

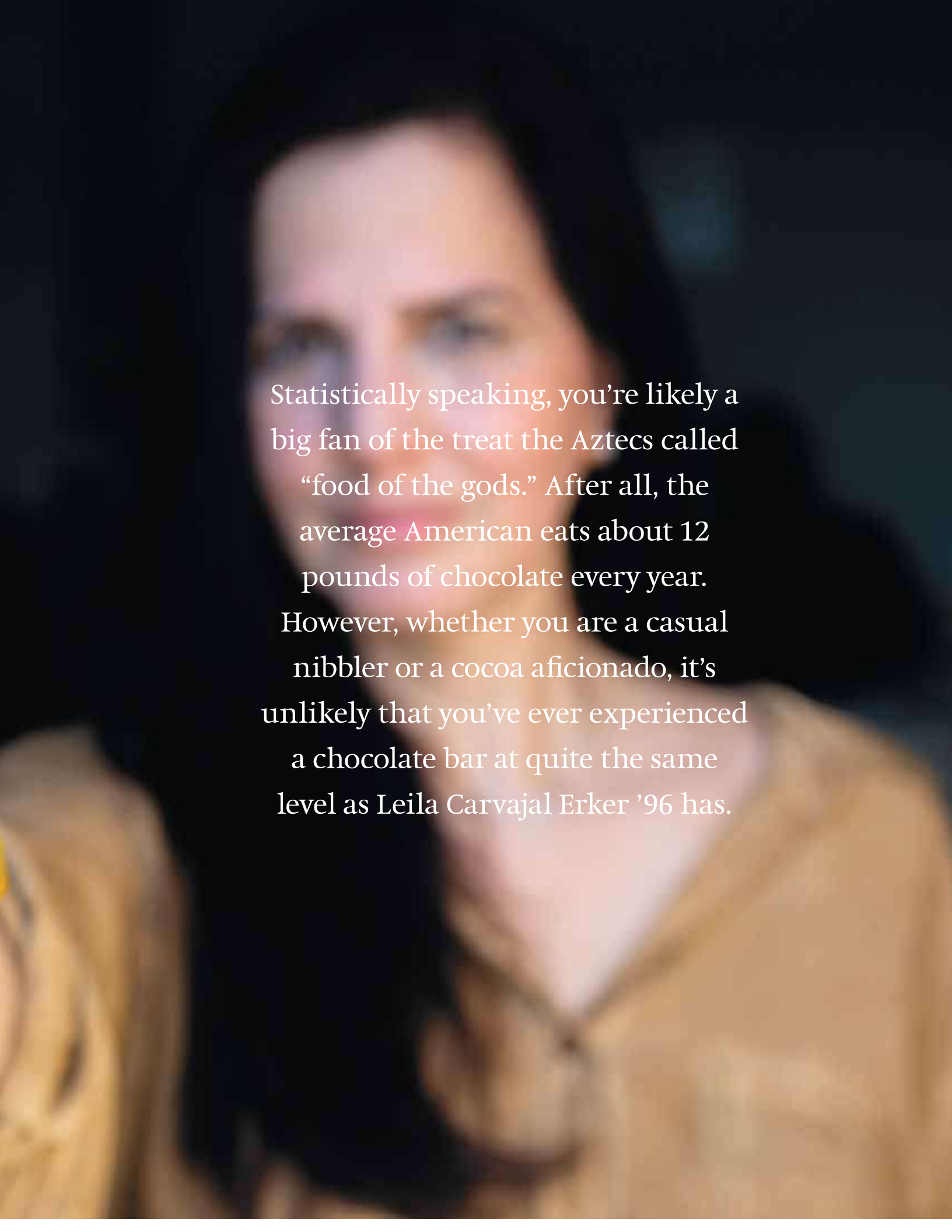
Food of the Gods

Using tradition and science, Leila Carvajal Erker '96 helps the world's chocolatiers build a better bar.

By Scott Whitney

Photography by Yolanda Escobar Jiménez





Statistically speaking, you're likely a big fan of the treat the Aztecs called "food of the gods." After all, the average American eats about 12 pounds of chocolate every year. However, whether you are a casual nibbler or a cocoa aficionado, it's unlikely that you've ever experienced a chocolate bar at quite the same level as Leila Carvajal Erker '96 has.



Born to a family of South American cocoa* producers and trained as a chemical engineer, Carvajal Erker's taste experience with chocolate is, shall we say, specific. "The first thing I notice is the butter content. That's what makes chocolate melt in your mouth," she says. "Then I'm interested in flavors. Just like wine, I'm looking for different notes—floral, nutty—and I can usually guess the origin based on those flavors."

Carvajal Erker's life has often revolved around cocoa; she spent much of her childhood shadowing her father at his cocoa-processing plant in the city of Guayaquil, Ecuador. Years later, she made the family business her own, launching Cocoa Supply in 2003. This New York-based distribution company connects Ecuador's cocoa farmers with the world's finest artisan chocolate makers. But with global cocoa sales expected to hit \$35 billion by 2026, why did the world need one more cocoa supplier (and one with an engineering degree, at that)? The answer may forever change the way you look at—and consume—chocolate.

Hot Cocoa

One of Carvajal Erker's earliest memories is munching on raw cocoa beans (bitter though they are) at her family's hacienda in the foothills of the Andes Mountains. She comes from four generations of cocoa producers, including a great-grandmother who inherited the management of five family farms at the age of 16. But Carvajal Erker's century-long family history, steeped in the world's favorite fermented seed, runs parallel to another family tradition—a deep appreciation for education.

"That comes from my great-grandfather," she says. After marrying into a cocoa-producing family in the early 1900s, he pivoted the business from strictly agrarian to more broadly entrepreneurial, an approach that required an educated workforce. "He rented a house in the city for his six boys, including my grandfather, and told them, 'I'll pay the rent and you don't have to do any hacienda work—as long as you study.'"

From that moment on, Carvajal Erker's family looked to education to open doors of opportunity and bring cocoa production into the modern age. Her grandfather studied to become a civil engineer; her father, John Carvajal, continued the tradition by becoming a mechanical engineer. When her father returned from his studies in Germany, he brought with him his German bride (Carvajal Erker's mother) and a thirst for innovation. He began to look beyond simply harvesting cocoa by building a factory in the port city of Guayaquil that allowed him to process cocoa and expand their product line to include cocoa butter, liquor, and powder—well beyond just the raw beans that had been the family's staple crop for generations.

Throughout her childhood, Carvajal Erker received a crash course in the family business. One afternoon, a farmer who sold her father beans stopped by his office to negotiate a higher price than what the commodity exchange dictated. "He walked in with a milk jug full of moonshine and said, 'Let's talk business,'" she recalls. "My dad turned to me and whispered, 'Leila, make sure I don't agree to anything stupid.'" A careful observer, the then-teenager learned the nuts and bolts of negotiation, as well as the value in treating farming partners fairly—a value that guided her in business years later.

When it came time for Carvajal Erker to settle on a college and a career path, she found herself of two minds. "My mix is a little strange," she explains. "My mom was a philosophy major and into literature, painting—everything that has to do with the arts. My father, from Ecuador, comes from an engineering background. For me, that mix gave me a creative, problem-solving mentality."

Through a chance meeting with a WPI professor, Carvajal Erker discovered the institution that would help synthesize her creative and scientific impulses, albeit more than 3,000 miles from home (she says she's proud that her daughter, Natalia, is following in her footsteps; a member of WPI's Class of 2021, she's majoring in computer science and psychological science). "I wanted to learn the applications behind the theories, and so I was very attracted to how project-based WPI is," she explains. "I learned not to worry too much about the perfect solution, but to always look for a solution that works."

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* In this article, the terms "cocoa" and "cacao" are used interchangeably.



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That pragmatism served her well as she entered the workforce as a cocoa broker and discovered the industry’s deeply troubling problems, which cried out for solutions. For this lifelong chocolate lover, cocoa was about to get complicated.

Building a Better Bar

After graduating from WPI, Carvajal Erker moved to Germany and worked as an independent cocoa broker, connecting chocolate makers with cocoa suppliers like her father. She began to hear questions from artisan chocolate makers that suggested a shift was under way in the industry, a shift that created a need she was well qualified to fill.

For decades, cocoa had been treated exclusively as a commodity product, with little attention paid to where it came from or the work conditions of those who produced it. Behind the scenes, the industry was plagued by a reliance on child slavery for cultivation, particularly along Africa’s west coast, which produces two-thirds of the world’s cocoa, according to the U.S. Department of Labor. Today, it’s estimated that more than two million children are active workers in the cocoa industry, many without choice. Larger producers often hide behind the plausible deniability of a Byzantine supply chain. But Carvajal Erker saw an opportunity for small- to mid-sized chocolate makers to act ethically and differentiate their product from their competitors’.

“Buyers in Europe would tell me, ‘I can buy this product cheaper from Africa,’” she says. “‘Sure,’ I’d say, ‘but do you know what you’re buying? Do you know the conditions behind that product?’”

“When I started telling them stories from the farms back home, and how the cocoa was actually harvested and processed, they were hooked. That’s when I realized there was a need to educate buyers, not just about flavor and quality, but about the ethics of cocoa.”

As the market for artisanal chocolate grew and the dirty secrets of the industry gained publicity, ethically sourced cocoa became a growing concern for small producers. Informed consumers demanded a better product, and Carvajal Erker knew just where to find the supply – as well as the story behind it. With a new vision, she put both feet back in the cocoa business, relocated to New York, and founded a new brokerage company named Cocoa Supply. She began splitting her time between New York and Ecuador, renewing ties to the farming families she’d known as a child and educating them about the market’s emerging demands.

In addition to concerns about child slavery in cocoa production, many buyers also wanted to make the claim that their cocoa was free of pesticides and other inorganic chemicals. “To help my customers make authentic claims, we have to do some education with the farmers,” she says. “I help them get organically certified and handle the paperwork that goes along with it, with the understanding that they’ll end up with an in-demand product at the end. I always tell them, ‘If you give me cocoa produced according to these standards, customers will be asking for your hacienda by name.’” That was a far cry from the disconnect many farmers experienced with large manufacturers who turned their cocoa beans into sweet treats they’d never see or taste.

Through these relationships, Carvajal Erker effectively collapsed the supply chain, putting chocolate makers within one or two degrees of separation from the farmers themselves. This transparency became a win-win for farmers hungry for stable prices and for chocolate makers looking to tell authentic stories about their high-quality cocoa.

Kushal Choksi, co-founder of Elements Truffles, a New Jersey-based artisan chocolate maker, was one such customer. “When my wife and I started our company,” he says, “we received cacao from all over the world [including West Africa]. For the price, it was really good ... but we knew what was going on behind the scenes and we didn’t want to support that.” For socially conscious customers like Choksi, Cocoa Supply offered an alternative to the black box of cocoa production by providing a product they could trace from bean to bar – and traceability was the new name of the game.

“Traceability and storytelling are at the core of our business, and they’re very much related,” says Carvajal Erker. “We often invite customers to Ecuador so they can say, ‘We buy from this farm. In fact, here’s a photo of me and the farmer, and I know that he’s been

paid fairly.” She explains that this approach to marketing is critical for an artisan chocolate maker whose price point for a chocolate bar may be seven or eight dollars, compared to one or two dollars for a bar made with commodity chocolate, often of unknown origin.

Choksi stresses that chocolate lovers are prepared to pay more for natural, ethically sourced chocolate, once they understand the impact. “Customers ask me all the time where our cacao is from, and most understand that it’s impossible to buy fair trade cacao for less than five bucks a bar,” he explains. “If you work the math backwards, your cacao price has to be cheaper than peanuts if you’re paying less than five dollars. A consumer who wants a product with a lower price point either doesn’t understand the implications or doesn’t care.”

Thanks to the transparency of her supply chain, Carvajal Erker can work with Choksi and makers like him to support the claims they want to make: fair trade, natural, sustainably farmed, or ethically sourced, to name a few. But there are some claims that she will not support. And here, she reveals the chemical engineer within.

Wake Up and Smell the Theobromine

The use of raw cocoa is a fast-growing trend among chocolate makers—but it’s an example of a claim that Carvajal Erker finds specious. “The science of it doesn’t work. For starters, the ingredients in raw chocolate should never exceed 41 degrees Celsius,” she says. “The equatorial sun where cocoa grows already exceeds 41 degrees, and then the beans go through an exothermic fermentation process, which adds ten more degrees. So there’s no way we can call that ‘raw’ with any authenticity.” Here Carvajal Erker reveals her secret superpower; she is more than just a cocoa broker—she is a broker who truly understands the science behind cocoa.

Her background in chemical engineering has served her well in other ways. “Microbiology helps. When I look at a spec sheet for a new product, I’ll take a look at the cocoa butter or other free fatty acids, and this tells me if the product is fresh or potentially rancid,” she says. “Many small producers need help in understanding these details. Because I understand what’s happening in these processes, it gives our advice to them real authenticity.”

For chocolate makers looking to justify a higher price point for their chocolate, this level of intelligence is critical. “When I speak with suppliers, I need to know more than the price,” says Choksi. “I want to know the real composition, the exact percentages of flavonoids and percentage of fat—and Leila can rattle off those numbers. She really understands her product.”

Carvajal Erker’s knowledge of the science behind chocolate serves her in both business and pleasure. “Chocolate hasn’t traditionally been seen as a healthy food, but it can be,” she says. “For example, it contains theobromine, which is a neurostimulant that wakes you up but doesn’t give you the jitters like coffee does. And it’s not as acidic as coffee, so it doesn’t upset your stomach.” Not surprisingly, she treats herself to a little bit each morning.

Beyond understanding the chemistry of cacao and chocolate, as a chemical engineer Carvajal Erker also has insights into the process involved in transforming the contents of cacao beans into what are known as elaborates, including cocoa liquor, cocoa butter, and cocoa powder. With her understanding of industrial operations, she is able to identify ways to reduce the energy these processes consume and lower the carbon footprint associated with the products she sells, which further increases their value in the marketplace.

The same expertise can carry over into other commercial food processes, she says. In fact, she has reached out to brewers to help them improve the efficiency of the processes used to produce beer. “We have even been able to guide small manufacturers with new trends,” she says. “These include vegan ice cream, where we worked with artisanal ice cream makers to substitute cocoa butter for milk fat.”

Regardless of the health benefits she now espouses or the innovative new directions she is forging for her company, Carvajal Erker knows that her passion for what she sells truly started in the haciendas outside Guayaquil. “Somewhere along the line, I fell in love with cocoa,” she admits. “Ever since I was a little girl, chocolate has been a part of my life, but when I started my business, I made it a choice. And I can’t imagine a life doing anything else.”

Ethically sourced. Naturally grown. Always delicious. What’s not to love? 🍫

Bean-to-Bar

With artisanal chocolate on the rise, many consumers have shifted their perception of chocolate from a guilty snack food to a delicacy meant to be appreciated. Chocolate of this caliber often comes from “bean-to-bar” chocolate makers, a term that alludes to the supply chain transparency that brokers like Cocoa Supply offer.

Similar to its “farm-to-table” cousin, the term “bean-to-bar” is widely interpreted. Unlike labels such as “Fair Trade,” there is currently no

industry regulation of the “bean-to-bar” claim. However, for most chocolate makers, the term refers to a trade model where the maker can trace nearly every aspect of their chocolate’s production—from harvest (bean) to the final recipe (bar).

Large-scale chocolate manufacturers typically purchase a highly processed cocoa product as a base for their recipes. In contrast, bean-to-bar makers often start with cocoa nibs, small pieces of cocoa beans that have experienced little

processing beyond fermentation. Beginning with unprocessed cocoa allows makers far greater control over the manufacturing process, including roasting, grinding, and tempering the end product. Bean-to-bar makers also tend to offer eclectic flavor combinations, such as bourbon-infused chocolate or a lavender and black pepper blend.

Whether the end product is infused or unadorned, the journey from bean to bar always ends in delicious.