

## Death by Ethanol: Confessions of a Sugar Addict

*Pam Fox Kuhlken, Ph.D.*

*I* thought of presenting a hardcore research paper about food politics and the insidious conspiracy by the Corn Refiner's Association of America (in collaboration with the FDA) to usher in a brave new world riding on amber waves of grain: a nutritious, affordable sweetener for all, High Fructose Corn Syrup (HFCS) lining the food aisles of Walmart.<sup>1</sup>

I would begin with research like the bohemian classic "that exploded the sugar myth and inspired a health revolution," *Sugar Blues* (1986) by William Dufty, an exposé on the dangers of sugar which reveals how this commonly ingested ingredient in countless foods is highly addictive and causes a host of medical problems from depression to coronary thrombosis.

Or my personal favorite that "calls a spade a spade," *The Sugar Addict's Total Recovery Program* (2002), by Kathleen DesMaisons, Ph.D., the first person

to receive a doctorate in addictive nutrition, and who is best-known for her breakout book, *Potatoes Not Prozac*. DesMaisons says that sugar addiction should be treated as seriously as heroin or alcohol dependency because it's responsible for "mood swings, depression, fatigue, fuzzy thinking, PMS, impulsivity ... [and] unpredictable temper."<sup>2</sup> In fact, in 2008, researchers at Princeton's School of Psychology found that whether because of genetics or because of over-stimulation, sugar addicts, like drug addicts, have fewer dopamine receptors in the brain. Sugar causes neurochemical changes in the brain that also occur with addictive drugs—releasing opioids and dopamine and thus having addictive potential. The Princeton study found that sugar threw off dopamine-acetylcholine balance and resulted in aggression, anxiety, and depression.

Or I could take a political angle laced with emotional appeals and refer to Greg Critsler's *Fat Land: How Americans Became the Fattest People in the World* (2003), whereas, actually, we're second only to South Sea Islanders. Like Jenette Marshall's *Fat Nation* (2004), Critsler's *Fat Land* convincingly explains that 60% of Americans are overweight (and 20% are obese) because of a fast-food marketing strategy that prizes sales—via supersized "value" meals—over quality or conscience, and it's the poor who suffer the most from ignorance and desperation.<sup>3</sup> Coincidentally, as three researchers found in the 2004 *American Journal of Clinical Nutrition*, the rise in obesity over the past 30 years could be linked to the rise in consumption of HFCS, which began in 1970 because it was much cheaper than cane or beet sugar, and is now the sweetener used in 50% of products in the U.S., but only 10% worldwide.

Alternately, a psychedelic angle would draw on a 2008 study from the University of Bordeaux, France, published in *Scientific American Mind* that showed that rats given a choice between highly sweetened water and intravenous cocaine overwhelmingly favored the tasty beverage. And we're talking experienced cocaine-using rats who could self-administer the drug intravenously—yet chose a virgin strawberry daiquiri instead. (Perhaps MFA candidates will conduct an experiment to see whether their peers would prefer a Big Gulp or a joint?) Sugar, then, *can* be as pleasurable and

addictive as habit-forming drugs. Evolutionary theorists postulate that our hypersensitivity to sweet taste evolved when sugar was scarce and indicated a high-energy meal.<sup>4</sup>

But frankly, the resulting paper is neither research, nor a “Moloch, Moloch, Moloch” rant modeled on Ginsberg’s “Howl” — “Moloch” the tofu of poetry which I would modify, “Sucrose! Sucrose! Sucrose!” No, this is a modest personal essay. I’ll leave the hardcore presentations to Larry McCaffery and Bill Nericcio, my colleagues on this “All-Star Faculty Panel.”

Today’s paper: “Death by Ethanol: Confessions of a Sugar Addict.” You were expecting something about biofuel made from corn? Please note that everything I’ll present today is essentially made of corn—the cow, a salad, biofuel, us, you, and even the Cracker Jacks I’ll distribute are corn syrup-coated popped corn eaten by humans who just ate corn for lunch and before that for breakfast, so your cannibalistic tissue and organs comprised of corn will perpetually digest corn.

In lieu of an actual PowerPoint, I will rely on your ability to conjure images. The first to keep in mind is a diagram of a cow with its four stomachs.

Now imagine chewing each bite of a salad a recommended 25-50 times (depending on your saliva production and mastication ability) until it’s as thoroughly pulverized as cud after being digested in the first two of four stomachs before its regurgitation and ultimate digestion in the last two of four stomachs. Six hours a day masticating, digesting, regurgitating. Instead, you buy Tums or Beano because you have one stomach.

An enzyme in the stomach of cows converts plant fibers, called cellulose, into energy, separating pairs of sugar molecules (disaccharides) into simple sugars (monosaccharides). Simple sugars in turn can be fermented to make ethanol. In April 2008, researchers at Michigan State University’s Consortium for Plant Biotechnology Research took the enzyme from the cow’s stomach and injected it into the leaves and stalks of the corn plant which transformed the whole plant into monosaccharides, a step away from etha-

nol. So the corn plant—and, I will argue, our bodies—are ethanol. Like dinosaurs rotting into oil—the corpse becomes fuel...the fuel is the corpse.

Your second PowerPoint image to conjure: a skull and crossbones on an ear of corn.

While the quirky vilification of HFCS by the filmmakers of *King Corn* is tempting, we're the real culprits. Whoever buys candy or soda or fast food today. We are the market. We, the corn, the people.

For those of you who ate at McDonald's, your meal was conceived in an Iowa cornfield (devised at its global headquarters located on 88 acres—half still native woodlands—in Oak Brook, Illinois, by CEOs and scientists conferencing in a building just awarded the U.S. Green Building Council's Platinum certification on Earth Day 2009). Corn feeds the steer that turns into the burgers, becomes the oil that cooks the fries and the syrup that sweetens the shakes and the sodas, and makes up 13 of the 38 ingredients in the Chicken McNuggets.

If you were at Ralph's or Vons instead, of over 45,000 items available, you had a 25% chance of picking up an item containing corn. The food industry was quick to exploit the freakishly protean nature of the corn plant.

Remember the PowerPoint image of the skull and crossbones on an ear of corn. Now superimpose your face in place of the skull and crossbones.

I love a scapegoat as much as the next guy—but life is multi-faceted and doesn't occur in a vacuum. The Hebrew concept "satan" means accuser, anything that challenges us, and we could substitute corn or HFCS as easily as caffeine, nicotine, heroin... speed, money, sex, fame. "Mammon" is the tofu of all evil, offering material trappings not of the spirit. One might even substitute "fruit." Want proof? A *New York Times* article (February 2009) cites research by professors at the Univ. of Iowa in Ames and at the Univ. of Australia that despite all the fuss about HFCS, when it comes to calories and

weight gain, it makes no difference if the sweetener was derived from corn, sugar cane, beets, or fruit juice concentrate.

Is there a conspiracy between US consumption of added sugars and farm policy affecting sweeteners? No, the link is tenuous, according to a 2006 study by Brendstrup, Paarsch, and Solow in the *International Journal of Industrial Organization*. The researchers concluded that increased consumption of sweetened foods and beverages is a global phenomenon, which isn't directly attributed to U.S. farm policy. So with no government conspiracy, we're looking at a market driven by capitalist sugar siphons—both producers and consumers.

In Christina Rossetti's poem, *The Goblin Market* (1862), goblin merchant men conspire at the local farmer's market in the glen to seduce girls into getting drunk on their intoxicating fruit. The "satans" chant: "Come buy our orchard fruits, / Come buy, come buy" (3-4).

"Look at our apples,  
russet and dun,  
Bob at our cherries,  
Bite at our peaches,  
Citrons and dates,  
Grapes for the asking,  
Pears red with basking  
Out in the sun,  
Plums on their twigs;  
Pluck them and suck them,  
Pomegranates, figs" (357-67)  
— (That's Rossetti.)

Look at our glucose, sucrose, and starch  
Mono-, di-, polysaccharides ripe for the asking,  
Maple sugar, sap, sorghum  
Sugarcane and beet  
(*Saccharum officinarum*)

and Beta vulgaris)  
Dextrose of grapes or corn,  
Lactose of milk  
Fructose and maltose  
Pluck them and suck them  
Ingest th-OSE, not figs.  
(That's mine)

It may sound banal to be a gratefully-recovered sugar addict, but Rossetti understood that having sucrose in the veins was wormwood and felt like a gang rape, violent assault, or demonic possession.

Next PowerPoint image: goblin men with a golden platter of your favorite food-like products.

Two sisters heard the goblin cry. One of them, Laura, "clipped a precious golden lock" (*Goblin Market* l. 126) of hair and "dropped a tear more rare than pearl, / Then sucked their fruit globes fair or red: / Sweeter than honey from the rock, / Stronger than man-rejoicing wine, / Clearer than water flowed that juice; / She never tasted such before / [...] She sucked and sucked and sucked the more / Fruits which that unknown orchard bore; / She sucked until her lips were sore; / Then flung the emptied rinds away / But gathered up one kernel-stone, / And knew not was it night or day / As she turned home alone" (127-32, 134-40).

The two sisters in Rossetti's poem remembered Jeanie, who should have been a bride, but fell sick and died in her prime because she succumbed to the call of goblin men. And then, having sucked and sucked and sucked the more, Laura was pining away after the ephemeral food orgy.

The messianic sister was Lizzie who retrieved the remedy of pulpy fruit on (but not inside) her body. Lizzie stood "like a royal virgin town" (423) beleaguered by a fleet, yet "Would not open lip from lip / Lest they should cram a mouthful in: / But laughed in heart to feel the drip / Of juice that syruped all her face, / And lodged in dimples of her chin" (436-40).

Lizzie gave Laura the antidote on her lips, "Hug me, kiss me, suck my juices / Squeezed from goblin fruits for you, / Goblin pulp and goblin dew. / Eat me, drink me, love me; / Laura, make much of me; / For your sake I have braved the glen / And had to do with goblin merchant men" (473-79). (You may choose to see me as a Messianic figure, bringing you Cracker Jack.)

Visualize four Iowa farm girls in a convertible heading to California—all of their valuables are packed for the permanent move.

A week after her high school graduation, my mom (declining the bribe of a new Arabian pony for staying on the family farm) and the other three girlfriends you just conjured jumped in a convertible and left a 500-acre farm in Iowa for California. I was born in Hollywood in the Summer of Love 1969. My name, "Pamela," in fact, means "sweet as honey," from Greek [παν](#) (*pan*) "all" and [μελι](#) (*meli*) "honey." "Pamela" was invented in the late 16th century by the poet Sir Philip Sidney for use in his poem, "Arcadia," given to a character who exudes "all sweetness." So I was set up to be a HFCS junkie from the womb.

My essay today is fueled by Iowa cornfields and Hollywood cinema, actually an Iowa film, *King Corn: You Are What You Eat*, a 2007 film by Ian Cheney and Curt Ellis, undergraduate roommates at Yale who discovered their families were both from the same small farming town in Iowa. So, with their Ivy League degrees, they move to Iowa and rent a field to plant one acre of corn. They play baseball while they watch the corn grow, using the government prescribed genetically-modified seeds. The result, they discover, is inedible. The product is only good for animal food and for refining as corn syrup—the cheap, feel-good carbohydrate fueling America, "ethanol in our blood," which in excess leads to addiction, diabetes, obesity, mental illness, death.<sup>5</sup>

Back to our virtual PowerPoint, listen to the trailer in a man's booming voice: "two friends, one acre of corn, and the subsidized crop that drives our fast-food nation."

I never roomed with Ian or Curt, but I will save you from the 2-hour film by screening their ten-minute Special Feature, “The Lost Basement Lectures” – a spoof documenting the twin inventions of agriculture and “civilization.” The six lectures offer an exposé of the FDA’s conspiracy to keep civilized Americans fat and happy on 99 cent ersatz food laced with sometimes 3-4 non-nutritious corn sweeteners (HFCS) from genetically-modified seeds yielding over 85 varieties of enhanced sweetness with diminished fiber and nutritional value.<sup>6</sup>

The problem is that the mainstay of the American diet is an enhanced sweetener with diminished fiber and nutritional value. In other words, wormwood in our veins: “I ate and ate and ate my fill, / Yet my mouth waters still. / Tomorrow night I will buy more” (*Goblin Market* ll. 165-68).

Imagine “The Lost Basement Lectures” (forthcoming on YouTube).

Ten minutes later....

The confession continues. I convinced myself to stop eating red meat in high school, and 20 years later after grad school, marriage, having a baby—despite biking and doing yoga—I was anemic, low in blood with just enough oxygen wafting to my brain to convince me that I had Alzheimer’s.

So I looked to the best American technology as fuel. Since 1970, especially in the last 20 years, added sweeteners have increased dramatically in the US, mainly because of the HFCS in beverages like soda, “juice,” and energy drinks.<sup>7</sup> Thankfully, I avoided caffeine-laced sugary energy drinks allowing one to travel at the metabolic speed of sugar: Rockstar (the energy king that “simply gets us”), Monster (with its legendary advertising campaign, unique taste, and impressive energy), Rip-It (exceptional variety, but you “feel nothing”), Sobe No Fear (14 flavors but only moderate energy), Amp (five flavors, moderate impact)...or Butterfinger Buzz (a caffeinated candy bar). I might have tried them all but No Fear Sobe alone made my heart beat like a hummingbird’s.

Then I found my panacea: sugar. Namely, frozen yogurts by day and a PowerBar by night. Goblin pulp and goblin dew called to me from the glen where I could legally plug into the ethanol fuel pump of leaded corn syrup for a decade.

Lest you mock this diatribe as hardly hardcore, doctors said I had one of the worst cases of candida (systemic yeast) they had ever seen and I lost mental clarity and became the Lizard Queen crossing the threshold of doors of perception laced with sucrose. While I was actually underweight because of my compulsive exercise, I was ingesting more than the 30 teaspoons of sugar the average American consumes a day (100 pounds annually, which is twice the USRDA), albeit in frozen rather than in solid or liquid form.

There's your thought again: sugar addicts are such lightweights. Maybe you've experimented with real speed? In this case, I would cite more research about sugar's similar effect to drugs and alcohol, leading to neurological changes in: dopamine and opioid receptor binding; dopamine and acetylcholine release in the nucleus accumbens; enkephalin mRNA expression. It's true. Just ask Nicole Avena, Pedro Rada, and Bartley Hoebel, three researchers whose study, "Evidence for Sugar Addiction: Behavioral and Neurochemical Effects of Intermittent, Excessive Sugar Intake," appeared in the 2008 issue of *Neuroscience & Biobehavioral Reviews*.

Back to PowerPoint. Please visualize a Yin Yang.

Arguably anything in excess throws us out of balance (the Eastern model of the Yin Yang reminds us of symmetry), but sugar has become an abused drug of choice (20-32 tsp./day). More than 100 pounds of processed sugar in more than 85 different forms is consumed annually by each American, including me, until my conversion.

This talk today is made possible by my acupuncturist and the wisdom of Chinese medicine getting to the root of my problem in 2005, balancing my yin and yang and getting me to meditate, eat with the seasons, take herbs,

and finally, after 23 years as a flexitarian, to eat red meat (for four months now) to build my blood. Now I have Chi. I no longer rely on one of corn's 85 varieties of sweeteners, each with a similar metabolic rate and a predictable result: 24/7 speed. I'm no longer on the bandwagon of low-quality nutrients and excess energy intake.

Having oxygen in my brain has been a novel experience, enabling me to live list- and Alzheimer's-free once again. The pace is steady, constant, not frenetic—more like fiber (which has a slower metabolic rate than sugar). Beans, vegetables like corn and peas and anything green, fruit like apples and figs, whole grain bread, nuts.

After reading this paper, my husband told me the thing that keeps me from being a world-changing, mind-blowing reformer is that I'm not on caffeine. "Or sugar," I added. "Sugar's not good for you," he said, "caffeine is."

Picture the Slow Food Movement's logo: an orange, smiling snail.

Consider, "Good, Clean and Fair: the Manifesto of Quality According to Slow Food," written in 2006 by members of the Slow Food Movement, an organization founded in Italy in 1989. Recently, chef Alice Waters, founder of the famed restaurant, Chez Panisse in Berkeley, CA, and author of numerous cookbooks since the 1980s including the most recent, "The Art of Simple Food" (2007), appeared on *60 Minutes* on March 15, 2009 as a spokesperson of the Slow Food Movement. Waters launched the national "Slow Food Movement" in the U.S., urging people to enjoy good, clean, fair food: food that tastes good, is environmentally clean, and economically fair to the growers. In essence, she advised the nation to eat organic food that is locally and sustainably grown, according to the seasons, and sold at farmers markets.<sup>8</sup>

I leave you with wisdom from Michael Pollan, author of *Omnivore's Dilemma: A Natural History of Four Meals* (2007) among many bestsellers on food politics, including *In Defense of Food* (2008). Pollan simply recommends: "Eat food. Not too much. Mostly plants," adding, "There is incontrovertible

but boring evidence that eating your fruits and vegetables is probably the best thing you can do for preventing cancer, for weight control, for diabetes, for all the different Western diseases that now afflict us.”<sup>9</sup>

But can you follow Pollan’s advice and avoid processed foods without spending a ton of time and money?

Of course not. The point is to change how you spend your time and money. It’s a question of priorities in a society that has devalued food to “99-cent-drive-through-custom-made-to-order-we-didn’t-start-your-meal-without-you-have-it-your-way” burgers.

From here, you can pick up additional exposes like Eric Schlosser’s *Fast Food Nation*, the 2005 incisive history of the development of American fast food ascending from postwar Southern California, especially in the 1970s.

*Fast Food Nation* is an important muckraking jeremiad published a century after Upton Sinclair’s *The Jungle* (1905), a graphic exposé of the meat packing industry that documents the unsanitary process by which animals become meat products (although Sinclair commented, “I aimed at the public’s heart and by accident hit its stomach” because his original intention was to expose the immigrant workers’ horrifying work conditions). In the spirit of Sinclair, Schlosser looks at the handful of enormous factories run by monopolistic corporate executives that make our food with chemicals and feces.<sup>10</sup>

You could join the Long Now Foundation to promote “slower and better” thinking as counterpoint to today’s “faster and cheaper” mindset. As part of the movement, the founder, computer scientist, Danny Hillis, conceived of a 10,000-year clock: “I want to build a clock that ticks once a year. The century hand advances once every one hundred years, and the cuckoo comes out on the millennium. I want the cuckoo to come out every millennium for the next 10,000 years. If I hurry I should finish the clock in time to see the cuckoo come out for the first time.”<sup>11</sup> Discussions around long term thinking are far more focused, and lend themselves to good storytelling and

myth-making—two key requirements of anything lasting a long time. The Long Now Foundation is a model of hope for the future, encouraging us to plant acorns, knowing we may not live to see the oaks.<sup>12</sup>

So you're at the fork in the road. Will you pick up if the bite isn't fairly traded, in season, organic, and locally produced? Will the cornfield's "offers [...] charm us, / Their evil gifts [...] harm us" (65-6) as in *Goblin Market*? Or will we "thrust a dimpled finger / In each ear, shut eyes, and [run]" (67-8)?

For your final PowerPoint image, please visualize your future and the orange, smiling snail we left behind several frames back, still in the same place.

## REFERENCES

- Avena, Nicole, Pedro Rada, and Bartley Hoebel. "Evidence for Sugar Addiction: Behavioral and Neurochemical Effects of Intermittent, Excessive Sugar Intake." *Neuroscience & Biobehavioral Reviews* 32.1 (Feb. 2008): 20-39.
- Beghin, John and Helen Jensen. "Farm Policies and Added Sugars in US Diets." *Food Policy* 33.6 (Dec. 2008): 480-88.
- Brendstrup, Bjarne, Harry J. Paarsch, and John L. Solow. "Estimating Market Power in the Presence of Capacity Constraints: An Application to High-fructose Corn Sweetener." *International Journal of Industrial Organization* 24.2 (2006): 251-67.
- Brody, Jane. "America's Diet: Too Sweet by the Spoonful." *New York Times* (2.10.09): 7.
- Corn Refiner's Association. Washington, D.C. <<http://www.corn.org/>>.
- Critsler, Greg. *Fat Land: How Americans Became the Fattest People in the World*. Boston: Houghton Mifflin, 2003.
- DesMaisons, Kathleen. *The Sugar Addict's Total Recovery Program*. New York: Ballantine, 2002.
- Dufty, William. *Sugar Blues*. New York: Grand Central Publishing, 1986.
- Dvoskin, Rachel. "Sweeter Than Cocaine." *Scientific American Mind* 19.2 (2008).
- Fisher, Daniel. "Food on the Brain." *Forbes* 175.1 (1.10.05).
- Go Further*. Dir. Ron Mann. Star. Woody Harrelson. Boneyard Entertainment, 2003.
- Heron, Katrina and Alice Waters. *Slow Food Nation's Come to the Table: The Slow Food Way of Living*. Modern Times, 2008.

- Johnson, Brian. "Taking Bites Out of the Fast Food Nation." *Maclean's* 117.19 (5.10.2004): 46.
- Johnson, Richard and Timothy Gower. *The Sugar Fix: The High-Fructose Fallout That Is Making You Fat and Sick*. Emmaus, PA: Rodale Books, 2008.
- King Corn: You Are What You Eat*. Dir. Aaron Wolf. Star. Ian Cheney, Curt Ellis. Mosaic Films, 2007.
- Long Now Foundation. Founder Danny Hillis. <<http://www.longnow.org/>>.
- "The Manifesto of Quality According to Slow Food." 2006 Salone del Gusto and Terra Madre expositions.  
<<http://www.slowfoodla.com/archives/000723.html>>.
- McNamee, Thomas. *Alice Waters and Chez Panisse: The Romantic, Impractical, Often Eccentric, Ultimately Brilliant Making of a Food Revolution*. New York: Penguin, 2008.
- Pollan, Michael. *The Botany of Desire: A Plant's-Eye View of the World*. New York: Penguin, 2001.
- . *In Defense of Food: An Eater's Manifesto*. New York: Penguin Classics, 2008.
- . *The Omnivore's Dilemma: A Natural History of Four Meals*. New York: Penguin Classics, 2007.
- Rossetti, Christina. *The Goblin Market and Other Poems (1865)*. Whitefish, MT: Kessinger Publishing, 2009.
- Schlosser, Eric. *Fast Food Nation: The Dark Side of the All-American Meal*. New York: Harper Perennial, 2005.
- Sinclair, Upton. *The Jungle (1905)*. Simon & Schuster, 2004.

Sidney, Sir Philip. *The Countess of Pembroke's Arcadia*. New York: Oxford UP, 2008.

Slow Food International. Founded 1989, Italy. <<http://www.slowfood.com/>>.

*Super Size Me*. Dir. Morgan Spurlock. Kathbur Pictures, 2004.

Waters, Alice. *The Art of Simple Food: Notes, Lessons, and Recipes from a Delicious Revolution*. New York: Clarkson Potter, 2007.

Watson, James and Melissa Caldwell. *The Cultural Politics of Food and Eating: A Reader*. Hoboken, NJ: Blackwell, 2005.

Weise, Elizabeth. "New Data Not So Sour on Corn Syrup: High-Fructose Corn Sweetener Found No Worse Than Sugar." *USA Today* (3.1.08). 7D.

West, Jackson. "Alice Waters' 'Slow Food' Pitch Goes National." NBC Bay Area (3.18.09). <<http://www.nbcbayarea.com/>>.

---

## ENDNOTES

---

<sup>1</sup> Listen to a sleazy public service announcement from the PR rep at the Corn Refiner's Association: "Mention corn syrups and consumers think of the sweetness and energy they offer—outstanding characteristics—but their value as food ingredients also flows from their adaptability to many circumstances and their other, less-known, advantages. Corn syrups can depress freezing to prevent crystal formation in ice cream and other frozen desserts. Salad dressings and condiments pour at manageable rates because of corn syrups' effect on viscosity. In lunch meats and hot dogs, corn syrups provide the suspension to keep other ingredients evenly mixed, and, like other corn products, the basic syrups can improve textures and enhance colors without masking natural flavors, as in canned fruits and vegetables. Refiners produce a variety of basic syrups to meet these needs, provide energy, and offer the right sweetness—enough but not too much—in thousands of foods Americans rely on, from beverages and bakery, to cereal and packaged snacks."

<sup>2</sup> DesMaisons' plan for national detox includes protein and whole grains with every meal, a potato every night (sending tryptophan to enter the bloodstream and increasing serotonin in the brain which boosts optimism, creativity, and concentration, and reduces cravings); and a lifestyle that balances work, exercise, and sleep in order to allow biochemistry to alter mood swings and cure sugar cravings.

<sup>3</sup> Lower-income families have higher rates of obesity regardless of race, ethnicity, and gender, which Critsler attributes to lack of information about diet and exercise and the wide diversity of cultural beliefs about weight, body size, and self-esteem. Critsler blames the epidemic of obesity on parents' reluctance to monitor their children's eating habits; the marketing tactics of fast-food companies that encourage overeating; the ubiquity of fad diets; the phasing out of physical education programs in schools; and the sale of fast food at schools to save money on dining facilities.

<sup>4</sup> In evolutionary terms, the human brain has a multitude of ways to stimulate appetite and only a few way to turn it off. Humanity existed in a state of constant food scarcity until the industrial revolution. In his *Forbes* article, "Food on the Brain," Daniel Fisher interviews Mark Gold, distinguished professor of neuroscience at the McKnight Brain Institute at the University of Florida who says: "Think about it: Your brain is walking through these megastores and saying, 'Aren't I a great hunter? I can catch king salmon or Kobe beef without any chance of being

---

attacked by a sabre-toothed tiger.”<sup>4</sup> Since we have a minimum of sweet receptors in the brain, today, when the average American ingests 20-32 teaspoons of sugar a day, the brain is overstimulated. Users experience a loss of self-control along with cravings and withdrawals associated with addiction.

<sup>5</sup> Peter Havel, an endocrinologist at the University of California, Davis, confirms: “At high levels of consumption, fructose, whether from high-fructose corn syrup or from table sugar (sucrose), increases triglycerides (fat) in the bloodstream, which could be a risk factor for cardiovascular disease (“New Data,” *USA Today*).

<sup>6</sup> Michael Pollan comments in *The Botany of Desire* (2001): “Today’s fundamental agricultural issue has become how to deal sensibly with overproduction. The result of this surfeit of grain is behemoth corn processors, who have commoditized the Aztecs’ sacred grain and developed ways to separate corn into products wholly removed from its original kernels. This excess food and Americans’ wealth and rapid-paced lifestyles now yield supersized portions of less-than-nutritious eatables.”

<sup>7</sup> In 2003, the Journal of the American Dietetic Association touted HFCS as one of the most revolutionary in food science since 1990, but warned people that when calories are consumed in liquid form, they will be hungrier and may compensate at subsequent meals...in the fat, fast food nation.

<sup>8</sup> For a more prescriptive regimen, in *The Sugar Fix: The High-Fructose Fallout That Is Making You Fat and Sick* (2008), Richard Johnson, M.D., and Timothy Gower suggest how to cut back on HFCS in everything from candy and frozen food to soups and peanut butter by making substitutions and following a daily meal plan consisting of 50% carbs, 25% fat, and 25% protein.

<sup>9</sup> Michael Pollan’s *In Defense of Food* (2008) recommends: “Eat food. Not too much. Mostly plants.” **Eat food?** The implication of Pollan’s advice is that what we’re eating now isn’t food. “Very often, it isn’t. We are eating a lot of edible food-like substances, which is to say highly processed things that might be called yogurt, might be called cereals, whatever, but in fact are very intricate products of food science that are really imitations of foods.” Pollan acknowledges that distinguishing between food and “food products” takes work. His tip: “Don’t eat anything that your great-grandmother wouldn’t recognize as food.” Take, for example, the portable tubes of yogurt known as Go-Gurt. “Yogurt is a very simple food. It’s milk inoculated with a bacterial culture. But Go-Gurt has dozens of ingredients.” **Not too much?** A large part of the conversation about food—like debating low-fat and low-carb diets—serves as a way of avoiding the idea that maybe we’re just eating too much, Pollan says. He says his advice about how to limit consumption is based less

---

on science, which he says “has failed us when it comes to food, by and large,” and more on culture. “Cultures have various devices to help people moderate their appetite,” he says. “Once upon a time, there was scarcity. We don’t have that anymore; we have abundance. But if you go around the world, you find very interesting tricks and devices.” One is small portion sizes, Pollan says. “The French manage to eat extravagantly rich food, but they don’t get fat, and the reason is that they eat it on small plates, they don’t have seconds, they don’t snack.” In Okinawa, Japan, a cultural principle called “Hara Hachi Bu” instructs people to eat until they are just 80% full, Pollan says: “You do know when you are full, and the idea of stopping eating before you reach that moment . . . if you do that, you will actually reduce your caloric intake quite a bit.” **Mostly plants?** Fruits and vegetables.

<sup>10</sup> In “Taking Bites Out of the Fast Food Nation” (*Maclean’s*, 2004), Brian Johnson reviews two comic documentaries that question fast-food culture while asking: if you are what you eat, would you turn into somebody else if you ate something completely different? *Super Size Me* is the first feature film by 33-year old, Morgan Spurlock, a healthy young man with a vegan chef girlfriend who drives his body into the ground by ingesting nothing but McDonald’s for a month: three meals a day, accepting super-sized portions if offered. He gains 25 pounds, loses his sex drive and becomes depressed. After three weeks, doctors inform him that he’s at risk of losing his liver and his life. In *Go Further* (dir. Ron Mann, Canadian, 2003), a junk-food addict boards a hemp-fuelled bus with a contemporary band of merry pranksters, including actor-activist Woody Harrelson, and tries to survive on a purely vegan diet without dying of boredom with hobbies like cycling, environmentalism, and yoga. The feel-good road trip down California’s Pacific Coast Highway shows a panorama of environmental rape and rapture, and takes musical pit stops with Natalie Merchant and the Grateful Dead’s Bob Weir.

<sup>11</sup> The 10,000-year clock would be constructed on a mountain in eastern Nevada, on a grand and equally obscure scale because Hillis believes the only way to survive is by being large and worthless (like the pyramids or Stonehenge) or being lost (Dead Sea Scrolls). While the project has no completion date, Hillis admits that the real danger is people losing interest in the 10,000 year clock: “The important thing is to make a very convincing documentary about building the clock and hiding it. Don’t actually build one. That would spoil the myth if it was ever found.”

<sup>12</sup> On this theme, enjoy an excerpt from Nazim Hikmet’s poem, “On Living”: “I mean, you must take living so seriously / that even at seventy, for example, you’ll plant olive trees— / and not for your children, either, / but because although you

---

fear death you don't believe it, / because living, I mean weighs heavier [...]"  
<<http://www.poemhunter.com/poem/on-living/>>.