Nature loves to hide. And we are driven by nature and nurture to peel away her veils, to discover what is hidden. In doing so, we have had some surprises. Atoms. Germs. Genes. Galaxies. Electromagnetic radiation. Artificial intelligence. But also we discover that some things we long assumed to lie behind the goddess's veil have yielded scant evidence of their reality. Magic. Miracles. Gods and demons. Immortality.

Immortality. Personal immortality. Nothing has been more ardently wished for or universally believed. Nothing has so thoroughly covered its traces—if it exists. We have seen that every observable element of self is inextricably linked to matter. The conclusion seems inescapable. There is no ghost
in the machine, no spirit that will survive the soma's death. This need not be a cause for dismay. The smallest insect is more worthy of our astonishment than a thousand choirs of angels. The buzzing business of a single cell is more infused with eternity than any disembodied soul.

Few poems of the previous century have attracted more discussion than Wallace Stevens's “Sunday Morning.” In its ambivalence, its nostalgia for traditional faith, its frank hedonism, its skepticism, and its final, halting resolution, it captures as well as any other document our own restlessness in the face of death. Briefly, the poem describes a woman's thoughts and feelings as she sits in a sunny chair on a Sunday morning, indulging herself with coffee, oranges, and the “green freedom of a cockatoo.” Into her dreamy reverie comes “the dark encroachment of that old catastrophe,” Christ's bloody sacrifice, with its promise of her own resurrection into eternal life. But what would this promised paradise be with its ripe fruit that never falls, boughs that always hang heavy in a perfect sky? Where in that heavenly abode might she find the delight of hearing wakened birds test before they fly “the reality of misty fields, by their sweet questionings”? “Death is the mother of beauty,” the poet writes, not once, but twice. Only in the face of personal oblivion do we attend to the sweet perfections of the here and now: “Passions of rain, or moods in falling snow; grievances in loneliness, or unsubdued elations when the forest blooms; gusty emotions on wet roads on autumn nights; all pleasures and all pains, remembering. . . .”

Why do we die? What is it about our biology that requires our inevitable, programmed death? Bacteria and amoebae reproduce by splitting down the middle, cloning themselves in a kind of immortality. An individual bacterium or amoeba might die—by being exposed to the excessive heat, for example—but it need not die. Its lineage can endure forever. Even sexual microorganisms, such as certain algae and fungi, can
reproduce either sexually, jumbling genes, or by simple division, making millions of exact copies of themselves.

Death as we understand it entered the story with the advent of multicellularity. During the Cambrian Era, sexual creatures evolved made of two kinds of cells: germ cells—eggs and sperm—stored in the gonads and destined to play a role in reproduction, and soma cells—body cells—such as tissue, skeleton, stalk, stem, blood, heart, eyes, ears, horns, feathers. The germ cells have a kind of immortality in that their genome, or part of it, finds its way into future generations. But the soma is doomed to die, perhaps in days, as for mayflies, or in centuries, as for sequoias.

It is the death of the soma that the woman in Stevens's poem is thinking about—the soma who sits in the sunny chair, wrapped in her silken dressing gown, inhaling the aroma of coffee, tasting the tangy fruit. The fact that something of ourselves—the germ cells—can flow into future generations is little consolation for the death of the part of us that thinks, feels, dreams. The soma we see in the mirror is self-afflicted by thoughts of mortality. “But in contentment I still feel the need of some imperishable bliss,” says the woman in the poem, and, yes, a longing for immortality is deep within us, in our culture, perhaps even in our genes. To assuage the woman’s unease, the poet offers no deathless paradise, only the enduring beauty of creation—the deer on the mountain, the sweet berries that ripen in the wilderness, the flocks of pigeons that in the evening make “ambiguous undulations as they sink, downward to darkness, on extended wings.”

Will it be enough? Having stripped away death's veil and discovered no Empyrean Fields, no paradise, no spirit that can live forever, can the religious naturalist find sufficient consolation in the material creation? The microbiologist Ursula Goodenough writes: “Sex without death gets you single-celled algae and fungi; sex with a mortal soma gets you the rest of the . . . creatures. Death is the price paid to
have trees and clams and birds and grasshoppers, and death is the price paid to have human consciousness, to be aware of all that shimmering awareness and all that love.” Death, she might as well have said, is the mother of beauty.

On rare occasions the Leonid meteor shower of November puts on quite a show. Such was the case on the night of November 13–14, 1866, when the sky over Europe was literally ablaze with shooting stars. By all reports the spectacle was both terrifying and beautiful. It was, in any event, a sobering reminder of the precarious and impersonal power of nature. A week or so after the shower, the English author and Anglican divine Charles Kingsley preached a sermon, which he titled “The Meteor Shower,” which bears attention today. In that sermon he said:

Terrible enough Nature looks to the savage, who thinks it crushes him from mere caprice. More terrible still does Science make Nature look, when she tells us that it crushes, not by caprice, but by brute necessity; not by ill-will, but by inevitable law. Science frees us in many ways (and all thanks to her) from the bodily terror which the savage feels. But she replaces that, in the minds of many, by a moral terror which is far more overwhelming.

The moral terror of which Charles Kingsley speaks is the indifference of the cosmos to our personal fates, exemplified most dramatically in our inevitable personal oblivion. Only faith in a higher guiding power can keep us from despair, preached Kingsley.

How I would love to see a meteor storm such as the one Kingsley observed in 1866. When several years ago a powerful Leonid shower was predicted, you can bet I was out there waiting, only to be disappointed. I’ve seen some pretty good meteor showers, but nothing yet to equal the Leonids of 1866. We know exactly what causes these
exceptional showers, and astronomers can predict them to some extent years in advance. No longer do we experience the raw terror that our ancestors felt on seeing the heavens fall. We appreciate meteor storms for what they are: demonstrations of nature’s grandeur and beauty—and of the power of the human mind to grasp the laws that nature loves to hide.

In place of the distressingly indifferent laws of celestial mechanics, Kingsley—good Victorian divine—insinuates a Divine Father, outside of nature, loving to be sure, but also just, a Father who can suspend nature’s laws to exact retribution, to punish the sinner, even to confine the unworthy to hell fire. Yes, science frees us in many ways from the physical terror which the “savage” feels, says Kingsley, and for that we should be grateful. Why then does he insist on returning us to a bondage of our own making? Is it necessary to feel the moral terror of hell to be good? Can we not find a basis for ethical action in joy, in beauty, in the gracious possibilities of human evolution? As a father, I want my children and grandchildren to be good not because they fear punishment or crave reward, but because being good does honor to themselves and to the creation of which they are a part. Call it grace if you wish. It is the same grace that illuminates the sky when meteors fly.

Several years ago, I attended a seminar at my college on the foundations of ethical systems. The participants, from various academic departments, quoted Plato, Jesus, Heidegger, and a host of other authorities; they trotted out every philosophical and theological reason why we can or should be good. Of course, prominent among the arguments was Kingsley’s old canard: Without the promise of eternal salvation or the threat of damnation, we would all be scoundrels. No one at the seminar mentioned that we are first of all biological creatures with an evolutionary history, and that altruism, aggression, fidelity, promiscuity, nurturing, and violence might all be part of our animal natures. I
looked around the auditorium and saw folks of every religious and philosophical persuasion, and of many cultural and ethnic backgrounds, and I thought, “Gee, I’d trust any one of these folks to return my wallet if she found it lying in the street.” Sure, humans are capable of great evil, but most of us are pretty good most of the time, and I suspect that it has more to do with where we have been as a biological species than with where we hope to be going in an afterlife.

There have been many treatises in recent years showing “how nature designed our universal sense of right and wrong,” to quote the subtitle of evolutionary psychologist Marc Hauser's *Moral Minds*. Primatologists such as Dutch-born Frans de Waal have described examples of empathetic behavior among apes and monkeys; we are not, it seems, the only moral animal. These studies are only a prologue to what will be an ongoing investigation, and it is still too early to offer firm conclusions, but few scientists doubt that biological and cultural evolution can satisfactorily account for moral behavior without invoking eternal punishments or rewards.

The debate about the foundations of morality was old even in Kingsley's time. Some few decades after Kingsley preached his Leonid sermon, the British statesman Arthur Balfour addressed the problem of the good in a book called *The Foundations of Belief*. Balfour compared what he imagined to be the God-given moral law to the starry heavens and found them—as did Kingsley—both sublime. But if one accepts the “naturalistic hypothesis,” he wrote—thinking, of course, of Darwin—then the moral law becomes as mundane as “the protective blotches on the beetle’s back,” an ingenious contrivance of nature, perhaps, but hardly worthy of our human affinity to angels. Balfour, like Kingsley, misses the point. The Darwinian naturalistic synthesis does not reduce the sublimity of the starry sky to the lowly beetle’s spots; rather it shows the beetle’s spots to be as sublime as any starry sky. Naturalism spins a web of enchantment that
equally embraces the beetle and the distant galaxy. No more do we think of nature as a “Great Chain of Being,” with the moral law descending from above and the flames of hell licking our feet from below, as was the universal Christian belief before the Scientific Revolution. Since Galileo, we understand ourselves to be part of an endlessly fructifying tapestry of mutual relationship and self-imposed responsibility, rather than a chain of subservience and domination. We are animals who have evolved the capacity to cherish our fellow humans and to resist for the common good our innate tendencies to aggression and selfishness, not because we have been plucked out of our animal selves by some sky hook from above, but because we have been nudged into reflective consciousness by evolution. When it comes to living in a civilized way on a crowded planet, I choose to put my faith in the long leash of the genes rather than fear of hellfire or a chance to walk on streets of gold.

In the first panel of a Calvin and Hobbes comic strip, Calvin is alone under the night sky. In the second panel, he screams at the stars, “I’m significant!” Third panel: He stands staring into the silent spaces. Fourth panel: A chastened Calvin adds, “Screamed the dust speck.”

Auggghhhhhhh. . . ! Poor Calvin. Overwhelmed with the vastness of the cosmos and existential angst. He is not the first, of course. Most famously the seventeenth-century French philosopher Blaise Pascal wailed his own despair: “I feel engulfed in the infinite immensity of spaces whereof I know nothing and which know nothing of me. I am terrified. . . . The eternal silence of these infinite spaces alarms me.”

And he didn't know the half of it.

Not so long ago, we imagined ourselves to be the be-all and end-all of creation, at the center of a cosmos made expressly for us. We stood at the pinnacle of the material Great Chain of Being, just a step below the spiritual angels.
We could almost touch the hem of God’s robe as he sat on his celestial throne in the all-enclosing Empyrean sphere. Then it turned out with Copernicus that the Earth is not the center of the cosmos. Nor, we subsequently discovered, is the Sun. Nor the Galaxy. The astronomers Sebastian von Hoerner and Carl Sagan raised this apparently deflating experience to the level of a principle—the Principle of Mediocrity, they called it—which can be stated like this: The view from here is about the same as the view from anywhere else. Or to put it another way: Our star, our planet, the life on it, and even our own intelligence, are completely mediocre. Moon rocks are just like Earth rocks. Photographs of the surface of Mars made by the landers and rovers might as well have been made in Nevada. Meteorites contain some of the same organic compounds that are the basis for terrestrial life. Gas clouds in the space between the stars are composed of precisely the same atoms and molecules that we find in our own backyard. The most distant galaxies betray in their spectra the presence of familiar elements.

And yet, and yet, for all we know, our brains are the most complex things in the universe. It could be, I suppose, that we are living, breathing refutations of the Principle of Mediocrity, utterly unique with our intelligence and self-awareness among the myriad galaxies. But I doubt it. For the time being, Calvin will just have to get used to living in the infinite abyss and eternal silence. He has Hobbes, his beloved tiger. We have each other.

I think of something the Jesuit mystic Pierre Teilhard de Chardin wrote, something similar to Calvin’s scream: “It is a terrifying thing to have been born: I mean, to find one’s self, without having willed it, swept irrevocably along on a torrent of fearful energy.” But Teilhard, recognizing the Pascalean silences of space, found the grounds for exhilaration in the great sweep of natural evolution, and identified his God with “the flame [that] has lit up the whole world from within . . . from the inmost core of the tiniest atom to the mighty sweep
of the most universal laws of being." He wrote: “Man has every right to be anxious of his fate so long as he feels himself to be lost and lonely in the midst of the mass of created things. But let him once discover that his fate is bound up with the fate of nature itself, and immediately, joyously, he will begin again his forward march.” Teilhard turned the terror of infinite spaces into an overwhelming joy. He died, in exile, with much of his life’s work censored by the Church to which he had dedicated his life, a Church that meant to keep for itself the keys to the gates of heaven and the doors of hell, a Church that had a vested interest in maintaining the illusion of a personal God to whom she controls exclusive access. That was surely a great trial for Teilhard. But his greatest sadness at the end was this: “How is it possible that I am so incapable of passing on to others . . . the vision of the marvelous unity in which I find myself immersed.”

Recently, I watched again, for the first time since the late 1950s, Robert Bresson’s classic film, *The Diary of a Country Priest*, based on Georges Bernanos’s novel of the same name. I am reminded of the film now as I write of Teilhard de Chardin’s death in exile from his beloved France and the favor of his Church. The story is that of a young priest who arrives at his first parish in rural France filled with naive idealism, spiritual longing, and a good bit of repressed sexuality. He lives in a world haunted by God and demons. Spurned by his parishioners, unable to pray, his stomach ravaged by cancer, the young priest drifts inexorably towards death. His last words are: “Does it matter? Grace is everywhere. . . .”

Both film and book made a great impression on me when I encountered them half-a-century ago. I was then a young graduate student in physics, deeply religious, struggling to find my way between faith-based reality and evidence-based reality. After some years of anguished searching (and no small amount of stomach pain), I chose
empiricism over faith. Does it matter? Oh yes. I have lived the greater part of my life without God or demons, and I am happily rewarded for it. I have come to the same conclusion as Teilhard de Chardin and Georges Bernanos’s country priest: Grace is everywhere.