

A CRITIC AT LARGE

The last bite - Is the world's food system collapsing?

Thursday 29 May 2008, by [WILSON Bee](#) (Date first published: 19 May 2008).

The global food market fosters both scarcity and overconsumption, while imperilling the planet's ability to produce food in the future.

In his "Essay on the Principle of Population," of 1798, the English parson Thomas Malthus insisted that human populations would always be "checked" (a polite word for mass starvation) by the failure of food supplies to keep pace with population growth. For a long time, it looked as if what Malthus called the "dark tints" of his argument were unduly, even absurdly, pessimistic. As Paul Roberts writes in "The End of Food" (Houghton Mifflin; \$26), "Until late in the twentieth century, the modern food system was celebrated as a monument to humanity's greatest triumph. We were producing more food—more grain, more meat, more fruits and vegetables—than ever before, more cheaply than ever before, and with a degree of variety, safety, quality and convenience that preceding generations would have found bewildering." The world seemed to have been liberated from a Malthusian "long night of hunger and drudgery."

Now the "dark tints" have returned. The World Bank recently announced that thirty-three countries are confronting food crises, as the prices of various staples have soared. From January to April of this year, the cost of rice on the international market went up a hundred and forty-one per cent. Pakistan has reintroduced ration cards. In Egypt, the Army has started baking bread for the general population. The Haitian Prime Minister was ousted after hunger riots. The current crisis could push another hundred million people deeper into poverty. Is the world's population about to be "checked" by its failure to produce enough food?

Paul Roberts is the second author in the past couple of years to publish a book entitled "The End of Food"—the first, by Thomas F. Pawlick, appeared in 2006. Pawlick, an investigative journalist from Ontario, was concerned with such predicaments as the end of the tasty tomato and its replacement by "red tennis balls" lacking in both flavor and nutrients. (The modern tomato, he reported, contains far less calcium and Vitamin A than its 1963 counterpart.) These worries seem rather tame compared with Roberts's; his book grapples with the possible termination of food itself, and its replacement by—what? Cormac McCarthy's novel "The Road" contains a vision of a future in which just about the only food left is canned, from happier times; when the cans run out, the humans eat one another. Roberts lacks McCarthy's Biblical cadences, but his narrative is intended to be no less terrifying.

Roberts's work is part of a second wave of food-politics books, which has taken the genre to a new level of apocalyptic foreboding. The first wave was led by Eric Schlosser's "Fast Food Nation" (2001), and focussed on the perils of junk food. "Fast Food Nation" painted an alarming picture—one learned about the additives in a strawberry milkshake, the traces of excrement in hamburger meat—but it also left some readers with a feeling of mild complacency, as they closed the book and

turned to a wholesome supper of spinach and ricotta tortellini. There is no such reassurance to be had from the new wave, in which Roberts's book is joined by "Stuffed and Starved: The Hidden Battle for the World Food System," by Raj Patel (Melville House; \$19.95); "Bottomfeeder: How to Eat Ethically in a World of Vanishing Seafood," by Taras Grescoe (Bloomsbury; \$24.99); and "In Defense of Food: An Eater's Manifesto," by Michael Pollan, the poet of the group (Penguin Press; \$21.95).

All of these authors agree that the entire system of Western food production is in need of radical change, right down to the spinach. Roberts opens with a description of E.-coli-infected spinach from California, which killed three people in 2006 and sickened two hundred others. The E. coli was traced to the guts of a wild boar that may have tracked the bug in from a nearby cattle ranch. Industrial farming means that even those on a vegan diet may reap the nastier effects of intensive meat production. It is no longer enough for individuals to switch to "healthier" choices in the supermarket. Schlosser asked his readers to consider the chain of consequences they set in motion every time they sit down to eat in a fast-food outlet. Roberts wants us to consider the "chain of transactions and reactions" represented by each of our food purchases—"by each ripe melon or freshly baked bagel, by each box of cereal or tray of boneless skinless chicken breasts." This time, we are all implicated.

Like Malthus, Roberts sees humanity increasingly struggling to meet its food needs. He predicts that in the next forty years, as agriculture is threatened by climate change, "demand for food will rise precipitously," outstripping supply. The reasons for this, however, are not strictly Malthusian. For Malthus, famine was inevitable because the math of human existence did not add up: the means of subsistence grew only arithmetically (1, 2, 3), whereas population grew geometrically (2, 4, 8). By this analysis, food production could never catch up with fertility. Malthus was wrong, on both counts. In his treatise, Malthus couldn't envisage any innovations for increasing yield beyond "dressing" the soil with cattle manure. In the decades after he wrote, farmers in England took advantage of new machinery, powerful fertilizers, and higher-yield seeds, and supply rose faster than demand. As the availability of food increased, and people became more prosperous, fertility fell.

Malthus could not have imagined that demand might increase catastrophically even where populations were static or falling. The problem is not just the number of mouths to feed; it's the quantity of food that each mouth consumes when there are no natural constraints. As the world becomes richer, people eat too much, and too much of the wrong things—above all, meat. Since it takes on average four pounds of grain to make a single pound of meat, Roberts writes, "meatier diets also geometrically increase overall food demands" even in those parts of Europe and North America where fertility rates are low. Malthus knew that some people were more "frugal" than others, but he hugely underestimated the capacity of ordinary human beings to keep eating. Even now, there is no over-all food shortage when measured by global subsistence needs. Despite the current food crisis, last year's worldwide grain harvest was colossal, five per cent above the previous year's. We are not yet living on Cormac McCarthy's scorched earth. Yet demand is increasing ever faster. As of 2006, there were eight hundred million people on the planet who were hungry, but they were outnumbered by the billion who were overweight. Our current food predicament resembles a Malthusian scenario—misery and famine—but one largely created by overproduction rather than underproduction. Our ability to produce vastly too many calories for our basic needs has skewed the concept of demand, and generated a wildly dysfunctional market.

Michael Pollan writes that the food business once lamented what it called the problem of the "fixed stomach"—it appeared that demand for food, unlike other products, was inelastic, the amount fixed by the dimensions of the stomach itself, the variety constrained by tradition and habit. In the past few decades, however, American and European stomachs have become as elastic as balloons, and, with the newly prosperous Chinese and Indians switching to Western diets, much of the rest of the

world is following suit. "Today, Mexicans drink more Coca-Cola than milk," Patel reports. Roberts tells us that in India "obesity is now growing faster than either the government or traditional culture can respond," and the demand for gastric bypasses is soaring.

Driven by our bottomless stomachs, Roberts argues, the modern economy has reduced food to a "commodity" like any other, which must be generated in ever greater units at an ever lower cost, year by year, like sneakers or DVDs. But food isn't like sneakers or DVDs. If we max out our credit cards buying Nikes, we can simply push them to the back of a closet. By contrast, our insatiable demand for food must be worn on our bodies, often in the form of diabetes as well as obesity. Overeating makes us miserable, and ill, but medical advances mean that it takes a long time to kill us, so we keep on eating. Roberts, whose impulse to connect everything up is both his strength and his weakness, concludes, grandly, that "food is fundamentally not an economic phenomenon." On the contrary, food has always been an economic phenomenon, but in its current form it is one struggling to meet our uncurbed appetites. What we are witnessing is not the end of food but a market on the brink of failure. Those bearing the brunt are, as in Malthus's day, the people at the bottom.

Cheap food, in these books, is the enemy. Roberts complains that "the attributes of food that our economic system tends to value and to encourage"—like cheapness—"aren't necessarily the attributes that work best for the people eating the food, or the culture in which that food is consumed, or the environment in which it is produced." Cheap food distresses Raj Patel, too. Patel, a former U.N. consultant and a current anti-globalization activist, is an excitable fan of peasant coöperatives and Slow Food. He lacks Roberts's cool scope but shares his ambition to connect all the dots. Patel would like us to take lessons in "culinary sensuousness" from his "dear friend" Marco Flavio Marinucci, a San Francisco-based artist and, apparently, a master of the art of "gastronomical foreplay." Patel regrets that most of us are nothing like dear Mr. Marinucci. We are all too busy being screwed over by the giant corporations to take the time to appreciate "the deeper and subtler pleasures of food." For Patel, it is a short step from Western consumers "engorged and intoxicated" with cheap processed food to Mexican and Indian farmers committing suicide because they can't make a living. The "food industry's pabulum" makes us all cogs in an evil machine.

It's easy to see what Roberts and Patel have against cheap food. For one thing, it's often disgusting. Roberts has a powerful passage on industrial chicken, showing how its vile flesh is a direct consequence of its status as economic commodity. In the nineteen-seventies, it took ten weeks to raise a broiler; now it takes forty days in a dark and crowded shed, because farmers are under constant pressure to cut costs and increase productivity. Every cook knows that chicken breast is no longer what it once was—it's now remarkably flabby and yielding. Roberts reveals that poultry experts have a term for this: P.S.E., or "pale, soft, exudative" meat. Today's birds, Roberts shows, are bred to be top-heavy, in order to satisfy consumers' desire for "healthy" white meat at affordable prices. In these Sumo-breasted monsters, a vast volume of lactic acid is released upon death, damaging the proteins—hence the crumbly meat. Poultry firms deal with P.S.E. after the fact, pumping the flaccid breast with salts and phosphates to keep it artificially juicier. What they don't do is try particularly hard to prevent P.S.E. They can't afford to. The average U.S. consumer eats eighty-seven pounds of chicken a year—twice as much as in 1980—but this generates a profit of only two cents per pound for the farmer.

So, yes, cheap food can be nasty, not to mention bad for farmers and the environment. Yet it has one great advantage that neither Patel nor Roberts fully grapples with: people can afford to buy it. According to the World Bank, four hundred million fewer people were living in extreme poverty in 2004 than was the case in 1981, in large part owing to the affordability of basic foodstuffs. The current food crises are the result of food being too expensive to buy, rather than too cheap. The rioters of Haiti would kill for a plate of affordable chicken, no matter how pale, soft, and exudative. The battle against cheap food involves harder tradeoffs than Patel and Roberts allow. No one has yet

discovered how to raise prices for the overfed rich without squeezing the underfed poor.

If Roberts's overarching thesis is simplistic, he is nevertheless right in his scathing analysis of some of the market alternatives. The conventional view against which Roberts is arguing is that the food economy is "more or less self-correcting." When the economy gets out of kilter—through rapidly increased demand or sudden shortages and price rises—the market should provide the solution in the form of new technologies that "push the Malthusian monster back into its box." This is precisely what Malthus is thought to have missed—the capacity of a market economy to turn pressures on supply into innovations that can meet future demands. But endless innovation has now generated a series of demands that are starting to overwhelm the market.

Roberts depicts the global food market as a lumbering beast, organized on such a monolithic scale that it cannot adapt to the consequences of its own distortions. In a flexible, responsive market, producers ought to be able to react to a surplus of one thing by switching to making another thing. Industrial agriculture doesn't work like this. Too many years—and, in the West, too many subsidies—are invested in the setup of big single-crop farms to let producers abandon them when the going gets tough. Defenders of industrial agriculture point to its efficiency, but Roberts sees instead a system full to bursting with waste, often literally. American consumers demand huge amounts of cheese and meat. One consequence is the giant "poop lagoons" of Northern California. In traditional forms of mixed agriculture, animal manure is not a waste product but a valuable fertilizer. By contrast, the mainstream food economy is now dominated by monocultures in which crops and animals are kept apart. This system of farming has little use for poop, despite churning it out in ever-increasing volumes. The San Joaquin Valley has air quality as poor as Los Angeles, the result of twenty-seven million tons of manure produced every year by California's cows. "And cows are relatively benign crappers," Roberts points out; hogs—mass-produced to meet the demand for bacon on everything—are more prolific. On June 21, 1995, Roberts tells us, a hog lagoon burst into a river in North Carolina, destroying aquatic life for seventeen miles.

epulsed by the sordid details of meat production, some consumers turn to fish instead. Yet the piscine world is subject to the same market paradoxes as meat. In "Bottomfeeder," Taras Grescoe confirms that there are still plenty of fish in the sea. Unfortunately, these are not the ones that people want to eat. Aside from pollution, the oceans would be in quite a healthy state if consumers were less reluctant to eat fish near the middle or bottom of the food chain, such as herring, sardines, and mackerel. We would be healthier, too, since these oily fish are rich in omega-3, the fatty acid in which the Western diet is markedly deficient. Instead, we clamor to eat top-of-the-food-chain fish such as cod and bluefin tuna, many of whose stocks have collapsed; they will soon disappear from the seas altogether unless demand drops. So far, as with meat, the opposite is happening. With increasing affluence, the Chinese are developing a taste for sushi, which could soon see every last piece of glistening toro disappear.

Fish "farming," with its overtones of pastoral care, sounds like a better option, but Grescoe—who has travelled around the world in search of delicious and rare seafood—shows that it can be more damaging still. As with chicken, out-of-control demand for once premium foods has translated into grotesque and unsustainable forms of production. A taste for "popcorn shrimp in the strip malls of America" translates into the cutting down of tropical mangrove forests in Ecuador and the destruction of wild-shrimp stocks in Southeast Asia. Grescoe quotes Duong Van Ni, a hydrologist from Vietnam, where warm-water shrimp farms feed the insatiable Western appetite for all-you-can-eat seafood-shack specials and prawn curries. "Shrimp farming is so damaging to the environment and so polluting to the soil, trees, and water that it will be the last form of agriculture," Ni says. "After it, you can do nothing." Our thirst for cheap salmon is similarly destructive, and the results are as bad for us as they are for the fish. The nutrition expert Marion Nestle warns that you should broil or grill farmed salmon until it is well done and remove the skin, to get rid of much of the toxin-

laden grease. As Grescoe remarks, if this is the only safe way to eat this fish, wouldn't it be better to eat something else?

The one thing farmed salmon has going for it is that the fish are, as Roberts says, "efficient feed converters": salmon require only a little more than a pound of feed for every pound of weight that they gain. The trouble is that the feed in this case isn't grain but other fish, because salmon are carnivores. Fishermen are granted large quotas to catch fish like sardines and anchovies—which are delicious and could be eaten by humans—only to have them turned into fish meal and oil. Thirty million tons, or a third of the world's wild catch, goes into the manufacture of fish meal and oil, much of which is used to raise farmed salmon. Farming salmon, Grescoe says, is "akin to nourishing tigers and lions with beef and pork," and then butchering them to make ground beef. The farming of herbivorous fish such as carp and tilapia, by contrast, actually increases the net amount of seafood in the world.

The great mystery of the world's insatiable appetite for farmed salmon is that it doesn't taste good. Grescoe, a Canadian who was reared on "well-muscled" chinook, gives a lurid description of the farmed variety, with its "herring-bone-pattern flesh, barely held together by creamy, saliva-gooey fat." A flabby farmed-salmon dinner—no matter how much you dress it up with teriyaki or ginger—cannot compare with the pleasures of canned sardines spread on hot buttered toast or a delicate white-pollock fillet, spritzed with lemon. Pollock is cheaper than salmon, too. Yet in the United States there is little demand for it, or, indeed, for the small, wild, affordable (and sustainable) Northern shrimp, which taste sweeter than the watery jumbo creatures that the market prefers.

Given that the current food economy is so strongly driven by appetite, it does seem odd that so much of the desire is for such squalid and unsatisfying things. If we are going to squander the world's resources, shouldn't it at least be for the sake of rare and splendid edibles? Yet much of what is now eaten in the West is not food so much as, in Michael Pollan's terms, stuff that's merely "foodish." From the nineteen-eighties onward, many traditional foods were removed from the shelves and in their place came packages of quasi-edible substances whose selling point was nutritional properties (No cholesterol! Vitamin enriched!) rather than taste. Pollan writes:

There are in fact hundreds of foodish products in the supermarket that your ancestors simply wouldn't recognize as food: breakfast cereal bars transected by bright white veins representing, but in reality having nothing to do with, milk; "protein waters" and "nondairy creamer"; cheeselike foodstuffs equally innocent of any bovine contribution; cakelike cylinders (with creamlike fillings) called Twinkies that never grow stale.

Pollan shows that much of the apparent abundance of choice available to the affluent Western consumer is an illusion. You may spend hours in the supermarket, keenly scrutinizing the labels, but, when it comes down to it, most of what you eat is derived from the high-yield, low-maintenance crops that the food industry prefers to grow, and sells to you in myriad foodish forms.

"You may not think you eat a lot of corn and soybeans," Pollan writes, "but you do: 75 percent of the vegetable oils in your diet come from soy (representing 20 percent of your daily calories) and more than half of the sweeteners you consume come from corn (representing around 10 percent of daily calories)." You may never consciously allow soy to pass your lips. You shun soy milk and despise tofu. Yet soy will get you in the end, whether as soy-oil mayo and soy-oil fries; ice cream and chocolate emulsified with soy; or chicken fed on soy ("soy with feathers," as one activist described it to Patel).

Our insatiable appetites are not simply our own; they have, in no small part, been created for us. This explains, to a certain degree, how the world can be "stuffed and starved" at the same time, as Patel has it. The food economy has created a system in which some have no food options at all and some

have too many options, albeit of a somewhat spurious kind. In the middle is a bottleneck—a relatively small number of wholesalers and buyers who largely determine what the starving farmers produce and what the stuffed consumers eat. In the Netherlands, Germany, France, Austria, Belgium, and the United Kingdom, there are a hundred and sixty million consumers, fed by approximately 3.2 million farmers. But the farmers and the consumers are connected to one another by a mere hundred and ten wholesale “buying desks.”

It would be futile, therefore, to look to the food system for radical change. The global manufacturers and wholesalers have an interest in continuing to manipulate our desires, feeding our illusions of choice, stoking our colossal hunger. On the other hand, if desires can be manipulated in one direction, why shouldn't they be manipulated in another, more benign direction? Pollan offers a model of how individual consumers might adjust their appetites: “Eat food. Not too much. Mostly plants.” As a solution, this is charmingly modest, but it is unlikely to be enough to meet the urgency of the situation. How do you get the whole of America—the whole of the world—to eat more like Michael Pollan?

The good news is that one developing country has, in the past two decades, conducted a national experiment in a more sustainable food system, proving that it is possible to feed a population less destructively. Farmers gave up synthetic fertilizers and pesticides and replaced them with old-fashioned crop rotations and mixed livestock-crop operations. Big industrial farms were split into smaller coöperatives. The bad news is that the country is Cuba, which was forced to make the switch after the fall of the Soviet Union left it without supplies of agrochemicals. Cuba's experiment depended on its authoritarian state, which commanded the “reallocation” of labor from cities to farms. Even on Cuba's own terms, the experiment hasn't been perfect. On May Day, Raúl Castro announced further radical changes to the farm system in order to reduce reliance on imports. Paul Roberts notes that there is no chance that Americans and Europeans will voluntarily adopt a Cuban model of food production. (You don't say.) He adds, however, that “the real question is no longer what a rich country would do voluntarily but what it might do if its other options were worse.”

P.S.

* From The New Yorker:

<http://www.newyorker.com/arts/criti...>