What if the germs decided to stop being benign; what if the dough fell to the floor and slithered into your bedroom and up over the edge of your bed? And what about the huge bubbling crock of fermenting sauerkraut or the rogue champagne cork that nearly puts your eye out? Is this a chance event or part of a plan? Our skin is home to numberless bacteria in distinct varieties. Hundreds of strains of bacteria have been identified living in our mouths.

What if they all turned against us?

The creamiest and most delicious yogurt I can find in New York City (and maybe in the entire country) is called the White Moustache. It's the handiwork of a father-daughter team in Brooklyn, who make it in small batches and sell it in squat little jars through twelve retail stores in Manhattan and ten in Brooklyn and nowhere else. Other shops wanting to carry White Moustache face a months-long waiting list. White Moustache has attained the status of a tiny but beneficent cult whose members, including Caron, need to master the company's delivery schedule to know which shops will have a fresh and full supply whenever they wish to eat it. White Moustache makes several yogurts and labneh (yogurt cheese), some unflavored and some with savory spices and herbs, but one of its best-sellers is sweetened with orange-blossom honey and speckled with chopped walnuts, and it is one of the best things I've tasted in quite a while—thick and smooth and glossy, and with an aroma that I feel relatively certain is what Heaven smells like.

THE WHITE MOUSTACHE HAS ATTAINED THE STATUS OF A BENEFICENT CULT WHOSE MEMBERS MASTER THE DELIVERY SCHEDULE TO KNOW WHICH SHOPS HAVE A FRESH AND FULL SUPPLY

For my starter, I stirred a spoonful of unflavored White Moustache Persian yogurt into each of my early experimental batches. Rather than employ an electric yogurt maker to keep the incubation temperature steady at about 110° F., or fashion an incubator from a cardboard box and a lightbulb, or attach a thermostat to a slow-cooker, I hit upon the genius idea of using a thermos! First I heated a quart of whole milk nearly to boiling, then cooled it to about 115° F., "inoculated" it with White Moustache, poured it all into an old wide-mouth thermos, and twisted on the cap. Four hours later the milk appeared to have become something like yogurt. The thermos had maintained the incubation temperature nearly perfectly. (This is as good a time as any for a necessary disclosure. My sage estimate that a third of our food involves

fermentation, and my genius idea of conveniently incubating in a thermos, were both lifted directly from the prize-winning book *The Art of Fermentation*, by Sandor Ellix Katz. This is easily the best detailed survey of food fermentation I've found, with general instructions, though not precise recipes, for what appears to be every fermented food in the world, many of them weird beyond telling. Katz does not aspire to mastering the microbiology of it all. His thoughtful discussions of how we can live in creative coexistence with the microscopic creatures whose world we share are enlightening and a pleasure to read.)

Had I managed to clone unflavored White Moustache yogurt? Not even close, at least the first few times. My version was thin and a little watery and overly tart, and it was shot through with little clumps, curds that remained separate and intact—something like cottage cheese or ricotta. But it was, without any doubt, yogurt. With each succeeding try, the results improved, then leveled off on a plateau that was short of truly satisfactory. What to do next? I read lots and lots of recipes, but I knew that the answer lay just across the East River, somewhere in the undifferentiated mass of humanity that is Brooklyn. The label pasted to the underside of each little jar of yogurt gave 20 Grand Avenue, Brooklyn, as the White Moustache address, but the phone company denied that anything like a yogurt factory lived there. The e-mail icon on the five-page White Moustache Web site didn't respond to my frantic clicks. Finally I saw that when my cursor passed over the icon, a tiny e-mail address appeared at the bottom of the page, and I immediately sent an irresistible message, to which Homa Dashtaki, the daughter, quickly replied, which led to a phone call and then my visit to the company's new location in the trackless wastes that are Red Hook.

I arrived on Commerce Street in the early afternoon. Theirs is a two-story brick building in a neighborhood of two- and three-story brick buildings, all apparently meant for light industry and warehousing—a classic old New York neighborhood of frequently repurposed buildings, some of which serve as incubators for start-ups, the kind of neighborhood that once dominated downtown Manhattan before real estate prices, fueled by the hegemonic finance industry, gentrified them out of existence. Halfway down the block, there was

a wide garage door locked down tight and a human door alongside, which opened onto a steep and scary stairway that lacked a railing and disappeared into shadows before reaching the first landing. To my relief, there was an unassuming door in the corner, slightly ajar, through which I explored and was rewarded with an ample, high, open white space and three women, Homa Dashtaki and her two young assistants, who had been waiting to greet me. Homa is tall, in her early to mid-30s, and currently wears a very cute short haircut. Her family emigrated from Iran in 1986 and settled in Orange County just south of L.A. in a community of Iranian Zoroastrians. Homa was quite a good student (UCLA, Cornell Law School), then joined a Wall Street law firm, but after the 2008 crash, she discovered that her fascination with

derivatives and securitization had faded, and she returned home, where she eventually started a family yogurt business, basing it on her grandmother's recipe. After three months, California health authorities shut it down. Reading about this, the secretary of state of the famously laid-back government of Oregon invited the Dashtakis in; during a brief visit, Homa realized that just as in California, the legal regulations would prohibit artisanal methods and require them to buy elaborate, expensive machinery. And then, almost by chance, on a visit to her friends in New York, Homa spoke with a woman named Betsy Devine, who was making artisanal ricotta cheese under the name of Salvatore Bklyn and who invited Homa to share her tiny manufacturing space. As in California and Oregon, Homa would be prohibited from starting new batches of yogurt by stirring in a little of yester-

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day's production. Otherwise, the man from the state assured Homa, they were committed to seeing her open successfully right there in Brooklyn. And so she did.

Homa produces two batches of yogurt each week, with milk that she and Betsy buy from a small upstate cooperative called Hudson Valley Fresh. As Homa and her assistants brought several stainless-steel bins from the walk-in refrigerator, we all sat around a makeshift table. One bin was filled with yogurt that had been incubated, stirred, and strained, and it was an amazing sight—thick and glossy and very smooth, stiff and rippled like uncooked meringue or buttercream frosting. But it was, after all, just unflavored Greek yogurt.

We talked about times and temperature, ate a generous amount of yogurt, especially me, and tried Homa's two new flavors for spring—mulberry and date. The mulberry was awesome. Before leaving, I asked Homa what she did with all the whey she drained from her curds. "So far it's not been a problem," she explained. Some chefs buy her whey to use in various recipes; some customers like to drink it straight up, as her assistant was doing when I arrived.

Elsewhere, concern is growing about the effects of the yogurt craze on the environment. At first, the potential economic benefits to local farmers inspired optimism. GREEK YOGURT WILL SAVE UPSTATE NEW YORK, announced a hopeful headline on *New York* magazine's Web site. The version in *The New York Times* was GREEK YOGURT A BOON FOR NEW YORK STATE. The article went on to explain that the long-depressed upstate dairy industry had gained new customers in the burgeoning yogurt industry. Fage, with headquarters in Greece, opened a plant near New York City in 2008 on the theory that the large Greek population here would clamor for Greek yogurt. Fage started by producing 26 million pounds a year, reached 175 million, and is now expanding its factory to be capable of producing 352 million pounds. Luckily for Fage, you don't have to be Greek to eat Greek yogurt, which is also good news for Chobani, now the leading American maker of Greek yogurt. Chobani was founded by a Turkish immigrant, who took over an old Kraft plant in South Edmeston, New York.

Four gallons of milk produce only one gallon of Fage, or two and a half gallons of yogurt at my house. The rest is drained off as whey, which large producers consider to be

waste. If that whey were dumped into local rivers and lakes, the bacteria would piggishly feast on the lactose (the milk sugar remaining in the whey) and in the process use up all the oxygen in the water. The fish would die. The yogurt producers might go to jail.

Then why, I wondered, couldn't they follow the lead of European dairy farmers? In England they make "whey butter" and sell it in supermarkets. In Italy the makers of Parmesan cheese sell their whey to farmers, who feed it to their pigs, whose hind legs become prosciutto di Parma. In Sicily on a great estate, I watched three shepherds (aged 60) milk a small herd of sheep, add rennet (the traditional coagulant used in cheesemaking) to the milk, heat the milk on a little stove until it separated, strain out the curds in baskets, to be pressed and salted and aged (as wheels of hard sheep's-milk cheese),

return the whey to the stove, and recook it at a higher temperature, whereupon smaller, tender curds known as ricotta (Italian for "recooked") separated out and, eaten warm, were one of the most delicious things you can imagine.

A half day of reading revealed the problem. Cheese whey, also called sweet whey, contains enough milk fat to create whey butter and enough protein to create ricotta. Yogurt whey, also known as acid whey, contains mainly acidity and a good amount of lactose, which does have commercial value if researchers can extract it. How hard can that be?

Yogurt-makers in the northeast, mainly in New York State, produce millions of gallons of this acid whey every year. It is difficult to find out where it all goes, partly because the large yogurt-makers are said to be somewhat secretive; the problem is colossal, and the potential technical solutions are proprietary and costly to develop. An article in *Modern Farmer* magazine in May 2013 described a treatment system used by a small number of farmers, the details of which are, quite frankly, repulsive. One dairy farmer takes in two daily 8,000-gallon truckloads of acid whey from a Chobani factory two hours away. Some is added to the feed for his cows, who quite enjoy it. Some is mixed with manure in deep pits to produce fertilizer, or in underground concrete tanks to ferment into methane gas, which is burned to produce electricity.

Nobody seems to have contemplated one depressing outcome—except us, here and now. If we can't figure out how to get rid of this Niagara of acid whey, it's possible that the manufacture of yogurt will have to be totally banned, and this would include the possession or sale of any tools or equipment that had been or could be used in said manufacture. Unlike those responsible for catastrophic oil spills, the CEOs of large, culpable yogurt-makers might have to do time, as would their CFOs, COOs, and CIOs.

To protect ourselves against the impending yogurt ban, we will need to hone our skill sets for home yogurt production. I have already begun, of course, and during my visit to Red Hook, Homa offered a range of tips for improving my technique. On the cab ride back home, I wrote an entirely new recipe, which I will offer on *Vogue* .com and in *Vogue's* digital edition. To paraphrase the poet, the magic is in the minutiae. □