This Is Your Mind on Plants

Examining the Human Attraction to Consciousness Altering Plants

By Michael Pollan

13-minute read

Synopsis

This Is Your Mind on Plants (2021) is a vivid, intricate probe into the history, chemistry, and effects of three plant-derived drugs: opium, caffeine, and mescaline. These substances – a sedative, a stimulant, and a hallucinogen – represent a large part of the human experience with drugs. It's time to shed new light on how they've shaped our histories, cultures, and minds.

Who is it for?

- Psychonauts and introspective thinkers
- Botanists, plant lovers, and science geeks
- Anyone interested in the history of the US war on drugs and its effects

About the author

Michael Pollan is a journalist, author, and writing instructor at Harvard University and the University of California, Berkeley. He's written eight books, six of which were *New York Times* best sellers, including *How to Change Your Mind, The Botany of Desire,* and *In Defense of Food*. In 2010, he was listed in *Time* magazine's list of the hundred most influential people in the world.

What's in it for me? Probe the history, legality, and effects of three mind-altering drugs.

What's the first thing you consume when you wake up each morning? Okay, maybe it's a glass of water – but after that, you probably gulp an infusion of hot water and a plant-derived, mind-altering drug.

That drug is, of course, caffeine. It gives coffee and tea their power. We don't often think about it in this way, but caffeine is a psychoactive substance that changes our consciousness. It's just that we've accepted it, and many don't mind being dependent on it. The reason for that is simple: caffeine aligns with society's goals.

If that's the case, how exactly should we define a *drug*? In these blinks, we'll explore that question and consider how opium, caffeine, and mescaline impact consciousness, culture, and society.

A quick note before we begin: These blinks contain discussions of drug use and are not intended to encourage the consumption of illicit substances.

In these blinks, you'll learn

- that you might have opium growing in your back garden;
- how bees can get addicted to caffeine; and
- what might happen to your brain under the influence of mescaline.

Throughout history, people have known opium to be both a blessing and a curse.

Throughout the 1990s, the war on drugs raged in all its violent fury. In 1996 alone, more than a million Americans were sent to jail for drug crimes. Many of these convicts were not at all violent – yet they were forced to serve mandatory minimum sentences. The government also gained the power to confiscate private property involved in a drug-related crime, even if its owner hadn't been charged.

The drug war was touted as a boon for public safety. But did it actually reduce addiction or overdose rates? Hardly. Instead, it filled American prisons with hundreds of thousands of nonviolent criminals, many of them Black. Not only that, it distracted from the actual drug-related issue that was only just beginning: the opioid crisis.

Opium itself hasn't always been such a hated substance. In previous centuries, humans treated opium for what it actually is: both an ally and an enemy.

The key message here is: Throughout history, people have known opium to be both a blessing and a curse.

Our relationship with opium spans more than five millennia. The drug's main use was generally pain control.

But in the nineteenth century, it began to truly conquer the world. Victorians used it much as we use aspirin. Romantic poets like Samuel Taylor Coleridge waxed lyrical about the drug. And Great Britain even fought a series of wars – aptly called the Opium Wars – over the right to control its exports.

Now, of course, most people view opium very differently: first and foremost, as a deadly narcotic. But this perception has been warped and distorted by the drug war and the tragedy that we know as the opioid crisis.

That crisis began when, in 1996, a company called Purdue Pharma began marketing its now-infamous, slow-release opiate, Oxycontin. Pain, claimed Purdue, was being undertreated, and their wonder drug could help people who were suffering.

But what really happened? The number of Americans addicted to opiates ballooned from about half a million to two million. About 4,700 people died of drug overdose in 1996. In the US today, 50,000 die from opiate overdose alone every year. Four out of five new heroin users previously used prescription painkillers.

Opium's dual nature is all too clear from its history. Perhaps the Greeks and Romans were on to something when they used the poppy – from which opium is made – as a symbol for both sleep *and* death.

Obtaining and consuming opium isn't as difficult as many people think.

Opium is mired in a tangle of misinformation. Many people have been led to believe that you can only extract the substance from a specific type of poppy that grows exclusively in remote regions. People also think that harvesting opium is a painstaking process requiring armies of workers and special razor blades.

Not so, according to drug journalist Jim Hogshire, author of the 1994 book *Opium for the Masses*. The book's content flies in the face of common wisdom. It claims that just about anyone can obtain opium from ordinary poppy plants, the sort you can buy from your local greengrocer. You either grow the poppies from seed or even buy them fully grown – and then brew their seeds into a tea and drink it.

The key message here is: Obtaining and consuming opium isn't as difficult as many people think.

When the author, Michael Pollan, first came across Hogshire's writings, his interest was largely academic: Pollan writes about gardening; he's also, quite naturally,

a keen gardener. He'd used drugs in the past, but he thought those days were behind him.

Yet, Hogshire's claims piqued his curiosity – so he decided to add a few packets of poppy seeds to his spring gardening order.

Little did he know that he was about to enter a legal minefield. Cultivating opium poppies – which includes the type you find on a bagel – is illegal. But the government doesn't come after just any innocent gardener. Instead, its ire – and your culpability – hinges on how much you know about the plant you're growing.

If the authorities can prove that you grew the plants with the knowledge of how to turn them into opium tea – well, you might be toast.

By the time the author found out about all this, he was committed. One autumn morning, he walked out to his garden and snapped off half a dozen pods from his vivid red poppies. He crushed them, ground them up, and brewed the tea.

The first sip was bitter in the extreme, and choking down the full cup was a chore. The effects set in within ten minutes. It wasn't a high, per se. It was just that Michael's usual aches, pains, anxieties, and other negative feelings had been subtracted from his conscious experience.

His senses weren't diminished. But there was simply no need to act on what he saw, heard, or felt. He wrote in his journal that it was "like sitting out on the front porch of one's consciousness, watching the world go by."

Plants originally evolved caffeine to attract pollinators.

Coffea and *Camellia sinensis* – two plants we know better as coffee and tea – once grew only in a few small pockets of the world. Originally, plants of the genus Coffea could be found only in East Africa and southern Arabia. Camellia sinensis was only present in Southwest China.

Since then, both Coffea and Camellia sinensis have conquered the world. Along with rice, wheat, and corn, they're among the world's most successful plants.

Yet, neither Coffea nor Camellia provide calories or energy. What they do, instead, is change consciousness. And key to their magic is caffeine.

The key message here is: Plants originally evolved caffeine to attract pollinators.

Plants didn't just evolve to produce caffeine for no reason. Something must be in it for them. What might that be?

Well, in high doses, caffeine is lethal to insects that would attempt to eat the plant. But if caffeine could only kill, predators would inevitably evolve resistance to it. Because of that, most plants don't actually produce it in lethal doses – instead, they make just enough to discombobulate, rather than kill, attackers.

But that's not all. In low doses, the drug actually attracts – rather than repels – bees and other pollinators. Give the bees a choice between caffeinated and caffeine-free sugar water, and they readily go for the juiced-up concoction.

It's easy to see how, if you're a plant, this is a great deal. Caffeine hooks pollinators on your supply. Unfortunately, the deal isn't quite as sweet for the bees. In fact, scientists have determined that bees repeatedly return to caffeinated plants even after they've used up all the nectar. The bees become addicts, desperate for their fix.

Does this rhyme with our experience of caffeine? What exactly goes on inside our brains when we gulp that cappuccino?

Well, for starters, caffeine increases our levels of adrenaline, serotonin, and dopamine. Dopamine is a mood-enhancing chemical – and probably the reason we love our morning cup so much. But caffeine also messes with the normal operations of a brain chemical called adenosine.

That chemical's job is to reduce the rate at which our neurons fire. This slows us down and makes us sleepy. But caffeine blocks receptors which are supposed to bind to adenosine, and, as a result, our brains don't get the "bedtime" memo.

That's great if you need to, say, stay up late to meet a deadline – but, naturally, there's a catch. We'll learn more about it in the next blink.

Coffee has played a major role in religion, politics, philosophy, and even economics.

Legend has it that, one day in the ninth century, a perceptive goatherd in present-day Ethiopia noticed something strange. His goats were doing bizarre things after gorging themselves on the fruits of the plant we now know as *Coffea arabica*. They became hyperenergized and wouldn't sleep. The goatherd brought his observation to the attention of a local abbot. The monk converted the berries into a beverage and produced the world's first cup of coffee.

That's how the story goes, anyway. It's probably not true – but what is indisputable is that by the fifteenth century, coffee had traveled from East Africa across the entire Arabian Peninsula. It went on to change the entire world.

The key message here is: Coffee has played a major role in religion, politics, philosophy, and even economics.

Coffee's first major impact was in the Arab world. There, Yemeni Sufis – Islamic mystics – used the drink to remain awake during long religious ceremonies. By 1570, it had reached today's Turkey. Hundreds of coffee houses sprang up in Constantinople, and people gathered in them to gossip, spread news, and play games.

By the mid-1600s, Westerners, too, had caught a sniff of coffee's rich aroma. By the late 1600s, London alone boasted thousands of coffee houses. Soon, they became democratic public spaces in which people of different social classes could mix, discuss politics, and read newspapers.

This rise of the coffee house coincided with the profound shifts in thought that characterized the Enlightenment. Coffee, with its high caffeine content, helped foster clear, lucid thought. Before the drink conquered Europe, most people habitually consumed alcohol, which is, of course, more likely to muddy the mind and encourage magical thinking.

Coffee was also the perfect beverage for the rise of capitalism. It reshaped the way we work. Previously, the human sleep schedule followed the sun's fixed rhythms. Night shifts – even late shifts – were unheard of.

With caffeine, people could stay awake no matter the time of day. Shrewd industrialists noted that giving their workers coffee breaks resulted in major productivity gains. Soon, these intervals became part of standard work culture.

In short, then, coffee is useful to modern society. And that means that there's little danger of caffeine becoming prohibited – even though it is, indisputably, a psychoactive drug.

Caffeine on its own isn't unhealthy, but it's terrible for our sleep.

The author was halfway through his research on caffeine when he started to doubt himself. Was this topic really worth all his time and effort? Would people be interested in it? Was he even interested anymore?

The reason he was having these doubts was almost painfully apparent, not to mention ironic: he'd quit using caffeine.

Many people now live most of their lives in a caffeinated state. Ninety percent of Americans use caffeine regularly. But here's a question: is everyone paying a biological price for their constant caffeination? Or are they getting the proverbial free lunch?

The key message here is: Caffeine on its own isn't unhealthy, but it's terrible for our sleep.

Current research suggests that caffeine doesn't actually harm us. In fact, it may even be beneficial. Studies have linked caffeine consumption to a reduced risk of developing certain cancers, cardiovascular disease, Parkinson's disease, dementia, and type 2 diabetes.

But there's a catch. Caffeine robs us of all-important deep sleep. According to neuroscientist Matt Walker, caffeine has a "quarter life" of about 12 hours. Say you drink a cup of coffee at noon. By midnight, 25 percent of the stimulant you consumed will still be circulating in your brain. That's potentially enough to disrupt your deep sleep.

And that matters. During deep sleep, our brains emit low-frequency waves which help us convert short-term memories into long-term ones. A night-time cup of coffee can reduce your number of low-frequency brain waves by 15 to 20 percent. That's the equivalent of aging yourself up by 12 years!

So, when the author quit using caffeine, he was unsurprised to find himself sleeping like a teenager again. He woke up each morning feeling refreshed rather than groggy.

And yet, his waking hours were much less vivid. He didn't feel as if he was really, fully there. He struggled to concentrate; to stay on-task.

Three months later, he had his first cup of coffee – and it was glorious. The first sip injected warm, liquid well-being into his body. Everything suddenly grew more vibrant, almost filmic.

But half an hour later, that pleasant vividness turned slightly manic. He felt hypervigilant; every sound was loud and abrasive. He started composing mental lists of things he needed to do. When he got home, the caffeine was well and truly in control – and it wasn't long before he found himself fantasizing about a second cup.

Mescaline temporarily alters the way our brains process information.

Mescaline bubbled up over him in the form of revulsion. The author was sitting beside a bay, with a book open in front of him. All he could think was, *Why would anyone ever want to read?* It seemed abhorrent, even offensive to read when there was so much else to see: the inky waters lorded over by heavy pelicans, the sunlight sparkling like diamonds off every wave, the vivid chartreuse of his wife's socks . . .

All he wanted to do was look at things. Mescaline had rendered him incapable of worrying about his past or his future. Instead, he became a captive of the present moment. It seemed as if everything he wanted or needed was right there, before him.

The key message here is: Mescaline temporarily alters the way our brains process information.

During his mescaline trip, the author was also struck by what he called "the immensity of existing things." And, as the day crept on, this feeling began to overwhelm

him. Reality was almost too much to handle – he couldn't *not* see every color, texture, and ray of light. It was an assault on his consciousness, and he was the helpless victim.

He couldn't help but wonder what was actually happening in his brain during this experience?

A clue may lie in a theory from the field of neuroscience. It's called predictive coding and it claims that our brains are constantly making guesses about things – either objects and events in the physical world or thoughts and feelings inside our heads. Then, they only admit as much information as they need to either confirm or correct those hypotheses.

Mescaline, however, seemed to open the floodgates. Sensory information and emotions were completely drenching the author's conscious awareness, making it impossible for his brain to predict much of anything at all. It was clear why it would be impossible to live life like this all the time – everything was almost *too* interesting!

We might now ask: Why do plants – in this case, cacti – produce psychedelic molecules like mescaline? As with caffeine, what's in it for them? The answer is still unknown, but it appears that one such cactus, the peyote, doesn't taste very good to predators. So it could all be a defense mechanism.

Of course, mescaline doesn't taste good to humans either. We merely tolerate it because its effects are so enticing – or, as it is for the indigenous peoples of the Americas, part of a sacred rite.

Historically, peyote was sacred to indigenous peoples in the Americas.

The "diabolic root." A "heretical perversity." A substance that enables one to "discover secrets." These were all descriptions used by the seventeenth-century Mexican Inquisition to denounce peyote. The word refers both to the cactus and the psychoactive tea derived from it. Indigenous people in the Americas had been using peyote for thousands of years for both individual healing and collective, ceremonial ritual.

The key message here is: Historically, peyote was sacred to indigenous peoples in the Americas.

For indigenous people in the United States, specifically, the history of peyote's use is more recent. We can trace it back to the late 1800s when two very different spiritual movements were on the rise. One was known as the Ghost Dance, and the other, the peyote religion.

The Ghost Dance was an ecstatic ritual in which hundreds gathered to don elaborate attire, dance, and sing throughout the night. These rituals lasted up to 24 hours, and many who attended fell into trances, began spasming, or spoke in tongues.

The Ghost Dance terrified local authorities. To them, it seemed a precursor to an insurrection – and they chose to violently suppress it.

Meanwhile, the peyote religion was on the rise. By comparison, it was far more sedate. Participants of its rituals sat upright and stayed silent. They stared into a fire the whole night as ceremonial objects were passed around and drums beat steadily. All rituals took place inside teepees – away from the eyes of white people.

For this and other reasons, it's the peyote religion rather than the Ghost Dance that has survived to this day. But indigenous communities are currently experiencing a shortage of peyote. This meant that the author didn't feel it would be right for him to participate in a traditional ceremony.

Instead, he found a "medicine carrier" who was willing to conduct a ceremony using Wachuma, or San Pedro, a different type of mescaline-containing cactus.

In it, the author, along with six or seven other participants, stepped into a carefully-decorated living room. They each placed personal objects on an altar and drank three cups of Wachuma.

The cactus's effects were surprisingly gentle. Instead of visions or hallucinations, the author simply felt the edges of his sense of self melt. It was like his energy was pooling together with the energies of the other participants. He felt as if he were immersed in warm water, drifting along to whichever thoughts or feelings the psychedelic wanted to carry him.

Final summary

The key message in these blinks:

The way we think about drugs is deeply tied to their social, cultural, and legal histories. Opium was once commonplace – even exalted – but it's now reviled for its role in the opioid epidemic. Caffeine fostered clear, lucid thinking during the Enlightenment and now fuels a productivity-obsessed culture. Finally, peyote allowed people – especially members of indigenous communities – to engage with the divine in a way that was once seen at odds with the Christian mission. Opium remains highly illegal, caffeine will probably never be outlawed, and psychedelics like mescaline and peyote are just crossing the bridge of acceptability. Ultimately, what we consider a "drug" has as much to do with how a chemical fits into society's goals as it does with the drug itself.