



coffee in the new millenium

Will the Flavor of Geisha Change Everything?

By Hanna Neuschwander



From the narrow roads that wind along the steep eastern flanks of the Baru Volcano in the Boquete district of western Panama, nearly every switchback reveals a view of fat, leafy coffee shrubs undulating in the breeze. The long rows, with their strips of shadow between, look like living corduroy. In October, the middle of the growing season, the coffee plants on most farms were so laden with green cherries that their branches bent heavily toward the ground. Botanically, they're shrubs, but they're commonly called trees. Standing in one of those rows at eye-level with the plants, I could see they were more diverse than I had at first realized. Some trees had thicker or thinner canopies, glossy new bronze leaves or lime-green ones; most of the cherries were still vivid green, but some were rain-slicker yellow or fire-engine red. At the ten farms I visited, I saw such differences again and again. After talking with the farmers, I understood why. They plant more than one variety as a hedge against disease and weather. The abundance of fruit also made sense. To almost any coffee farmer, the most important feature of a plant is its ability to produce as many beans as possible. Twenty years ago, Panamanian coffee had no special reputation, but Boquete has become renowned for coffee.

On the opposite side of Baru from Boquete, high in the cloud forests of the Silla del Pando Valley near near the Costa Rican border, Ninety Plus Gesha

The author descends a trail at Ninety Plus Gesha Estates in the Silla del Pando Valley in western Panama.

Hanna Neuschwander



Green coffee cherries at the Peterson family's Jaramillo farm in Panama.

Estates was strikingly different from the other farms I visited. Its coffee trees were all more slender, clinging to steep slopes under a canopy of cedar and lemon trees. Instead of following a grid, the layout was unruly, with the plants dotted over dozens of hills in uneven rows or at random. The plants looked healthy, but they were only sparsely covered with cherries, mostly green, though some were just beginning to blush. Rather than a coffee plantation, the farm looked more like an ancient forest garden. Joseph Brodsky, the farm's American owner, drove me on a series of steeply rutted roads, running with rain, up to a high lookout in the middle of the farm. We watched as the wind swayed the forest below us and lifted birdsong toward the rain clouds, as in a place out of time.

Brodsky's farm is exceedingly rare in that it's planted in a single coffee variety, one that yields only about two-thirds the fruit of most varieties. The trees also grow tall and are difficult to prune. Brodsky told me that just to pick the beans costs up to \$10 per pound, more than five times what it costs to pick conventional coffee in Panama. Brodsky purchased the 182-acre farm in 2009, but he didn't buy it to grow

just any coffee. All he wanted to grow was Geisha (or Gesha, as it's sometimes spelled). "Flavor is the only thing I'm interested in," he told me. "It's been what's missing for so long in coffee."

But flavor is a complicated thing. It emerges from a plant's genetics but also from the land on which it's grown, the way the land and the plant are cared for, and the way the fruit is processed.

Brodsky has placed a large bet. His 120,000 Geisha plants this year will produce a mere 13,500 pounds of coffee. In the shade of the cedars and lemons, it ripens slowly, developing more sugar and, eventually, more complex flavors in the cup. He is betting on the willingness of a new generation of coffee drinkers to pay prices that until very recently would have seemed outrageous. He sells his beans to roasters — many of them in the booming Asian coffee market — for an average of \$42 per pound; at retail, those beans have reached as high as \$300 for a one-pound bag in the US and much more in Asia. In a high-end café, a cup of Geisha coffee can cost as much as \$20.

Because of Brodsky's relentless focus on flavor, especially his attention to how the beans are processed after they are harvested, connoisseurs have

embraced his coffees. His Geisha has been used frequently in the rarefied world of international barista competitions, including by seven national champions and four of the top eight world championship finalists. *Coffeereview.com*, a kind of *Wine Spectator* for the caffeinated set, awarded Brodsky's Geisha 97 out of 100 points, the highest score it has ever given. The name of his company, Ninety Plus, is a nod to the mark he aims to hit with every coffee he produces — 90 points or higher.

We returned to the small outbuilding that Brodsky has renovated into a tidy office and tasting room. There he introduced me to Jeremy Zhang, a tall man in jeans and a T-shirt who was presiding over a table covered with half a dozen different roasted coffees from the farm and with brewing equipment — water boiler, coffee grinder, digital scale, Aeropress. Zhang is the Chinese national barista champion, and he was in Panama preparing for his appearance at the world competition in Seattle. He was comparing the flavors that result from different processing "recipes," trying to decide which ones he would use in the competition. Zhang planned to return during the January 2015 harvest to pick his own coffee cherries and process the beans, fermenting them in cold river water for two days, then drying them on screens for two weeks. In all, Zhang spent hundreds of hours thinking about and preparing Geisha for his world competition routine in April 2015, but unfortunately he was disqualified during the first round. (Zhang told me after the competition that it was disappointing, but not wasted effort.)

Baristas, coffee roasters and drinkers have been thinking about coffee flavor for years — how, for example, roasting the beans slower or faster affects it or which ratio of liquid milk to milk foam to espresso produces the ideal cappuccino. But only very recently has it become normal for baristas such as Zhang, as well as legions of young microroasters, to pay exquisite attention to the details of how a coffee is grown, picked, and processed.

Ten years ago, a farm such as Ninety Plus Gesha Estates, driven solely by considerations of quality, would have been unthinkable. An experienced farmer would have looked at Brodsky's acreage, studied with expensive, low-yielding coffee plants, and told him he was headed for failure. His success shows how rapidly times have changed. And it's evident in the coffee drinker standing in line at a trendy café thousands of miles away and telling her barista: "I'll try the Geisha."

The hotter any food or drink is, the harder it is to

taste. But even if you can't taste steaming hot coffee, you can smell it. I first smelled Geisha back in 2007 in a small café in Portland, Oregon, where I live, and the aroma was totally different from any I'd encountered as a fledgling barista — delicate and floral, with jasmine blossom, lime, and ripe peaches. As the coffee cooled, I could begin, hesitantly, to taste it. Sip by sip, the cooler it got, the sweeter and juicier it became. I tasted those same peaches along with pineapple and bergamot. It was a lovely combination but a confusing one. This was the most *uncoffeelike* coffee I'd ever come across.

Because of its distinctiveness, subtlety, and complexity, no other coffee has inspired the kind of verbal reveries that Geisha has. Geoff Watts, the green-coffee buyer for Intelligentsia Coffee and Tea in Chicago, a preeminent American specialty roaster, wrote in a brief history of Geisha, "The first sip can almost take your breath away with its complexity and sweetness, but that's just the start of a ten-minute sensory indulgence that continues through to the last tantalizing drop." Other professionals have described Geisha as "the queen of all coffees," "sublime," and "otherworldly."

"Absurd" is the word my 93-year-old grandfather settled on to describe Geisha, specifically the \$180 per pound price tag I showed him at that same Portland café where I'd first encountered it. He paused a minute, and then he asked incredulously, "Does *anyone* actually pay that much for coffee?" Some people, I said, but not many. Geisha is undoubtedly a luxury, but in one important way, it deserves the hype. It is the first coffee to be grown commercially just because it tastes good.

Back in Boquete, Panama, American émigrés Price and Susan Peterson and their children Daniel and Rachel have become some of the best-known coffee farmers in the world. They didn't set out with that goal in mind. In the late 1960s, Price was increasingly frustrated with his career in academia. At the same time, Price's father, a former chief executive of Bank of America, had purchased a beef farm in Boquete as a retirement venture and it was languishing. The family decided to move to Boquete and take over the farm. The Petersons switched to raising dairy cows and accumulated a handful of small farms, expanding into coffee farming in the 1980s. In 1997, they bought an additional farm located on rich volcanic soil and named it Jaramillo. The farm was planted

Hanna Neuschwander



Caption coming

with a straggly, poorly maintained mix of about 15 coffee varieties. The plan was to improve the health of the existing trees and plant new ones. Then, like most coffee farmers around the world, the Petersons would sell the coffee in bulk to commodity buyers who would blend it together with other coffees.

But just when they bought the farm, the rollercoaster coffee commodity price began a steep, sustained fall from nearly \$2 per pound to a low, in 2002, of 45 cents. Coffee farmers in Panama and around the world went broke. Oxfam estimated that 600,000 Central Americans abandoned coffee work due to the “coffee crisis,” as it became known. At least a third of them left farming permanently.

As the crisis deepened, the Petersons’ Jaramillo farm faced an outbreak of a fungal infection. That’s a common enough occurrence on a coffee farm, but the crisis made it urgent. Price’s son Daniel, a soft-spoken, studious man, walked the fields day after day, evaluating the damage. He saw that one particular variety was less affected. That variety was Geisha. Daniel and Price began to research it. It descended from wild coffee gathered in the 1930s by a British colonial expedition in southwestern Ethiopia, near a town called Gesha. (Whether mistakenly or on purpose, some of these early collections were labeled Geisha instead of Gesha. Both spellings occur

today but Geisha predominates.) In the 1950s, Geisha was brought from Africa to a research facility in Costa Rica, and in the 1960s it entered Panama. The variety’s chief interest was its resistance to fungus. But Geisha was hard to prune, produced little coffee compared with other varieties, and its taste was mediocre. Scattered here and there among the coffee farms of Boquete, it was largely ignored.

Having learned something about Geisha, two years into the crisis Daniel decided to plant some of it at Jaramillo at 1,600 meters, much higher than it had been planted previously. Daniel knew that high altitude lengthened the coffee’s ripening time and could create desirable acidity and sweetness. The conditions were difficult, with high winds, rain, and very cold nights, but given Geisha’s resistance to fungus, he thought it might survive. During the five years it took the plants to mature enough to produce fruit, however, about half died from exposure.

While they were waiting for the first high-altitude Geisha crop, the Petersons focused on the rest of the farm. During the peak of the crisis, they managed to line up solid buyers — Starbucks and Peets, among others — who paid just over \$1 per pound. That was almost double the prevailing commodity price but still barely enough to cover costs. The Petersons and their neighbors saw little hope that coffee farming in

Boquete would persist into the next generation. “It was a dark time,” Daniel told me.

Then in 2004 their surviving high-altitude Geisha trees produced a small harvest. Like most coffee farmers ten years ago, the Petersons didn’t have much experience tasting coffee from their own beans. In Latin America, almost everyone, including coffee farmers, drank instant Nescafé. With their high-altitude Geisha, Daniel did something else that was then virtually unheard of. He kept it separate from the rest of the farm’s coffee, and the Petersons tasted it all by itself.

What they found was a wildly unusual flavor. Price told me: “It tasted like a very fruity tea. We had literally no idea whether it was good or bad.” They gave samples to a few influential American specialty roasters, wanting to know how people would react to the coffee. “They went nuts over it,” said Price. “We were amazed at how crazy they were for it.” The tasters identified the same flavors I had found in my own first experience with Geisha — jasmine and bergamot, lime and peaches, pineapple and apricot.

Watts of Intelligentsia, one of the early tasters, told me, “We all thought someone had played a practical joke. It tasted like a coffee from Ethiopia, but better. We thought it couldn’t be from Panama.” Ric Rhinehart, executive director of the Specialty Coffee

Association of America, another early taster, remembered, “It was astounding. I’d never had anything like Geisha — overwhelmingly floral, with dramatic tropical fruit notes and tons and tons of pristine acidity.”

Coffee’s flavor is built on the balance between acidity, sweetness, and bitterness. Acidity isn’t a trait many coffee drinkers associate with the beverage, but it’s always present to some degree. When a coffee is complex, as the Peterson’s Geisha was, it is almost always related to the presence of acidity, which coffee tasters call “brightness.” Brightness in coffee can bring with it suggestions of citrus, tropical fruits, berries, apples, or grapes, or a mix of fruits all at once.

With encouragement from the roasters, the Petersons decided to enter their Geisha in the 2004 Best of Panama national taste competition, but they worried it was so different that it would be disqualified. Past winners had been especially good examples of the typical Central American profile. That meant crisp, complex, and clean — without taints or off-flavors caused by disease, poor weather, poor storage, or other problems. Coffees were not rewarded for being distinctive. Geisha had everything a typical Central American coffee had — balanced acidity and sweetness, great body — and much more. And it won by a landslide. The Petersons’ Jaramillo Geisha was a stunning example of what could

Hanna Neuschwander

be accomplished when coffee growers innovated.

Geisha's performance at the Best of Panama competition qualified it to be sold to the highest bidder at a public auction held a few weeks later. The Petersons gathered with other farmers in Boquete to watch the auction results come in. Slowly, the coffees crept above \$1 a pound. A few reached \$2. When one went as high as \$2.53, the farmers were elated. But then the numbers for the Petersons' Geisha ticked higher and still higher. When the price reached \$12 a pound, Price Peterson thought the auction software had malfunctioned. By the time the bidding ended, the coffee had reached \$21 per pound, the most anyone had ever paid for coffee at a public auction — 30 times that day's commodity rate of 70 cents. Daniel told me, "We had no idea what it was worth. The highest price I'd ever seen for coffee at that point was \$2.10. Two dollars would have blown me away." His father said, "We were dancing in the streets."

In the 1970s, a tiny handful of veteran coffee experts, including the late Alfred Peet of Peet's Coffee and Tea in Berkeley and George Howell of the Coffee Connection in Cambridge, Massachusetts, had built their businesses on the idea that coffee is capable of a wide spectrum of beautiful flavors that originate at the complex intersection of genetics and environment and can be maintained through meticulous cultivation, processing, and preparation. Thirty years later, the Peterson's Geisha was powerful proof of this.

"It changed the equation in emphatic ways," Howell, who now owns George Howell Coffee, told me recently over the phone. "It brought excitement to specialty coffee. It produced a coffee that could demand vastly higher prices, year after year. It really established estate coffee like there are estate wines. It brought attention to the concept of varieties." Willem Boot, who also grows Geisha in Panama and has studied its history, said, "It was more special than anything anyone had ever tasted. Here comes this variety that rewrites the rules of how people looked at coffee." For the first time, farmers had an incentive to develop and separate very high-quality coffees, distinctive in taste, with an emphasis on variety.

For roasters such as Watts and Rhinehart, Geisha opened up new frontiers of taste. It seemed to appear out of nowhere, and roasters touted it with the zeal of converts. In his essay on Geisha, Watts called it "as close as we've seen to perfection in coffee, a sensory

rapture." Over the next few years, roasters spent exorbitant amounts of money to buy Geisha beans for their cafés, helping it reach cult fame among coffee enthusiasts.

At the 2007 Best of Panama auction, the price of Geisha reached a new high of \$137. This time the software actually did fail. The program had been designed for only four digits, so the highest bid it could handle was \$99.99. The auction had to be completed over the phone. In 2010 the price reached \$170, and in 2013 it topped out at \$350. For specialty coffee roasters, having Geisha in their cafés conferred prestige. It was expensive but also supremely marketable.

The Petersons' Geisha was a success in part because it combined the intensely fruity and floral flavors and aromas typical of naturally processed Ethiopian coffees with the clean, refined character of the best Central American beans. Ric Rhinehart explained to me that in 2004, the Ethiopian beans closest in flavor to Geisha would have come from the Harrar region, but he had never encountered a Harrar coffee with the clarity and subtlety of Geisha. This is in large part because Geisha reached its apotheosis in Central America, where coffee is typically "wet-," or "washed-," processed. Almost immediately after harvest, most of the flesh is removed from the bean, usually by a pulping machine. The coffee is then either pushed into piles or immersed in water for a fermentation that breaks down the remaining sugary mucilage. When the process is well executed, as it was by the Petersons, the result is a balance of sweetness and acidity, and a clean cup.

In contrast, Harrar coffee — and many other coffees that are especially fruity — are traditionally "natural-processed," also called "dry-processed." The coffee cherry is dried before the bean is removed, and as it dries, a fermentation takes place in the sweet, moist flesh surrounding the seed. The process preserves the coffee's inherent sweetness, but drying can be unpredictable. It typically takes place outdoors in the sun, and unexpected rains or humidity can lead to overfermentation. The beans can develop the kinds of funky flavors you might find if you left a bowl of fruit too long in the sun, or an earthy or "dirty" quality. A few specialty roasters won't buy natural-processed coffees at all, although today it's possible to find natural-processed coffees that are nearly as clean as washed ones. Ninety Plus Gesha Estates specializes in them. But at the time of the 2004 Best of Panama competition, virtually no one had tasted a coffee as fruity and floral *and* clean as Geisha.



One of the test rows of varieties at the Jaramilla farm.

The Petersons' success with Geisha helped usher in a time of intense experimentation on pioneering coffee farms around the world. Dozens of farms in Central America installed African-style raised mesh beds for dry processing. (The beds encourage even drying and more controlled fermentation; in Central America they're covered with tents to protect them from rain.) Aida Batlle, a farmer in El Salvador famous for her inventiveness, has experimented with dozens of ways of processing, including a Kenyan approach to wet processing (two rounds of fermentation, washing, then a soak in clean water) to achieve a winy depth of flavor. She also tried adding selected yeast to the fermentation to see whether that affected the flavor — it didn't. Farmers began looking in their own backyards as well as further afield to see what interesting varieties they might have overlooked. Roasters acted like bees, picking up ideas and, sometimes, coffee seeds at farms in one part of the world and then touching down at farms halfway around the globe to see their ideas pollinate. They quickly realized they could influence the quality and flavors of coffee if they collaborated with farmers by helping them envision and pay for these kinds of experiments. In

part because of the increased attention to the details of processing over the last decade, the best green coffees available to roasters are better now than they have ever been.

At the same time, companies such as Stumptown Coffee Roasters in Portland, Oregon, discovered that marketing "direct trade" relationships was immensely valuable. Borrowing from broad trends in the food world, coffee menus began to name the farm where the beans were grown and even name the farmer. Coffee has become more than a beverage; it tells a story.

For three decades, small-batch roasters had been obsessively if quietly seeking out great coffees. In the 1970s, Alfred Peet steered coffee toward full-bodied dark roasts, an approach picked up by many roasters in the 80s and carried by Starbucks into the present. Very dark roasts turn the beans oily, producing earthy, tobacco-y flavors and bitterness. The very dark roasts have one clear benefit: they cut through large quantities of milk well. In the 90s, most US small-batch roasters used a dialed-back version of the "full city" roast, enough to turn the beans a deep tawny brown but not enough to make them oily.

These roasts tend to bring out sweetness and the flavors of chocolate, nuts, spice, and fruits, such as plum and cherry.

Recently, there has been a strong strain of thinking that coffee should be roasted even lighter than that. In 2011, I interviewed nearly 60 young roasters for a book I wrote about West Coast coffee. Most of this new generation of roasters regards coffee with a kind of pious fealty. Lots of them have traveled to coffee farms around the world. “Visiting origin,” as it is called, has become the highlight of a budding microroaster’s career. Young roasters are enamored of the idea that coffee comes from a fruit, which has fueled a movement toward lighter and less developed roasts. A common refrain I heard was that “full city” roasts (dark brown with patches of oil on the surface) impose too much flavor from the roasting process, which involved the caramelization of sugars and Maillard reactions. Lighter roasting tends to showcase brighter, more fruit-driven flavors, especially delicate citric acidity. Generally, the longer a coffee is roasted, the less acidic and more bitter it becomes. A coffee’s sweetness is more bell-shaped; to be maximally sweet, a coffee can be roasted neither too short nor too long.

More than one of the roasters I interviewed described his roasting style as “transparent.” That’s akin to a chef saying, of a carrot he is about to cook, “It is my job in cooking this carrot not to affect it at all.” There is of course no such thing as a “transparent” roast. Worse, in the hands of an unskilled roaster, a light roast leaves the coffee underdeveloped — sour, grassy, and astringent. Early in the mania for light roasting, I drank many such cups. But in the hands of a careful roaster, one who knows how to maximize sweetness and balance acidity, the results from a lighter touch can be transcendent.

Roasters suffer the same problem as many people whose jobs involve tasting the same thing day in and day out: their own tastes eventually, often unconsciously, begin to migrate toward extremes and stronger tastes. It can happen even to inexperienced tasters. A recent example from my own kitchen illustrates the point. My coffee-curious father-in-law was visiting, so I ordered a selection of three coffees roasted by a mail-order company called Pony Brand Coffee. Every morning for a week, he, my husband and I drank one of them, a mellow, nutty, Brazilian coffee from the region of Espirito Santo. All three of us loved it, and my father-in-law raved about it. Then on the weekend, we did a side-by-side tasting that put the Brazilian coffee next to the other two, which

were both from Yirgacheffe in Ethiopia. One was wet-processed and had very clear citrusy brightness, and the other was natural-processed with a huge body and a saccharine sweetness like Froot Loops. Both Ethiopian coffees had much more pronounced flavor than the Brazilian. Suddenly, the Brazilian seemed dull. The same coffee we had loved all week was no longer anyone’s favorite.

Is more flavor always better with coffee? If you could engineer a variety with twice as much flavor as Geisha, would it taste twice as good? Of course not. Often, the trade-off for intensity is a loss of subtlety. Of all the methods of brewing coffee, espresso produces the most intense result. But you almost never find a coffee like Geisha served as espresso. Under-extracted, its lovely acidity would turn sour; over-extracted, it would turn bitter. With such a delicate (and expensive) coffee, most cafés would play it safe and brew it by the cup in a Chemex, Aeropress, or elegant glass vacuum pot. And even if you had a perfectly skilled barista, Geisha might be better as black drip coffee than as espresso. The variety makes a subtle, complex cup of coffee with an incredible breadth of flavors. It reveals itself over time, evolving as it cools, which is the roaster’s test of a good coffee.

The merging of enthusiasm for the story of coffee on the farm, for the effect of lighter roasting on flavor, and for minute attention to detail in brewing is summed up in the phrase “third wave coffee,” with Starbucks representing the second wave and Maxwell House the first.

The “third wave” represents a radical revision of how to think about coffee. As the “wave” metaphor suggests, it has advanced gradually, accumulating energy from many small surges over the past two decades. In the last few years, though, it has achieved full momentum, sweeping down the West Coast and then jumping to the East. In Portland, the number of coffee roasters has increased from nine in 1999 to almost 50 today. Nearly all are microroasters selling less than 100,000 pounds of roasted coffee a year. Connie Blumhardt, the publisher of Portland-based *Roast Magazine*, told me, “Five years ago, I would have said there’s no way Portland could sustain another microroaster. But there have been probably ten new ones in that time.” Similar growth has taken place in other major cities, especially on the coast, and the trend is pushing deeper into the middle of the country. Food-scene websites like Eater and coffee sites like Sprudge feature new microroasters and cafés in cities across the US almost daily. What all of them have in common is a heightened attention to

the array of flavors available in coffee and how those are achieved.

Of course, a vast number of factors contribute to one coffee tasting different from another. It’s not just where the beans were grown and how they were processed, not just how many months it’s been since the coffee was harvested, but how many minutes since it was ground. And not least it’s whether you brew with a French press or Aeropress or espresso machine. A French press, for example, extracts more bitterness and more sweetness (to a point), while it gives more body. But of all the sources of coffee’s flavor, the least understood may be its genes.

The coffee we drink comes from two different species, *Coffea canephora*, popularly called Robusta, and *Coffea arabica*. Robusta has a harsh, woody undertone and is almost always less complex. Some people ascribe to it a turpentine or burnt-rubber flavor. Because of the way it’s grown, it’s cheap and therefore used in mass-market canned and instant coffee. Arabica has greater complexity and a wider spectrum of flavors.

Even so, until recently a farmer’s choice of variety was based on local custom and on calculations about yield and disease resistance, not flavor. The choices were limited. For two centuries, Latin America has been dominated by the descendants of a mere handful of cultivated plants, possibly as few as two, that left Yemen in the late 1600s and early 1700s and made their way to Indonesia, the French colonies of Africa, and eventually to the New World. In particular, two families of varieties, Typica and Bourbon, are the source of nearly all cultivated Arabica worldwide. Their narrow genetic base makes them vulnerable to disease and, more subtly, limits the range of flavor. Among the most widely grown varieties today are Caturra, a mutation of Bourbon first recorded in 1937, and Catuai, a cross of Caturra and Mundo Novo (Typica x Bourbon) created in Brazil in 1949.

Kenneth Davids, publisher of *Coffee Review*, has written that the longstanding Latin American varieties “tend to produce a solid but conventional-tasting cup.” Geisha’s distinctiveness is linked to its recent domestication.

All coffee originated in Ethiopia, whose wild coffee forests hold tremendous biological diversity. Some people believe they may hold thousands of *C. arabica* varieties. Aaron Davis, a researcher at the Royal Botanic Gardens at Kew, has discovered more

than 20 of *Coffea*’s 125 known species. Three of those, he told me, have already been lost. “We’re in an era of extinction,” he explained. On his trips to identify wild coffee species in Africa and Madagascar, he has more than once revisited the site of an earlier expedition. “Instead of forest, we’ll find a few tree stumps left over from 30 years ago.”

The loss has provoked considerable anxiety in the coffee industry. Many believe the forests contain varieties with as much flavor potential as Geisha — not to mention disease resistance, climate tolerance, and other desirable traits for breeding the next generation of coffees. “There isn’t another planet with coffee growing on it,” said Davis.

As coffee varieties go, Geisha remains the most widely known both for its distinctiveness and its price. Because traditional varieties don’t stand out as much in flavor, until recently there has been little incentive for coffee farmers and roasters to invest in marketing them separately. But Oliver Stormshak, who owns Olympia Coffee Roasters in Olympia, Washington, told me, “From what I’ve seen traveling the world tasting coffees, if you can control everything else, varietal plays a huge role. For example, a Bourbon in Rwanda tastes very similar to one in Guatemala — almost identical. There’s a strong stone-fruit characteristic and syrupy mouthfeel, with a mellow acidity.”

With Juan Diego de la Cerda, who owns Finca el Socorro in Guatemala, Stormshak created a tasting set of seven heirloom varieties including Red, Yellow, and Dwarf Bourbon; Red and Yellow Caturra; and a pair of hybrids, Maracaturra and Pacamara. All the varieties were wet-processed, which, Stormshak said, interferes less with their subtle flavor differences. “We are not talking about processing enough,” he said. “A lot of people are stuck on terroir. But we can custom-make a flavor based on processing. No one can deny it plays the biggest role.” Once you have controlled for processing, though, he believes that variety and terroir are essential components in a coffee’s flavor.

Bourbon is known for mild sweet chocolate and cherry notes and balanced acidity. When I tasted the El Socorro set at home not long ago, all three had Bourbon’s typical creamy texture. The Yellow had the clearest acidity, and a sweet tangerine flavor. The Caturras were fuller bodied and juicier with that combination of sweetness and especially acidity that

makes your mouth water. The Red had a backbone of molasses, and the Yellow tasted a bit like cola. The crosses were the most interesting. Maracaturra (Maragogipe x Caturra) had tropical fruit flavors, spice, and sweet caramel. Pacamara (Maragogipe x Pacas, a selection of Bourbon) had a pronounced acidity, heavy on lime, and was softened by vanilla.

Tasting varieties grown on the same farm and processed side by side in the same way was a first for me. The perhaps-obvious conclusion I came to: even apart from Geisha, variety does have an impact on flavor, if sometimes a subtle one. And while each coffee was distinct, I could begin to tease apart the relationships among them. My finding may seem common sense, but that doesn't diminish its novelty. Until Olympia's tasting set and a few others like it came along, no one but a coffee buyer had an opportunity to taste for him- or herself the difference between Bourbon and Caturra grown in the same soil and processed in the same way.

Is there an "ideal" coffee or are there only endless permutations? Right now, the people driving taste in coffee are captivated not just by brilliant examples of the familiar but also by fresh permutations of flavor — unusual varieties, tweaked processing, revisions of long-held ideas about roasting and brewing. If there is an ideal, it probably has to do with sweetness. The most interesting coffees tend to have high acidity, but to be pleasant they must also be sweet. Farmers like the Petersons work diligently to pick and sort out the ripest cherries, whose beans contain more natural sugars and more flavors of fruit and flowers. Roasters like Stormshak must be very careful as they seek the right combination of heat and time to maximize sweetness while also balancing coffee's natural bitterness and acidity. Baristas work obsessively to find each espresso's "sweet spot." Every coffee lover's passion hinges in one way or another on the tension between unattainable perfection and attainable diverse tastes. Stormshak's variety tasting set aims to expose more people to the diversity available in coffee. He wants to make multiplicity a virtue.

Ten years from now, café-goers will be much more fluent in the possibilities and better able to describe them using coffee's standard vocabulary of flavor. They will know that a dry-processed coffee will likely be sweet, full-bodied, and "big," and that a washed coffee will likely be clean and balanced. They may be familiar with the most interesting varieties — Bourbon, Typica, Catuai, Caturra, Maragogipe, Pacamara, Ruiru 11, and SL-28. Coffee menus will more and more resemble

wine lists, with different options at different prices.

In December 2014, Starbucks unveiled a massive tasting room in Seattle that showcases an array of their Reserve line coffees, many of them estate-grown, and all roasted on-site in a small-batch machine. The coffees change seasonally and most are labeled with farm name, variety, elevation, and even processing method. It was "the global brand's heartfelt bid for a seat at the specialty coffee cool kids' table," according to the website Sprudge. Starbucks once led trends in coffee. Though it may now be following independent cafés and mom-and-pop roasters, it makes following *look* like leading. The tasting room is extravagant and immersive. It will undoubtedly introduce a new way of approaching coffee to many who wouldn't otherwise feel comfortable wandering into unfamiliar terrain. Over the next few years, the company plans to open 100 more of its Reserve cafés. Back in November 2012, Starbucks introduced a small run of Geisha to sell to mail-order customers and at select stores in the Northwest. When Geisha is in season again, from winter through early spring, it will undoubtedly be on offer at the new cafés.

From the 1970s to today, specialty coffee has traveled a long distance. Now, the industry is poised to take another great leap forward as it seeks to answer two important questions: What is the chemistry of coffee flavor? And are there other distinctive varieties out there? In 2014, the University of California at Davis, known for its wine and beer science programs, launched a Coffee Center that many expect will form the backbone for new majors in coffee sensory science.

And a first-of-its-kind, large-scale effort is under way to understand the genetic basis of varietal difference, to identify varieties that, like Geisha, might have undiscovered but desirable attributes, and to create outstanding new crosses. An industry-funded group called World Coffee Research, based in the US but representing organizations from all over the globe, is undertaking multimillion-dollar trials to evaluate the best-tasting, most fruitful Arabica plants from around the world in different environments, for example growing Kenyan cultivars in Guatemala and vice versa. We know that Geisha can make beautiful coffee in Boquete, Panama, and one trial will examine whether it can be as good when grown elsewhere. Another effort will sequence the DNA of over 1,000 accessions to identify those with the most genetic diversity. They will form the backbone of experiments to create a new generation of

varieties. "Compared with other crops, there has been very little research done into coffee," said Leo Lombardini, associate professor of horticultural sciences at Texas A & M, who is coordinating the trials. About Geisha, he said, "It's the poster child for what we're trying to do."

In addition to Panama, Geisha is now being grown in El Salvador, Columbia, Mexico, Honduras, Peru, and other Latin American countries, and even some growers in Ethiopia have reimported the variety so as to farm it on a large scale. Geoff Watts, in his brief history of Geisha, wrote: "Will something else come along and replace Geisha as the most revered varietal in the industry? Perhaps. But until that day comes, Geisha will continue to sit alone on the throne as the reigning champion varietal in the Latin American coffee landscape."

The Petersons haven't been sitting on their hands. A few miles from the steep, misty slopes of the Jara-

millo farm, a nondescript, flat plot of land lies at the top of a small rise. The location, between 1,600 and 1,750 meters, is perfect for high-altitude coffee. Each of the few dozen rows of young shrubs is marked with a small sign bearing a letter and number code. Here the Petersons have planted over 300 different accessions from Ethiopian collections. Most have never before been grown this high.

They know the plot is a haystack and the likelihood of finding another coffee with the potential of Geisha is just a needle in it. So far, they've tasted about 100 of the coffees. Price Peterson told me recently that none is as interesting as their prized Jaramillo beans. "It's disappointing," he said. Though he is mostly retired now, he is still animated by the idea of new discovery. Geisha hid in plain sight for 70 years before anyone unlocked its secrets. "If there's something better than Geisha," he said, "we want to be the ones to find it." ■

A cupping of seven of the Petersons' varieties at their farm in Boquete, Panama.



Hanna Neuschwander

bhopali cuisine

Worlds Within Worlds

By Michael Snyder



The New Afghan Hotel, owned by Karim Ullah Khan, lies hidden down a blind alley in the bazaars of Old Bhopal, the capital of the central

Indian state of Madhya Pradesh. From the bylane that passes for a main road, the restaurant is completely invisible, blocked by a second restaurant, which is confusingly, and inaccurately, called simply the Afghan Hotel and is owned by Sayeed Ullah Khan, one of Karim's ten brothers. The front of that second "hotel," a word that in India often means a simple, canteen-like restaurant, opens directly onto the street. Bright lights from inside shine on skewers of mutton and chicken that dangle over a row of grills sending banks of smoke like ghosts into the night. The pungent smells of meat, charcoal, and oil from deep-frying would be familiar to anyone who has spent time in the historic Muslim quarters of Old Delhi or Hyderabad, cities celebrated for their rich courtly cuisines. The specialty at Khan's restaurant, a dish simply known as *Afghan machli*, or Afghan fish, would almost certainly come as a surprise.

I arrived at Khan's restaurant at 10 p.m. on my first evening in Bhopal. The official declaration of moonrise just an hour before had marked the end of the fasting month of Ramazan and the beginning of Eid celebrations in the Muslim city. Few people had begun eating until then, yet Khan told me only one serving of the *machli* was left. His signature dish always sells out early, gone on most normal nights by 8 p.m. In urban India, and particularly the bustling old Muslim quarters, where small restaurants and street vendors routinely serve food late into the night,

this is very early indeed. He showed me into the kitchen, a dark cave of a room lit by a pair of tungsten bulbs and by the high, orange flames of gas burners going full force under several cauldrons. Khan ladled a rust-brown gravy from the first of the pots onto a tin plate, then led me back into the fluorescent-lit dining room. I settled into a plastic chair at one of the six linoleum-topped tables, facing a wall papered with brightly colored tropical fish.

Most fish eaten in Bhopal is either *samal*, the snakehead murrel native to south and southeast Asia, or *rohu*, a carp with firm, white flesh. Both are taken from the Upper Lake, the immense body of water that forms the old city's southern boundary. To prepare his Afghan fish, Khan cooks an inch-thick cut of *rohu* in a coarse sauce of tomato, onion, yogurt, sugar, and a mixture of spices that he refused to reveal: a family secret. What I noticed most — after the sweetness of the fish (an unusual base protein for central Indian Muslim cooking) and the molasses-like char on the caramelized onion and tomato — was the conspicuous *absence* of both the heat and the densely layered spices typical of North Indian cooking.

As I ate under Karim's supervision, one of his younger brothers, Rashim, came into the dining room with his two-year-old son and sat down near the door. An elegant foil to his brother, Rashim wore a white skullcap, an impeccably crisp and delicately embroidered white *kurta*, and a long gray beard, the outward signs of a devoutly religious man and hints at his status within one of Bhopal's oldest and most important religious families. "This restaurant was founded by our grandfather, Bashirullah Khan," he told me, bouncing his son on one knee. "It's been here for 60 years, three generations." The restaurant out front, with its kebabs and grills, opened just a few years back, the result of a split in the family business—not, so far as I could tell, a particularly acrimonious one. Though not as old as Karim's fish joint, the newer restaurant also represents an essential part of the city and family's Muslim history. "The first feast in the *Qu'ran*," Rashim told me, "was a barbecue for the angels."

Islam's rise in northern India began in the 10th century with a long series of invasions from central Asia and culminated in the establishment of the Delhi Sultanate in the 12th century. All of those invasions were led by warriors from modern-day Afghanistan, many of whom went on to settle in North India where they



Caption

were known as Pathans. Bhopal itself was founded in 1722 by a Pathan mercenary, Dost Mohammad Khan. The new settlement quickly attracted immigrants from the large Pathan communities in central and eastern India, among them Karim and Rashim Khan's ancestors. Though Bhopal today sits squarely in North India's Hindi-speaking heartland, the Khans still communicate in their ancestral tongue of Pashto.

By the time the mercenary Khan had laid the foundations for his capital, northern and central India were already crowded with principalities. The three great Muslim cities of Delhi, capital of the Mughal Empire, the largest power on the subcontinent; Lucknow, which became the capital of the princely state of Oudh, or Awadh; and Hyderabad, capital of its own eponymous state and one of the largest powers in southern India, were thriving centers of art and culture. Cooks in these older, richer kingdoms — patronized, along with poets and musicians and dancers, by notoriously decadent rulers — spent centuries developing and refining their local cuisines as badges of courtly honor. According to Vincent Marques, the Goan *chef de cuisine* at Under the Mango Tree (widely

considered the best place for traditional courtly cooking in Bhopal), these cooks were the modernist cooks of their age. "Today, Europe has a lot of restaurants doing research in food," he told me. "India, 100 to 200 years back, was doing exactly the same."

But not in Bhopal. Saleem Quraishi came to Bhopal from Lucknow nearly 30 years ago to help run the Jehan Numa Palace Hotel, which is a heritage property owned by a branch of Bhopal's royal family and the elegant backdrop for Under the Mango Tree. He told me over dinner one evening: "This was a newer state. These other kingdoms — Lucknow, Delhi, Hyderabad — made their fortunes during the time of the Mughals, conquering other territories. They were rich states. By the time Bhopal was established, that had all been done." The city's modest young court hadn't the resources for culinary experiments.

Through Bhopal's first century, it struggled even to maintain its independence, locked in a constant state of war with the surrounding Hindu Maratha kingdoms of Gwalior, Indore, and Nagpur and threatened by the powerful Nizams of Hyderabad farther