

ALTERED STATES

Self-experiments in chemistry.

BY OLIVER SACKS

To live on a day-to-day basis is insufficient for human beings; we need to transcend, transport, escape; we need meaning, understanding, and explanation; we need to see over-all patterns in our lives. We need hope, the sense of a future. And we need freedom (or, at least, the illusion of freedom) to get beyond ourselves, whether with telescopes and microscopes and our ever-burgeoning technology, or in states of mind that allow us to travel to other worlds, to rise above our immediate surroundings.

We may seek, too, a relaxing of inhibitions that makes it easier to bond with each other, or transports that make our consciousness of time and mortality easier to bear. We seek a holiday from our inner and outer restrictions, a more intense sense of the here and now, the beauty and value of the world we live in.

Many of us find Wordsworthian "intimations of immortality" in nature, art, creative thinking, or religion; some people can reach transcendent states through meditation or similar trance-inducing techniques, or through prayer and spiritual exercises. But drugs offer a shortcut; they promise transcendence on demand. These shortcuts are possible because certain chemicals can directly stimulate many complex brain functions.

Every culture has found such chemical means of transcendence, and at some point the use of such intoxicants becomes institutionalized at a magical or sacramental level. The sacramental use of psychoactive plant substances has a long history and continues to the present day in various shamanic and religious rites around the world.

At a humbler level, drugs are used not so much to illuminate or expand or concentrate the mind but for the sense of pleasure and euphoria they can provide. Even the pioneer Mormons, forbidden to use tea or coffee, on their long march to

Utah found by the roadside a simple herb, Mormon tea, whose infusions refreshed and stimulated the weary pilgrims. This was ephedra, which contains ephedrine, chemically and pharmacologically akin to the amphetamines.

Many people experiment with drugs, hallucinogenic and otherwise, in their teen-age or college years. I did not try them until I was thirty and a neurology resident. This long virginity was not due to lack of interest. I had read the great classics—De Quincey's "Confessions of an English Opium Eater" and Baudelaire's "Artificial Paradises"—at school. I read about the French writer Théophile Gautier, who in 1845 paid a visit to the recently founded Club des Hashischins, in a quiet corner of the Île Saint-Louis. Hashish, in the form of a greenish paste, had recently been introduced from Algeria and was all the rage in Paris. At the salon, Gautier consumed a substantial piece of hash. At first, he felt nothing out of the ordinary, but soon, he wrote, "everything seemed larger, richer, more splendid," and then more specific changes occurred:

An enigmatic personage suddenly appeared before me. . . . His nose was bent like the beak of a bird, his green eyes, which he wiped frequently with a large handkerchief, were encircled with three brown rings, and caught in the knot of a high white starched collar was a visiting card which read: *Daucus-Carota, du Pot d'or*. . . . Little by little the salon was filled with extraordinary figures, such as are found only in the etchings of Callot or the aquatints of Goya; a pêle-mêle of rags and tatters, bestial and human shapes.

By the eighteen-nineties, Westerners were also beginning to sample mescal, or peyote, previously used only as a sacrament in certain Native American traditions. As a freshman at Oxford, free to roam the shelves of the Radcliffe Science Library, I read the first published accounts of mescal intoxication, including those of Havelock Ellis and Silas Weir Mitchell. They were primarily medical men, not

just literary ones, and this seemed to lend an extra weight and credibility to their descriptions. I was captivated by Mitchell's dry tone and his nonchalance about taking what was then an unknown drug with unknown effects.

At one point, Mitchell wrote in an 1896 article for the *British Medical Journal*, he took a fair portion of an extract made from mescal buttons and followed it up with an additional dose. Although he noted that his face was flushed, his pupils were dilated, and he had "a tendency to talk, and now and then . . . misplaced a word," he nevertheless went out on house calls and saw several patients. Afterward, following three further doses, he lay down quietly in a dark room, whereupon he experienced "an enchanted two hours," full of chromatic effects:

Delicate floating films of colour—usually delightful neutral purples and pinks. These came and went—now here, now there. Then an abrupt rush of countless points of white light swept across the field of view, as if the unseen millions of the Milky Way were to flow a sparkling river before the eye.

Unlike Mitchell, who had focussed on colored, geometric hallucinations, which he compared in part to those of migraine, Aldous Huxley, writing of mescaline in the nineteen-fifties, focussed on the transfiguration of the visual world, its investment with luminous, divine beauty and significance. He compared such drug experiences to those of great visionaries and artists, though also to the psychotic experiences of some schizophrenics. Both genius and madness, Huxley hinted, lay in these extreme states of mind—a thought not so different from those expressed by De Quincey, Coleridge, and Baudelaire in relation to their own ambiguous experiences with opium and hashish (and explored at length in Moreau's 1845 book "Hashish and Mental Illness"). I read Huxley's "The Doors of Perception" and "Heaven and Hell" when they came out, in the nineteen-fifties, and I was especially

excited by his speaking of the geography of the imagination and its ultimate realm—the “antipodes of the mind.”

I had done a great deal of reading, but had no experiences of my own with such drugs until 1953, when my childhood friend Eric Korn came up to Oxford. We read excitedly about Albert Hofmann’s discovery of LSD, and we ordered fifty micrograms of it from the manufacturer in Switzerland (it was still legal in the mid-fifties). Solemnly, even sacramentally, we divided it and took twenty-five micrograms each—not knowing what splendors or horrors awaited us—but, sadly, it had absolutely no effect on either of us. (We should have ordered five hundred micrograms, not fifty.)

By the time I qualified as a doctor, at the end of 1958, I knew I wanted to be a neurologist, to know how the brain embodied consciousness and self and to understand its amazing powers of perception, imagery, memory, and hallucination. A new orientation was entering neurology and psychiatry at that time; it was the opening of a neurochemical age, with a glimpse of the range of chemical agents, neurotransmitters, which allowed nerve cells and different parts of the nervous system to communicate with one another. In the nineteen-fifties and sixties, discoveries were coming from all directions, though it was far from clear how they fitted together. It had been found, for in-

stance, that the parkinsonian brain was low in dopamine, and that giving a dopamine precursor, L-dopa, could alleviate the symptoms of Parkinson’s disease; while tranquilizers, introduced in the early nineteen-fifties, could depress dopamine and cause a sort of chemical parkinsonism. For about a century, the staple medication for parkinsonism had been anticholinergic drugs. How did the dopamine and the acetylcholine systems interact? Why did opiates—or cannabis—have such strong effects? Did the brain have special opiate receptors and make opioids of its own? Was there a similar mechanism for cannabis receptors and cannabinoids? Why was LSD so enormously potent? Were all its effects explicable in terms of altering the serotonin in the brain? What transmitter systems governed wake-sleep cycles, and what might be the neurochemical background of dreams or hallucinations?

Starting a neurology residency in 1962, I found the atmosphere heady with such questions. Neurochemistry was plainly “in,” and so—dangerously, seductively, especially in California, where I was studying—were the drugs themselves.

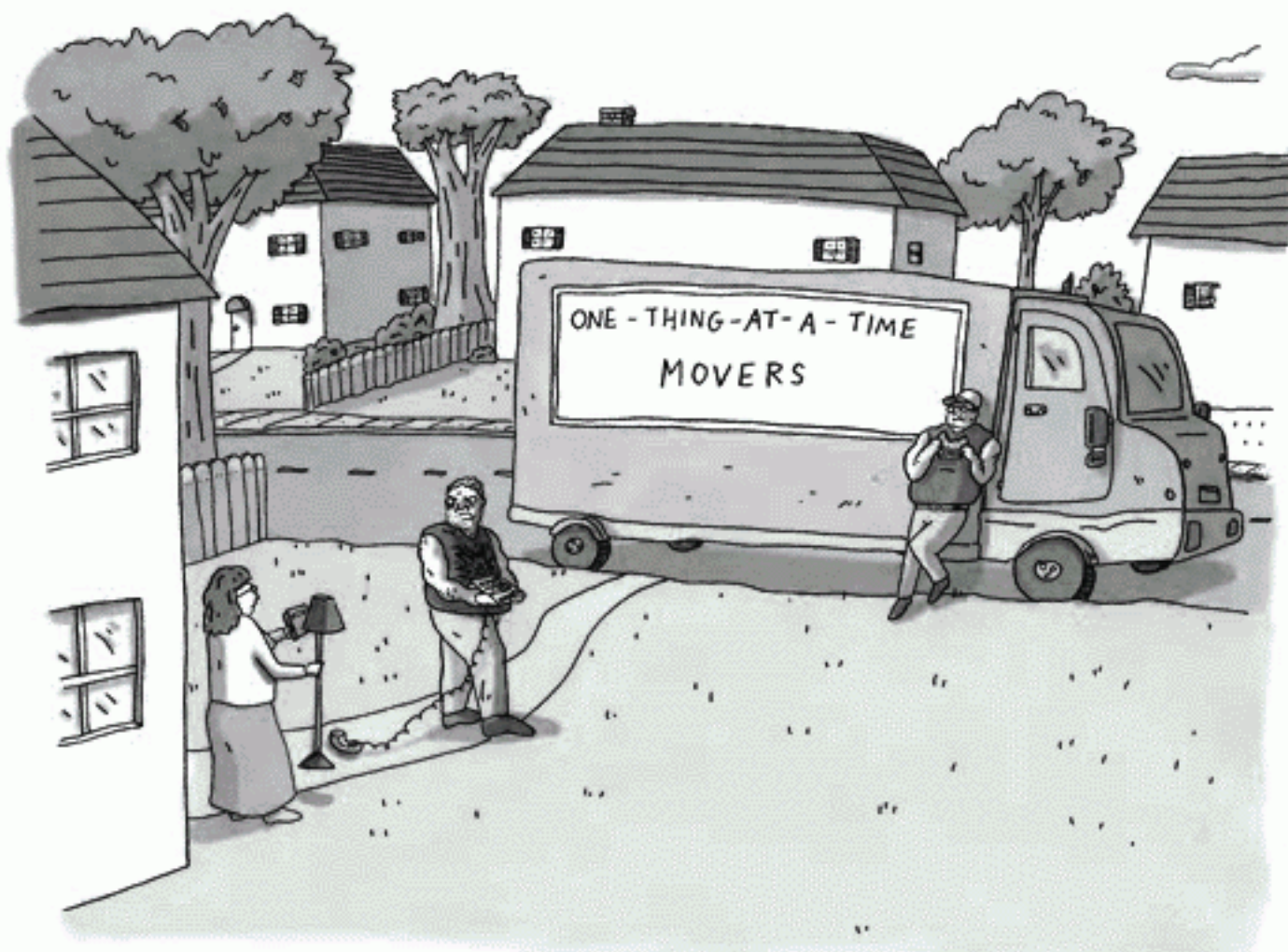
I started with cannabis. A friend in Topanga Canyon, where I lived at the time, offered me a joint; I took two puffs and was transfixed by what happened then. I gazed at my hand, and it seemed to fill my visual field, getting larger and

larger while at the same time moving away from me. Finally, it seemed to me, I could see a hand stretched across the universe, light-years or parsecs in length. It still looked like a living, human hand, yet this cosmic hand somehow also seemed like the hand of God. My first pot experience was marked by a mixture of the neurological and the divine.

On the West Coast in the early nineteen-sixties, LSD and morning-glory seeds were readily available, so I sampled those, too. “But if you want a really far-out experience,” my friends on Muscle Beach told me, “try Artane.” I found this surprising, for I knew that Artane, a synthetic drug allied to belladonna, was used in modest doses (two or three tablets a day) for the treatment of Parkinson’s disease, and that such drugs, in large quantities, could cause a delirium. (Such deliriums have long been observed with accidental ingestion of plants like deadly nightshade, thornapple, and black henbane.) But would a delirium be fun? Or informative? Would one be in a position to observe the aberrant functioning of one’s brain—to appreciate its wonder? “Go on,” my friends urged. “Just take twenty of them—you’ll still be in partial control.”

So one Sunday morning I counted out twenty pills, swallowed them with a mouthful of water, and sat down to await the effect. Would the world be transformed, newborn, as Huxley described in “The Doors of Perception,” and as I myself had experienced with mescaline and LSD? Would there be waves of delicious, voluptuous feeling? Would there be anxiety, disorganization, paranoia? I was prepared for all of these, but none of them occurred. I had a dry mouth and large pupils, and found it difficult to read, but that was all. There were no psychic effects whatever—most disappointing. I did not know exactly what I expected, but I expected something.

I was in the kitchen, putting on a kettle for tea, when I heard a knocking at my front door. It was my friends Jim and Kathy; they often dropped round on a Sunday morning. “Come in, door’s open,” I called out, and as they settled themselves in the living room I asked, “How do you like your eggs?” Jim liked them sunny side up, he said. Kathy preferred them over easy. We chatted away while I sizzled their ham and eggs—there were low swinging doors between the kitchen and



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“Whoa, whoa, whoa, lady, can’t you read?”

the living room, so we could hear each other easily. Then, five minutes later, I shouted, "Everything's ready," put their ham and eggs on a tray, walked into the living room—and found it empty. No Jim, no Kathy, no sign that they had ever been there. I was so staggered I almost dropped the tray.

It had not occurred to me for an instant that Jim and Kathy's voices, their "presences," were unreal, hallucinatory. We had had a friendly, ordinary conversation, just as we usually had. Their voices were the same as always—there was no hint, until I opened the swinging doors and found the living room empty, that the whole conversation, at least their side of it, had been invented by my brain.

I was not only shocked but rather frightened, too. With LSD and other drugs, I knew what was happening. The world would look different, feel different, there would be every characteristic of a special, extreme mode of experience. But my "conversation" with Jim and Kathy had no special quality; it was entirely commonplace, with nothing to mark it as a hallucination. I thought about schizophrenics conversing with their "voices," but typically the voices of schizophrenia are mocking or accusing, not talking about ham and eggs and the weather.

"Careful, Oliver," I said to myself. "Take yourself in hand. Don't let this happen again." Sunk in thought, I slowly ate my ham and eggs (Jim and Kathy's, too) and then decided to go down to the beach, where I would see the real Jim and Kathy and all my friends, and enjoy a swim and an idle afternoon.

I was pondering all this when I became conscious of a whirring noise above me. It puzzled me for a moment, and then I realized that it was a helicopter preparing to descend, and that it contained my parents, who, wanting to make a surprise visit, had flown in from London and, arriving in Los Angeles, had chartered a helicopter to bring them to Topanga Canyon. I rushed into the bathroom, had a quick shower, and put on a clean shirt and pants—the most I could do in the three or four minutes before they arrived. The throb of the engine was almost deafeningly loud, so I knew that the helicopter must have landed on the flat rock beside my house. I raced out, excitedly, to greet my parents—but the rock was empty, there was no helicopter in sight, and the huge pulsing noise of

its engine was abruptly cut off. The silence and emptiness, the disappointment, reduced me to tears. I had been so joyful, and now there was nothing at all.

I went back into the house and put on the kettle for another cup of tea, when my attention was caught by a spider on the kitchen wall. As I drew nearer to look at it, the spider called out, "Hello!" It did not seem at all strange to me that a spider should say hello (any more than it seemed strange to Alice when the White Rabbit spoke). I said, "Hello, yourself," and with this we started a conversation, mostly on rather technical matters of analytic philosophy. Perhaps this direction was suggested by the spider's opening comment: did I think that Bertrand Russell had exploded Frege's paradox? Or perhaps it was its voice—pointed, incisive, and just like Russell's voice, which I had heard on the radio. (Decades later, I mentioned the spider's Russellian tendencies to my friend Tom Eisner, an entomologist; he nodded sagely and said, "Yes, I know the species.")

During the week, I would avoid drugs, working as a resident at U.C.L.A.'s neurology department. I was amazed and moved, as I had been as a medical student in London, by the range of patients' neurological experiences, and I found that I could not comprehend these sufficiently, or come to terms with them emotionally, unless I attempted to describe or transcribe them. It was then that I wrote my first published papers and my first book. (It was never published, because I lost the manuscript.)

But on the weekends I often experimented with drugs. I recall vividly one episode in which a magical color appeared to me. I had been taught, as a child, that there were seven colors in the spectrum, including indigo. (Newton had chosen these, somewhat arbitrarily, by analogy with the seven notes of the musical scale.) But few people agree on what "indigo" is.

I had long wanted to see "true" indigo, and thought that drugs might be the way to do this. So one sunny Saturday in 1964 I developed a pharmacologic launchpad consisting of a base of amphetamine (for general arousal), LSD (for hallucinogenic intensity), and a touch of cannabis (for a little added delirium). About twenty minutes after taking this, I faced a white wall and exclaimed, "I want to see indigo now—now!"

And then, as if thrown by a giant paintbrush, there appeared a huge, trembling, pear-shaped blob of the purest indigo. Luminous, numinous, it filled me with rapture: it was the color of heaven, the color, I thought, that Giotto spent a lifetime trying to get but never achieved—never achieved, perhaps, because the color of heaven is not to be seen on earth. But it existed once, I thought—it was the color of the Paleozoic sea, the color the ocean used to be. I leaned toward it in a sort of ecstasy. And then it suddenly disappeared, leaving me with an overwhelming sense of loss and sadness that it had been snatched away. But I consoled myself: yes, indigo exists, and it can be conjured up in the brain.

For months afterward, I searched for indigo. I turned over little stones and rocks near my house. I looked at specimens of azurite in the natural-history museum—but even that was infinitely far from the color I had seen. And then, in 1965, when I had moved to New York, I went to a concert at the Metropolitan Museum of Art. In the first half, a Monteverdi piece was performed, and I was transported. I had taken no drugs, but I felt a glorious river of music, hundreds of years long, flowing from Monteverdi's mind into my own. In this ecstatic mood, I wandered out during the intermission and looked at the objects on display in the Egyptian galleries—lapis-lazuli amulets, jewelry, and so forth—and I was enchanted to see glints of indigo. I thought, Thank God, it really exists!

During the second half of the concert, I got a bit bored and restless, but I consoled myself, knowing that I could go out and take a "sip" of indigo afterward. It would be there, waiting for me. But, when I went out to look at the gallery after the concert was finished, I could see only blue and purple and mauve and puce—no indigo. That was forty-seven years ago, and I have never seen indigo again.

When a friend and colleague of my parents—Augusta Bonnard, a psychoanalyst—came to Los Angeles for a year's sabbatical in 1964, it was natural that we should meet. I invited her to my little house in Topanga Canyon, and we had a genial dinner together. Over coffee and cigarettes (Augusta was a chain-smoker; I wondered if she smoked even during analytic sessions), her tone

changed, and she said, in her gruff, smoke-thickened voice, "You need help, Oliver. You're in trouble."

"Nonsense," I replied. "I enjoy life. I have no complaints. All is well in work and love." Augusta let out a skeptical grunt, but did not push the matter further.

I had started taking LSD at this point, and if that was not available I would take morning-glory seeds instead. (This was before morning-glory seeds were treated with pesticide, as they are now, to prevent drug abuse.) Sunday mornings were usually my drug time, and it must have been two or three months after meeting Augusta that I took a hefty dose of Heavenly Blue morning-glory seeds. The seeds were jet black and of agate-like hardness, so I pulverized them with a mortar and pestle and then mixed them with vanilla ice cream. About twenty minutes after eating this, I felt an intense nausea, but when it subsided I found myself in a realm of paradisiacal stillness and beauty, a realm outside time, which was rudely broken into by a taxi grinding and backfiring its way up the steep trail to my house. An elderly woman got out of the taxi, and, galvanized into action, I ran toward her, shouting, "I know who you are—you are a replica of Augusta Bonnard! You look like her, you have her posture and movements, but you are not her. I am not deceived for a moment." Augusta raised her hands to her temples and said, "Oy! This is worse than I realized." She got back into the taxi, and took off without another word.

We had plenty to talk about the next time we met. My failure to recognize her, my seeing her as a "replica," she thought, was a complex form of defense, a dissociation that could only be called psychotic. I disagreed and maintained that my seeing her as a duplicate or impostor was neurological in origin, a disconnection between perception and feelings. The ability to identify (which was intact) was not accompanied by the appropriate feeling of warmth and familiarity, and it was this contradiction that led to the logical though absurd conclusion that she was a "duplicate." (This condition, which can occur in schizophrenia, but also with dementia or delirium, is known as Capgras syndrome.) Augusta said that, whichever view was correct, taking mind-altering drugs every weekend, alone, and in high doses, surely testified to some intense inner needs or conflicts, and that I should

explore these with a therapist. In retrospect, I am sure she was right, and I began seeing an analyst a year later.

The summer of 1965 was a sort of in-between time: I had completed my residency at U.C.L.A. and had left California, but I had three months ahead of me before taking up a research fellowship

in New York. This should have been a time of delicious freedom, a wonderful and needed holiday after the sixty- and sometimes eighty-hour work weeks I had had at U.C.L.A. But I did not feel free. When I am not working, I get unmoored, have a sense of emptiness and structurelessness. Weekends were the danger times, the drug times, when I lived in Califor-

She's naked yet wearing shoes.
Wants to think *nude*. And happy in her body.

Though it's a fleshy aging body. And her posture in the chair—leaning forward, arms on knees, staring out the window—makes her belly bulge, but what the hell.

What the hell, *he* isn't here.

Lived in this damn drab apartment at Third Avenue, Twenty-third Street, Manhattan, how many damn years, has to be at least fifteen. Moved to the city from Hackensack, needing to breathe.

She'd never looked back. Sure they called her selfish, cruel. What the hell, the use they'd have made of her, she'd be sucked dry like bone marrow.

First job was file clerk at Trinity Trust. Wasted three years of her young life waiting for R.B. to leave his wife and wouldn't you think a smart girl like her would know better?

Second job also file clerk but then she'd been promoted to Mr. Castle's secretarial staff at Lyman Typewriters. The least the old bastard could do for her and she'd have done a lot better except for fat-face Stella Czech.

Third job, Tvek Realtors & Insurance and she's Mr. Tvek's private secretary: *What would I do without you, my dear one?*

As long as Tvek pays her decent. And *he* doesn't let her down like last Christmas, she'd wanted to die.

This damn room she hates. Dim-lit like a region of the soul into which light doesn't penetrate. Soft-shabby old furniture and sagging mattress like those bodies in dreams we feel but don't see. But she keeps her bed made every God-damned day, visitors or not.

He doesn't like disorder. *He* told her how he learned to make a proper bed in the U.S. Army in 1917.

The trick is, *he* says, you make the bed as soon as you get up.

Detaches himself from her as soon as it's over. Sticky skin, hairy legs, patches of scratchy hair on his shoulders, chest, belly. She'd like him to hold her and they could drift into sleep together but rarely this happens. Crazy wanting her, then abruptly it's over—*he's* inside his head, and *she's* inside hers.

Now this morning she's thinking God-damned bastard, this has got to be the last time. Waiting for him to call to explain why he hadn't come last night. And there's the chance he might come here before calling, which he has done more than once. *Couldn't keep away. God, I'm crazy for you.*

She's thinking she will give the bastard ten more minutes.

She's Jo Hopper with her plain redhead's face stretched on this fleshy female's face and *he's* the artist but also the lover and last week he came to take her out to Delmonico's but in this dim-lit room they'd made love in her bed and never got out until too late and she'd overheard him on the phone *explaining*—there's the sound of a man's voice *explaining to a wife* that is so callow, so craven, she's sick with contempt recalling. Yet *he* says he has left his family, he loves *her*.

Runs his hands over her body like a blind man trying to see. And the radiance in his face that's pitted and scarred, he needs her in the way a starving man needs food. *Die without you. Don't leave me.*

He'd told her it wasn't what she thought. Wasn't his family that kept him from loving her all he could but his life he'd never told anyone about in the war, in the infantry, in France. What crept like paralysis through him. Things that had happened to him, and things that he'd witnessed, and things that he'd perpetrated himself with his own hands. And she'd taken his hands and kissed them, and brought them against her breasts that were aching like the breasts of a young mother ravenous to give suck, and sustenance. And she said *No. That is your old life. I am your new life.*

She will give her new life five more minutes.

—Joyce Carol Oates

nia—and now an entire summer in my home town, London, stretched before me like a three-month-long weekend.

It was during this idle, mischievous time that I descended deeper into drug-taking, no longer confining it to weekends. I tried intravenous injection, which I had never done before. My parents, both physicians, were away, and, having the house to myself,

I decided to explore the drug cabinet in their surgery, on the ground floor of our house, for something special to celebrate my thirty-second birthday. I had never taken morphine or any opiates before. I used a large syringe—why bother with piddling doses? And, after settling myself comfortably in bed, I drew up the contents of several vials, plunged the needle into a

vein, and injected the morphine very slowly.

Within a minute or so, my attention was drawn to a sort of commotion on the sleeve of my dressing gown, which hung on the door. I gazed intently at this, and as I did so it resolved itself into a miniature but microscopically detailed battle scene. I could see silken tents of different colors, the largest of which was flying a royal pennant. There were gaily caparisoned horses, soldiers on horseback, their armor glinting in the sun, and men with longbows. I saw pipers with long silver pipes, raising these to their mouths, and then, very faintly, I heard their piping, too. I saw hundreds, thousands of men—two armies, two nations—preparing to do battle. I lost all sense of this being a spot on the sleeve of my dressing gown, or the fact that I was lying in bed, that I was in London, that it was 1965. Before shooting up the morphine, I had been reading Froissart's "Chronicles" and "Henry V," and now these became conflated in my hallucination. I realized that I was gazing at Agincourt, late in 1415, and looking down on the serried armies of England and France drawn up to do battle. And in the great pennanted tent, I knew, was Henry V himself. I had no sense that I was imagining or hallucinating any of this; what I saw was actual, real.

After a while, the scene started to fade, and I became dimly conscious, once more, that I was in London, stoned, hallucinating Agincourt on the sleeve of my dressing gown. It had been an enchanting and transporting experience, but now it was over. The drug effect was fading fast; Agincourt was hardly visible now. I glanced at my watch. I had injected the morphine at nine-thirty, and now it was ten. But I had a sense of something odd—it had been dusk when I took the morphine, it should now be darker still. But it was not. It was getting lighter, not darker, outside. It was ten, I now realized, but ten in the morning. I had been gazing, motionless, at my Agincourt for more than twelve hours. This shocked and sobered me, and made me see how one could spend entire days, nights, weeks, even years of one's life in an opium stupor. I would make sure that my first opium experience was also my last.

At the end of that summer of 1965, I moved to New York to begin a post-graduate fellowship in neuropathology and neurochemistry. December, 1966, was a bad time: I was finding New York

difficult to adjust to after my years in California; a love affair had gone sour; my research was going badly; and I was discovering that I was not cut out to be a bench scientist. Depressed and insomniac, I was taking ever-increasing doses of chloral hydrate to get to sleep, and was up to fifteen times the usual dose every night. And though I had managed to stockpile a huge amount of the drug—I raided the chemical supplies in the lab at work—this finally ran out on a bleak Tuesday a little before Christmas, and for the first time in several months I went to bed without my usual knockout dose. My sleep was poor, broken by nightmares and bizarre dreams, and upon waking I found myself excruciatingly sensitive to sounds. There were always trucks rumbling along the cobblestoned streets of the West Village; now it sounded as if they were crushing the cobblestones to powder as they passed.

Feeling a bit shaky, I did not ride my motorcycle to work, as usual, but took a train and a bus. Wednesday was brain-cutting day in the neuropathology department, and it was my turn to cut the brain into neat horizontal slices, to identify the main structures as I did so, and observe whether there were any departures from normal. I was usually pretty good at this, but today I found my hand trembling visibly, embarrassingly, and the anatomical names were slow in coming to mind.

When the session ended, I went across the road, as I often did, for a cup of coffee and a sandwich. As I was stirring the coffee, it suddenly turned green, then purple. I looked up, startled, and saw that a customer paying his bill at the cash register had a huge proboscidean head, like an elephant seal. Panic seized me; I slammed a five-dollar bill on the table and ran across the road to a bus. But all the passengers on the bus seemed to have smooth white heads like giant eggs, with huge glittering eyes like the faceted compound eyes of insects—their eyes seemed to move in sudden jerks, which increased the feeling of their fearsomeness and alienness. I realized that I was hallucinating or experiencing some bizarre perceptual disorder, that I could not stop what was happening in my brain, and that I had to maintain at least an external control and not panic or scream or become catatonic, faced by the bug-eyed monsters around me. The best way of doing this, I found, was to write, to describe the hallu-

ination in clear, almost clinical detail, and, in so doing, become an observer, even an explorer, not a helpless victim, of the craziness inside me. I am never without pen and notebook, and now I wrote for dear life, as wave after wave of hallucination rolled over me.

Description, writing, had always been my best way of dealing with complex or frightening situations—though it had never been tested in so terrifying a situation. But it worked; by describing in my lab notebook what was going on, I managed to maintain a semblance of control, though the hallucinations continued, mutating all the while.

Somehow I got off at the right bus stop and onto the train, even though everything now was in motion, whirling vertiginously, tilting and even turning upside down. And I managed to get off at the right station, in my neighborhood in Greenwich Village. As I emerged from the subway, the buildings around me were tossing and flapping from side to side, like flags blowing in a high wind. I was enormously relieved to make it back to my apartment without being attacked, or arrested, or killed by the rushing traffic on the way. As soon as I got back, I felt I had to contact somebody—someone who knew me well, who was both a doctor and a friend. The pediatrician Carol Burnett was the person: we had interned together in San Francisco five years earlier, and resumed a close friendship now that we were both in New York. Carol would understand, she would know



what to do. I dialled her number with a now grossly tremulous hand. “Carol,” I said, as soon as she picked up, “I want to say goodbye. I’ve gone mad, psychotic, insane. It started this morning and it’s getting worse all the while.”

“Oliver!” Carol said. “What have you just taken?”

“Nothing,” I replied. “That’s why I’m so frightened.” Carol thought for a moment, then asked, “What have you just stopped taking?”

“That’s it!” I said. “I was taking a huge amount of chloral hydrate and ran out of it last night.”

“Oliver, you chump! You always overdo things,” Carol said. “You’ve got a classic case of the DTs, delirium tremens.”

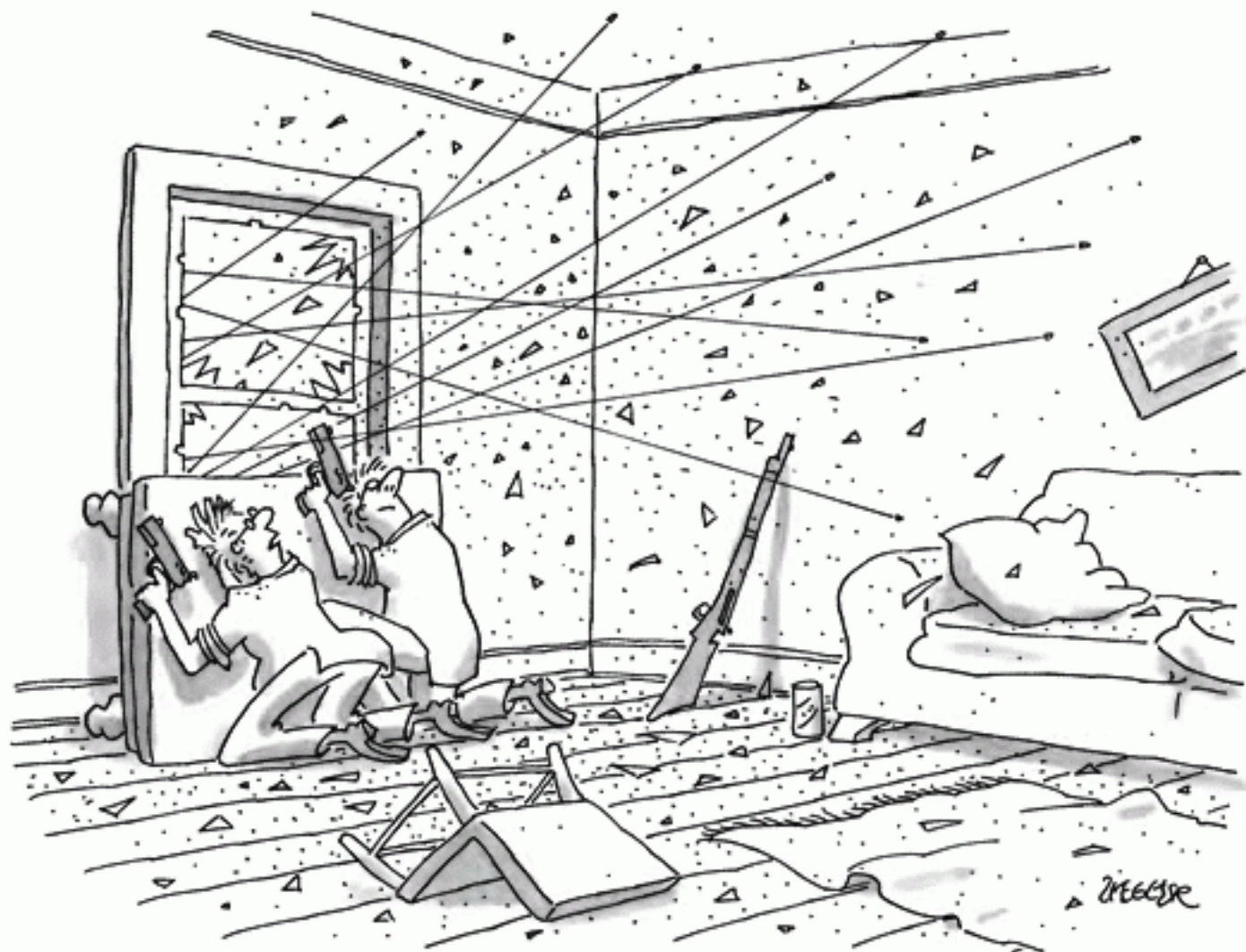
This was an immense relief—much better DTs than a schizophrenic psychosis. But I was quite aware of the dangers of the DTs: confusion, disorientation, hallucination, delusion, dehydration, fever, rapid heartbeat, exhaustion, seizures, death. I would have advised anyone else in my state to get to an emergency room immediately, but for myself I wanted to tough it out, and experience it to the full. Carol agreed to sit with me for the first day and then, if she thought I was safe by myself, she would look by or phone me at intervals, calling in outside help if she judged it necessary. Given this safety net, I lost much of my anxiety, and could even, in a way, enjoy the phantasms of delirium tremens (though the myriads of small animals and insects were anything but pleasant). The hallucinations continued for almost ninety-six hours, and when they finally stopped I fell into an exhausted stupor.

As a boy, I had known extreme delight in the study of chemistry and the setting up of my own chemistry lab. This delight seemed to desert me at the age of fifteen or so; in my years at school, university, medical school, and then internship and residency, I kept my head above water, but the subjects I studied never excited me in the same intense way as chemistry had when I was a boy. It was not until I arrived in New York and began seeing patients in a migraine clinic in the summer of 1966 that I began to feel a little stirring of the intellectual excitement and emotional engagement I had known in my earlier years. In the hope of whipping up these intellectual and emotional excitements even further, I turned to amphetamines.

I would take the stuff on Friday evenings after getting back from work and would then spend the whole weekend so high that images and thoughts would become rather like controllable hallucinations, imbued with ecstatic emotion. I often devoted these “drug holidays” to romantic daydreaming, but one Friday, in February of 1967, while I was exploring the rare-book section of the medical library, I

found and took out a rather rare book on migraine entitled "On Megrin, Sick-Headache, and Some Allied Disorders: A Contribution to the Pathology of Nerve-Storms," written, in 1873, by one Edward Liveing, M.D. I had been working for several months in a migraine clinic, and I was fascinated by the range of symptoms and phenomena that could occur in migraine attacks. These attacks often included an aura, a prodrome in which aberrations of perception and even hallucinations occurred. They were entirely benign and would last only a few minutes, but those few minutes provided a window onto the functioning of the brain and how it could break down and then reintegrate. In this way, I felt, every attack of migraine opened out into an encyclopedia of neurology.

I had read dozens of articles about migraine and its possible basis, but none of them seemed to present the full richness of its phenomenology or the range and depth of suffering that patients might experience. It was in the hope of finding a fuller, deeper, and more human approach to migraine that I took out Liveing's book from the library that weekend. So, after downing my bitter draft of amphetamine—heavily sugared, to make it more palatable—I started reading. As the intensity of the amphetamine effect took hold of me, stimulating my emotions and imagination, Liveing's book seemed to increase in intensity and depth and beauty. I wanted nothing but to enter Liveing's mind and imbibe the atmosphere of the time in which he worked. In a sort of catatonic concentration so intense that in ten hours I scarcely moved a muscle or wet my lips, I read steadily through the five hundred pages of "Megrin." As I did so, it seemed to me almost as if I were becoming Liveing himself, actually seeing the patients he described. At times, I was unsure whether I was reading the book or writing it. I felt myself in the Dickensian London of the eighteen-sixties and seventies. I loved Liveing's humanity and social sensitivity, his strong assertion that migraine was not some indulgence of the idle rich but could affect those who were poorly nourished and worked long hours in ill-ventilated factories. In this way, his book reminded me of Henry Mayhew's great 1861 study of London's working classes, but equally one could tell how well Liveing had been trained in biology and the physical sciences, and what a master



"Wow. Great fusillade."

of clinical observation he was. I found myself thinking, This represents the best of mid-Victorian science and medicine; it is a veritable masterpiece! The book gave me what I had been hungering for during the months that I was seeing patients with migraine and being frustrated by the thin, impoverished articles that seemed to constitute the modern "literature" on the subject. At the height of this ecstasy, I saw migraine shining like an archipelago of stars in the neurological heavens.

But about a century had passed since Liveing worked and wrote in London. Rousing myself from my reverie of being Liveing or one of his contemporaries, I came to and said to myself, "Now it is the nineteen-sixties, not the eighteen-sixties. Who could be the Liveing of our time?" A disingenuous clutter of names spoke themselves in my mind. I thought of Dr. A. and Dr. B. and Dr. C. and Dr. D., all of them good men but none with that mixture of science and humanism which was so powerful in Liveing. And then a very loud internal voice said, "You silly bugger! You're the man!"

On every previous occasion when I had come down after two days of amphetamine-induced mania, I had experienced a severe reaction in the other direction, feeling an almost narcoleptic drowsiness

and depression. I would also have an acute sense of folly that I had endangered my life for nothing—amphetamines in the large doses I took would give me a sustained pulse rate close to two hundred and a blood pressure of I-know-not-what; several people I knew had died from overdoses of amphetamines. I would feel that I had made a crazy ascent into the stratosphere but had come back empty-handed and had nothing to show for it; that the experience had been as empty and vacuous as it was intense. This time, though, when I came down, I retained a sense of illumination and insight; I had had a sort of revelation about migraine. I had a sense of resolution, too, that I was indeed equipped to write a Liveing-like book, that perhaps I could be the Liveing of our time.

The next day, before I returned Liveing's book to the library, I photocopied the whole thing, and then, bit by bit, I started to write my own book. The joy I got from doing this was real—indefinitely more substantial than the vapid mania of amphetamines—and I never took amphetamines again. ♦

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A conversation with Oliver Sacks and John Bennet.