

## Puff Daddy

By Alyssa Giacobbe

A Harvard biomedical engineer has come up with a new kind of dining experience, one that has the potential to revolutionize how we look at food—or at least our oral fixations.



Illustration by Heather Burke

IT WAS THE SUMMER OF 2007, AND the citizens of Paris were pissed.

Cigarettes, which had already been banned in public places, would soon be forbidden in the city's iconic cafés. And yet to David Edwards, a Harvard professor and biomedical engineer who lived part of the year in France, the mass frustration was something else: a source of inspiration.

Edwards had spent much of his career working on the development of aerosol medications, shrinking the size of drug particles to make inhalable remedies possible. But he was also a newly passionate foodie who'd become interested in molecular gastronomy, how chefs were using chemical engineering to alter food forms.

To Parisians, eating and smoking were basic human rights, the first rarely occurring without the second. That custom would be all but destroyed by the smoking ban, though, and that got Edwards thinking. What if you could replicate the Parisians' post-meal ritual with something else, something that would meld culinary art and science, something that would be—unlike other beloved French vices—good for you?

What if he could, in fact, find a way to eat just by breathing?

RAISED NEAR DETROIT, EDWARDS studied chemical engineering at Michigan Tech and the Illinois Institute of Technology, before going on to positions at MIT, Penn State, and, since 2002, Harvard.

He is a scientist through and through, yet as a child he was most fascinated by literature and theater. He penned his first novel back in the fifth grade, and has shelves full of books written just for his own amusement, including a historical novel based in post-revolutionary France titled *Bonaparte and Me*.

In the fall of 2007, Edwards invested his own money (though Harvard helped, too) in creating Le Laboratoire, an "ideas lab" and cultural space in central Paris where artists and scientists would come together to "push the limits of understanding," and invent accordingly. As Edwards saw it, science—relying as it did on the proven and the peer-accepted—could stand to take a page from the arts.

Located not far from the Louvre, Le Laboratoire has hosted exhibitions on the experience of a stem cell transforming into a neuron (a collaboration between French artist Fabrice Hyber and leading MIT scientist Robert Langer) and a mobile mini greenhouse that "renders plants more intelligent," whatever that means, as envisioned by Edwards and French industrial designer Mathieu Lehanneur.

By 2008, though, Le Laboratoire had produced nothing of commercial value, even if Edwards's hydrangeas had never looked better. "I'd invested time, my reputation, and, of course, my money in this project, and I had a deathly fear of it failing," says Edwards, 48. He had to do something, and fast.

So Edwards approached Thierry Marx, an avant-garde chef whose interest in molecular gastronomy had led him to create dishes such as liquefied quiche and "virtual sausage." Looking for new concepts—and always eager to enrage French traditionalists—Marx signed on, partnering with Edwards to reduce food to particle form.

They started with chocolate (because, well, who doesn't like chocolate?) and soon perfected four varieties: plain chocolate, chocolate mint, chocolate mango, and chocolate raspberry. The actual science of making food inhalable wasn't difficult: It turned out that aerosol technology was pretty much the same whether you were trying to deliver a tuberculosis vaccine or a tasty dessert. For the latter, though, it all came down to ensuring the particles were small enough to be airborne, but too big to enter the lungs and trigger coughing.

Back at Harvard, students in Edwards's creative-engineering class had already worked on a means for delivering the particles, coming up with something similar to a traditional asthma inhaler. It was nearly identical in appearance to a tube of ChapStick. Instead of waxy lip balm, though, it would be filled with sweet, pure, breathable chocolate. Edwards called it Le Whif.

IN HIS PIERCE HALL OFFICE ON THE fringes of Harvard's campus, Edwards, looking very much like a French academic in a T-shirt, blazer, and long wavy hair, demonstrates the proper way to whiff. "Very, very gentle," he says, as he closes his eyes, puts his lips to the tube, and draws in tiny sips of air. (The process is not entirely dissimilar to taking a hit from a bong—or so we've been told.) Whiff too eagerly, or too deeply, and you'll get a throat full of dust and spur a round of dry hacking. This is uncool, and very un-French. "There's always a small learning curve," says Edwards. "People think more is better."

This spring, Le Whif was released in a limited run, quickly selling out tens of thousands of units at both its online store and a select group of French specialty shops. Trendy French boutique Colette described Le Whif as "the ultimate experience of a new food gesture...perfect to finish a meal, to offer with coffee, and to satisfy all these needs of chocolate." The store sold the device in packs of six for 10 euros, or about \$14. "The response was immediate, even before the press buzz," says Sarah Lerfel, Colette's creative director and buyer. New product turnover is important, she adds, with the store never keeping any one thing for too long—"but we can't stop selling Le Whif. Too many requests for it!"

Emboldened, Edwards and his team set out on a grand "world tour," traveling to a number of American and European cities, including Cannes, where Le Whif girls paraded around the swank Majestic hotel doling out free Le Whifs to the film festival crowd.

The buzz closer to home has mostly centered on a particularly American concern: the fact that Le Whif has zero calories. In May, Le Whif had its official U.S. premiere at the annual All Candy Expo in Chicago, the candy industry's biggest trade show, at which some 450 exhibitors debuted 2,000 products. This year's highlights included bacon lollipops, Intoxicators (potato chips infused with margarita and bloody mary flavors), and Le Whif, which emerged as one of the show's stars. Edwards's team ran out of its stash of demos each day. Caitlin Kendall, managing editor of the blog Candy Addict—the most trusted source in candy news, as it were—nearly missed the booth because, she says, the crowd around it was too thick. Candy Addict's review described Le Whif as if the product had appeared when some hopeful woman rubbed Aladdin's lamp: "Calorie-free chocolate has arrived!" While the flavors were uniformly praised ("Mmm, refreshing...felt like a little snow flurry in my mouth"), overall, the review concluded, "it's an exemplary replacement for air, less so for candy." Still, "it seems tailor-made for extreme dieters."

It's a nice idea—that a hit of chocolate might be enough to sate a dieter's appetite—if not a wholly convincing one. The science of overeating doesn't work that way. People eat for a lot of reasons, of course: stress, boredom, entertainment (not to mention sustenance).

Le Whif doesn't address these impulses, but it might not matter. The billion-dollar diet industry is not built on effectiveness. It's built on hope. If one person says Le Whif quiets her hunger, others will follow.

BACK IN THEIR PARIS LABORATORY, Edwards and Marx are leading a team of chefs and scientists in creating the next whiffable fare: spearmint, tomato soup, and cheese. They're also working on recipes for Le Whaf, a device Edwards and company are set to unveil next month, by which liquids are transformed into a "fine, stable, standing cloud that is beautiful and meditative and all that" to be ingested through a straw.

Why? No one's quite sure, including Edwards, who seems happy to play the role of the nutty pseudo-Frenchman, inventing a novel product just because he can. Yet he is also convinced he's got a legitimate business idea in Le Whif, and is determined to ride his chocolate cloud as high as it will float. "We've gone from 'Isn't this cool and interesting?' to 'Would you do this every day, and why?'" he says. "We want to move to a real commercial product."

Either that, or it will prove to be a cultural blip, the pet rock for the early 21st century. In his less entrepreneurial moments, Edwards is okay with that, too. It goes back to his original premise: The simple, silly thoughts—sometimes the sillier the better—are the ones that fuel innovation and, in their own way, change the world. "Le Whif is fun; it makes people laugh," he says. It allows users to enjoy the small pleasures in life. Maybe that's enough.