



PANDORA'S LUNCHBOX

How Processed Food Took Over the American Meal

BY MELANIE WARNER

Scribner, 288 pp., \$26



text-instant and amigum. She was off and running.

Warner devotes a decent amount of ink to the past, considering, for example, how the combination of urbanization and the ballooning numbers of women in our nation's workforce led to a premium on things like uniformity, durability, and convenience—and eventually to the sorts of manipulated foods that have come to define our collective diet. We learn about extrusion machines, which we have to thank for breakfast cereals in the shapes of hearts and clovers but which, in ripping apart the sugar, starch, and protein molecules, also obliterated whatever flavor or nutritional value they might once have had. Hence the industry's impulse to inject synthetic flavorings and vitamins.

The technological advances of the last century, Warner writes, have brought this country to a point where we now derive some 70 percent of our calories from processed foods (which she defines as “something that cannot be made, with the same ingredients, in a home kitchen”).

She wants to know at what cost. Not to our bottom line—the amount Americans pay for food has declined dramatically over the past six decades, from 20.6 percent of disposable income in 1950 to 9.8 percent today (no nation spends a lower percentage on its eating)—but to our health. “If we really are what we eat,” she says in the book's introduction, “then Americans are a different dietary species from what we

PRETTY POISON

Food technology has transformed the contemporary diet in strange and scary ways

BY JOCELYN C. ZUCKERMAN

INQUIRIES INTO THE AMERICAN FOOD SYSTEM ARE BECOMING SOMETHING of a national fetish. In the past decade or so, we've seen the publication of Eric Schlosser's *Fast Food Nation*, Michael Pollan's *Omnivore's Dilemma*, Barry Estabrook's *Tomatoland*, and Tracy McMillan's *American Way of Eating*. Though less concerned with the environmental and societal ramifications of our nation's multibillion-dollar processed-food industry, Melanie Warner's *Pandora's Lunchbox: How Processed Food Took Over the American Meal* follows directly in the footsteps of this illustrious quartet, right down to the kitschy cover art. (While Schlosser's features a 1950s-era carton exploding with fries and McMillan's some old-school canned vegetables, Warner's publishers give us a stylized mound of individually wrapped neon-orange Kraft Singles.)

Warner's particular obsession took hold after an incident with a tub of guacamole. In the spring of 2012, the writer's eighty-something mom wandered into her daughter's kitchen and inadvertently pulled from the fridge what was then a nine-month-old container of the dip. She dug in—and was none the worse for it. How could it be, wondered Warner, who had covered the food industry for the *New York Times*, that a supposedly “fresh” product could sit for nearly a year without betraying even the slightest hint of decomposition? Examining the ingredients label, the reporter came across the words

were at the turn of the twentieth century. As a population, we ingest double the amount of added fats, half the fiber, 60 percent more added sugars, three and a half times more sodium, and infinitely greater quantities of corn and soybean ingredients than we did in 1909." Surely this "whole-sale remaking of the American meal" must be taking a toll.

If it is, says Warner, the Food and Drug Administration isn't telling us about it. The regulatory agency charged with overseeing our dietary health, she writes, is basically asleep at the wheel. In particular, she takes issue with its reliance on what it calls GRAS (generally recognized as safe) notifications, under which the industry essentially gets to monitor itself and to notify the FDA of new—and potentially harmful—ingredients only if it feels like it (see Barry Estabrook, "Out to Lunch," *OnEarth*, Winter 2012–2013).

The agency has not even done an official count of the additives in today's food supply, Warner writes, though a 2011 report from the Pew Charitable Trusts puts the number at a conservative 5,000. And it is troubling to learn how ubiquitous these mystery ingredients are, appearing en masse even in innocuous-sounding things like a Subway Sweet Onion Chicken Teriyaki sandwich, which boasts 105 of them. The chicken portion alone harbors substances with such appetite-killing names as disodium inosinate, disodium guanylate, and thiamine hydrochloride.

It gets weirder. Who knew, for example, that sodium benzoate, a preservative made from a petrochemical found in paint thinner, is to this day used in a variety of salad dressings and sodas? Or that the grease from Australian sheep's wool is extracted in China for use not just in machine lubricants and lip glosses but in the artificial vitamin D that finds its way into our milk, organic

versions included? Who would have imagined that the azodicarbonamide in Subway's breads is produced from hydrazine, which may be familiar to readers involved in the rubber and plastics industries? (A 2001 spill of azodicarbonamide in Chicago prompted the city to evacuate everyone within half a mile.) And how many consumers are aware of the extent to which the flavor

world has come to be dominated by enzymes made from genetically engineered bacteria?

Warner carefully catalogs the health issues associated with these newfangled ingredients. We learn that because the starch in our modern food has been essentially predigested, our bodies have that much less work to do, leaving us more susceptible to diabetes and obesity;

that the synthetic vitamins in our meals—Americans now get more man-made nutrients than they do naturally occurring ones—likely don't have their intended effects outside their natural context; and that the relatively recent replacement of trans fats in soybean oil by hydroxynonenals may ultimately prove a public-health disaster.

Warner's research takes us in-

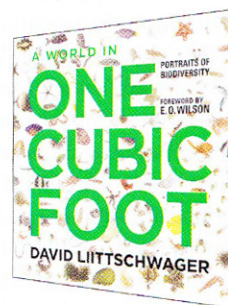


spotlight

One Cubic Foot

By David Liittschwager, University of Chicago Press, \$45

The renowned nature photographer David Liittschwager has always been fascinated by the marvels of the natural world on the most intimate scale. As the biologist E. O. Wilson says in his foreword to *One Cubic Foot*, "When you thrust a shovel into the soil or tear off a piece of coral, you are, godlike, cutting through an entire world. You have crossed a hidden frontier known to very few." Liittschwager's latest work takes us across that frontier. In each new location—a cloud forest in Costa Rica, a river in Tennessee, New York City's Central Park—he sets down a hollow metal cube, tracks the life forms that move in and out of it in the course of 24 hours, and then photographs them in all their riotous detail and diversity. Liittschwager found this translucent baby octopus on the reef encircling the island of Moorea in French Polynesia.



side “the curious, intricate world of food science and technology, a place where food isn’t so much cooked as disassembled and reassembled.” Nowhere is this alternate reality on better display than at the annual meeting of the Institute of Food Technologists, a gathering of the companies—some 900 of them—that supply ingredients to the processed-food industry. In conversation with a marketing director for an outfit called National Starch, she asks whether his product is being used as a thickener in the “Greek-style” yogurt he’s peddling. “It’s a texturing system,” he says. “We don’t like to use the term *thickener*.”

But Warner is at her best when she turns the narrative over to some of her more colorful characters. Take James Lewis Kraft, who in 1903, at the age of 29, moved to Chicago and used his \$65 savings to rent a wagon and a horse called Paddy for hawking cheese, which he would eventually figure out how to preserve indefinitely. Or Harvey W. Wiley, a Purdue University chemist who at the turn of the twentieth century routinely gathered men in the basement of Washington, D.C.’s Bureau of Chemistry and fed them meals laced with ingredients like borax, formaldehyde, and sulfuric acid. (Combined with the fallout from the publication of *The Jungle* by Upton Sinclair, the information about potential health hazards gleaned from Wiley’s unconventional “Poison Squad” would eventually lead to President Theodore Roosevelt’s signing of the nation’s first-ever food regulations.)

Warner concedes at the outset that some won’t want to hear what she has to say, and you do get the sense in *Lunchbox* that she’s mostly preaching to the choir—in a way that can feel disappointingly workmanlike and bloodless. She displays none

of the quiet indignation of Estabrook or the don’t-mess-with-me ferocity of undercover hotshot McMillan. Though we get a few glimpses inside Charlie and the Chocolate Factory-style food plants, monumental vats and pipes ahiiss, we mostly sit politely in executive conference rooms.

The author’s main stumble, though, comes toward the end of the book, where she tells us not to expect the likes of Pepsi and Kraft to fix the screwed-up way we eat but to take things into our own hands. It is doable, she says, offering by way of example a California family whose 13-year-old son goes from alienated troublemaker to fully functional sweetheart, all thanks to the way he changed up his diet. The anecdote, which goes on for some 10 pages, feels bizarrely random and unscientific—don’t we all have a friend who’s recently gone paleo or vegan and blathered on with conviction about her newer, better self?

In the end, Warner’s book goes down like a nutrient-rich and tasty enough kale salad, but one that might have benefited from the inclusion of a few renegade chunks of bacon. It’s a worthy addition to the ongoing conversation about how we eat in this country, and will undoubtedly play a role in what the *New York Times* columnist Mark Bittman recently referred to as our nascent national food revolution. “When it comes to sustainable food for billions,” Bittman wrote, “we’re the pioneers of a food movement that’s just beginning to take shape.” Warner’s portrait of the processed stuff we’ve come to call our national diet may be a mild-mannered one, but if we hope to storm the barricades of the industrialized-food establishment, we’ll need every voice we can get.

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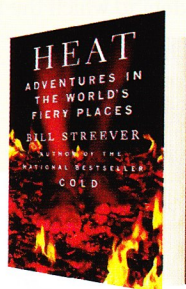
Food writer Jocelyn C. Zuckerman explores what and how we eat. onearth.org/jzuckerman

HEAT

Adventures in the World’s Fiery Places

BY BILL STREEVER

Little, Brown and Company
368 pp., \$26.99



BILL STREEVER’S NEW BOOK, *Heat*, starts out looking like the too-obvious sequel to his 2010 best seller, *Cold*—a collection of random but always interesting vignettes instructing readers on

deposit of hours-old lava and feel the searing heat as he dips a geologist’s hammer into some of the still-liquid stuff. We visit an old nuclear test site, where an elderly tour guide who saw some of the tests describes two soon-to-be incinerated mannequins that testers jokingly placed in a certain sexual position. At other stops, we learn about the physics of the sun, of cooking eggs, of quarks.

If that were all, well, okay. We could enjoy another round-the-globe trip of vicarious thrills and chills (or, here, heat blisters) that feeds us factoids we did not know, whether they were useful or not. But *Heat* aims for more.

Lurking literally or metaphorically behind many stops on the heat tour is the Big One of hotness: global climate change. Little by little, it worms its way in. On a poignant visit with a California firefighter to the spot where a giant sheet of wildfire burned several of his fellows alive, we

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the physics, biology, and history of one end of the temperature spectrum. Preferably reported from some exotic locale. Streever, a biologist in Alaska with a now successful second career as a writer, checks off this box with his new book. We learn the method by which Harry Houdini survived in an iron cage set on fire while a steak above his head cooked nicely. We view the living corpse of Pablo Valencia, an early 1900s miner who slithered across the Nevada desert lost and dying, lips and eyelids shriveled as if amputated, skin black and dry as beef jerky. We accompany Streever up a Hawaiian volcano across a still-swaying, cooling

are reminded that higher temperatures and changing rainfall patterns may well bring more such fires. Streever ably reviews how humans have moved up the ladder of fuels, from wood to oil. Along the way, it transpires that in the 1600s England instituted (in effect) one of the world’s first carbon taxes: a levy on every chimney, then a newfangled gizmo that became popular for channeling acrid coal smoke from houses. (It was repealed in the 1700s—more than 300 years too early, if you subscribe to that solution.) There is the strangled mummy of an Iron Age teenage girl, long preserved in a peat bog, later dug up by people