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SUGAR ISN'T FREE OF CARBON, CONSEQUENCES

Thorson, Robert. *Hartford Courant*, 18 Nov 2010: A.13.

Last night, my son and I watched the cult classic "Dumb and Dumber" as part of my research for this column. I wanted to make sure that nothing in the movie was dumber than what I saw in the baking aisle of the grocery store last week.

I'm referring to official certification that the 5-pound bag of Domino sugar I bought for holiday cooking is "carbon free." Independent of this certification and under the bar code is this text: "5 lb. Carbon free granulated sugar."

This is dumb. Carbon-free sugar should be an obvious oxymoron to anyone who graduated from high school. That's where teachers teach that all sugars - sucrose, fructose, glucose and lactose - are carbohydrates, and therefore must be made of carbon. The chemical formula for the sucrose I bought is $C_{12}H_{22}O_{11}$ with the letter C representing the element in question. Hence, reading that it was "carbon-free" sugar was like taking a direct hit from a mortar shell propelled by disinformation.

But it gets even dumber. Domino's "carbon-free" certification comes from an organization called the Carbonfund, whose mission - quoted from their home page - is to move industry "Toward a ZeroCarbon World."

This is an even more flagrant oxymoron, given that all life on Earth depends on carbon drawn from the atmosphere and combined with water to produce sugar and oxygen in a reaction energized by the sun. The process is called photosynthesis ($6CO(-2) + 6H(-2)O (+ \text{light energy}) \text{ yields } C(-6)H(-1)(-2)O(-6) + 6O(-2)$). It's the true meaning of "going green."

The sugar industry is ideally situated for reducing its dependence on fossil fuels during the production phase because most of the cane harvest consists of rough fiber that can be burned directly or converted to biofuels. This reduces the industry's carbon footprint to or below the point of neutrality, where more carbon is sequestered by the product than emitted as waste gas.

But being carbon-neutral is not the same as being carbon-free. Similarly, a bank account where revenue balances expenses is not the same as a bank account that's dollar-free.

So why does Domino claim to be carbon-free? Probably because it sounds better. But only for those customers who don't care, who are science-illiterate or who are detached from organic reality.

On another issue, many health professionals now view sugar as the new tobacco, a dangerous product when it constitutes more than 10 percent of daily calorie intake. Arguably, obesity is our nation's most serious long-term health care problem. And recently, analysts at the United Nations have concluded that dietary sugar, rather than dietary fat, is the primary culprit. And the most costly health problem associated with obesity is the growing epidemic of Type 2 diabetes, now responsible for all but a few percent of U.S. cases of this disease, and which is souring public health care policy. Yet, on the back side of the Domino 5-pound bag is a separate marketing gimmick designed to promote sucrose consumption. Buyers are being asked to bake sweet things,

hold a neighborhood bake sale and then donate the proceeds to a charity that will help feed a hungry child.

Of course this is a nice thing to do. But beneath the facade of good will are increased profits for the sugar industry and likely higher rates of obesity.

I fear for a future in which trendy slogans trump material realities. I fear for an electorate that votes on issues involving the carbon cycle without knowing how it works. I fear for a dumb world getting dumber.

POLITICAL HYPOXIA IS KILLING COASTAL WATERS

Thorson, Robert M. *Hartford Courant*, 11 Aug 2011: p.11.

Political hypocrisy we understand. Political hypoxia we do not.

In the familiar case, politicians say one thing but do another, and are often caught with their pants down. In the second case, a dearth of oxygen in political discussions involving the environment leads to a damaging dearth of oxygen in the nation's fresh and coastal waters.

The breaking news this August is dominated by the global debt crisis and the shameful partisan responses thereto. But by November, attention will shift to the Iowa caucuses, the first nationally significant litmus test for the 2012 presidential election. This political jockeying will put on exhibit our nation's most chronic and regular case of political hypoxia, the case of corn-fed America vs. the dead zone of the Gulf of Mexico.

The story begins with the iconic image of the American farm family, the founding archetype of Jeffersonian democracy and the lifestyle of patriot families in New England. By the early 20th century, the U.S. farm population was in decline. By mid-century, rural populations were plummeting as modest family farms converted to government-subsidized mega-businesses.

What had been a homestead landscape of dispersed pastures, hayfields and chicken yards became a bipolar world of enormous fields measuring thousands of acres on the one hand, and highly concentrated feedlots, poultry factories and slaughterhouses on the other. This conversion was brought to you by an exponential increase in the application of manufactured fertilizer and the cheap oil used to plow, harrow, seed, spray, harvest and ship grain.

Aside from California's Central Valley and the coastal plain of Texas, most of this conversion took place within the Mississippi River Watershed, which drains 30 states from Montana and New York south to Louisiana. A direct consequence of natural runoff from heavily fertilized fields and from concentrated manure at meat factories was an extraordinary increase in nutrient pollution to Mississippi River wetlands and watercourses.

Upon reaching the Gulf, this nutrient loading stimulates algal blooms within a warm and relatively fresh upper layer of water. After settling, decomposition of the algae progressively robs the bottom water layer of its vitality. Below an oxygen concentration of about 2 parts per million, the water becomes biologically dead.

Aside from the ecological harm, this chemical hypoxia damages the northern Gulf fishery, which supplies nearly three-quarters of the U.S. shrimp catch and nearly two-thirds of its oysters.

Historically, the key pollutants of nitrogen and phosphorus have increased at least threefold since early settlement. And given the current economic trends, this situation is likely to get worse as agricultural productivity in the food and energy sectors of our economy takes precedence over environmental sustainability. The main drivers here are hot-button political issues: the staggering rise in global human population, climate-related crop failures and energy independence through biofuels.

Meanwhile, back to Iowa, the leading state for political hypoxia. Despite its middling size and small population, it's No. 1 for corn, hog and egg production. There, agriculture has the highest economic clout per square mile. There, agriculture is roughly six times more important per voter than in California and Texas, the only two states with more total agricultural output.

Iowa is near the epicenter of the Mississippi River agricultural watershed, a geopolitical domain represented by 60 corn-fed senators, a supermajority on this issue alone. No wonder the Gulf remains in such bad shape.

During national political campaigns in Iowa, presidential wannabes breathe very little oxygen on the externalized costs of pollution from tillage, fertilizers and pesticides flowing to the Gulf. The result of this political hypoxia is a chronic dead zone of our own making. Unless they concede Iowa as part of their campaign strategy, no successful candidate walks away from the state caucuses without having made a concession to King Corn and the feedlots and meat factories that are its spawn.

THOREAU DIDN'T LIKE GRANITE MONUMENTS

Thorson, Robert M. *Hartford Courant*, 01 July 2010: p.13.

Simplicity. Simplicity. Simplicity. This is what Henry David Thoreau said about monumental architecture.

His family understood. After Henry's untimely death in 1862, they marked his grave in Concord's Sleepy Hollow Cemetery with nothing more than a brick of marble, set low to the ground.

Literary pilgrims of the Victorian and Gilded Ages understood. Notables such as John Burroughs and John Muir honored Thoreau's memory by dropping pebbles, cobbles and small boulders from the nearby area onto a simple pile marking the spot where Henry lived in the woods and began work on his literary masterpiece, "Walden." Today, that pile is an unstructured mound of glacially milled and water-washed stones more than 20 feet long, and referred to as a cairn, perhaps because one formerly marked the same place.

Local residents of the mid-20th century evidently did not understand. After an excavation of Thoreau's house site in 1945 by Roland Wells Robbins, and with the best intentions in mind, they dishonored his memory with a monument he most likely would have hated. Surrounding the 150-square-foot floor plan of the house are nine massive granite pillars, which are connected by drapes of heavy chain. Four smaller granite posts mark the former woodshed.

All in all, there are 13 uprights of what Henry would have called "hammered" stone, because that's how quarrying was done in his day. To cut blocks from the earth's crust, stone masons used blunt hammers to pound percussion drills and chisels and to pound the rock itself for finishing touches.

"To what end, pray, is so much stone hammered?" Thoreau asked himself in "Economy," his opening diatribe against the vanity and superficiality of human society. "In Arcadia," he writes of the classical Greek ideal of pastoral simplicity, "I did not see any [workers] hammering stone."

"Nations are possessed," he continues, "with an insane ambition to perpetuate the memory of themselves by the amount of hammered stone they leave. ... Most of the stone a nation hammers goes toward its tomb only. It buries itself alive. As for the Pyramids, there is nothing to wonder at in them so much as the fact that so many men could be found degraded enough to spend their lives constructing a tomb for some ambitious booby, whom it would have been wiser and manlier to have drowned in the Nile, and then given his body to the dogs."

When I first read those words in 1971, I was a young idealist searching for answers, an undergraduate geology student also interested in archaeology and the proud owner of a well-used rock hammer. Hence, I distinctly recall the passage.

Thirteen years later, I moved from Alaska to northeastern Connecticut, giving me my first chance to visit Thoreau's house site, now the historic epicenter of the modern environmental movement. On my first pilgrimage in the spring of 1985, I was shocked and disturbed to find megaliths of hammered stone marking the tomb of Thoreau's house.

I've visited the same site many times since, often with a busload of students. Each time, I'm saddened to see a hammered stone memorial to a man who detested hammered stone. "I love better to see stones in place," Thoreau wrote. "The grandeur of Thebes was a vulgar grandeur. More sensible is a rod of stone wall that bounds an honest man's field than a hundred-gated Thebes that has wandered farther from the true end of life."

I agree. But the Commonwealth of Massachusetts apparently does not. Unless there are legal restrictions to the contrary, they have jurisdiction over the hammered stone anti-memorial desecrating the house site at Walden Pond State Reservation. The dishonor done to Thoreau 65 years ago continues at their discretion.