even to speculate on. But one could do worse, surely, searching for the spring of a metaphysics as visionary and strange as Plato’s.

The Platonic cup and the Coleridgean imagination are both “memes,” to use a term coined by the British zoologist Richard Dawkins in his 1976 book, *The Selfish Gene*. A meme is simply a unit of memorable cultural information. It can be as small as a tune or a metaphor, as big as a philosophy or religious concept. Hell is a meme; so are the Pythagorean theorem, *A Hard Day’s Night*, the wheel, *Hamlet*, pragmatism, harmony, “Where’s the beef?,” and of course the notion of the meme itself. Dawkins’s theory is that memes are to cultural evolution what genes are to biological evolution. (Unlike genes, however, memes have no physical basis.) Memes are a culture’s building blocks, passed down from brain to brain in a Darwinian process that leads, by trial and error, to cultural innovation and progress. The memes that prove themselves best adapted to their “environment”—that is, the ones that are most helpful for people to keep in their brains—are the ones most likely to survive and replicate and become widely regarded as good, true, or beautiful. Culture at any given moment is the “meme pool” in which we all swim—or rather, that swims through us.

Cultural change occurs whenever a new meme is introduced and catches on. It might be romanticism or double-entry bookkeeping, chaos theory or Pokémon. (Or the notion of memes itself, which seems to be catching on today.) So where in the world do new memes come from? Sometimes they spring full-blown from the brains of artists or scientists, advertising copywriters or teenagers. Often a process of mutation is involved in the creation of a new meme, in much the same way that mutations in the natural environment can lead to useful new genetic traits. Memes can mutate when they get combined in new ways, or when someone working with them makes a mistake—misreading or misinterpreting an old meme in such a way as to yield something new. For instance, besides being itself a new meme, Coleridge’s transforming imagination has turned out to be an excellent technology for generating other new memes.

When I read Dawkins, it occurred to me that his theory suggested a useful way to think about the effects of psychoactive plants on culture—the critical role they’ve played at various junctures in the evolution of religion and music (think of jazz or rock improvisation), of poetry, philosophy, and the visual arts. What if these plant toxins function as a kind of cultural mutagen, not unlike the effect of radiation on the genome? They are, after all, chemicals with the power to alter mental constructs—to propose new metaphors, new ways of looking at things, and, occasionally, whole new mental constructs. Anyone who uses them knows they also generate plenty of mental errors; most such mistakes are useless or worse, but a few inevitably turn out to be the germs of new insights and metaphors. (And the better part of Western literature, if literary theorist Harold Bloom’s idea of “creative misreading” is to be believed.) The molecules themselves don’t add anything new to the stock of memes resident in a human brain, no more than radiation adds new genes. But surely the shifts in perception and breaks in mental habit they provoke are among the methods, and models, we have of imaginatively transforming mental and cultural givens—for mutating our inherited memes.

At the risk of discrediting my own idea, I want to acknowledge that it owes a debt—how large I can’t say—to a psychoactive
plant. The notion that drugs might function as cultural mutagens occurred to me while reading *The Selfish Gene* while high on marijuana, which may or may not be an advisable thing to do. But whatever its value, it's at least a fresh idea (itself a kind of mutation of Dawkins's meme idea), and I seriously doubt it would have occurred to me had I not smoked a little pot the evening I was reading Dawkins. (I wish I could say the same about the earlier speculation on Plato, but I'm afraid I was straight as a post for that one.)

I know, I said that I didn't much like smoking pot. But research is research, and besides, my personal relationship to cannabis underwent a sea change while I was in Amsterdam. I'd heard so much about the improvements made to marijuana that I felt I had to give it another try, and I promptly discovered that this pot, at least, left me feeling neither stupid nor paranoid.

The nonstupid part can, I think, be accounted for by advances in cannabis breeding that make it possible to develop strains eliciting distinctly different mental effects. At the top end of the market this has led to a connoisseurship of cannabis—not just of its taste or aroma, but of the specific psychological texture of its high. Some strains (typically those with a higher proportion of *indica* genes) are narcotic in their effects, tending to stupefy. Others (often the ones with more *sativa* genes) leave the mind clear and fluent and the body unimpaired. Some of the growers I met spoke in terms of "white-collar" and "blue-collar" pot. The strains I found personally sympathetic were stimulating and, evidently, conducive to mental speculation.

As for the nonparanoid part, remember that I was in a country where one can smoke marijuana openly and without fear. The effect of the American drug war on the experience of smoking marijuana—a drug notoriously susceptible to the power of suggestion—cannot be overestimated. Writing in *The Atlantic Monthly* in 1966 about the intellectual "uses" of marijuana (now, there's a topic that's moved beyond the pale; these days one may speak of marijuana's medicinal uses, perhaps, but intellectual?), Allen Ginsberg suggested that the negative feelings marijuana sometimes provokes, such as anxiety, fear, and paranoia, are "traceable to the effects on consciousness not of the narcotic but of the law." Researchers speak of "set and setting" as crucial factors shaping one's experience of any drug, and marijuana in particular almost unfailingly fulfills one's expectation of it, for better and worse. Lenson calls it "the great yea-sayer, supporting whatever is going on anyway, and introducing little or nothing of its own." In my experience, cannabis can't reliably be used to change one's mood, only to intensify it. Smoking in a comfortable coffee shop with a dozen other people doing the same thing, I had no reason to feel paranoid, which is probably why I didn't.

Taking account of this phenomenon, Andrew Weil describes marijuana as an "active placebo." He contends that cannabis does not itself create but merely triggers the mental state we identify as "being high." The very same mental state, minus the "physiological noise" of the drug itself, can be triggered in other ways, such as meditation or breathing exercises. Weil believes it is an error of modern materialistic thinking to believe (as both drug users and drug researchers invariably do) that the "high" smokers experience is somehow a product of the plant itself (or THC), rather than a creation of the mind—prompted, perhaps, but *sui generis*.

The truth of the matter is probably where it usually is, somewhere in the middle. Certainly the psychological experience of marijuana is far too varied, not only from person to person but from time to time, to be explained purely in terms of a chemical. At the same time, the chemistry of this particular plant surely
has something specific to do with, say, the novel perceptions of Cézanne’s pictorial space that Ginsberg describes in his *Atlantic* essay, the religious insights brought back by shamans, or even my own vagrant speculations on mutating memes. Opium would probably induce different kinds of thoughts in the same brains. We assume that there is some sort of cause-and-effect relationship between molecule and mind, but what it is no one really knows.

As the sorcerers, shamans, and alchemists who used them understood, psychoactive plants stand on the threshold of matter and spirit, at the point where simple distinctions between the two no longer hold. Consciousness is what we’re talking about here, of course, and consciousness is precisely the frontier where our materialistic understanding of the brain stops—at least for the time being, but possibly forever. What’s interesting about a plant like marijuana is that it takes us right up to that frontier and may have something to teach us about what lies on the other side. We tend to smile indulgently at poets like Allen Ginsberg for believing that cannabis is a useful tool for exploring consciousness. But it turns out they may be right.

In the mid-1960s, an Israeli neuroscientist named Raphael Mechoulam identified the chemical compound responsible for the psychoactive effects of marijuana: delta-9-tetrahydrocannabinol, or THC, a molecule with a structure unlike any found in nature before or since. For years Mechoulam had been intrigued by the ancient history of cannabis as a medicine (a panacea in many cultures until its prohibition in the 1930s, it has been used to treat pain, convulsions, nausea, glaucoma, neuralgia, asthma, cramps, migraine, insomnia, and depression) and decided it might be worthwhile to isolate the plant’s active ingredient. But it was the popularity of marijuana as a recreational drug in the sixties, and the attendant official worries, that freed up the resources to underwrite this kind of work—and a great deal of other cannabinoid research that, taken together, has yielded more knowledge about the workings of the human brain than anyone could have guessed.

In 1988 Allyn Howlett, a researcher at the St. Louis University Medical School, discovered a specific receptor for THC in the brain—a type of nerve cell that THC binds to like a molecular key in a lock, causing it to activate. Receptor cells form part of a neuronal network; the brain systems involving dopamine, serotonin, and the endorphins are three such networks. When a cell in a network is activated by its chemical key, it responds by doing a variety of things: sending a chemical signal to other cells, switching a gene on or off, or becoming more or less active. Depending on the network involved, this process can trigger cognitive, behavioral, or physiological changes. Howlett’s discovery pointed to the existence of a new network in the brain.

The cannabinoid receptors Howlett found showed up in vast numbers all over the brain (as well as in the immune and reproductive systems), though they were clustered in regions responsible for the mental processes that marijuana is known to alter: the cerebral cortex (the locus of higher-order thought), the hippocampus (memory), the basal ganglia (movement), and the amygdala (emotions). Curiously, the one neurological address where cannabinoid receptors didn’t show up was in the brain stem, which regulates involuntary functions such as circulation and respiration. This might explain the remarkably low toxicity of cannabis and the fact that no one is known to have ever died from an overdose.

On the assumption that the human brain would not have
evolved a special structure for the express purpose of getting itself high on marijuana, researchers hypothesized that the brain must manufacture its own THC-like chemical for some as-yet-unknown purpose. (The scientific paradigm at work here was the endorphin system, which is tripped by opiates from plants as well as endorphins produced in the brain.) In 1992, some thirty years after his discovery of THC, Raphael Mechoulam (working with a collaborator, William Devane) found it: the brain’s own endogenous cannabinoid. He named it “anandamide,” from the Sanskrit word for “inner bliss.”

Someday soon Mechoulam and Howlett will almost surely receive the Nobel Prize, for their discoveries opened a new branch of neuroscience that promises to revolutionize our understanding of the brain and lead to a whole new class of drugs. Following on their work, neuroscientists are now busy trying to figure out exactly how the cannabinoid network works—and why we should have one in the first place.

I put that question to Mechoulam and Howlett and several of their colleagues in cannabinoid research, and their answers, while speculative, are richly suggestive. The cannabinoid network is unusually complex and varied in its functions, I learned, in part because it seems to modulate the action of other neurotransmitters, such as serotonin, dopamine, and the endorphins. When I asked Howlett what the purpose of such a network might be, she began her answer by listing some of the various direct and indirect effects of cannabinoids: pain relief, loss of short-term memory, sedation, and mild cognitive impairment.

“All of which is exactly what Adam and Eve would want after being thrown out of Eden. You couldn’t design a more perfect drug for getting Eve through the pain of childbirth or helping Adam endure a life of physical toil.” She noted that cannabinoid receptors had been found in the uterus, of all places, and speculated that anandamide may not only dull the pain of childbirth but help women forget it later. (The sensation of pain is, curiously, one of the hardest to summon from memory.) Howlett speculated that the human cannabinoid system evolved to help us endure (and selectively forget) the routine slings and arrows of life “so that we can get up in the morning and do it all over again.” It is the brain’s own drug for coping with the human condition.

For his part, Raphael Mechoulam believes that the cannabinoid network is involved in regulating several different biological processes, including pain management, memory formation, appetite, the coordination of movement, and, perhaps most intriguingly, emotion. “We know next to nothing about the biochemistry of emotion,” Mechoulam points out, but he thinks we’ll eventually discover that cannabinoids are involved in the process by which the brain “translates objective reality into subjective emotions.”

“If I see my grandson rushing to meet me, I feel happy. How do I translate biochemically the objective reality of a grandson rushing toward me into the subjective change in my emotions?” The brain’s cannabinoids could be the missing link.

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So what are the odds that a molecule produced by a flower out in the world—by a weedy plant native to central Asia—would turn out to hold the precise key required to unlock the neurological mechanism governing these aspects of human consciousness? There is something miraculous about such a correspondence between nature and mind, yet it must have a logical explanation. A plant does not go to the expense of making (and continuing to make) such a unique and complex molecule if it doesn’t do the plant some evolutionary good. So why does cannabis produce
THC? No one knows for sure, but botanists offer several competing theories, and most of them have nothing to do with getting people high—at least not at the plant’s beginnings.

The purpose of THC could be to protect cannabis plants from ultraviolet radiation; it seems that the higher the altitude at which cannabis grows, the more THC it produces. THC also exhibits antibiotic properties, suggesting a role in protecting cannabis from disease. Last, it’s possible that THC gives the cannabis plant a sophisticated defense against pests. Cannabinoid receptors have been found in animals as primitive as the hydra, and researchers expect to find them in insects. Conceivably, cannabis produces THC to discombobulate the insects (and higher herbivores) that prey on the plant; it might make a bug (or a buck or a rabbit) forget what it’s doing or where in the world it last saw that tasty plant. But whatever THC’s purpose, it’s unlikely that, as Raphael Mechoulam put it, “a plant would produce a compound so that a kid in San Francisco can get high.”

Or is it? Robert Connell Clarke, the marijuana botanist I met in Amsterdam, doesn’t think that notion is quite as far-fetched as Mechoulam makes it sound. He finds most of the defense theories inadequate and concludes that “the most obvious evolutionary advantage THC conferred on Cannabis was the psychoactive properties, which attracted human attention and caused the plant to be spread around the world.”

Of course, Mechoulam and Clarke could both be right. Whatever THC’s original purpose may have been, as soon as a certain primate with a gift for experiment and horticulture stumbled on its psychoactive properties, the plant’s evolution embarked on a new trajectory, guided from then on by that primate and his desires. The cannabis flowers that gave humans the most pleasure, or strongest medicine, were now the ones that produced the most offspring. What may have started out as a biochemical accident became the plant’s coevolutionary destiny, or at least one of its destinies, under domestication.

Ma, the ancient Chinese character for “hemp,” depicts a male and a female plant under a roof—cannabis inside the house of human culture. Cannabis was one of the earliest plants to be domesticated (probably for fiber first, then later as a drug); it has been coevolving with humankind for more than ten thousand years, to the point where the aboriginal form of the plant may no longer exist. By now cannabis is as much the product of human desire as a Bourbon rose, and we have scant idea what the plant might have been like before it linked its destiny to our own.

But what is so unusual about cannabis’s coevolution (compared to that of the rose, say, or the apple) is that it followed two such divergent paths down to our time, each reflecting the influence of a completely different human desire. Along the first path (which appears to have begun in ancient China and moved westward toward northern Europe, then on to the Americas), the plant was selected by people for the strength and length of its fibers. (Up until the last century, hemp was one of humankind’s main sources of paper and cloth.) Along the other path (which began somewhere in central Asia and moved down through India, then into Africa, and from there across to the Americas with the slaves and up to Europe with Napoleon’s army), cannabis was selected for its psychoactive and medicinal powers. Ten thousand years later, hemp and cannabis are as different as night and day: hemp produces negligible amounts of THC and cannabis a worthless fiber. (In the eyes of the U.S. government, however, there is still only one plant, so that the taboo on the drug plant has, pointlessly, doomed the fiber.) It is hard to conceive of a domesticated plant more plastic than cannabis, a single species answering to two such different
desires, the first more or less spiritual in nature and the other, quite literally, material.

The scientists I talked to had a lot to say about the descent and biochemistry of cannabis, but about the plant’s effects on our experience of consciousness they were all but silent. What I wanted to know is, What does it mean, biologically, to say a person is “high”? When I put this question to Allyn Howlett, her answer consisted of two rather parceled words: “cognitive dysfunction.” Cognitive dysfunction? Okay, but isn’t that a little like saying that having sex elevates one’s pulse? It’s perfectly true as far as it goes, but it doesn’t get you any closer to the heart of the matter—or to the desire. John Morgan, a pharmacologist who has written widely about marijuana, points out that “we don’t yet understand consciousness scientifically, so how can we hope to explain changes in consciousness scientifically?” Mechoulam replied to my questions about what it means biochemically to be high simply by saying, “I am afraid we have to leave these questions still to the poets.”

So there it seemed the neuroscientists had stranded me, all on my unscientific own with a dime bag and the dubious company of poets such as Allen Ginsberg and Charles Baudelaire, Fitz Hugh Ludlow and (yikes!) Carl Sagan—but Carl Sagan wearing his goofiest nonscientific hat. You see, I’d discovered that in 1971 Sagan had anonymously published an earnest, marvelous account of his experiences with pot, which he credited with “devastating insights” about the nature of life.*

*There is a myth about such highs,” Sagan wrote; “the user has an illusion of great insight, but it does not survive scrutiny in the morning. I am convinced that this is an error, and that the devastating insights achieved while high are real in-

Yet as I proceeded with my literary and phenomenological investigations of the pot experience, I soon realized I had gotten something valuable from the scientists after all. They had inadvertently pointed me in the direction of a deeper understanding of what it is that cannabis does to human consciousness and what, possibly, it has to teach us about it. In fact, Howlett was probably right, if inelegant, in her simple formulation, because I’ve come to think that a “cognitive dysfunction” of a very special kind does in fact lie at the heart of it. Let me try to explain.

The scientists I spoke to were unanimous in citing short-term memory loss as one of the key neurological effects of the cannabinoids. In their own way, so were the “poets” who tried to describe the experience of cannabis intoxication. All talk about the difficulty of reconstructing what happened mere seconds ago and what a Herculean challenge it becomes to follow the thread of a conversation (or a passage of prose) when one’s short-term memory isn’t operating normally.

Yet the scientists said that the THC in cannabis is only mimicking the actions of the brain’s own cannabinoids. What a curious thing this is for a brain to do, to manufacture a chemical that interferes with its own ability to make memories—and not just

sights; the main problem is putting these insights in a form acceptable to the quite different self that we are when we’re down the next day... If I find in the morning a message from myself the night before informing me that there is a world around us which we barely sense, or that we can become one with the universe, or even that certain politicians are desperately frightened men, I may tend to disbelieve; but when I’m high I know about this disbelief. And so I have a tape in which I exhort myself to take such remarks seriously. I say, “Listen closely, you son-of-a-bitch of the morning! This stuff is real!” Sagan’s essay, attributed to “Mr. X,” appears in Marihuana Reconsidered, by Lester Grinspoon. After Sagan’s death in 1996, Grinspoon revealed Mr. X’s identity.
memories of pain, either. So I e-mailed Raphael Mechoulam to ask him why he thought the brain might secrete a chemical that has such an undesirable effect.

Don't be so sure that forgetting is undesirable, he suggested. "Do you really want to remember all the faces you saw on the New York City subway this morning?"

Mechoulam’s somewhat oblique comment helped me begin to appreciate that forgetting is vastly underrated as a mental operation—indeed, that it is a mental operation, rather than, as I’d always assumed, strictly the breakdown of one. Yes, forgetting can be a curse, especially as we age. But forgetting is also one of the more important things healthy brains do, almost as important as remembering. Think how quickly the sheer volume and multiplicity of sensory information we receive every waking minute would overwhelm our consciousness if we couldn't quickly forget a great deal more of it than we remember.

At any given moment, my senses present to my consciousness—this perceiving "I"—a blizzard of data no human mind can completely absorb. To illustrate the point, let me try to capture here a few drops of this perceptual cataract, preserve one cross section of the routinely forgotten. Right now my eyes, even without moving, offer the following: directly in front of me, the words I'm typing on a computer screen along with its blue background and tumble of icons. Peripherally, there's the blond wood grain of my desk, a mouse pad (printed with words and images), a CD spinning red in its little window, two bookshelves crammed with a couple of dozen spines I could easily read but don't, a gray plastic heater grate, a blue folder (entitled "Pot clips") stuck into a standing file at an annoying angle, two hands with an unspecified number of flying fingers (Band-Aid on one hand, glint of gold on the other), one jeans-clad lap, two green-sweatered wrists, a window (its

green muntins framing a boulder with lichens, dozens of trees, hundreds of branches, millions of leaves), and, drawing a soft border around 90 percent of this visual field, the metal frames of my eyeglasses.

And that's just my eyes. My sense of touch meanwhile presents to my attention a low background drone of shoulder ache, a slight burning sensation in the tip of my right middle finger (where it was cut the other day), and the cool rush of air through my nostrils. Taste? Black tea and bergamot (Earl Grey), slightly briny breakfast residue on tongue (smoked salmon). Soundtrack: Red Hot Chili Peppers in the foreground, backed by heater whoosh on the right, computer cooling fan whoosh on the lower left, mouse clicks, keyboard clatter, creak-crack of those knuckle-like things deep in the neck when I cant my head to one side; and then, outside, a scatter of birdsong, methodical drips on the roof, and the slow sky tear of a propeller plane. Smell: Lemon Pledge, mixed with woody damp. I won't even try to catalog the numberless errant thoughts presently nipping around the writing of this paragraph like a flitting school of fish. (Or maybe I will: second thoughts and misgivings arriving in waves, shoving crowds of alternative words and grammatical constructions, shimmering lunch options, small black holes of consciousness from which I try to fish out metaphors, a clamoring handful of to-dos, a spongy awareness of the time till lunch, and so on, and so on.)

"If we could hear the squirrel's heartbeat, the sound of the grass growing, we should die of that roar," George Eliot once wrote. Our mental health depends on a mechanism for editing the moment-by-moment ocean of sensory data flowing into our consciousness down to a manageable trickle of the noticed and remembered. The cannabinoid network appears to be part of that
mechanism, vigilantly sifting the vast chaff of sense impression from the kernels of perception we need to remember if we're to get through the day and get done what needs to be done.* Much depends on forgetting.

The THC in marijuana and the brain's endogenous cannabinoids work in much the same way, but THC is far stronger and more persistent than anandamide, which, like most neurotransmitters, is designed to break down very soon after its release. (Chocolate, of all things, seems to slow this process, which might account for its own subtle mood-altering properties.) What this suggests is that smoking marijuana may overstimulate the brain's built-in forgetting faculty, exaggerating its normal operations.

This is no small thing. Indeed, I would venture that, more than any other single quality, it is the relentless moment-by-moment forgetting, this draining of the pool of sense impression almost as quickly as it fills, that gives the experience of consciousness under marijuana its peculiar texture. It helps account for the sharpening of sensory perceptions, for the aura of profundity in which cannabis bathes the most ordinary insights, and, perhaps most important of all, for the sense that time has slowed or even stopped. For it is only by forgetting that we ever really drop the thread of time and approach the experience of living in the present moment, so elusive in ordinary hours. And the wonder of that experience, perhaps more than any other, seems to be at the very heart of the human desire to change consciousness, whether by means of drugs or any other technique.

*Mechoulam thinks we'll eventually find a neurotransmitter that does for remembering what the cannabinoids do for forgetting, and that the push-and-pull interaction of these two chemicals together determines what is filed in memory and what is thrown out.

"Consider the cattle, grazing as they pass you by," Friedrich Nietzsche begins a brilliant, somewhat eccentric 1876 essay he called "The Uses and Disadvantages of History for Life." "They do not know what is meant by yesterday or today, they leap about, eat, rest, digest, leap about again, and so from morn till night and from day to day, fettered to the moment and its pleasure or displeasure, and thus neither melancholy nor bored . . .

"A human being may well ask an animal: 'Why do you not speak to me of your happiness but only stand and gaze at me?' The animal would like to answer, and say, 'The reason is I always forget what I was going to say'—but then he forgot this answer too, and stayed silent."

The first part of Nietzsche's essay is a moving and occasionally hilarious paean to the virtues of forgetting, which he maintains is a prerequisite to human happiness, mental health, and action. Without dismissing the value of memory or history, he argues (much like Emerson and Thoreau) that we spend altogether too much of our energy laboring in the shadows of the past—under the stultifying weight of convention, precedent, received wisdom, and neurosis. Like the American transcendentalists, Nietzsche believes that our personal and collective inheritance stands in the way of our enjoyment of life and accomplishment of anything original.

"Cheerfulness, the good conscience, the joyful deed, confidence in the future—all of them depend . . . on one's being just as able to forget at the right time as to remember." He admonishes us to cast off "the great and ever-greater pressure of what is past" and live instead rather more like the child (or the cow) that "plays in blissful blindness between the hedges of past and future." Nietzsche ac-
knowledges that there are perils to inhabiting the present (one is liable to “falsely suppose all his experiences are original to him”), but any loss in knowingness or sophistication is more than made up for by the gain in vigor.

For Nietzsche the “art and power of forgetting” consist in a kind of radical editing or blocking out of consciousness everything that doesn’t serve the present purpose. A man seized by a “vehement passion” or great idea will be blind and deaf to all except that passion or idea. Everything he does perceive, however, he will perceive as he has never perceived anything before: “All is so palpable, close, highly colored, resounding, as though he apprehended it with all his senses at once.”

What Nietzsche is describing is a kind of transcendence—a mental state of complete and utter absorption well known to artists, athletes, gamblers, musicians, dancers, soldiers in battle, mystics, meditators, and the devout during prayer. Something very like it can occur during sex, too, or while under the influence of certain drugs. It is a state that depends for its effect on losing oneself in the moment, usually by training a powerful, depthless concentration on One Big Thing. (Or, in the Eastern tradition, One Big Nothing.) If you imagine consciousness as a kind of lens through which we perceive the world, the drastic constricting of its field of vision seems to heighten the vividness of whatever remains in the circle of perception, while everything else (including our awareness of the lens itself) simply falls away.

Some of our greatest happinesses arrive in such moments, during which we feel as though we’ve sprung free from the tyranny of time—clock time, of course, but also historical and psychological time, and sometimes even mortality. Not that this state of mind doesn’t have its drawbacks; to name one, other people cease to matter. Yet this thoroughgoing absorption in the present is (as both Eastern and Western religious traditions tell us) as close as we mortals ever get to an experience of eternity. Boethius, the sixth-century Neoplatonist, said the goal of our spiritual striving was “to hold and possess the whole fullness of life in one moment, here and now, past and present and to come.” Likewise in the Eastern tradition: “Awakening to this present instant,” a Zen master has written, “we realize the infinite is in the finite of each instant.” Yet we can’t get there from here without first forgetting.

I am not by nature one of the world’s great noticers. Unless I make a conscious effort, I won’t notice what color your shirt is, the song playing on the radio, or whether you put one sugar in your coffee or two. When I’m working as a reporter I have to hector myself continually to mark the details: checked shirt, two sugars, Van Morrison. Why this should be so, I have no idea, except that I am literally absentminded, prone to be thinking about something else, something past, when I am ostensibly having a fresh experience. Almost always, my attention can’t wait to beat a retreat from the here and now to the abstract, frog-jumping from the data of the senses to conclusions.

Actually, it’s worse than that. Very often the conclusions or concepts come first, allowing me to dispense with the sensory data altogether or to notice in it only what fits. It’s a form of impatience with lived life, and though it might appear to be a symptom of an active mind, I suspect it’s really a form of laziness. My lawyer father, once complimented on his ability to see ahead three or four moves in a negotiation, explained that the reason he liked to jump to conclusions was so he could get there early and rest. I’m the same way in my negotiations with reality.

Though I suspect that what I have is only an acute case of an at-
attention disorder that is more or less universal. Seeing, hearing, smelling, feeling, or tasting things as they “really are” is always difficult if not impossible (in part because doing so would overwhelm us, as George Eliot understood), so we perceive each multisensory moment through a protective screen of ideas, past experiences, or expectations. “Nature always wears the colors of the spirit,” Emerson wrote, by which he meant we never see the world plainly, only through the filter of prior concepts or metaphors. (“Colors,” in classical rhetoric, are tropes.) In my case this filter is so fine (or is it thick?) that a lot of the details and textures of reality simply never get through. It’s a habit of mind I sorely wish I could break, since it keeps me from enjoying the pleasures of the senses and the moment, pleasures that, at least in the abstract, I prize above all others. But right there you see the problem: in the abstract.

All those who write about cannabis’s effect on consciousness speak of the changes in perception they experience, and specifically of an intensification of all the senses. Common foods taste better, familiar music is suddenly sublime, sexual touch revelatory. Scientists who’ve studied the phenomenon can find no quantifiable change in the visual, auditory, or tactile acuity of subjects high on marijuana, yet these people invariably report seeing, and hearing, and tasting things with a new keenness, as if with fresh eyes and ears and taste buds.

You know how it goes, this italicization of experience, this seemingly virginal noticing of the sensate world. You’ve heard that song a thousand times before, but now you suddenly hear it in all its soul-piercing beauty, the sweet bottomless poignancy of the guitar line like a revelation, and for the first time you can understand, really understand, just what Jerry Garcia meant by every note, his unhurried cheerful-baleful improvisation piping something very near the meaning of life directly into your mind.

Or that exceptionally delicious spoonful of vanilla ice cream—ice cream!—parting the drab curtains of the quotidian to reveal, what?—the heartrendingly sweet significance of cream, yes, bearing us all the way back to the breast. Not to mention the never-before-adequately-appreciated wonder of vanilla. How astonishing is it that we happen to inhabit a universe in which this quality of vanilla-ness—this bean!—happens also to reside? How easily it could have been otherwise, and just where would we be (where would chocolate be?) without that singular irreplaceable note, that middle C on the Scale of Archetypal Flavors? (Paging Dr. Plato!) For the first time in your journey on this planet you are fully appreciating Vanilla in all its italicized and capitalized significance. Until, that is, the next epiphany comes along (Chairs! People thinking in other languages! Carbonated water!) and the one about ice cream is blown away like a leaf on the breeze of free association.

Nothing is easier to make fun of than these pot-sponsored perceptions, long the broad butt of jokes about marijuana. But I’m not prepared to concede that these epiphanies are as empty or false as they usually appear in the cold light of the next day. In fact, I’m tempted to agree with Carl Sagan, who was convinced that marijuana’s morning-after problem is not a question of self-deception so much as a failure to communicate—to put “these insights in a form acceptable to the quite different self that we are when we’re down the next day.” We simply don’t have the words to convey the force of these perceptions to our straight selves, perhaps because they are the kinds of perceptions that precede words. They may well be banal, but that doesn’t mean they aren’t also at the same time profound.

Marijuana dissolves this apparent contradiction, and it does so by making us temporarily forget most of the baggage we usually bring to our perception of something like ice cream, our acquired
sense of its familiarity and banality. For what is a sense of the banality of something if not a defense against the overwhelming (or at least wakening) power of that thing experienced freshly? Banality depends on memory, as do irony and abstraction and boredom, three other defenses the educated mind deploys against experience so that it can get through the day without being continually, exhaustingly astonished.

It is by temporarily mislaying much of what we already know (or think we know) that cannabis restores a kind of innocence to our perceptions of the world, and innocence in adults will always flirt with embarrassment. The cannabinoids are molecules with the power to make romantics and transcendentalists of us all. By disabling our moment-by-moment memory, which is ever pulling us off the astounding frontier of the present and throwing us back onto the mapped byways of the past, the cannabinoids open a space for something nearer to direct experience. By the grace of this forgetting, we temporarily shelve our inherited ways of looking and see things as if for the first time, so that even something as ordinary as ice cream becomes ice cream!

There is another word for this extremist noticing—this sense of first sight unencumbered by knowingness, by the already-been-there and seen-thats of the adult mind—and that word, of course, is wonder.

Memory is the enemy of wonder, which abides nowhere else but in the present. This is why, unless you are a child, wonder depends on forgetting—on a process, that is, of subtraction. Ordinarily we think of drug experiences as additive—it’s often said that drugs “distort” normal perceptions and augment the data of the senses (adding hallucinations, say), but it may be that the very opposite is true—that they work by subtracting some of the filters that consciousness normally interposes between us and the world.

This, at least, was Aldous Huxley’s conclusion in *The Doors of Perception*, his 1954 account of his experiments with mescaline. In Huxley’s view, the drug—which is derived from peyote, the flower of a desert cactus—disables what he called “the reducing valve” of consciousness, his name for the conscious mind’s everyday editing faculty. The reducing valve keeps us from being crushed under the “pressure of reality,” but it accomplishes this at a price, for the mechanism prevents us from ever seeing reality as it really is. The insight of mystics and artists flows from their special ability to switch off the mind’s reducing valve. I’m not sure any of us ever perceives reality “as it really is” (how would one know?), but Huxley is persuasive in depicting wonder as what happens when we succeed in suspending our customary verbal and conceptual ways of seeing. (He writes with a wacky earnestness about the beauty of fabric folds, a garden chair, and a vase of flowers: “I was seeing what Adam had seen on the morning of his creation—the miracle, moment by moment, of naked existence.”)

I think I understand Huxley’s reducing valve of consciousness, though in my own experience the mechanism looks a little different. I picture ordinary consciousness more as a funnel or, even better, as the cinched waist of an hourglass. In this metaphor the mind’s eye stands poised between time past and time to come, determining which of the innumerable grains of sensory experience will pass through the narrow aperture of the present and enter into memory. I know, there are some problems with this metaphor, the main one being that all the sand eventually gets to the bottom of an hourglass, whereas most of the grains of experience never make it past our regard. But the metaphor at least gets at the notion that the principal work of consciousness is eliminative and
defensive, maintaining perceptual order to keep us from being overwhelmed.

So what happens under the influence of drugs or, for that matter, inspiration? In Huxley’s metaphor, the reducing valve is opened wide to admit more of experience. This seems about right, though I’d qualify it by suggesting (as Huxley’s own examples do) that the effect of altered consciousness is to admit a whole lot more information about a much smaller increment of experience. “The folds of my gray flannel trousers were charged with ‘is-ness,’ ” Huxley tells us, before dilating on Botticelli draperies and the “Allness and Infinity of folded cloth.” The usual process by which the grains of perception pass us by slows way down, to the point where the conscious I can behold each grain in its turn, scrupulously examining it from every conceivable angle (sometimes from more angles than it even has), until all there is is the still point at the hourglass’s waist, where time itself appears to pause.

But is this wonder the real thing? At first glance, it wouldn’t seem to be: a transcendence that’s chemically induced must surely be fake. Artificial Paradises was what Charles Baudelaire called his 1860 book about his experiences with hashish, and that sounds about right. Yet what if it turns out that the neurochemistry of transcendence is no different whether you smoke marijuana, meditate, or enter a hypnotic trance by way of chanting, fasting, or prayer? What if in every one of these endeavors, the brain is simply prompted to produce large quantities of cannabinoids, thereby suspending short-term memory and allowing us to experience the present deeply? There are many technologies for changing the brain’s chemistry; drugs may simply be the most direct. (This doesn’t necessarily make drugs a better technology for changing consciousness—indeed, the toxic side effects of so many of them suggest that the opposite is true.) From a brain’s point of view, the distinction between a natural and an artificial high may be meaningless.

Aldous Huxley did his best to argue us out of the view that a chemically conditioned spiritual experience is false—and he did so long before we knew anything about cannabinoid or opipoid receptor networks. “In one way or another, all our experiences are chemically conditioned, and if we imagine that some of them are purely ‘spiritual,’ purely ‘intellectual,’ purely ‘aesthetic,’ it is merely because we have never troubled to investigate the internal chemical environment at the moment of their occurrence.” He points out that mystics have always worked systematically to modify their brain chemistry, whether through fasting, self-flagellation, sleeplessness, hypnotic movement, or chanting.* The brain can be made to drug itself, as seems to happen with certain placebos. We don’t merely imagine that the placebo antidepressant is working to lift our sadness or worry—the brain is actually producing extra serotonin in response to the mental prompt of swallowing a pill containing nothing but sugar and belief. What all this suggests is that the workings of consciousness are both more and less materialistic than we usually think: chemical reactions can induce thoughts, but thoughts can also induce chemical reactions.

Even so, the use of drugs for spiritual purposes feels cheap and

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*Huxley suggests that the reason there aren’t nearly as many mystics and visionaries walking around today, as compared to the Middle Ages, is the improvement in nutrition. Vitamin deficiencies wreak havoc on brain function and probably explain a large portion of visionary experiences in the past.
false. Perhaps it is our work ethic that is offended—you know, no pain, no gain. Or maybe it is the provenance of the chemicals that troubles us, the fact that they come from outside. Especially in the Judeo-Christian West, we tend to define ourselves by the distance we’ve put between ourselves and nature, and we jealousy guard the borders between matter and spirit as proof of our ties to the angels. The notion that spirit might turn out in some sense to be matter (and plant matter, no less!) is a threat to our sense of separateness and godliness. Spiritual knowledge comes from above or within, but surely not from plants. Christians have a name for someone who believes otherwise: pagan.

Two stories stand behind the taboos that people in the West have placed on cannabis at various times in its history. Each reflects our anxieties about this remarkable plant, about what its Dionysian power might do to us if it is not resisted or brought under control.

The first, brought back from the Orient by Marco Polo (among others), is the story of the Assassins—or rather, a corruption of the story of the Assassins, which may or may not be apocryphal to begin with. The time is the eleventh century, when a vicious sect called the Assassins, under the absolute control of Hassan ibn al Sabbah (aka “the Old Man of the Mountain”) is terrorizing Persia, robbing and murdering with brutal abandon. Hassan’s marauders will do anything he tells them to, no questions asked; they have lost their fear of death. How does Hassan secure this perfect loyalty? By treating his men to a foretaste of the eternal paradise that will be theirs should they die in his service.

Hassan would begin his initiation of new recruits by giving them so much hashish that they passed out. Hours later the men would awaken to find themselves in the midst of a most beautiful palace garden, laid with sumptuous delicacies and staffed with gorgeous maidens to gratify their every desire. Scattered through this paradise, lying on the ground in pools of blood, are severed heads—actually actors buried to their necks. The heads speak, telling the men of the afterlife and what they will have to do if they hope ever to return to this paradise.

The story was corrupted by the time Marco Polo retold it, so that the hashish was now directly responsible for the violence of the Assassins. (The word itself is a corruption of “hashish.”) By erasing the Assassins’ fear of death, the story suggested, hashish freed them to commit the most daring and merciless crimes. The tale became a staple of orientalism and, later, of the campaign to criminalize marijuana in America in the 1930s. Harry J. Anslinger, the first director of the Federal Bureau of Narcotics and the man most responsible for marijuana prohibition, mentioned the Assassins at every opportunity. He skillfully used this metanarrative—publicizing every contemporary crime story he could cut to its lurid pattern—to transform a little-known drug of indolence into one of violence, a social menace. Even after Anslinger’s “reefer madness” had subsided, the moral of the tale of the Assassins continued to trail cannabis—the notion that, by severing the link between acts and their consequences, marijuana unleashes human inhibitions, thereby endangering Western civilization.

The second story is simply this: In 1484, Pope Innocent VIII issued a papal condemnation of witchcraft in which he specifically condemned the use of cannabis as an “antisacrament” in satanic worship. The black mass celebrated by medieval witches and sorcerers presented a mocking mirror image of the Catholic Eucharist, and in it cannabis traditionally took the place of wine—serving as a pagan sacrament in a counterculture that sought to undermine the establishment church.
The fact that witches and sorcerers were the first Europeans to exploit the psychoactive properties of cannabis probably sealed its fate in the West as a drug identified with feared outsiders and cultures conceived in opposition: pagans, Africans, hippies. The two stories fed each other and in turn the plant’s power: people who smoked cannabis were Other, and the cannabis they smoked threatened to let their Otherness loose in the land.

Witches the Church simply burned at the stake, but something more interesting happened to the witches’ magic plants. The plants were too precious to banish from human society, so in the decades after Pope Innocent’s fiat against witchcraft, cannabis, opium, belladonna, and the rest were simply transferred from the realm of sorcery to medicine, thanks largely to the work of a sixteenth-century Swiss alchemist and physician named Paracelsus. Sometimes called the “Father of Medicine,” Paracelsus established a legitimate pharmacology largely on the basis of the ingredients found in flying ointments. (Among his many accomplishments was the invention of laudanum, the tincture of opium that was perhaps the most important drug in the pharmacopoeia until the twentieth century.) Paracelsus often said that he had learned everything he knew about medicine from the sorceresses. Working under the rational sign of Apollo, he domesticated their forbidden Dionysian knowledge, turning the pagan potions into healing tinctures, bottling the magic plants and calling them medicines.

Paracelsus’s grand project, which arguably is still going on today,* represents one of the many ways the Judeo-Christian tra-

dition has deployed its genius to absorb, or co-opt, the power of the pagan faith set out to uproot. In much the same way that the new monotheism folded into its rituals the people’s traditional pagan holidays and spectacles, it desperately needed to do something about their ancient devotion to magic plants. Indeed, the story of the forbidden fruit in Genesis suggests that nothing was more important.

The challenge these plants posed to monotheism was profound, for they threatened to divert people’s gaze from the sky, where the new God resided, down to the natural world all around them. The magic plants were, and remain, a gravitational force pulling us back to Earth, to matter, away from the there and then of Christian salvation and back to the here and now. Indeed, what these plants do to time is perhaps the most dangerous thing about them—dangerous, that is, from the perspective of a civilization organized on the lines of Christianity and, more recently, capitalism.

Christianity and capitalism are both probably right to detest a plant like cannabis. Both faiths bid us to set our sights on the future; both reject the pleasures of the moment and the senses in favor of the expectation of a fulfillment yet to come—whether by earning salvation or by getting and spending. More even than most plant drugs, cannabis, by immersing us in the present and offering something like fulfillment here and now, short-circuits the metaphysics of desire on which Christianity and capitalism (and so much else in our civilization) depend.*

Paracelsus’s lab-coated descendants have synthesized the active ingredients in plant drugs, allowing medicine to dispense with the plant itself—and any reminders of its pagan past.

*David Lenson draws a useful distinction between drugs of desire (cocaine, for example) and drugs of pleasure, such as cannabis. "Cocaine promises the
What, then, was the knowledge that God wanted to keep from Adam and Eve in the Garden? Theologians will debate this question without end, but it seems to me the most important answer is hidden in plain sight. The content of the knowledge Adam and Eve could gain by tasting of the fruit does not matter nearly as much as its form—that is, the very fact that there was spiritual knowledge of any kind to be had from a tree: from nature. The new faith sought to break the human bond with magic nature, to disenchant the world of plants and animals by directing our attention to a single God in the sky. Yet Jehovah couldn’t very well pretend the tree of knowledge didn’t exist, not when generations of plant-worshiping pagans knew better. So the pagan tree is allowed to grow even in Eden, though ringed around now with a strong taboo. Yes, there is spiritual knowledge in nature, the new God is acknowledging, and its temptations are fierce, but I am fiercer still. Yield to it, and you will be punished.

So unfolds the drug war’s first battle.

I’ve removed most all of the temptations from my own garden, though not without regret or protest. Immersed this spring in research for this chapter, I was sorely tempted to plant one of the hybrid cannabis seeds I’d seen for sale in Amsterdam. I immediately

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greatest pleasure ever known in just a minute more . . . But that future never comes.” In this respect the cocaine experience is “a savage mimicry of consumer consciousness.” With cannabis or the psychedelics, on the other hand, “pleasure can come from natural beauty, domestic tasks, friends and relatives, conversation, or any number of objects that do not need to be purchased.”

thought better of it, however. So I planted lots of opium poppies instead. I hasten to add that I’ve no plans to do anything with my poppies except admire them—first their fleeting tissue-paper blooms, then their swelling blue-green seedpods, fat with milky alkaloid. (Unless, of course, simply walking among the poppies is enough to have an effect, as it was for Dorothy in Oz.) Unscored and so at least arguably innocent, these poppies are my stand-ins for the cannabis I cannot plant. Whenever I look at their dreamy petals, I’ll be reminded of the powers this garden has abjured in order to stay on the safe side of the law.

So I make do with this bowdlerized garden, this densely planted plot of acceptable pleasures—good things to eat, beautiful things to gaze upon—fenced around by heeded laws. If Dionysus is represented in this garden, and he surely is, it’s mainly in the flower border. I would be the last person to make light of the power of a fragrant rose to raise one’s spirits, summon memories, even, in some not merely metaphorical sense, to intoxicate.

The garden is a place of many sacraments, an arena—at once as common as any room and as special as a church—where we can go not just to witness but to enact in a ritual way our abiding ties to the natural world. Abiding, yet by now badly attenuated, for civilization seems bent on breaking or at least forgetting our connections to the earth. But in the garden the old bonds are preserved, and not merely as symbols. So we eat from the vegetable patch, and, if we’re paying attention, we’re recalled to our dependence on the sun and the rain and the everyday leaf-by-leaf alchemy we call photosynthesis. Likewise, the poultice of comfrey leaves that lifts a wasp’s sting from our skin returns us to a quasi-magic world of healing plants from which modern
medicine would cast us out. Such sacraments are so benign that few of us have any trouble embracing them, even if they do sound a faintly pagan note. I'd guess that's because we're generally willing to be reminded that our bodies, at least, remain linked in such ways to the world of plants and animals, to nature's cycles.

But what about our minds? Here we're not so sure anymore. To take a leaf or flower and use it to change our experience of consciousness suggests a very different sort of sacrament, one at odds with our loftier notions of self, not to mention civilized society. But I'm inclined to think that such a sacrament may on occasion be worthwhile just the same, if only as a check on our hubris. Plants with the power to revise our thoughts and perceptions, to provoke metaphor and wonder, challenge the cherished Judeo-Christian belief that our conscious, thinking selves somehow stand apart from nature, have achieved a kind of transcendence.

Just what happens to this flattering self-portrait if we discover that transcendence itself owes to molecules that flow through our brains and at the same time through the plants in the garden? If some of the brightest fruits of human culture are in fact rooted deeply in this black earth, with the plants and fungi? Is matter, then, still as mute as we've come to think? Does it mean that spirit too is part of nature?

There may be no older idea in the world. Friedrich Nietzsche once described Dionysian intoxication as “nature overpowering mind”—nature having her way with us. The Greeks understood that this was not something to be undertaken lightly or too often. Intoxication was a carefully circumscribed ritual for them, never a way to live, because they understood that Dionysus can make angels of us or animals, it all depends. Even so, letting nature have her way with us now and again still seems like a useful thing to do, if only to bring our abstracted upward gaze back down to Earth for a time. What a reenchantment of the world that would be, to look around and see that the plants and the trees of knowledge grow in the garden still.