

TOM SHRODER



**LSD, ECSTASY, AND
THE POWER TO HEAL**

ALSO BY TOM SHRODER
Old Souls

ACID TEST

**LSD, ECSTASY,
AND THE
POWER TO HEAL**

TOM SHRODER

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This book is dedicated to all the men and women we've left behind, wounded, on life's battlefields.

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FOREWORD

In 1975 I was a twenty-one-year-old college journalist, home on spring break in Sarasota, Florida when I noticed a blurb in the local newspaper about a charismatic hippie with a pet wolf who was building himself a spectacular house in the woods near town. I decided to go out and see it for myself. I don't remember anything about the blurb. I doubt it mentioned anything about the influence of psychedelic drugs in this project. But I am guessing that I inferred it, because while I didn't much care about techniques of home building—nor would my college-student readers—I was extremely interested in the implications of the psychedelic experience.

I'm looking at a taped-together, Xeroxed copy of the story that resulted from that visit. Still no mention of drugs, but there it is between the lines. I wrote about the philosophy of the young builder, a guy named Rick Doblin, just a year older than me. It was about trying to live authentically, guided by an inner light rather than society's preconceived ideas; consciously working to discover and create his own destiny rather than trudging along the rutted tracks set before him.

These were the kinds of notions floating around a certain subculture in those days; it was evident in the woodland home itself, with its giant, rainbow-themed, spiritually suggestive stained-glass windows. Maybe we discussed psychedelics, maybe we didn't. But they were in the air.

I myself was not entirely unfamiliar. Under the influence of the psilocybin mushrooms my friends and I had learned to pluck from cow dung in the rural fields not far from campus, then boil into tea and drink, I had seen the world—and myself—from a novel vantage point. It was like being able, for a few precious hours, to climb above your life and view it from on high, a perspective every bit as revealing as seeing a too-familiar landscape from the top of a mountain. Instead of individual cornstalks or oak trees or buildings, you saw checkerboard patterns of fields, serpentine forests following the course of a river, villages arrayed around ascending spires of churches. You saw, for once, how it all fit together.

One experience stands out in my memory, because it is something that I have carried with me, every day since, for four decades. As the drug took effect, instead of feeling the usual lift, I grew increasingly entangled by anxiety. I began to obsess about an ethical problem I was struggling with, which generalized to feelings of inadequacy in life overall and my inability to find solutions.

The more I struggled against these feelings, the weightier and more intractable they seemed. And then suddenly I had a vision: I saw myself with my arms wrapped around a boulder. I could feel its weight, almost unbearable to hold, and yet I was clinging to it. I knew that the heavy stone consisted of all my doubts and anxieties, and as I desperately clutched it to my chest, I saw in a flash that part of me *chose* to be anxious—as a way to avoid making choices and evade responsibility for them. To be free of that awful weight, all I had to do was open my arms, which I did. The stone simply dropped away.

Ever since, although it has rarely been easy, I've been able to see negative emotions, on a profound level, as a choice, and the will to let them go as something I could develop, like a muscle. The more I practiced, the better I got, and I no longer needed the mushrooms to do it.

There wasn't a moment I decided to stop doing psychedelic drugs. When I left the college

environment they became less available, and I gained more responsibilities—a job, a family, a professional reputation—all of which made any illegal activity, and the potential health risks, unacceptable. But I never lost my interest in those psychedelic experiences, or forgot their profundity and the lasting good they did me.

Ten years after graduation, I had become an editor at the *Miami Herald* Sunday magazine, *Tropic*, when I noticed a story in the Tampa newspaper about a perennial college student who was promoting the party drug Ecstasy as a breakthrough in psychotherapy. I did a double take: it was Rick Doblin, the hippie with the house in the woods, the same guy I had written about a decade earlier. I assigned a *Herald* feature writer to do a cover story on him. We headlined it: “A Timothy Leary for the ’80s.”

Twenty years passed. Now I was editor of *The Washington Post Magazine*, and once again an article that spoke to my lingering interest in the possible positive effects of psychedelics caught my eye. This time it was in the *New York Times*, about Harvard initiating a study testing the use of MDMA—Ecstasy—to treat anxiety and depression in terminal cancer patients. The man sponsoring the study: a very sophisticated-sounding Harvard Kennedy School PhD named Rick Doblin—the hippie in the woods.

I got a phone number and Rick answered. When I told him my name, he laughed. He not only remembered me and the two stories from twenty and thirty years earlier, he still had copies of them both. And just that morning, he told me, he’d held up the “Tim Leary” cover of *Tropic* at a board meeting of the Multidisciplinary Association for Psychedelic Studies (MAPS), his nonprofit organization, to demonstrate how completely he’d remade his image, from a rebellious hippie to the sponsor of cutting-edge scientific research in some of the nation’s more conservative institutions.

This time I wrote the story myself, focusing on the MAPS-sponsored research a psychiatrist named Michael Mithoefer was conducting in Charleston, South Carolina, treating with MDMA-assisted psychotherapy mostly female victims of sexual abuse. The story appeared in *The Washington Post Magazine* in November 2007, and much of it has been adapted here in chapter forty-two.

I was pleased enough with the piece as published, but I felt it barely scratched the surface, both because of rapidly accumulating developments in psychedelic research and because I sensed that the significance of any given study could not be fully assessed without a deeper understanding of the people behind the studies, not to mention the century-long struggle of Western culture to come to grips with these powerful and, in some ways, profoundly threatening drugs.

This is what I have attempted in *Acid Test*. Whatever success I have had I owe entirely to the openness and honesty of the principal characters. Those people listed in the acknowledgments have granted me access to scores of records and privileged documents and agreed to sit for what amounted to a combined total of more than a hundred hours of interviews, unflinchingly answering the most intimate and sensitive questions, revealing things that were personally painful and might very well expose them to negative judgments or significantly complicate their lives.

Their reasons for agreeing to all the above are transparent. They accepted my contention that the full and complete disclosure of all the information surrounding the use and abuse of psychedelic drugs, the history of psychedelic therapy, the motivations of the researchers, and the experiences of the subjects is the best argument for continued and extended support of rigorous and responsible investigation.

I owe a special debt to those among them who have undergone clinical trials to treat debilitating post-traumatic stress, a disorder that makes it particularly difficult and potentially painful to open up. In particular, I am indebted to Donna Kilgore, Tony Macie, and, above all, Nicholas Blackston. They all spent hours reviewing their case histories with me, leaving nothing off the record, as well as giving me permission to listen to or watch voluminous audio- and videotapes of their therapeutic sessions. It is hard to imagine a more naked vulnerability than allowing an outsider to witness hours spent delving

into your deepest, most charged and haunting intimacies explored under the powerful effect of MDMA. Yet, these people made that sacrifice willingly, for no other reason than a sense of duty. They felt the therapy benefited them and quite possibly saved their lives, and they believed sharing their stories might help make the therapy available to others.

I am moved and awed by their courage.

1.

ALBERT

(ST. ALBERT'S FIRE)

Many years later, as Albert Hofmann wrote of the discovery that made him famous, he recalled the distant May morning when he experienced a phenomenon that bizarrely foreshadowed his extraordinary career.

“There are experiences that most of us are hesitant to speak about,” he wrote, “because they do not conform to everyday reality and defy rational explanation. These are not particular external occurrences, but rather events of our inner lives, which are generally dismissed as figments of the imagination and barred from our memory. Suddenly the familiar view of our surroundings is transformed in a strange, delightful, or alarming way: it appears to us in a new light, takes on a special meaning. Such an experience can be as light and fleeting as a breath of air, or it can imprint itself deeply upon our minds.”

On this particular Monday morning, walking along a forest path near Baden, Switzerland (“I can still point to the exact spot where it occurred,” he would exult more than half a century later), what Hofmann encountered was definitely of the latter variety.

As he walked through the greening spring woodland, “all at once everything appeared in an uncommonly clear light. Was this something I had simply failed to notice before? Was I suddenly discovering the spring forest as it actually looked? It shone with the most beautiful radiance, speaking to the heart, as though it wanted to encompass me in its majesty. I was filled with an indescribable sensation of joy, oneness, and blissful security.”

He gaped, transfixed for an immeasurable moment, then watched, helpless, as the preternatural light slowly receded into mundanity. He felt spent, at once deflated and transformed.

“How could a vision that was so real and convincing, so directly and deeply felt—how could it end so soon? And how could I tell anyone about it, as my overflowing joy compelled me to do, since I knew there were no words to describe what I had seen?”

This was only the first of young Albert’s several similar encounters with the ineffable, and through them he became convinced of “the existence of a miraculous, powerful, unfathomable reality that was hidden from everyday sight.”

He felt moved to express the wonder of what he’d seen through art or poetry, but bitter attempts to do so persuaded him he was no artist, and never would be. “I was often troubled in those days,” he wrote, “knowing that I was not cut out to be a poet or artist. I assumed I would have to keep these experiences to myself, important as they were to me.”

So instead he became a chemist, working with tubes and flasks and Bunsen burners in cramped, poorly equipped, badly ventilated laboratories of the early twentieth century, using techniques that had

advanced little in a hundred years. In short, he descended into the atomistic materialism of the science of his era, far from his youthful visions, and marching ever further away.

It is great irony, then, or fate, that following this contrary path led him, purely by chance, to discover an astoundingly potent drug that did far more than convey the inexpressible experiences of his youth. It created them.

• • •

All the thirty-two-year-old Hofmann wanted to do in 1938 was synthesize a chemical compound that would stimulate the human respiratory and circulatory systems. He had gone to work for Sandoz, a Swiss chemical company, in 1929, after graduation from the University of Zurich. Sandoz, founded in 1886, had started out manufacturing dyes and, later, saccharin. There wasn't even a formal pharmaceutical department until 1917, when Professor Arthur Stoll isolated an active substance called ergotamine from ergot, a fungus found in tainted rye that had been used as a folk medicine for generations.

In its natural form and in quantity, ergot was a deadly poison and a scourge responsible for the deaths of hundreds of thousands of people over many centuries. In the year 857 in what is now Germany, a contemporary accounting of the events of the year recorded that “a great plague of swollen blisters consumed the people by a loathsome rot, so that their limbs were loosened and fell off before death.”

Historians now attribute this and similar events throughout early history to long-term exposure to infected grains, a condition known as St. Anthony's fire, after the French monastic order that devoted itself to caring for the plague's victims. Ergot was not suspected as the cause until the late seventeenth century. Eventually, ergotism's toxic effects were classified into two categories: gangrenous ergotism and convulsive ergotism. The description of the symptoms on a University of Hawaii botany website is enough to permanently put you off rye bread:

Convulsive ergotism is characterized by nervous dysfunction, where the victim is twisting and contorting their body in pain, trembling and shaking, and wryneck, a more or less fixed twisting of the neck, which seems to simulate convulsions or fits. In some cases, this is accompanied by muscle spasms, confusions, delusions and hallucinations. . . .

In gangrenous ergotism, the victim may lose parts of their extremities, such as toes, fingers, ear lobes or in more serious cases, arms and legs may be lost.

Some believe that the advent of these gruesome symptoms without a known cause, especially the convulsive symptoms—which, along with hallucinations, sometimes included mania and psychosis—led to accusations of witchcraft, followed by witch-hunting hysterias such as the famous Salem witch trials in 1692 and 1693. Studies have even correlated years of rye scarcity—suggesting an increased willingness to consume tainted rye—with years of abundant witchcraft accusations.

But in small doses, the muscle- and blood vessel-constricting properties of ergot could be useful to hasten childbirth and staunch bleeding after delivery, capabilities that had somehow been divined by alchemists and midwives and made use of for generations.

Arthur Stoll's accomplishment was to isolate the compounds in ergot that caused the constriction: ergotamine and ergobasine. In its refined form, the compound could be precisely dosed to avoid a host of side effects from other unhelpful compounds in ergot—properties that made Sandoz a lot of money and launched the pharmaceutical research and development department that hired Hofmann twelve

years later.

Within a few years researchers had determined the chemical structure of the various biologically active compounds in ergot, all of which shared a common nucleus. This chemical starting point was called lysergic acid, or, in German, *Lysergsäure*.

Hofmann developed a synthetic process to build the ergot compounds from their component chemicals. Using this method, he re-created ergot's active ingredients as well as novel but similar compounds that, based on the potency of the ergot compounds, could reasonably be expected to have medical uses.

In a sense Hofmann was playing God, combining lysergic acid with various other organic molecules just to see what happened. He created twenty-four of these lysergic acid combinations. Then he created the twenty-fifth, reacting lysergic acid with diethylamine, a derivative of ammonia. The compound was abbreviated as LSD-25 for the purposes of laboratory testing.

He had hoped for something that could stimulate circulation and respiration. But his hopes were dashed. LSD-25 did show an effect on the uterus. As Hofmann explains in his book on the discovery, *LSD: My Problem Child*, the uterine-contracting effect only amounted to 70 percent of that of ergobasine. The research report also noted in passing that the experimental animals became highly excited during testing. "The new substance, however, aroused no special interest in our pharmacologists and physicians; testing was therefore discontinued."

Hofmann went on with his ergot research and produced some very successful compounds, including a drug called Hydergine, which improved peripheral circulation and cerebral function in the elderly, and became one of Sandoz's most important products. Hydergine is still used in the treatment of dementia and Alzheimer's disease.

But for some reason, even as the years passed, Hofmann couldn't stop thinking about the apparently useless LSD-25. Maybe it was the memory of all those oddly excited animals in the test pens. Hofmann never said, beyond calling it "a peculiar presentiment—the feeling that this substance could possess properties other than those established in the first investigations."

So, five years after lysergic acid diethylamide was tossed on the ash heap of pharmaceutical history, based on nothing but his odd presentiment, Hofmann decided to synthesize it again. He would later tell intimates, "I did not discover LSD; LSD found and called me."

It was a Friday in the middle of a world war, April 16, 1943. Hofmann was in the final stage of the synthesis of just a few centigrams of the material, the part where the LSD crystallized into a salt, when he suddenly felt very strange to the point that he had to leave work and go home. When he returned to the lab the following Monday, he wrote a memo to his boss, Stoll, explaining what had happened:

I was forced to interrupt my work in the laboratory in the middle of the afternoon and proceed home, being affected by a remarkable restlessness, combined with a slight dizziness. At home I lay down and sank into a not unpleasant intoxicated-like condition, characterized by an extremely stimulated imagination. In a dreamlike state, with eyes closed (I found the daylight to be unpleasantly glaring), I perceived an uninterrupted stream of fantastic pictures, extraordinary shapes with intense, kaleidoscopic play of colors.

When he recovered, Hofmann set about trying to figure out what had so strongly affected him. In a 2006 *New York Times* interview, Hofmann said that he first suspected the fumes of a chloroform-like solvent he had been using. Now he intentionally breathed in its fumes, to no effect. It was only then

that he was forced to the conclusion that he must have somehow ingested a trace of the LSD, an idea he discounted at first because he had been very careful to avoid contamination, knowing the potential toxicity of any ergot-related compounds. The only point of access would have been through the skin of his fingertips, and the amount involved would have been so tiny that he could not imagine it could produce such a significant reaction.

Now that his intuition about LSD was showing tantalizing signs of proving justified, Hofmann decided there was only one course of action. Self-experimentation.

At 4:20 in the afternoon of April 19, without informing anyone at Sandoz except his lab assistant, Hofmann dissolved 250 millionths of a gram of lysergic acid diethylamide tartrate—the crystallized salt form of the compound—in a glass of water and drank it. He expected it to do absolutely nothing.

Hofmann was dealing with the LSD as if it might be deadly poison. That's why he had begun his tests with such an infinitesimal dose, a thousand times less than the active dose of any other psychically active compound he knew of. He had planned to increase the dosage by tiny increments until he got the first inkling of a reaction, expecting it to take many dose increases before that happened.

But just forty minutes after that initial dose, he wrote the one and only entry in his lab journal:

17:00: Beginning dizziness, feeling of anxiety, visual distortions, symptoms of paralysis, desire to laugh.

"I was able to write the last words only with great effort," he wrote in *My Problem Child*. "I had to struggle to speak intelligibly."

Hofmann asked his lab assistant to escort him home, which wasn't as easy as it might have been. Because of wartime restriction on automobile use, both men were on bicycles. On what must have been an extraordinarily adventurous bike ride, Hofmann felt his condition take a threatening turn.

"Everything in my field of vision wavered and was distorted as if seen in a curved mirror. I also had the sensation of being unable to move from the spot. Nevertheless, my assistant later told me that we had traveled very rapidly. Finally, we arrived at home safe and sound, and I was just barely capable of asking my companion to summon our family doctor and request milk from the neighbors."

The powerful effects were as frightening as they had been unexpected. Hofmann had no idea how the experience might play out in the next few hours, and beyond. For all he knew, the drug might permanently damage his psyche. Perhaps it might even physically injure or kill him. These fears were what prompted him to request the milk, a nonspecific palliative for a range of toxic substances. The hubris of what he had done in testing this potent drug on himself filled him with anxiety and regret. He would only realize later how important that fearful mind-set would be in shaping the nature of his experience, which he described compellingly in his book:

The dizziness and sensation of fainting became so strong at times that I could no longer hold myself erect, and had to lie down on a sofa. . . . Everything in the room spun around, and the familiar objects and pieces of furniture assumed grotesque, threatening forms. They were in continuous motion, animated, as if driven by an inner restlessness. The lady next door, whom I scarcely recognized, brought me milk—in the course of the evening I drank more than two liters. She was no longer Mrs. R., but rather a malevolent, insidious witch with a colored mask. . . . Every exertion of my will, every attempt to put an end to the disintegration of the outer world and the dissolution of my ego, seemed to be

~~wasted effort. A demon had invaded me, had taken possession of my body, mind, and soul. . . . I was seized by the dreadful fear of going insane. I was taken to another world, another place, another time. My body seemed to be without sensation, lifeless, strange. Was I dying? . . . Another reflection took shape, an idea full of bitter irony: if I was now forced to leave this world prematurely, it was because of this lysergic acid diethylamide that I myself had brought forth into the world.~~

Hofmann wasn't dying. In fact, when the doctor arrived, he detected nothing more alarming than dilated pupils. Blood pressure, respiration, pulse were all completely normal. The doctor left his bag shut: no medications were required. He simply put Hofmann to bed and waited by his side. Hofmann began to come to himself.

His account continued:

The horror softened and gave way to a feeling of good fortune and gratitude, the more normal perceptions and thoughts returned, and I became more confident that the danger of insanity was conclusively past.

Now, little by little, I could begin to enjoy the unprecedented colors and plays of shapes that persisted behind my closed eyes. Kaleidoscopic, fantastic images surged in on me. . . .

By the time his wife arrived home, Hofmann was able to speak coherently about what had happened to him. The next morning he wrote:

Everything glistened and sparkled in a fresh light. The world was as if newly created. All my senses vibrated in a condition of highest sensitivity, which persisted for the entire day.

As remarkable as his experience had been, in the aftermath it struck Hofmann that perhaps the most remarkable thing of all was that, despite the extreme intoxication he had experienced, he could remember every detail of it with, one might say, acid-etched clarity.

Hofmann sent his report to Stoll the following day and copied Ernst Rothlin, head of the Sandoz pharmacological department. Both men were skeptical that such a small quantity of the drug could have produced the outlandish result Hofmann claimed.

“Are you certain you made no mistake in the weighing? Is the stated dose really correct?” Stoll asked.

Rothlin's skepticism exceeded even Stoll's.

In a 1976 interview with *High Times*, Hofmann said Rothlin insisted that he had exaggerated the drug's effect. “[Rothlin] claimed he had a strong will and could suppress the effects of drugs. But after he took 60 micrograms—one quarter of the dose I had taken earlier—he was convinced. I had to laugh as he described his fantastic visions.”

Now it was clear that a remarkable discovery had been made. However, Hofmann did not yet see a clear connection between his frightening experience on what would become known as “Bicycle Day” and his transcendent moments as a child. That would come later.

First the drug had to be tested extensively on animals to determine any acutely toxic effects that Hofmann had merely been lucky to survive. Animal tests would eventually provide some curious

results. Mice given LSD moved erratically and showed “alterations in licking behavior.” Cats’ hair stood on end and they salivated, indications they were having hallucinations that were threatening or enticing. When researchers introduced mice into the cats’ cages, instead of attacking, the felines would ignore the rodents’ intrusion or sometimes even appear frightened by them. Dosed chimpanzees did not show any obvious signs of being affected, but the normal chimps around them tended to become extremely upset, which Hofmann attributed to the test animals’ failure to maintain social norms perceptible only to the chimps.

Aquarium fish swam oddly, and spiders altered web-building patterns. At low doses, Hofmann noted, “the webs were even better proportioned and more exactly built than normally: however, with higher doses, the webs were badly and rudimentarily made.”

The salient fact was this: none of the animals in the tests seemed to suffer acute harm at the active dose, and the lethal dose was a hundred times higher than what was necessary for psychic effect, leaving a wide safety margin.

Now that he was reassured that LSD wouldn’t kill him or destroy his brain, Hofmann’s curiosity about his own experience only intensified. He decided to continue his LSD research informally, “in the friendly and private company of two good friends of mine.

“I did this,” he later wrote, “in order to investigate the influence of the surroundings, of the outer and inner conditions on the LSD experience. These experiments showed me the enormous impact of— to use modern terms—set and setting on the content and character of the experience.”

With a mind-set free of fear, in aesthetically pleasing surroundings, and supported by friends, the LSD experiences did not mirror insanity, as did his initial “bum trip,” as much as they re-created those luminous, visionary moments of his past.

“In some of my psychedelic experiences I had a feeling of ecstatic love and unity with all creatures in the universe,” Hofmann said in the *High Times* interview. “To have had such an experience of absolute beatitude means an enrichment of our life.”

But he also learned something else: controlling for set and setting had its limits. “In spite of a good mood at the beginning of a session—positive expectations, beautiful surroundings and sympathetic company—I once fell into a terrible depression. This unpredictability of effects is the major danger of LSD.”

Both those particular lessons—the possible transcendence of the LSD experience and its potential to threaten—would reverberate through the next half century.

NICHOLAS

(A SIGN)

Nicholas Blackston was only seventeen when he divined his future. The omen that would seal his fate appeared as he sat, crying, on a creek bank in the woods behind his parents' home in semirural Paducah, Kentucky. He'd come there, as he so often did, to pray for God's guidance. Nick had always felt he had an open communication with God, a closeness that was the negative image of the separation he felt from other kids, and even his parents, who loved him but couldn't fully understand him. His problem had a primal cause: he saw things others did not. As a child going to sleep in the tiny room he shared with his sister, Jessica, in the family's trailer, he watched as small, fuzzy dots appeared above his Lego table, then flowed toward him like water, undulating closer until they engulfed his face with an animate presence that made him tingle and fall into morning. By day a stuffed animal might flip across his bed of its own accord, or the hands on his alarm clock would start spinning. He often had the eerie feeling something shadowy followed behind him. Sometimes the sense was so strong he'd whip around, hoping to catch full sight of whatever it was, but he never moved fast enough.

When he was four or five, sleeping on the couch with his mother, his head to her feet, Nick woke in the middle of the night to discover a demonic figure looming over his face, staring. Suffocated with terror, it slowly dawned on him that his Teenage Mutant Ninja Turtles toy had somehow morphed into this malevolent, breathing thing. He screamed. "I actually heard myself scream, so I know that I was awake," Nick says. "And as my mom shot up, I saw it go back to its original shape, and I tried to explain to her—and I told her, and of course, she just comforted me and told me, 'You were having a nightmare.'"

But Nick thought he knew the difference between a dream experience and a real one. "That's what frightened me about some things sometimes. You can tell when something's just the wind, you can tell when it's something else. The fear that comes from it is just from seeing something that's not supposed to be there."

Nick's dad, Charles Blackston, a handyman and volunteer fireman, was a loving man, but he focused most of his affection on his wife, Jean, a lunch lady at the local school. Nick had a vague sense that his father had experienced troubling things in his emergency work over the years, but he never talked about any of it. He always brought his radio with him when the family went out, and Nick got embarrassed when it went off in Applebee's and his father ran off. The rest of the family would have to grab whatever they could from their plates and catch up.

When Nick had his own emergencies concerning things that weren't supposed to be, it was his mother he told. She responded with loving sympathy . . . and incomprehension. If it was a stage, Nick

never completely grew out of it, which complicated his childhood and adolescence. His sister could be sympathetic; once, when he saw a self-propelled stuffed animal, she said she saw it too. But when Nick made the mistake of mentioning any of his puzzling perceptions to his peers, he paid the price of instant and total ridicule. In a fourth-grade world culture class, the teacher decided to acquaint the children with the concept of meditation. She invited them to sit on the floor, close their eyes, and see what they might see. Nicholas found himself looking at the world from the void of space. He felt the nothingness surrounding him and saw the lovely living presence of the distant globe so vividly that, in his excitement, he forgot his caution and blurted out his vision. The classroom broke into a gauntlet of ridicule, and even the teacher chuckled derisively. Nick resolved to shut up from then on and concentrate on fitting in.

It didn't work. Always uncertain of the right thing to say, he couldn't join in convincingly. At recess in elementary school, while the other kids ran around playing, he'd lie on his back watching clouds float by. Sometimes he'd zone out and find himself staring fixedly at the leaves on a low branch, thinking how human the veins looked. And then the bell would be ringing and all the others would be disappearing into the school as he ran to catch up. He always seemed to be trying to catch up.

He felt slightly embarrassed that he lived in a trailer and didn't have things other kids had, like store-bought Halloween costumes. One year his mother sent him to school with a green sweatshirt, green sweatpants, and a gorilla mask for the Halloween parade. He stood in the back of the line, holding the mask instead of wearing it. This was a parade all right. A parade of shame.

His discomfort and seclusion drew mockery and taunts at school, where his mother was the beloved lunchroom lady and he was nothing. It left him depressed and angry, which made him even more reclusive for fear of what his repressed rage might lead him to do. When he got home, he would build elaborate Lego villages, alternative universes where he placed himself, imagining all kinds of scenarios that had in common a central fact: he wasn't an outcast. He wasn't powerless.

In sixth grade Nick got assigned to a bus with the high school kids. His vulnerability blinked in neon. A big redheaded kid made Nick a project. As the redheaded kid walked past down the center aisle, he'd grab Nick's head with his two meaty hands and bounce it off the window. Nick choked down the tears but said nothing, rage boiling inside. When he got home he'd tell his mom he'd had a good day. The only thing worse than knowing he had to face the redheaded kid again the next morning was the thought of his parents getting involved.

That same year, 1997, his dad got a good-paying job as a fireman at the plutonium enrichment plant outside of town, and finally could afford to build a house. Nick got his own room, but somehow even that turned out wrong. Being physically separated from Jessica, who had been not just a sister but his closest friend, only increased his isolation. After a day of getting picked on or bullied, he'd come home and blow up on her, for which he hated himself.

One afternoon when Nick was twelve, he stood on his elevated back porch, overlooking a fourteen-foot drop. As he peered over, his thoughts raced in an unbreakable loop. He could see no escape—no escape from seeing things, no escape from ridicule, no way he was ever going to fit in. He was defective, and the only way to solve the problem was to turn off the lights. He walked to the edge and looked down, trying to work it out. He imagined diving headfirst, hands at his sides. As soon as his head hit the hard ground, he was pretty sure his neck would snap. Lights out.

So now he had it figured, but still he stood there. He began to sing "Silent Night," his voice barely above a hum, but rising as he reached the chorus, which he repeated, over and over, until he was almost shouting:

"Sleep in heavenly peace

And then he did it, launched himself over the ledge.

But even in midair, something in him refused to cooperate. He landed on his feet, uninjured, but scared now at what he'd almost done.

When he told his mother, her face went white as marble. He could see the hurt in her eyes. He'd never wanted to hurt her.

He agreed to see a Christian counselor. The man seemed nice enough, but Nick was too ashamed to tell him the prime cause, all those things he saw that couldn't be there. So he told the counselor the result but not the cause. What he said was that he felt another person inside of him, filled with anger and set to explode. He'd built up so much anger, he'd desensitized himself to even gruesome thoughts. He'd imagine falling on the bullies who tormented him and savagely beating their faces until they came apart in pulpy masses of blood and bone. In his imagination he felt no remorse. He felt nothing at all. It scared him, and was the real reason he took the abuse and never stood up for himself. Once he started to fight back, he feared that he wouldn't be able to stop himself, that he might end up hurting someone—badly.

He had a few more counseling sessions, which his parents attended. He still kept his secret, but he got a punching bag out of it, “to blow off steam.” When the counselor asked if there was anything that made him feel calmer, Nick said yes: going out into the woods. So the counselor said, “Go out in the woods when you have those feelings and just yell at the top of your lungs. Let these feelings out and this anger out in a constructive way, without hurting yourself or anyone else.”

Nick did as the counselor suggested and found he could really bellow when he knew nobody could hear him. He yelled until his voice bounced off the trees. That helped. He felt connected to nature in the woods, as connected as he felt disconnected to the world of boys and men. So he yelled, and when he was calmer, he prayed.

Things got a little easier in high school. The weird events he'd witnessed as a child faded away, leaving only a feeling that he remained somehow different. Nick joined the marching band, found friends, even had a girlfriend. He discovered a passion: paintball. He loved the thrill of the hunt, the stealth, the teamwork it required to outflank and outmaneuver his adversaries. He loved the guns. Paintball became his obsession. He persuaded his grandfather to let him build a paintball field down the wooded bottoms of his 240-acre farm. Nick wrestled old tractor tires, shipping flats, and pieces of this and that into position on a football field-size stretch alongside a creek, and his friends swarmed around the obstacles, trying to hunt one another down.

As his senior year approached, other kids were thinking about college. Nick had assumed he would go to college, too, possibly study to be a meteorologist. He loved watching the clouds blow past and the wind swirl the trees and the thunderheads rise up above the river. Maybe he could turn weather watching into a career.

But recently another thought had come into his mind and wouldn't leave: joining the military. He'd been fifteen when the jets smashed into the Twin Towers, the Pentagon, and a field in Pennsylvania, and he was well aware there had been fighting and dying ever since.

But he felt drawn to the idea. It wasn't just his boyish love of playing war with his paintball weapons—the one social activity he participated in with passion. He sensed, without quite being able to articulate it, that the military offered a built-in place to belong, to bond with a band of brothers as they all struggled to adapt in a completely foreign environment. He could reset the game and begin again. Still, he hesitated. Would he be giving up too much, all those things young people were supposed to want? He just didn't know.

So Nick told all this to God; he said, “You know what, if You have something better planned for

me, let me know. But if You want me to go to the Marine Corps, then give me a sign.”

He waited. The stream slithered beneath his feet, licking at the root-riddled banks. To his left, a narrow path cut through the undergrowth where deer would step down and drink from the water. He could always tell the paths that the animals used, worn from feet following one after another, year after year. It was a nice, clean path. To his right, the creek was a different story. It swerved sharply, cutting steeply into the bank, exposing tree roots and large rocks that had in turn been covered with vines and brambles. He said, “Okay, this nice, clean path, is the path of going to college and becoming a meteorologist. And that over there with the brambles is the Marine Corps.”

And he waited some more. The sky yawned, still and void above the trees. There wasn’t so much as a ripple on the water or a puff of wind. Nothing happened. Nick felt sucker punched. God had always been so responsive to him. Now, in what felt like a critical moment, he had been abandoned. The one connection he’d felt so certain of had failed. He broke down and began to cry.

As the world shrank to the frustration pouring from his chest, an odd feeling broke through. He stopped in mid-sob and looked up. Despite the complete absence of any breeze, a dead leaf had detached itself from one of the still-green midsummer trees and fluttered down. It passed over the deer path and danced down to the rough, vine-tangled part of the creek. He stood up, instantly certain that his choice had been made. He gave a little shout, like a battle cry, and plunged down through the cold creek and up into the scrambling vines, as if to confirm his decision to take the rough route. The next day he ran home and, still panting, told his mother, “I’m gonna join the Marine Corps.”

One day he would wonder why it hadn’t occurred to him that a dead leaf might have been not a beacon but a warning.

• • •

Nicholas took the Armed Services Vocational Aptitude Battery and scored high enough to have a lot of choices about how he would serve, but when the recruiter briefed him on all the specialties he could request—occupations that might have a future in the civilian world—Nick shook his head. “I just want to be infantry,” he said. He wanted a gun in his hand, not a welding torch. No matter what the recruiter said, Nicholas wouldn’t yield. When the day came for Nick’s papers to be signed by his parents, the recruiter appeared at his front door with the sheaf in his hand. Nick’s mother invited him in, offering him the good chair by the fireplace. When she reached for the stack of paper, the recruiter pulled it back. Maybe he was making one last attempt at getting this bright young boy to change his mind and take the sane option. Maybe he just couldn’t stand knowing what he knew—and what Nicholas would learn only too soon.

“You know what your son wants to do, right?” the recruiter said.

“Yeah,” she said, “he wants to be in the infantry.”

The recruiter stared at her for a moment. “Do you know what that means?”

“Yes,” she said, her voice breaking, her full, still-youthful face quivering. “He’s gonna be on the front lines.”

“No,” the recruiter said. “Your son’s gonna be a bullet sponge.”

3.

WERNER AND STAN

(THE MAELSTROM OF POE)

Not long after Albert Hofmann became the first human to ingest LSD, Sandoz delivered a cache of the drug they would trademark as Delysid to a Swiss psychiatrist, Werner Stoll, the son of Hofmann's boss, for human testing. The younger Stoll's test subjects would include both healthy volunteers and mental patients. Stoll even took it himself and reported a staggering experience that sounded something like riding a roller coaster through bursting fireworks. He went from euphoria to depression and back several times. At one point, he said, "I felt myself one with all romanticists and dreamers, saw the maelstrom of Poe. . . . Often I seemed to stand at the pinnacle of artistic experience; I luxuriated in the colors of the altar of Isenham, and knew the euphoria and exultation of an artistic vision."

At another, he reported, "I was depressed and thought with interest of the possibility of suicide. With some terror I apprehended that such thoughts were remarkably familiar to me. It seemed singularly self-evident that a depressed person commits suicide. . . ."

Here, in spades, was the LSD duality that Hofmann had discovered. In fact, Stoll reportedly told other researchers in personal communications that one of the subjects of his study, given the drug without her knowledge, committed suicide shortly thereafter. "The devastating effects of a complete inexplicable psychic disruption were too much for her," one researcher says Stoll told him.

If true, no mention of it was made in his formal report on the trial results, which noted primarily the ways in which LSD prompted something like a temporary insanity in the healthy subjects given the drug. He concluded that the new drug might be useful in the study of psychosis, which had proven so resistant to treatment and difficult to understand. As an aside—interesting, considering the potency of his own experience—he suggested that mental health professionals might find it useful to spend a few hours inside the world of the psychotic by taking the drug themselves.

The bizarre effects and awesome power of LSD provoked a sensation in the scientific world when Stoll's study was published in 1947. Sandoz sent samples of LSD to psychiatric research institutes, university departments, and individual therapists, asking them if they would be interested in experimenting with the new substance.

One of these packages arrived at the school of medicine of Charles University in Prague, where a twenty-three-year-old medical student named Stanislav Grof was assigned to babysit the study subjects for the six to eight hours during which they would be under the influence.

"I was fascinated by what I saw and heard and was eager to volunteer for a session myself," Grof wrote of the experience. "Unfortunately, to my great dismay, the faculty board decided that students should not be used as experimental subjects."

The moment Grof was no longer a student, immediately after graduation, he volunteered for an LSD study. He wasn't disappointed. One thing became immediately apparent: this was no mere temporary insanity. As he recalled in a 1990 *Yoga Journal* interview, "I couldn't believe how much I learned about my psyche in those few hours. . . . The sheer intensity of the array of emotions I felt simply amazed me. . . . I was hit by a radiance that seemed comparable to the epicenter of a nuclear explosion, or perhaps the light of supernatural brilliance said in Oriental scriptures to appear to us at the moment of death. This thunderbolt catapulted me out of my body. First I lost my awareness of my immediate surroundings, then the psychiatric clinic, then Prague, and finally the planet. At an inconceivable speed my consciousness expanded to cosmic dimensions. I experienced the Big Bang, passed through black holes and white holes in the universe, identified with exploding supernovas, and witnessed many other strange phenomena that seemed to be pulsars, quasars, and other amazing cosmic events." Later, he wrote, "I was able to see the irony and paradox of the situation. The divine manifested itself and took me over in a modern scientific laboratory in the middle of a scientific experiment conducted in a communist country with a substance produced in the test tube of a 20th-century chemist."

He would later write that although the LSD effects "lasted only a few hours—and its most significant part only about ten minutes—it resulted in a profound personal transformation and spiritual awakening and sent me professionally on a radically different course than the one for which I had been trained and prepared."

Grof's particular trajectory—a singular focus on the transformation he had experienced in his initial exposure to a radically different kind of consciousness—would first shape the therapeutic movement Hofmann's discovery spawned, then sustain it through dormant decades, long after scientific research into psychedelics crashed and burned.

But that's getting ahead of the story.

4.

NICHOLAS

(WHAT MAKES GRASS GROW)

As the bus to boot camp passed through the semitropical marshes surrounding Parris Island, the uniformed drill instructors ordered all the teenagers in their jeans and T-shirts to put their heads between their knees NOW. Nick did as he was told, and as he stared at the vinyl seat cover, he felt the bus lurch to a stop with a squeal of brakes. Nick, excited, nervous, about to start a new life, heard the doors open, then the unmistakable sound of boots stomping down the aisle. “PUT YOUR HEAD BACK DOWN, MAGGOT!” boomed a voice like a nightstick. “Your ass is MINE now. When I tell you something you will respond with ‘Yessir’ or ‘Nosir’ after everything I say. I JUST SAID SOMETHING!”

Soon Nick stood on the yellow footprints in front of the processing center—the same yellow footprints, he was told, in which thousands of Marines had stood before him. “You are now aboard Marine Corps Recruit Depot, Parris Island, South Carolina, and you have just taken the first step toward becoming a member of the world’s finest fighting force, the United States Marine Corps.”

It was surreal, giddy, scary. In short order his head was shaved and his feet inspected for flatness—they still did that! They stripped him to his underwear, poked him with needles, pumped him full of serums. He was tested and equipped and assigned to a barracks.

As Nick lay on his barely cushioned rack, he could sight above the new boots stiff on his feet and see the bridge leading off the island on which he was, for all practical purposes, a prisoner of the U.S. government. Behind him was the parade deck where he’d graduate, if he was lucky, in thirteen weeks.

He thrived. Sure, the physical stuff was tough. But even though he hadn’t had enough social confidence to play organized sports, he’d always excelled at the physical fitness tests in gym, and that put him ahead of the game at boot camp. They ran *everywhere*, climbed, crawled, did push-ups until they puked. But he learned that you could puke, wipe your mouth, and keep on going—that when his muscles failed, he could do push-ups with his heart. This is what he now understood the drill instructors were trying to impart: his built-in limits were a myth. He had the capacity to endure and accomplish far more than he had ever imagined.

His favorite form of PT torture was the obstacle course. They bellied through mud pits, vaulted walls, crawled under rolls of barbed wire, hauled themselves up ropes, all while the drill instructors screamed in their faces. At least on Parris Island, unlike in high school, all the obstacles were visible and he and his fellow boots all faced them equally, together.

Nicholas was smart enough to comprehend immediately what he needed to do to survive: no more and no less than exactly what he was told. He discovered the relief of no longer thinking for himself and giving over entirely to the higher power of the drill instructor, no matter how difficult or

debilitating the demands. Besides, quitting was simply not possible. You could die but you could not quit.

He was annoyed by the few in his platoon who didn't get that, watching them step into shit again and again, blundering into snares he mostly avoided. Nick could count on one hand the times he had been called on the quarterdeck for punishment. Sometimes they made you do push-ups, but sometimes they just messed with your head, screaming nonsensical orders rapid-fire—*"Take off your left shoe. Unlace it. Put the laces in your pocket. Put the left shoe on your right foot, your left hand in your right pocket"*—until you followed the orders without even thinking about whether they made sense or not, without thinking at all. He only screwed up seriously one time, when his platoon got called to formation, which meant everyone had to have their footlockers stowed and be standing at attention before the drill instructor counted down. In his haste he fumbled his junk and couldn't get the lock snapped shut in time. He twisted it into the closed position and lurched into line.

That's when he heard, or thought he heard—could *swear* he had heard—the drill sergeant say, "If your shit's not fixed, go fix it now."

Nick turned back to snap the lock shut. Nobody else moved. In the shocked silence, he realized he'd just committed a high crime. He'd broken formation. Before he could even gasp he felt powerful hands grip his uniform, lifting him off the floor. His head bounced off the racks; spit flew in his face. As soon as the storm had passed, his rack mate was whispering, "You okay?"

"That was awesome," Nick responded, surprised to discover he'd found it more thrilling than terrifying.

The Marine Corps was shaping up to be all that he had hoped.

Nick bonded with his fellow Marines. He became the Catholic lay reader in Sunday services, which earned him the nickname Reverend. Time and again the men in his platoon learned that they had to depend on one another, work as a team. If one of them failed, all paid the price. When someone collapsed doing push-ups, the rest did them for him. If someone missed formation, they all were punished. They slept together, sweated together, chanted together, learned to kill together. The martial arts instruction was basic and brutal. No elegant moves, no grace points: it was about ending the fight quickly and permanently. A part of him he'd always feared, the part perpetually on the brink of explosion, stirred. It blew when one of the guys who didn't get the program, a kid they called Ford, refused to wake up five minutes early with the rest of the platoon. Their DI had granted them leave to get up early before he came through yelling, "LIGHTS! LIGHTS! LIGHTS!"—which meant they could be first in line for chow, which meant they'd actually have time to eat. But Ford just rolled over in his bunk, and even when the guy standing fire watch got in his face, Ford only kicked out of bed grudgingly, dragging his feet and bitching and whining instead of getting his shit together.

Nick felt a flare of rage and found himself on the ground, on top of Ford, his hands on the boy's throat as Ford sputtered, "You're fucking crazy!" and Nick's buddy, Winter, was pulling him off. "Whoa, Rev," Winter was saying. "You just choked someone out!"

Just a scuffle no drill instructors noticed, and then they were all on the drill field as usual.

"What makes grass grow?" the DI bellowed. They all knew the answer, and barked it in unison: "Blood, sir, blood!"

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