Advance praise for *Proof of Heaven*

"If Central Casting was given an assignment to locate the most highly qualified person who has had a near-death experience (NDE) to have him write a book about it, lecture about it, and appear in the media to promote it around the world, no one could find a more perfect candidate than neurosurgeon Eben Alexander III, M.D. He has all the necessary academic credentials for this assignment, is warm emotionally, very articulate, has undergone a profound spiritual transformation, and is highly motivated to unify science with spirituality." —Bill Guggenheim, coauthor of *Hello From Heaven!*

"Dr. Alexander's neuroscience career taught him that near-death experiences are brain-based illusions, and yet his personal experience left him dumbstruck. His honest struggle to make sense of this unforgettable journey is a gripping story, unique in the literature of spiritual experiences, that may well change how we understand our role in the universe."
—Bruce Greyson, M.D., co-editor of
The Handbook of Near-Death Experiences

"[T]his important book . . . has the potential to break many scientific taboos."
—Pim van Lommel, M.D., author of *Consciousness Beyond Life*

"Eben Alexander brings a unique perspective to the sacred world combining a glorious, personal vision of spiritual consciousness with patient, insightful scientific inquiry. *Proof of Heaven* is a compelling story of what may lie ahead for all of us in the life beyond this one. We have nothing to fear."
—Allan J. Hamilton, M.D., author of *The Scalpel and the Soul*

"Dr. Eben Alexander's story of his near-death experience is astonishing. . . . His brushes with the Sublime are exhilarating to read."
—Rabbi Neal Gold, Temple Shir Tikva

"Dr. Alexander's experiences resonate remarkably with views of Heaven, the Afterlife, and the potential of consciousness in the Jewish mystical tradition. This book is a thunderbolt!" —Dr. Rabbi Meir Sendor

"Eben's masterpiece is a story for scientists, skeptics, believers, and seekers. Read it for a foretaste of something beyond the veil, beyond our dreams, and beyond our wildest imaginations."
—The Rev. Michael R. Sullivan, Rector, Holy Innocents'
Episcopal Church, Atlanta, GA

This book is dedicated to all of my loving family, with boundless gratitude.

Simon & Schuster Paperbacks
An Imprint of Simon & Schuster, Inc.
1230 Avenue of the Americas
New York, NY 10020

This Simon & Schuster trade paperback edition October 2022

SIMON & SCHUSTER PAPERBACKS and colophon are registered trademarks of Simon & Schuster, Inc.

The names of some individuals in this book have been changed.

For information about special discounts for bulk purchases, please contact Simon & Schuster Special Sales at 1-866-506-1949 or business@simonandschuster.com.

The Simon & Schuster Speakers Bureau can bring authors to your live event. For more information or to book an event, contact the Simon & Schuster Speakers Bureau at 1-866-248-3049 or visit our website at www.simonspeakers.com.

Designed by Renata Di Biase

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1

Library of Congress Cataloging-in-Publication Data is available.

ISBN 978-1-4516-9518-2
ISBN 978-1-4516-9519-9 (pbk)
ISBN 978-1-4516-9520-5 (ebook)

Contents

Tenth Anniversary Foreword

When I first awakened from a weeklong coma caused by an extremely aggressive course of *E. coli* bacterial meningoencephalitis on November 16, 2008, I had no recollection of my life here on earth. I could only remember the rich, spiritual realm from which I had just returned. As a neurosurgeon who had spent over fifteen years teaching at Harvard Medical School, I had heard several such fantastical stories from my patients but, like most other physicians, had quickly dismissed them. Now I had experienced a spiritual journey of my own, and as I initially spoke of it, not surprisingly, my doctors reminded me that I had been very sick and that the dying brain can play all kinds of tricks. Thus, it was perfectly natural that, starting with my first public lecture in April 2010, I was often asked, "What do your scientific colleagues make of your experience?"

The first group of scientists to weigh in were the physicians and nurses who had cared for me at Lynchburg General Hospital. Given my prior employment there as a neurosurgeon, I was personally acquainted with many of the staff. My colleagues were shocked when I was brought into the emergency room already deep in coma, necessitating placement on a ventilator and administration of three powerful intravenous antibiotics. My doctors initially estimated I had only about a 10 percent chance of survival, but after seven days, with no signs of neurological improvement, they estimated a 2 percent chance of survival, at best. My family was most distressed by the prognosis—that I'd have no chance of returning to a meaningful quality of life.

As evidenced by the fact that I am currently alive and well, this dire prediction was mysteriously avoided. My medical team was clearly dumbfounded as I demonstrated early signs of recovery. At first I was blissfully unaware of just how dire my illness had been, but as I reviewed my medical records in the months after awakening from coma and discussed the clinical details with my doctors, I became increasingly confused about *how* my ultra-real memories could have taken place in a brain as damaged as mine had been.

My fellow physicians were impressed with my unprecedented recovery and invited me to the Morbidity and Mortality Conference to discuss my case only weeks after being discharged. It is almost unheard of for a patient to be invited to such a conference, but as a health-care professional who had experienced a miraculous recovery, they wanted to hear my direct description of the experience and my medical perspective as to how it might have occurred.

I was most excited about the implications my case had on the study of the brain and mind. The entire worldview of physicalism, or materialism, that I had relied on throughout my medical career was in question. It's not easy to upend a worldview with roots going back five thousand years, and I was determined to start a whole new area of research in order to do just that. Imagine my surprise when I discovered that numerous scientists around the world had already been gathering evidence and developing supportive theories to confirm that conscious awareness continues beyond the death of the physical body.

I spent the first two years after my coma reading more than 150 books on physics, neuroscience, philosophy of mind, and near-death and related extraordinary experiences, all in an effort to come to a deeper understanding of my personal experience. A crucial breakthrough occurred exactly two years to the hour after awakening from coma, as I found myself driving to Charlottesville, Virginia, on November 16, 2010, to share my story with a team of scientists at the Division of Perceptual Studies (DOPS) at the University of Virginia. Weeks earlier, I had emailed Dr. Bruce Greyson, an open-minded, discerning psychiatrist who had been investigating near-death experiences since the early 1970s. I was delighted when he invited me to speak to his research colleagues at their weekly consciousness meeting. I wondered about the kind of reception I would receive. Would they believe me? How might they explain my astonishing memories and unexpected recovery?

Fortunately, my presentation was warmly received by this group of researchers. It was refreshing and inspiring that such an august group of scientists could discuss the afterlife in a scientific and rational framework. At the end of the visit, Ed Kelly gave me a personalized copy of the major opus on consciousness that he had edited and published the year before, *Irreducible Mind*. I read that 800-page tome over the next few weeks and

came to realize, with a great sense of relief, that so much of the work that I had anticipated having to initiate to bring the world up to speed on the implications of my near-death experience had already been accomplished by these courageous investigators. Kelly's follow-up books, *Beyond Physicalism* (2015) and *Consciousness Unbound* (2021), provide a thorough explanatory framework that convincingly rivals physicalism.

As I received more invitations to talk about my near-death experience, I came to realize the power of my story for helping and healing people. It became clear that neurosurgery could not be a part-time job, and the study of consciousness and its implications, especially within the healthcare industry, demanded my full attention. By June 2012, four months prior to publication of *Proof of Heaven*, I made the decision to commit myself full-time to sharing my story and working with scientists around the world to better refine our scientific understanding of the nature of consciousness. As much as I loved caring for neurosurgical patients, I felt called to a service that could help even more people.

One of the reasons my case is critical to scientists who study consciousness is that I had this vivid, ultra-real experience even though my brain had suffered extensive damage to the neocortex and brainstem. The majority of near-death-experience cases involve cardiac arrest, a clinical diagnosis of death because the heart has stopped beating, but not necessarily involving a great deal of damage to brain structures. In my case, the documented neurological damage made it unlikely that my brain would have been capable of generating any dream, hallucination, or confabulation, much less the most extraordinarily rich, detailed, alive, vivid, memorable, and life-transforming experience of my life.

Evidence strongly bolstering my claims came as three DOPS physicians not involved in my care—but fascinated by my recovery—reviewed more than 600 pages of my medical records and published a case report in the September 2018 *Journal of Nervous and Mental Disease*. The doctors, including Dr. Greyson, concluded that my nonfunctioning brain could not have been responsible for the vivid experiences I had reported upon awakening from coma. They demonstrated that such low coma scores on neurological examinations that I had had through the seven-day coma, combined with CT and MRI scan data suggesting diffuse damage to all lobes of my brain, leaving no region unscathed, made it extremely un-

likely that my brain was capable of generating the complex and ultra-real experience that I witnessed during that week. They elucidated just how unlikely my full recovery had been and admitted there was no satisfactory conventional medical explanation.

When the peer-review medical scientists at the *Journal of Nervous and Mental Disease* first assessed the case report, they claimed the case to be "absurd," given the fact that meningitis patients with such dire medical parameters do not benefit from full recoveries to normal neurological function. The three authors responded to this challenge by pointing out that I had benefited from a near-death experience and proposed that this spiritual encounter had somehow contributed to my otherwise inexplicable recovery. There were other cases, like Anita Moorjani's healing from stage IV lymphoma, and Dr. Mary C. Neal's recovery from a more than thirty-minute warm-water drowning after a kayaking accident. All three of our cases involved healing that was "miraculous" from a medical standpoint but featured a transcendental journey to a spiritual realm as a potential explanation.

Bacterial meningoencephalitis, as in my case, provides a much more robust model of human death, by preferentially destroying brain structures assumed to be most crucial for generating the details of conscious awareness. Sadly, this disease provides such a perfect model of human death that most patients who are not showing positive signs of recovery by day three are doomed to succumb to the illness, or at least be so damaged as to never recover. Hence my awakening from coma on day seven of my illness, combined with the shocking full recovery over the next two months, offers a scenario that demands an explanation outside of conventional medicine, one that explains how the ultra-real and highly memorable events occurred independently of any significant residual neuronal network activity in my brain.

This was the conclusion that vexed some of my neurological critics, like Oliver Sacks, who accused me of being "anti-scientific" in jumping to conclusions about the spiritual nature of my odyssey. However, the tremendous support I have received from the scientific community, including shifts in our fundamental assumptions about the mind-brain relationship, suggests that it was actually Sacks who had not been doing his homework. Sacks, like so many like-minded conventional scientists, was hamstrung by

PROOF *of* HEAVEN

Prologue

A man should look for what is,
and not for what he thinks should be.

—Albert Einstein (1879–1955)

When I was a kid, I would often dream of flying.

Most of the time I'd be standing out in my yard at night, looking up at the stars, when out of the blue I'd start floating upward. The first few inches happened automatically. But soon I'd notice that the higher I got, the more my progress depended on me—on what *I* did. If I got too excited, too swept away by the experience, I would plummet back to the ground . . . hard. But if I played it cool, took it all in stride, then off I would go, faster and faster, up into the starry sky.

Maybe those dreams were part of the reason why, as I got older, I fell in love with airplanes and rockets—with anything that might get me back up there in the world above this one. When our family flew, my face was pressed flat to the plane's window from takeoff to landing. In the summer of 1968, when I was fourteen, I spent all the money I'd earned mowing lawns on a set of sailplane lessons with a guy named Gus Street at Strawberry Hill, a little grass strip "airport" just west of Winston-Salem, North Carolina, the town where I grew up. I still remember the feeling of my heart pounding as I pulled the big cherry-red knob that unhooked the rope connecting me to the towplane and banked my sailplane toward the field. It was the first time I had ever felt truly alone and free. Most of my friends

got that feeling in cars, but for my money being a thousand feet up in a sailplane beat that thrill a hundred times over.

In college in the 1970s I joined the University of North Carolina sport parachuting (or skydiving) team. It felt like a secret brotherhood—a group of people who knew about something special and magical. My first jump was terrifying, and the second even more so. But by my twelfth jump, when I stepped out the door and had to fall for more than a thousand feet before opening my parachute (my first "ten second delay"), I knew I was home. I made 365 parachute jumps in college and logged more than three and a half hours in free fall, mainly in formations with up to twenty-five fellow jumpers. Although I stopped jumping in 1976, I continued to enjoy vivid dreams about skydiving, which were always pleasant.

The best jumps were often late in the afternoon, when the sun was starting to sink beneath the horizon. It's hard to describe the feeling I would get on those jumps: a feeling of getting close to something that I could never quite name but that I knew I had to have more of. It wasn't solitude exactly, because the way we dived actually wasn't all that solitary. We'd jump five, six, sometimes ten or twelve people at a time, building free-fall formations. The bigger and the more challenging, the better.

One beautiful autumn Saturday in 1975, the rest of the UNC jumpers and I teamed up with some of our friends at a paracenter in eastern North Carolina for some formations. On our penultimate jump of the day, out of a D18 Beechcraft at 10,500 feet, we made a ten-man snowflake. We managed to get ourselves into complete formation before we passed 7,000 feet, and thus were able to enjoy a full eighteen seconds of flying the formation down a clear chasm between two towering cumulus

clouds before breaking apart at 3,500 feet and tracking away from each other to open our chutes.

By the time we hit the ground, the sun was down. But by hustling into another plane and taking off again quickly, we managed to get back up into the last of the sun's rays and do a second sunset jump. For this one, two junior members were getting their first shot at flying into formation—that is, joining it from the outside rather than being the base or pin man (which is easier because your job is essentially to fall straight down while everyone else maneuvers toward you). It was exciting for the two junior members, but also for those of us who were more seasoned, because we were building the team, adding to the experience of jumpers who'd later be capable of joining us for even bigger formations.

I was to be the last man out in a six-man star attempt above the runways of the small airport just outside Roanoke Rapids, North Carolina. The guy directly in front of me was named Chuck. Chuck was fairly experienced at "relative work," or RW—that is, building free-fall formations. We were still in sunshine at 7,500 feet, but a mile and a half below us the streetlights were blinking on. Twilight jumps were always sublime and this was clearly going to be a beautiful one.

Even though I'd be exiting the plane a mere second or so behind Chuck, I'd have to move fast to catch up with everyone. I'd rocket straight down headfirst for the first seven seconds or so. This would make me drop almost 100 miles per hour faster than my friends so that I could be right there with them after they had built the initial formation.

Normal procedure for RW jumps was for all jumpers to break apart at 3,500 feet and track away from the formation for

horizontal motion as my body became an efficient wing, sending me zipping past Chuck just in front of his colorful blossoming Para-Commander parachute.

I passed him going at over 150 miles per hour, or 220 feet per second. Given that speed, I doubt he saw the expression on my face. But if he had, he would have seen a look of sheer astonishment. Somehow I had reacted in microseconds to a situation that, had I actually had time to think about it, would have been much too complex for me to deal with.

And yet . . . I *had* dealt with it, and we both landed safely. It was as if, presented with a situation that required more than its usual ability to respond, my brain had become, for a moment, superpowered.

How had I done it? Over the course of my twenty-plus-year career in academic neurosurgery—of studying the brain, observing how it works, and operating on it—I have had plenty of opportunities to ponder this very question. I finally chalked it up to the fact that the brain is truly an extraordinary device: more extraordinary than we can even guess.

I realize now that the real answer to that question is much more profound. But I had to go through a complete metamorphosis of my life and worldview to glimpse that answer. This book is about the events that changed my mind on the matter. They convinced me that, as marvelous a mechanism as the brain is, it was not my brain that saved my life that day at all. What sprang into action the second Chuck's chute started to open was another, much deeper part of me. A part that could move so fast because it was not stuck in time at all, the way the brain and body are.

This was the same part of me, in fact, that had made me so homesick for the skies as a kid. It's not only the smartest part

of us, but the deepest part as well, yet for most of my adult life I was unable to believe in it.

But I do believe now, and the pages that follow will tell you why.

I'm a neurosurgeon.

I graduated from the University of North Carolina at Chapel Hill in 1976 with a major in chemistry and earned my M.D. at Duke University Medical School in 1980. During my eleven years of medical school and residency training at Duke as well as Massachusetts General Hospital and Harvard, I focused on neuroendocrinology, the study of the interactions between the nervous system and the endocrine system—the series of glands that release the hormones that direct most of your body's activities. I also spent two of those eleven years investigating how blood vessels in one area of the brain react pathologically when there is bleeding into it from an aneurysm—a syndrome known as cerebral vasospasm.

After completing a fellowship in cerebrovascular neurosurgery in Newcastle-Upon-Tyne in the United Kingdom, I spent fifteen years on the faculty of Harvard Medical School as an associate professor of surgery, with a specialization in neurosurgery. During those years I operated on countless patients, many of them with severe, life-threatening brain conditions.

Most of my research work involved the development of advanced technical procedures like stereotactic radiosurgery, a technique that allows surgeons to precisely guide beams of radiation to specific targets deep in the brain without affecting adjacent areas. I also helped develop magnetic resonance image–guided neurosurgical procedures instrumental in repairing hard-to-treat brain conditions like tumors and vascular disorders.

During those years I also authored or coauthored more than 150 chapters and papers for peer-reviewed medical journals and presented my findings at more than two hundred medical conferences around the world.

In short, I devoted myself to science. Using the tools of modern medicine to help and to heal people, and to learn more about the workings of the human body and brain, was my life's calling. I felt immeasurably lucky to have found it. More important, I had a beautiful wife and two lovely children, and while I was in many ways married to my work, I did not neglect my family, which I considered the other great blessing in my life. On many counts I was a very lucky man, and I knew it.

On November 10, 2008, however, at age fifty-four, my luck seemed to run out. I was struck by a rare illness and thrown into a coma for seven days. During that time, my entire neocortex—the outer surface of the brain, the part that makes us human—was shut down. Inoperative. In essence, absent.

When your brain is absent, you are absent, too. As a neurosurgeon, I'd heard many stories over the years of people who had strange experiences, usually after suffering cardiac arrest: stories of traveling to mysterious, wonderful landscapes; of talking to dead relatives—even of meeting God Himself.

Wonderful stuff, no question. But all of it, in my opinion, was pure fantasy. What caused the otherworldly types of experiences that such people so often report? I didn't claim to know, but I did know that they were brain-based. All of consciousness is. If you don't have a working brain, you can't be conscious.

This is because the brain is the machine that produces consciousness in the first place. When the machine breaks down, consciousness stops. As vastly complicated and mysterious as the actual mechanics of brain processes are, in essence the mat-

ter is as simple as that. Pull the plug and the TV goes dead. The show is over, no matter how much you might have been enjoying it.

Or so I would have told you before my own brain crashed.

During my coma my brain wasn't working improperly—it wasn't working *at all*. I now believe that this might have been what was responsible for the depth and intensity of the near-death experience (NDE) that I myself underwent during it. Many of the NDEs reported happen when a person's heart has shut down for a while. In those cases, the neocortex is temporarily inactivated, but generally not too damaged, provided that the flow of oxygenated blood is restored through cardiopulmonary resuscitation or reactivation of cardiac function within four minutes or so. But in my case, the neocortex was out of the picture. I was encountering the reality of a world of consciousness that existed *completely free of the limitations of my physical brain*.

Mine was in some ways a perfect storm of near-death experiences. As a practicing neurosurgeon with decades of research and hands-on work in the operating room behind me, I was in a better-than-average position to judge not only the reality but also the *implications* of what happened to me.

Those implications are tremendous beyond description. My experience showed me that the death of the body and the brain are not the end of consciousness, that human experience continues beyond the grave. More important, it continues under the gaze of a God who loves and cares about each one of us and about where the universe itself and all the beings within it are ultimately going.

The place I went was real. Real in a way that makes the life we're living here and now completely dreamlike by comparison. This doesn't mean I don't value the life I'm living now, however.

In fact, I value it more than I ever did before. I do so because I now see it in its true context.

This life isn't meaningless. But we can't see that fact from here—at least most of the time. What happened to me while I was in that coma is hands-down the most important story I will ever tell. But it's a tricky story to tell because it is so foreign to ordinary understanding. I can't simply shout it from the rooftops. At the same time, my conclusions are based on a medical analysis of my experience, and on my familiarity with the most advanced concepts in brain science and consciousness studies. Once I realized the truth behind my journey, I knew I *had* to tell it. Doing so properly has become the chief task of my life.

That's not to say I've abandoned my medical work and my life as a neurosurgeon. But now that I have been privileged to understand that our life does not end with the death of the body or the brain, I see it as my duty, my calling, to tell people about what I saw beyond the body and beyond this earth. I am especially eager to tell my story to the people who might have heard stories similar to mine before and wanted to believe them, but had not been able to fully do so.

It is to these people, more than any other, that I direct this book, and the message within it. What I have to tell you is as important as anything anyone will ever tell you, and it's true.

be closer to our families, and I saw it as an opportunity to have a bit more autonomy than I'd had at Harvard. So in the spring of 2006, we started anew in Lynchburg, in the highlands of Virginia. It didn't take long for us to settle back into the more relaxed life we'd both enjoyed growing up in the South.

For a moment I just lay there, vaguely trying to zero in on what had awakened me. The previous day—a Sunday—had been sunny, clear, and just a little crisp—classic late autumn Virginia weather. Holley, Bond (ten years old at the time), and I had gone to a barbecue at the home of a neighbor. In the evening we had spoken by phone to our son Eben IV (then twenty), who was a junior at the University of Delaware. The only hitch in the day had been the mild respiratory virus that Holley, Bond, and I were all still dragging around from the previous week. My back had started aching just before bedtime, so I'd taken a quick bath, which seemed to drive the pain into submission. I wondered if I had awakened so early this morning because the virus was still lurking in my body.

I shifted slightly in bed and a wave of pain shot down my spine—far more intense than the night before. Clearly the flu virus was still hanging on, and then some. The more I awoke, the worse the pain became. Since I wasn't able to fall back to sleep and had an hour to spend before my workday started, I decided on another warm bath. I sat up in bed, swung my feet to the floor, and stood up.

Instantly the pain ratcheted up another notch—a dull, punishing throb penetrating deeply at the base of my spine. Leaving Holley asleep, I padded gingerly down the hall to the main upstairs bathroom.

I ran some water and eased myself into the tub, pretty certain

that the warmth would instantly do some good. Wrong. By the time the tub was half full, I knew that I'd made a mistake. Not only was the pain getting worse, but it was also so intense now that I feared I might have to shout for Holley to help me get out of the tub.

Thinking how ridiculous the situation had become, I reached up and grabbed a towel hanging from a rack directly above me. I edged the towel over to the side of the rack so that the rack would be less likely to break loose from the wall and gently pulled myself up.

Another jolt of pain shot down my back, so intense that I gasped. This was definitely *not* the flu. But what else could it be? After struggling out of the slippery tub and into my scarlet terry-cloth bathrobe, I slowly made my way back to our bedroom and flopped down on our bed. My body was already damp again from cold sweat.

Holley stirred and turned over.

"What's going on? What time is it?"

"I don't know," I said. "My back. I am in serious pain."

Holley began rubbing my back. To my surprise it made me feel a little better. Doctors, by and large, don't take kindly to being sick. I'm no exception. For a moment I was convinced the pain—and whatever was causing it—would finally start to recede. But by 6:30 A.M., the time I usually left for work, I was still in agony and virtually paralyzed.

Bond came into our bedroom at 7:30, curious as to why I was still at home.

"What's going on?"

"Your father doesn't feel well, honey," Holley said.

I was still lying on the bed with my head propped up on a

pillow. Bond came over, reached out, and began to massage my temples gently.

His touch sent what felt like a lightning bolt through my head—the worst pain yet. I screamed. Surprised by my reaction, Bond jumped back.

"It's okay," Holley said to Bond, clearly thinking otherwise. "It's nothing you did. Dad has a horrible headache." Then I heard her say, more to herself than to me: "I wonder if I should call an ambulance."

If there's one thing doctors hate even more than being sick, it's being in the emergency room as a patient. I pictured the house filling up with EMTs, the retinue of stock questions, the ride to the hospital, the paperwork . . . I thought at some point I would begin to feel better and regret calling an ambulance in the first place.

"No, it's okay," I said. "It's bad now but it's bound to get better soon. You should probably help Bond get ready for school."

"Eben, I really think—"

"I'll be fine," I interrupted, my face still buried in the pillow. I was still paralyzed by the pain. "Seriously, do *not* call nine-one-one. I'm not that sick. It's just a muscle spasm in my lower back, and a headache."

Reluctantly, Holley took Bond downstairs and fed him some breakfast before sending him up the street to a friend's house to catch a ride to school. As Bond was going out the front door, the thought occurred to me that if this was something serious and I *did* end up in the hospital, I might not see him after school that afternoon. I mustered all my energy and croaked out, "Have a good day at school, Bond."

By the time Holley came back upstairs to check on me, I was

slipping into unconsciousness. Thinking I was napping, she left me to rest and went downstairs to call some of my colleagues, hoping to get their opinions on what might be happening.

Two hours later, feeling she'd let me rest long enough, she came back to check on me. Pushing open our bedroom door, she saw me lying in bed just as before. But looking closer, she saw that my body wasn't relaxed as it had been, but rigid as a board. She turned on the light and saw that I was jerking violently. My lower jaw was jutting forward unnaturally, and my eyes were open and rolling back in my head.

"Eben, say something!" Holley screamed. When I didn't respond, she called nine-one-one. It took the EMTs less than ten minutes to arrive, and they quickly loaded me into an ambulance bound for the Lynchburg General Hospital emergency room.

Had I been conscious, I could have told Holley exactly what I was undergoing there on the bed during those terrifying moments she spent waiting for the ambulance: a full *grand mal* seizure, brought on, no doubt, by some kind of extremely severe shock to my brain.

But of course, I was not able to do that.

For the next seven days, I would be present to Holley and the rest of my family in body alone. I remember nothing of this world during that week and have had to glean from others those parts of this story that occurred during the time I was unconscious. My mind, my spirit—whatever you may choose to call the central, human part of me—was gone.

2.

The Hospital

The Lynchburg General Hospital emergency room is the second-busiest ER in the state of Virginia and is typically in full swing by 9:30 on a weekday morning. That Monday was no exception. Though I spent most of my workdays in Charlottesville, I'd logged plenty of operating time at Lynchburg General, and I knew just about everyone there.

Laura Potter, an ER physician I'd known and worked with closely for almost two years, received the call from the ambulance that a fifty-four-year-old Caucasian male, in *status epilepticus,* was about to arrive in her ER. As she headed down to the ambulance entrance, she ran over the list of possible causes for the incoming patient's condition. It was the same list that I'd have come up with if I had been in her shoes: alcohol withdrawal; drug overdose; hyponatremia (abnormally low sodium level in the blood); stroke; metastatic or primary brain tumor; intraparenchymal hemorrhage (bleeding into the substance of the brain); brain abscess . . . and meningitis.

When the EMTs wheeled me into Major Bay 1 of the ER, I was still convulsing violently, while intermittently groaning and flailing my arms and legs.

It was obvious to Dr. Potter from the way I was raving and writhing around that my brain was under heavy attack. A nurse brought over a crash cart, another drew blood, and a third replaced the first, now empty, intravenous bag that the EMTs had set up at our house before loading me into the ambulance. As

twenty minutes or so. In an hour, you'll have 8 of them. In twelve hours, 69 billion. By hour fifteen, you'll have 35 trillion. This explosive growth only slows when its food begins to run out.

E. coli are also highly promiscuous. They can trade genes with other bacterial species through a process called bacterial conjugation, which allows an *E. coli* cell to rapidly pick up new traits (such as resistance to a new antibiotic) when needed. This basic recipe for success has kept *E. coli* on the planet since the earliest days of unicellular life. We all have *E. coli* bacteria residing within us—mostly in our gastrointestinal tract. Under normal conditions, this poses no threat to us. But when varieties of *E. coli* that have picked up DNA strands that make them especially aggressive invade the cerebrospinal fluid around the spinal cord and brain, the primitive cells immediately begin devouring the glucose in the fluid, and whatever else is available to consume, including the brain itself.

No one in the ER, at that point, thought I had *E. coli* meningitis. They had no reason to suspect it. The disease is astronomically rare in adults. Newborns are the most common victims, but cases of babies any older than three months having it are exceedingly uncommon. Fewer than one in 10 million adults contract it spontaneously each year.

In cases of bacterial meningitis, the bacteria attack the outer layer of the brain, or cortex, first. The word *cortex* derives from a Latin word meaning "rind" or "bark." If you picture an orange, its rind is a pretty good model for the way the cortex surrounds the more primitive sections of the brain. The cortex is responsible for memory, language, emotion, visual and auditory awareness, and logic. So when an organism like *E. coli* attacks the brain, the initial damage is to the areas that perform

the functions most crucial to maintaining our human qualities. Many victims of bacterial meningitis die in the first several days of their illness. Of those who arrive in an emergency room with a rapid downward spiral in neurologic function, as I did, only 10 percent are lucky enough to survive. However, their luck is limited, as many of them will spend the rest of their lives in a vegetative state.

Though she didn't suspect *E. coli* meningitis, Dr. Potter thought I might have *some* kind of brain infection, which is why she decided on the lumbar puncture. Just as she was telling one of the nurses to bring her a lumbar puncture tray and prepare me for the procedure, my body surged up as if my gurney had been electrified. With a fresh blast of energy, I let out a long, agonized groan, arched my back, and flailed my arms at the air. My face was red, and the veins in my neck bulged out crazily. Laura shouted for more help, and soon two, then four, and finally six attendants were struggling to hold me down for the procedure. They forced my body into a fetal position while Laura administered more sedatives. Finally, they were able to make me still enough for the needle to penetrate the base of my spine.

When bacteria attack, the body goes immediately into defense mode, sending shock troops of white blood cells from their barracks in the spleen and bone marrow to fight off the invaders. They're the first casualties in the massive cellular war that happens whenever a foreign biological agent invades the body, and Dr. Potter knew that any lack of clarity in my cerebrospinal fluid would be caused by my white blood cells.

Dr. Potter bent over and focused on the manometer, the transparent vertical tube into which the cerebrospinal fluid would emerge. Laura's first surprise was that the fluid didn't drip but gushed out—due to dangerously high pressure.

Her second surprise was the fluid's appearance. The slightest opacity would tell her I was in deep trouble. What shot out into the manometer was viscous and white, with a subtle tinge of green.

My spinal fluid was full of pus.

3·

Out of Nowhere

Dr. Potter paged Dr. Robert Brennan, one of her associates at Lynchburg General and a specialist in infectious disease. While they waited for more test results to come from the adjacent labs, they considered all of the diagnostic possibilities and therapeutic options.

Minute by minute, as the test results came back, I continued to groan and squirm beneath the straps on my gurney. An ever more baffling picture was emerging. The Gram's stain (a chemical test, named after a Danish physician who invented the method, that allows doctors to classify an invading bacteria as either gram-negative or gram-positive) came back indicating gram-negative rods—which was highly unusual.

Meanwhile a computerized tomography (CT) scan of my head showed that the meningeal lining of my brain was dangerously swollen and inflamed. A breathing tube was put into my trachea, allowing a ventilator to take over the job of breathing for me—twelve breaths a minute, exactly—and a battery of monitors was set up around my bed to record every movement within my body and my now all-but-destroyed brain.

Of the very few adults who contract spontaneous *E. coli* bacterial meningitis (that is, without brain surgery or penetrating head trauma) each year, most do so because of some tangible cause, such as a deficiency in their immune system (often caused by HIV or AIDS). But I had no such factor that would have made me susceptible to the disease. Other bacteria might

cause meningitis by invading from the adjacent nasal sinuses or middle ear, but not *E. coli*. The cerebrospinal space is too well sealed off from the rest of the body for that to happen. Unless the spine or skull is punctured (by a contaminated deep brain stimulator or a shunt installed by a neurosurgeon, for example), bacteria like *E. coli* that usually reside in the gut simply have no access to that area. I had installed hundreds of shunts and stimulators in the brains of patients myself, and had I been able to discuss the matter, I would have agreed with my stumped doctors that, to put it simply, I had a disease that was virtually impossible for me to have.

Still unable to completely accept the evidence being presented from the test results, the two doctors placed calls to experts in infectious disease at major academic medical centers. Everyone agreed that the results pointed to only one possible diagnosis.

But contracting a case of severe *E. coli* bacterial meningitis out of thin air was not the only strange medical feat I performed that first day in the hospital. In the final moments before leaving the emergency room, just before my intubation, and after two straight hours of guttural animal wails and groaning, I became quiet. Then, out of nowhere, I shouted three words. They were crystal clear, and heard by all the doctors and nurses present, as well as by Holley, who stood a few paces away, just on the other side of the curtain.

"God, help me!"

Everyone rushed over to the stretcher. By the time they got to me, I was completely unresponsive.

I have no memory of my time in the ER, including those three words I shouted out. But they were the last I would speak for the next seven days.

"Have you gone through Richmond yet?" he asked.

"No," Jean said. "I'm just north of it on I-95."

"Get onto route 60 West, then route 24 down to Lynchburg. Holley just called. Eben's in the emergency room there. He had a seizure this morning and isn't responding."

"Oh, my God! Do they have any idea why?"

"They're not sure, but it might be meningitis."

Jean made the turn just in time and followed the undulating two-lane blacktop of 60 West through low, scudding clouds, toward Route 24 and Lynchburg.

It was Phyllis who, at three o'clock that first afternoon of the emergency, called Eben IV at his apartment at the University of Delaware. Eben was outside on his porch doing some science homework (my own dad had been a neurosurgeon, and Eben was interested in that career now as well) when his phone rang. Phyllis gave him a quick rundown of the situation and told him not to worry—that the doctors had everything under control.

"Do they have any idea what it might be?" Eben asked.

"Well, they did mention gram-negative bacteria and meningitis."

"I have two exams in the next few days, so I'm going to leave some quick messages with my teachers," said Eben.

Eben later told me that, initially, he was hesitant to believe that I was in as grave danger as Phyllis had indicated, since she and Holley always "blew things out of proportion"—*and* I never got sick. But when Michael Sullivan called him on the phone an hour later, he realized that he needed to make the drive down—*immediately*.

As Eben drove toward Virginia, an icy pelting rain started up. Phyllis had left Boston at six o'clock, and as Eben headed toward the I-495 bridge over the Potomac River into Virginia,