

THE BOSTON PHOENIX

# WAITING TO INHALE . . . CHOCOLATE

HARVARD BIOMEDICAL ENGINEER DAVID EDWARDS REVELS IN THE INTERSECTION BETWEEN ART AND SCIENCE. NOW HE'S EXPERIMENTING WITH WAYS FOR US TO BREATHE OUR FOOD.

BY MIKE MILIARD



Not long ago, Harvard engineer David Edwards was dining in Bordeaux with famed French molecular gastronomist Thierry Marx and colloidal chemist Jérôme Bibette. Suddenly, tucking into a plate of gourmet fare, Edwards—who specializes in aerosols—had what might be called a *voilà!* moment.

"Maybe," he recalls over the phone from Paris, "we could breathe food! Wouldn't that be interesting?"

And so, inspired by this Jetsonian model of the future of food, comes Le Whif, an aerosolized form of inhalable chocolate that may just represent a paradigm shift in the way humans consume comestibles.

Or, more likely, it probably won't. But at any rate, the airy *amuse bouche*—which has been available as a prototype in Europe for several months, and will soon be available online (at [lewhif.com](http://lewhif.com)) and in stores (primarily around the Harvard campus)—is a fun and calorie-free way to satisfy a sweet tooth.

More to the point, it's a minor object lesson in the boundary-pushing imagination of its Willy Wonka-like creator.

Edwards, the Gordon McKay Professor of the Practice of Biomedical Engineering at Harvard, has devoted most of his career to serious science and medical innovations, devising novel delivery mechanisms for nanostructured medicines. He's worked on developing inhaled insulin for diabetes treatment and getting needle-free vaccines to the developing world. He's an expert, according to his Harvard bio, on "fluid mechanics, interfacial transport phenomena, drug delivery, and aerosol science."

But he's always been keenly interested in the intersection of science with art. In addition to his research, teaching, and writing, Edwards is the co-founder of Le Laboratoire ([lelaboratoire.org](http://lelaboratoire.org)), which he describes as a "small, incubative" space for experiments peopled by "artists and designers at the frontiers of science."

The experiments undertaken at Le Laboratoire—which opened in 2007 and is located near the Louvre and Centre Pompidou in Paris (an American version, the Laboratory, opened the past November at Harvard)—are much different from your typical petri-dish and Bunsen-burner fare.

They range "from pure contemporary art, to industrial design, to culinary art and design," says Edwards. Recent projects have included a sleekly designed air purifier that took inspiration from the filtration properties of tree leaves, and an inquiry into how mood affects space and design, gauged by measuring visitors' neurological responses.

Edwards—whose provocative books include *Artscience: Creativity in the Post-Google Generation* and *Whiff*, a nonfiction/graphic-novel hybrid, co-authored with Japanese manga artist Junko Murata, that recounts Le Whif's creation (both Harvard University Press)—takes this commingling of art and science seriously. Because he strongly believes that,



when the two work in tandem, creativity is catalyzed.

The common stereotype, he says, is that science is merely "analytical and deductive," with a somber mission to "simplify a complex world." Art, on the other hand, is commonly seen as an "aesthetic method that's intuitive and inductive and celebrates uncertainty and ambiguity."

But, in fact, he says, "artists and scientists who are very creative tend to really blend both of those methods in what they do. Scientists love being wrong; being wrong means they're learning something. And artists often have to be precise and analytical in creating these major complex works of art."

It's in that meeting point that Edwards lives and works. Perhaps that's why Wikipedia differentiates him from the many other David Edwardses out there—the footballer, the journalist, the politician—by identifying his profession as "ArtScientist."

## WHIF IT GOOD

So how does Le Whif work? Inhaling chocolate, it turns out, is more complicated than

one might think. "The physics are pretty interesting," says Edwards.

"The particles need to be small enough so they get in the air—but big enough that they can't, in any case, get into the lungs, no matter how hard you breathe. They need to be significantly greater than 30 microns in size, and smaller than a couple hundred microns."

Also, "there is some chemistry related to the particles themselves. It's important that they dissolve quickly in your mouth. They need to be really soluble."

Moreover, he says, "the aerodynamics are sort of complex." The delivery mechanism—Le Whif is about the size of a tube of lipstick and costs about \$8 for a box of three—looks simplistic, but is thoughtfully designed. "It's easy to use, but there's some real physics in the device itself. It's important that the particles don't go to the back of your throat and make you cough."

And what's the experience like? Not having tried it myself, I can't say. But YouTube clips show users betraying a sort of bemused amusement.

One English talk-show host—after hyping Le Whif as an exciting and exotic sweet that's "no more fattening than the air we breathe!"—seemed somewhat let-down: "smells like chocolate, tastes like dust." Another online reviewer described the experience as "akin to sucking a tiny bit of cocoa powder through a straw."

But Edwards doesn't claim to be supplanting the time-tested, tummy-widening delights of the Mars bar. "It is not the replacement of the chocolate bar so much as it is the new experience of chocolate," he says. "Most people, when they whif for the first time, laugh. There's something sort of surprising about it: *Oh my gosh, how weird is that?*"

That's exactly the reaction he's aiming for: he seeks to use science to develop new aesthetic and experiential phenomena. Who knows? Some days those innovations might change the world. Other times they might just result in a trifle—"a great thing to have in your purse when you need a chocolate hit."

In France, where whiffing has become something of a fad, Edwards says it's popular to combine the chocolaty burst of air with a cup of coffee. (It's a tradition there to have a bit of chocolate alongside one's *café crème*.)

Actually, though, Le Whif also comes in a coffee flavor. And yes, "you get the caffeine hit," says Edwards. "It's like the kick of coffee without having to heat up the cup!"

Sounds a bit like the work of the fictitious inventor of Everlasting Gobstoppers and Fizzy Lifting Drinks, eh? Yes, Edwards concedes, "it has a bit of a Willy Wonka feel to it."

So what's next? Mr. Wonka—to Violet Beauregard's chagrin—was famously invented a piece of gum that had the flavors of an entire three-course meal, from tomato soup to blueberry pie. If Le Whif catches on, could we one day literally inhale our Thanksgiving dinners?

Edwards is coy. "It's sort of fun not to have to answer that question," he says. "It's nice to be in this phase of aerosol food that is so new that you can imagine lots of things. It's still very experimental. Can you whif steak? Yes. Can you whif mushroom and cheese? Yes." Still, he admits, "I think most likely it's going to be a complement to the eating repertoire of humanity."

That's not to say, though, that aerosolization isn't "very consistent with what's been happening with the culinary experience over the last many thousands of years, where we've been going from having a really huge meal every few days—or whenever you could kill an animal—to big meals during the 19th century, and now to this much more frequent eating of smaller amounts of food. Well, this is the extreme: where eating is breathing." @

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UP IN THE AIR  
Can this man make aerosol chocolate a legitimate treat?



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