

ANNALS OF TECHNOLOGY

WILL SMELL EVER COME TO SMARTPHONES?



By Nicola Twilley

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The Cyrano is a “digital scent speaker” that produces olfactory playlists, or “smelltracks,” which users can control using a smartphone app. Photograph by Wayne E. Chinnoek

Two years ago, at the American Museum of Natural History, in New York, I witnessed David Edwards receive what he claimed was the world's first transatlantic scent message—a soupçon of champagne and passion-fruit macarons, dispatched from Paris by the perfumer Christophe Laudamiel. Edwards is a biomedical engineer by training and a serial inventor by trade; among his creations are Le Whif, a delivery system for inhalable chocolate, and WikiPearl, a form of edible packaging for frozen yogurt and other foods. Laudamiel's message was the first public demonstration of Edwards's latest venture, Vapor Communications, and its first prototype, the oPhone. A large, brick-shaped device mounted with two smell-delivery tubes made of white plastic, the oPhone was intentionally designed to recall a flower planter, in order to help users feel comfortable leaning in for a sniff. From a built-in palette of thirty-two scent cartridges, it played back oNotes—photographs tagged with up to four smell words, from “buttery” to “fishy” to “yeasty brioche.”

When I spoke with Edwards again, earlier this month, he said that the oPhone was met with “a lot of excitement and a lot of curiosity—and then, uh, this question of ‘What do I do with it?’ ” The same question has dogged the history of scent messaging. Leaving aside the inglorious examples of Smell-O-Vision and other attempts to project odor in a cinematic context, the past quarter century of e-smell enterprises forms a litany of failure. In 1999, for instance, the DigiScents iSmell, a USB-connected scent synthesizer, elicited twenty million dollars in venture-capital funding and was heralded by *Wired* magazine as the beginning of a “Web revolution.” By 2001, the company had gone out of business. (The iSmell has since been named one of *PC World's* “25 Worst Tech Products of All Time.”)

Nevertheless, dozens of entrepreneurs went on to launch their own iterations. An incomplete list includes the AromaJet, which used inkjet technology to transmit a smell between Sydney, Australia, and Plano, Texas, in December of 2000; the Multi Aroma Shooter, another USB-powered device, which Japanese researchers programmed to emit fruit smells alongside a video of a woman eating fruit; and

the Osmooze, which synchronized with users' e-mail programs to release contact-specific scent notifications. With the rise of mobile computing came the Scentee, an iPhone dongle that plugs into the headphone jack and can be programmed to release a burst of rose, lavender, or buttered-potato scent to accompany text messages and alarms. It launched in 2013 and was, like most of its predecessors, an immediate and complete flop in the United States, though it still seems to be commercially available in Japan.

Undaunted, Edwards and his Vapor Communications co-founder, Rachel Field, are launching their own "digital scent speaker," dubbed the Cyrano, at the Rubin Museum today. The Cyrano—a squat, brushed-aluminum cylinder with a perforated lid—resembles a flour shaker. It is Bluetooth-enabled, fits in a cup holder, and emits up to twelve scents, in an order that can be controlled using a smartphone app. Edwards imagines that the Cyrano will live mostly in cars, allowing drivers to create olfactory playlists for their commutes. Several such smelltracks come preloaded: clicking on "Thai Beach Vacation," for example, will play the scents of coconut, suntan lotion, and sea breeze in an infinite loop. A limited run of five hundred Cyranos will go on sale immediately, retailing at a hundred and forty-nine dollars; Edwards and Field plan to use their early adopters as beta testers, and they anticipate redesigning the app and device in the fall, based on the feedback they receive.

How did Vapor Communications go from the oPhone, which was designed to bring scent messaging to the masses, to a product that even Edwards admitted is little more than a "next-generation air freshener"? That twenty-two-month process captures not only the characteristic hubris of e-smell entrepreneurs but also the substantial barriers that face anyone who wishes to digitize odor. "We've learned a lot of things," Edwards said. To begin with, there are considerable technical difficulties inherent in delivering smell. Unlike light and sound, it is transmitted as molecules, not waves—as mass rather than energy. Each of those molecules, Field said, are of different weights, and the Cyrano's small, battery-

powered fan had to be capable of diffusing heavy cedar and light citrus with equal intensity and rapidity. At the same time, the smells had to be lasting and powerful enough for a user to register and decode them. With the oPhone, this frequently resulted in a localized scent cloud, in which fragments of the message would get lost. The Cyrano avoids that problem entirely. Its goal is to fill the contained space of a car, and it shifts scent every eight minutes by default—the point at which the phenomenon known as olfactory fatigue normally sets in, rendering the original smell temporarily undetectable.

In the wild, smells come from different directions and in unpredictable combinations, accompanied by variations in heat and humidity. The Cyrano's aromas come from a carousel of small, resinous chips, which periodically rotate into place above the fan. That single-note, unidirectional, dry-air experience results in something less visceral than true smell—the idea of coconut, rather than the oily, hairy fruit itself. Edwards and his colleagues have tried to turn this limitation into a strength by framing smelltracks as evocative “mood melodies” rather than authentic representations of reality. “Up till now, we'd been treating digital scent as information,” he said. “Now we're thinking of it more like music.” That shift was prompted in part by seeing how people played with the prototype oPhone. When Edwards and Field originally designed it, they imagined that foodies would be among their first customers, sending one another whiffs of burnt sugar and vanilla bean to accompany photos of crème brûlée. But the messages that early users composed were actually more figurative—scent selfies, jokes, ideas, or emotions, in which, for example, the “smoky” tag began to be used as the equivalent of the eggplant emoji. “There was one picture of two little kids where the boy was chocolate and the little girl was walnut,” Edwards said. “That impressed me. People weren't just being literal—they were making metaphorical associations with smell.”

As in the past, the main barrier for the Cyrano is not technical but biological and cultural. Edwards is an olfaction enthusiast, but he is also a realist. For most

people, he acknowledged, “scent is secondary, relative to sight and sound.” The result is that a surprisingly large proportion of people cannot detect the scent of coconut at all. Among those who can, some know that it is coconut but associate it with curry rather than a beach vacation; others are capable of smelling something but are unable to give it a name. The enormous diversity of individual smell capacity, combined with widespread olfactory illiteracy, makes any form of scent messaging a hard sell. “We’re just not there yet,” Edwards said. But he has not given up. Cyrano is “a Trojan Horse,” he told me: by encouraging users to begin curating and sharing smelltracks, he hopes to build sensory vocabulary and awareness. “Right now, nobody’s waking up at 3 A.M. saying, ‘I really want to send a scent message,’ ” Edwards said. “But one day they will.”



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