



in it, the ceaseless, purposeless swirl of mindless atoms create, quite by accident, everything from planets to stars, plants to people. Epicureanism was rediscovered in the early Renaissance and from there passed into the modern reductionist, materialist framework for describing nature—a program bent not only on denying anything beyond the material realm, but also on reducing everything to an ever smaller set of constituent parts and emphasizing these parts as ultimate reality. Epicureanism provided the prototype of the meaningless universe—godless, governed by chance, purposeless. Nihilism is its heir.<sup>2</sup>

But for centuries, materialism had a credibility problem. How could blind chance fashion something as intricate as an orchid or a butterfly? How could it create life? Half way through the nineteenth century, Charles Darwin suggested an answer. He argued that chance variation, coupled with the ruthless struggle for self-preservation, was the true creative force in the biological world. Occasionally, a random variation would occur that benefited survival and reproduction. This variation was more likely to get passed on to future generations than neutral or harmful variations. In this way, beneficial variations would pass on and accumulate and, over millions of years, lead to new species, orders and phyla.

Some found ways to hold Darwin's story in one hand and divinity in the other. But for many who accepted Darwin's newly fashioned creation story, all the glories of creation, all of its meaning and purpose, suddenly vanished. Human beings themselves became just one more accident of evolution, and a quite unfortunate one at that, for they alone of all the animals had been given the regrettable ability to grasp the ultimate meaninglessness of their own existence.

At the end of the nineteenth century, philosopher Friedrich Nietzsche provided the West with the most ruthless account of the meaningless universe. Taking both Schopenhauer and Darwin to heart, Nietzsche proudly declared that all philosophy, all religion, all science, all literature, all art were only so many desperate attempts to paint meaning on a meaningless cosmic canvas. We must "recognize untruth as a condition of life," he explained, and all attempts to portray truth are merely fictions masking the will to power.<sup>3</sup>

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<sup>2</sup>For a thorough account of the pedigree of materialism, see Benjamin Wiker, *Moral Darwinism: How We Became Hedonists* (Downers Grove, Ill.: InterVarsity Press, 2002).

<sup>3</sup>Friedrich Nietzsche, *Beyond Good and Evil*, trans. Walter Kaufmann (New York: Vintage, 1966), sec. 4.

Nietzsche's own attempts to create meaning upon ultimate meaninglessness ended in insanity. Nevertheless, by the twentieth century, nihilism was fashionable. Philosopher Jean-Paul Sartre offered a literary account in *Nausea*, a novel about the utter meaninglessness of human existence with a thinly disguised Sartre as the lead character, Roquentin. Here was the truly philosophical man who alone recognized the hideous nature of reality, hideous enough to bring on a kind of metaphysical sickness (hence the title).

Later the theme found its way into a variety of brooding plays, poems, stories and films and eventually begat a popular disciple in Woody Allen, who offered moviegoers a friendlier, self-congratulatory, domesticated nihilism-as-autobiography. Finally, at the end of the century, nihilism entered the mainstream, taking its place at the decentered center of the 1990's most popular sitcom, *Seinfeld*, a show, as its creators proudly proclaim, about nothing. In one episode the characters actually get lost in a mall's parking garage—appropriate to *Seinfeld*, since it's a world in which the search for meaning and value is less a valiant quest than a sort of aimless browsing at the local mall.<sup>4</sup>

As Karen Carr noted in 1992, "Nihilism, the bane of the nineteenth century, is fast becoming the banality of the late twentieth century."<sup>5</sup> As a banality, the assumption of meaninglessness has become commonplace, an obvious beginning point that, ironically, has become a truism. It is the last truth one can still assert in the company of intellectuals without embarrassment, having now the status of a conversational icebreaker, a cocktail party talking point that has taken the place of the weather.

But for all the respect it commands, the assumption of meaninglessness is only an assumption, a dogma that keeps many from seeing what should be obvious: the universe, rather than being devoid of meaning, is, like a great work of art, full to overflowing with meaning: complex, integrated and intelligible order, rather than senseless piles of gibberish. Contra nihilism, the universe has more meaning than we can imagine—layers of meaning that scientists, among others, continue to discover. It's a point we'll come back to again and again. Our argument is borne along, not in spite of recent scientific discoveries, but by those discoveries.

We now know, for instance, that even the simplest cells are full to overflowing with meaningful form. Thanks to discoveries in the second half of

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<sup>4</sup>See Thomas H. Hibbs, *Shows About Nothing: Nihilism in Popular Culture from The Exorcist to Seinfeld* (Dallas: Spence Publishing, 1999).

<sup>5</sup>Karen L. Carr, *The Banalization of Nihilism* (New York: SUNY Press, 1992), p. 140.

the twentieth century, we understand that that the cell includes an alphabet and an extraordinary amount of functional genetic text. As software giant Bill Gates explains, “DNA is like a computer program but far, far more advanced than any software ever created.”<sup>6</sup> DNA involves a four-letter alphabet written onto the double helix inside living cells. These four letters are used to construct the larger alphabet of 20 amino acids used to build proteins.

If only a little code were needed for the simplest self-reproducing cell—say a dozen amino acids of the right type and order—chance would do nicely as an explanation. But in even the simplest cells, the more than 30,000 different kinds of protein chains—each tailored to a particular task—are often hundreds of letters long. And even that sophisticated genetic software isn’t enough for life. These genes can only function within the exquisitely ordered living structure, the cell. As New Zealand geneticist Michael Denton explains,

Although the tiniest bacterial cells are incredibly small, weighing less than  $10^{-12}$  gms, each is in effect a veritable micro-miniaturized factory containing thousands of exquisitely designed pieces of intricate molecular machinery, made up altogether of one hundred thousand million atoms, far more complicated than any machinery built by man and absolutely without parallel in the non-living world.<sup>7</sup>

A minimally functional cell would contain at least 250 genes and their corresponding proteins.<sup>8</sup> The odds of a primordial soup randomly burping

<sup>6</sup>Bill Gates, *The Road Ahead* (Boulder, Colo.: Blue Penguin, 1996), p. 228.

<sup>7</sup>Michael Denton, *Evolution: A Theory in Crisis* (Chevy Chase, Md.: Adler & Adler, 1986), p. 250.

<sup>8</sup>See Stephen Meyer, “DNA and the Origin of Life: Information, Specification and Explanation,” in *Darwinism, Design and Public Education*, ed. John Angus Campbell and Stephen C. Meyer (East Lansing: Michigan State University Press, 2004), pp. 223-85. The essay engages the ongoing conversation among molecular biologists and information theorists, drawing on works too numerous to list here. A few that are particularly relevant to this aspect of his discussion are J. Reidhaar-Olson and R. Sauer, “Functionally Acceptable Solutions in Two Alpha-Helical Regions of Lambda Repressor,” *Proteins, Structure, Function and Genetics* 7 (1990): 306-10; D. D. Axe, “Biological Function Places Unexpectedly Tight Constraints on Protein Sequences,” *Journal of Molecular Biology* 301, no. 3 (2000): 585-96; Michael Behe, “Experimental Support for Regarding Functional Classes of Proteins to Be Highly Isolated from Each Other,” in *Darwinism: Science or Philosophy?* ed. J. Buell and V. Hearn (Richardson, Tex.: Foundation for Thought and Ethics, 1994), pp. 60-71; H. P. Yockey, *Information Theory and Molecular Biology* (Cambridge: Cambridge University Press, 1992), pp. 246-58; Elizabeth Pennisi, “Seeking Life’s Bare Genetic Necessities,” *Science* 272, no. 5265 (1996): 1098-99; A. Mushegian and E. Koonin, “A Minimal Gene Set for Cellular Life Derived by Comparison of Complete Bacterial Genomes,” *Proceedings of the National Academy of Sciences, USA* 93 (1996): 10268-73; and C. Bult et al., “Complete Genome Sequence of the Methanogenic Archaeon, *Methanococcus jannasch*,” *Science* 273 (1996): 1058-72.

up a concoction even half its length are vastly lower than one chance in  $10^{150}$ . The universe isn't big enough, fast enough or old enough to generate the probabilistic resources to tame an improbability that large.<sup>9</sup> Even if, against all odds, a primordial soup had burped up the necessary set of protein chains, then, as we'll show in chapter eight, this still wouldn't be enough. The functioning cell isn't a set of requisite parts existing in an indiscriminate pile, or even a neatly ordered series of piles, any more than all the parts lined up neatly on shelves at your local car parts store are a car. As we discuss at greater length in chapter eight, the parts must be ordered in regard to space and time before they can function in the intricate life of a living cell. Genetic information, to function as information, must exist in the living structure within which it has meaning.

At least one philosophical materialist, eminent British philosopher Antony Flew, revisited the origin-of-life problem recently and began to rethink his position. Flew has long been held up by atheists and skeptical scientists as a beacon of reason and as a model of incisive, rigorous and enlightened thinking about the question of design. For many years he argued that there should be a presumption of atheism when approaching the question of origins, and for many years he insisted there was nothing in nature to overcome that presumption. But as he explained recently, he now has joined design theorists in seeing something more meaningful than chance or lawlike activity in the origin of life,<sup>10</sup> in seeing something like the fingerprints of an Author. He was not misled but led to that conclusion. As he explained, he "had to go where the evidence leads," and the evidence led him to reject the chipper atheism characteristic of leading Darwinist Richard Dawkins:

It seems to me that Richard Dawkins constantly overlooks the fact that Darwin himself, in the fourteenth chapter of *The Origin of Species*, pointed out that his whole argument began with a being which already possessed reproductive powers. This is the creature the evolution of which a truly comprehensive theory of evolution must give some account. Darwin himself was well aware that he had not produced such an account. It now seems to me that the findings of more than fifty years of DNA research have provided materials for a new and enormously powerful argument to design.<sup>11</sup>

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<sup>9</sup>William Dembski, *The Design Revolution* (Downers Grove, Ill.: InterVarsity Press, 2004).

<sup>10</sup>Antony Flew, "My Pilgrimage from Atheism to Theism: An Exclusive Interview with Former British Atheist Professor Antony Flew" *Philosophia Christi* 6, no. 2 (2004) <<http://www.biola.edu/antonyflew>>.

<sup>11</sup>*Ibid.*

To anyone not educated out of such an intuition, this is a commonsense view hardly in need of an argument. The information in DNA is a lot like this book in your hands: it contains sentence after sentence in a very particular order, and those sentences are functional because they have pages on which to rest, pages made of the appropriate material, properly ordered and bound—that is, the exquisite architecture of the cell that makes possible the work of DNA. The discovery of the cell's riches is just one instance of what occurred so often in the twentieth century: scientists again and again found a depth of meaning, of intricate, intelligible order, in the natural world.

In exploring this meaning we will move forward by philosophical, literary, mathematical and scientific analysis. This broad array of intellectual tools is needed for two reasons. First and foremost, since the universe is full of meaning—so rich to overflowing with evidence of its ingenuity—a number of disciplines are needed to capture this superabundance. Second, we are trying to break a spell, a kind of intellectual blindness caused by the ingrained habits of dogmatic materialism, and that blindness has infected virtually every intellectual discipline.

A first step in breaking the spell is to investigate what exactly is meant by the term *meaningless*. The most obvious sense is associated with words, with speech as an act of communication. When we think of meaningless speech we have in mind gibberish. Unlike the speech of an impenetrable foreign language, gibberish is not merely unknowable information. In gibberish, there is no information to know.

Gibberish may result from an unintelligent cause, like a monkey banging out *ffvvvvvvvffffff* while attempting to subdue a typewriter. Or a monsoon might scatter a game of Scrabble, creating a random, meaningless pile of letters on the ground. In both cases, our recognition that the string of letters is meaningless is both complex and commonsensical. Experience teaches us that neither a monsoon nor a monkey is much given to the creation of meaningful phrases. Further, even if we knew nothing of how the arrangement of letters came to be, we wouldn't assume they were words in a foreign language; the excessive repetition in the former case and the alinear arrangement of the Scrabble letters in the latter would preclude such an assumption.

Gibberish might also occur if a person intended to be meaningless—if, for instance, a child wrote *AijbqW/Waa!Oktmvaegawwmtd* and pretended it was a secret code. Strange, yes, but are we sure it's meaningless? Perhaps the kid isn't kidding. Or perhaps it's a phrase written in an ancient tongue

known only to a handful of obscure linguists. Or maybe it is the private language of Wiker and Witt, one we use to send encrypted missives to each another over the Internet. How could one possibly know for certain that *AijbqW/Waa!Oktnvaegawwmtd* was a random, meaningless string of letters? One would need to be omniscient to rule out the possibility of semantic meaning.

Notice, however, that such an omniscient condition is merely an extension par excellence of the very thing that led us to infer meaninglessness. As readers of this book, you know the English language and you understood the context of the original *AijbqW/Waa!Oktnvaegawwmtd*. That context is a book written in English prose and, more specifically, a meaningful, English paragraph calling for (as an example) the inclusion of a meaningless string of letters. Understanding these things leaves one with a sense that the letters probably were semantically meaningless (though not without purpose). Omniscient knowledge of all languages everywhere combined with an intimate and complete knowledge of the two authors of this book would merely cinch what you already understand to be the best explanation.

While we poor mortals are not omniscient, we can understand even in our own case that the detection of meaninglessness depends on our understanding of preexistent meaning, on our knowledge of language (most immediately, in this case, the English language surrounding the gibberish) and of the particular English meanings leading up to the string of nonsense letters. In other words, the recognition of disorder depends on order, so that without meaning, the notion of gibberish (ironically) wouldn't mean anything. This is evident in the very term *meaningless*, a subtraction or falling off from meaning. Meaninglessness is, therefore, what we might call parasitic or, with less of an edge, entirely dependent on preexisting meaning to have meaning.

But even meaning itself is dependent. Meaning doesn't stand alone; it points to something else. A crucial implication of this is that meaning isn't just a matter of letters accumulating into words. The backbone of language is the noun, and nouns are about *things*.<sup>12</sup> Their significance is that they signify; with the other parts of speech they are made to speak about reality, to say something about something. And so the following is also gibberish: "Un-

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<sup>12</sup>Of course, nouns are regularly and rightly stretched to name all kinds of things that aren't things in any ordinary sense of the word (things like *incoherence*), but these ultimately depend on direct connections to things that are (e.g., *coherence*).

der crying the of trundle breakfast paladin glint." The string of words doesn't have meaning, even though the individual words do, because the string of words is not governed by an overarching unity or pattern that refers to something. A sign of this is that it has no defined subject and predicate, preventing it from saying something about something.

Indeed, a certain amount of gibberish would persist if we strung together sentences that were utterly unconnected to each other. Absent an overarching meaning that unites the several sentences of a paragraph, the straggling line of sentences collapses into a mob, a jumble of disconnected parts.

Here again, we recognize incoherence because we understand what it means to be coherent. We also recognize that meaning has a definite top-down, whole-part direction. That is, the larger context of a paragraph provides a sentence with meaning; the larger context of a sentence provides meaning for its words; and the individual letters convey meaning only when they become part of words.

We develop that point further in the next chapter, but now let's move on to another sense of meaninglessness, one that differs from gibberish. In a second sense, something can be meaningless, not in itself, but *to us* because we haven't deciphered it yet. In this sense, something isn't meaningless in itself (as with the monkey's contribution to experiential poetry, *ffv-vvvvvvffffffffff*). Rather, it is only meaningless *to* the viewer or investigator. Its meaning is knowable but not yet known.

Thus, for example, when I (Benjamin) look under the hood of my 1989 Ford F-150, I see a lot of parts. It looks to me like a confused jumble of hoses, knobs, wires, boxes and springs. If I pick up a part (which I often do, since it regularly sheds them) and ask, "What *is* this?" (which I often do, since I am mechanically challenged), I have no answer. The part is meaningless to me. I don't know what it does. I don't even know where it came from.

When I consult the *Haynes Repair Manual for Ford Pick-ups and Broncos, 1980-1996*, I am thrown into even greater confusion and angst. I read the text. I know all the English words. But since I am terminally ignorant of the way an engine works, the repair manual is as meaningless as the jumble of parts under the hood. *To me*, that is. Happily, my mechanic understands both quite well and quite cheerfully extracts the cash from my wallet as a just penalty for my ignorance. If I took the time to apprentice myself to a mechanic instead of forever scribbling away at books, then the engine and manual both would become meaningful to the degree that I learned what



an engine is and how the many parts serve to make the engine run. And as I progressed, I would become strongly convinced that every part, no matter how bizarre looking or seemingly inconsequential, had an intelligible function, even though I didn't know it yet.

Consider the words of physicist Steven Weinberg in the penultimate paragraph of *The First Three Minutes*:

It is almost irresistible for humans to believe that we have some special relation to the universe, that human life is not just a more-or-less farcical outcome of a chain of accidents reaching back to the first three minutes [after the big bang], but that we were somehow built in from the beginning. As I write this I happen to be in an airplane at 30,000 feet, flying over Wyoming en route home from San Francisco to Boston. Below, the earth looks very soft and comfortable—fluffy clouds here and there, snow turning pink as the sun sets, roads stretching straight across the country from one town to another. It is very hard to realize that this all is just a tiny part of an overwhelmingly hostile universe. It is even harder to realize that this present universe has evolved from an unspeakably unfamiliar condition, and faces a future extinction of endless cold or intolerable heat. The more the universe seems comprehensible, the more it also seems pointless.<sup>13</sup>

On Weinberg's view, the retail meaning of daily human commerce is only superficially meaningful, for the ostensible pointlessness of the beginning robs any of the busy goings-on of the human beings 30,000 feet below him of any ultimate meaning. *Because* "human life is . . . just a more-or-less farcical outcome of a chain of accidents reaching back to the first three minutes" (that is, the more we understand scientifically about the universe), *then* the "more it also seems pointless." Weinberg is claiming that, *as a matter of scientific fact*, we have demonstrated that the universe is *meaningless*, a purposeless whirl of matter, devoid of intelligent governance by a benevolent, divine being.

We should now recognize Weinberg's view as encapsulating precisely the view of meaninglessness that undergirds both philosophical and banal cultural nihilism. In his belief that the universe is ultimately a *meaningless*, purposeless whirl of matter, devoid of intelligent governance by a benevolent, divine being, he is the intellectual heir of Epicurus, Schopenhauer and Nietzsche, and he helps to provide the intellectual, scientific "verification"

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<sup>13</sup>Steven Weinberg, *The First Three Minutes: A Modern View of the Origin of the Universe* (New York: Basic, 1977), p. 154.

of the popularized nihilism of Sartre, Woody Allen and even *Seinfeld*.

As a Nobel Prize-winning physicist, Weinberg certainly deserves a hearing for his position. But more fundamental than what he says is how he *acts* as a scientist. Does he behave like someone who believes the world is intrinsically meaningless?

Can a scientist be a scientist if the universe is ultimately meaningless? Science itself, by its very activity, reveals at least one level of meaning in the universe: intelligibility is found in the nature of things themselves, in the regular form and order of things accessible to scientific investigation, even in regard to our understanding of chance. To grasp this, imagine what it would be like to live in a truly disordered world, a reality of gibberish where there was no continuity between events and things just blinked in and out of existence, changing from one shape to the next in completely unpredictable ways. In such a universe, every event would be meaningless against a backdrop of total disorder. Events could be neither connected nor disconnected, no patterns could be discerned and, hence, there could be no science (or life, of course).<sup>14</sup> From this, it is clear that order makes science possible: a context of order allows things to be known and connected and allows us to make sense of sensation.

Most scientists accept this level of meaning without considering the trouble it might cause for the notion of wholesale pointlessness in the universe. Indeed, Weinberg is sufficiently myopic about this inconsistency that he can argue for wholesale pointlessness in his penultimate paragraph and, apparently without even realizing it, undercut himself in the subsequent, final paragraph:

But if there is no solace in the fruits of our research, there is at least some consolation in the research itself. Men and women are not content to comfort themselves with tales of gods and giants, or to confine their thoughts to the daily affairs of life; they also build telescopes and satellites and accelerators, and sit at their desks for endless hours *working out the meaning of the data they gather*. The effort to understand the universe is one of the very few things that lifts human life a little above the level of farce, and gives it some of the grace of tragedy.<sup>15</sup>

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<sup>14</sup>See the insightful essay by physicist Eugene Wigner, "The Role of Invariance Principles in Natural Philosophy," in *Symmetries and Reflections: Scientific Essays of Eugene P. Wigner* (Woodbridge, Conn.: Ox Bow Press, 1979), esp. pp. 28-29.

<sup>15</sup>Weinberg, *First Three Minutes*, pp. 154-55 (emphasis added).

Note that he does not say that men and women work for endless hours spinning out physicists' fantasies, but that they work out the *meaning* of real data. This assumes, of course, that the meaning is *in* the data or, to be more exact, that there is an intelligible order that the data reflect or convey, an order that, surprisingly, can be deciphered by human beings. Science is a meaningful activity precisely *because* the universe itself is meaningful and human beings have the strange capacity to understand it.

Recall the film *A Beautiful Mind*, in which future Nobel laureate and schizophrenic John Nash imagines he has been enlisted to intercept and decode enemy messages hidden in seemingly innocuous magazine and newspaper articles. Nobody hired Nash to do any such thing, and the supposedly hidden meanings he finds are only the invention of his disturbed mind. If we developed Weinberg's nihilistic conception of the universe into a logically consistent view of the world, this would describe all scientists, all mathematicians—madmen sunk in a mirage of meaning amidst a desert of meaningless disorder. Watching the movie, we do not view Nash's sinking into madness as farce. We view it as tragedy, and Weinberg, undoubtedly, did as well. Rather, Nash's condition strikes us as tragic precisely because here before us is a human mind capable of discovering real meaning deep in the order of things, but instead it is cast down, a genius fallen into chaos.

Most scientists aren't mad, although many fashion for themselves a kind of split personality wherein they act as if the universe is knowable, as if it has intrinsic meaning that they are discovering in the data, even while they proclaim that the universe is ultimately meaningless. The view isn't quite self-evidently contradictory since they, no doubt, would draw a distinction between wholesale and retail meaning. But notice where the burden of the argument lies. It's much more natural to suspect that if we find retail meaning, then there is also wholesale meaning—even though we may not yet have fully deciphered it.

If such is the case, then mysteries we encounter in the natural world are actually in accord with the second sense of meaning and meaninglessness outlined above, wherein something is meaningful but as yet undeciphered. We do indeed know a lot about nature, and that we can know this much is the result of it having an intrinsic, intelligible order that we could discover. That we can know even more—that we have not yet plumbed the depths of nature's order, that we continue to uncover layers of surprising complexity and beauty, that the universe proves itself again and again to be ingeniously wrought in a way accessible to the scientific enterprise—is a great

sign that nature is not pointless but meaning-full, a work not of chance but of genius.

This would be the evident conclusion of all practicing scientists were it not for the dogma of reductionist materialism, which insists that the material realm is all that exists and that ultimate reality is to be found in the smallest constituent parts we can find. The everyday experience of these men and women is one of searching out the intrinsically intelligible order of nature, but the materialist dogma barks out that blind forces are the ultimate cause of everything and that the order around us is unintended, pointless.

But for those who will listen, the order of nature bespeaks an altogether different lesson. It's whispering to us of the genius of nature, and we can hear it if we will but awaken from the spell of materialism.

To break that spell, we must look for those things on the stage of materialism that are out of place, train our eyes on what doesn't fit. Rather than leap right into an analysis of nature or even of scientists studying nature, we begin with an analysis of human genius itself, specifically the tragedy and comedy of William Shakespeare. We do this because the most poisonous effect of the materialist spell is the way it clouds our self-understanding. Materialist reductionism seeks to give an entirely material explanation of human intelligence, one that reduces it to a string of pointless material causes. It must kill the soul and, in the process, reduce all the evident genius of humanity to dust. To this end, some materialists have gone after Shakespeare with a tireless ingenuity. In the two chapters that follow, we will keep company with Shakespeare's genius and consider whether news of its dissolution has been greatly exaggerated.

We will show how the meaning of a literary work does not develop merely sequentially but in a recursive and goal-directed relationship with the work as a whole as it exists and takes shape in the author's mind. Living organisms, we argue, function in the same way, so they are not amenable to the blind, step-by-step process suggested by modern evolutionary theory. Our journey with Shakespeare concludes with a description of the elements of genius in Shakespeare's art, well positioning us to consider whether nature itself possesses not merely the hallmark of design but of genius.

That suspicion will lead us toward other demonstrations, other signs to guide us as well as other obstacles along the way. We will segue from human nature to nature, with the next stage in our analysis a kind of midway point—mathematics, one of the great intellectual tools that we human knowers use to investigate the order of nature, the very tool which scientists

like Weinberg so successfully employ to uncover the meaning of the data. As will become clear, the glory of mathematics as a human art manifests the glories of the human intellect, and here too there is a genius to experience, that of the Greek mathematician Euclid. As his insights unfold into the most distant stretches of the cosmos, we ponder, as Albert Einstein did, the striking fact that the universe is comprehensible, that mathematics illuminates nature by mapping forms of order as small as the bonds within an atom and as broad as the universe. On materialist grounds, why should it? Why should there be any connection whatsoever between the highly abstract, formal relationships of numbers and figures and the order of nature? Why, in short, is nature amenable to mathematical analysis?

From a consideration of mathematics, we turn to the world of chemistry, to which materialists claim everything above physics can be reduced, from nature itself to the very activity of scientists who study nature. Against this materialist claim, we again offer the evidence of genius, studying the string of geniuses who discovered and assembled the periodic table of elements and arguing that a materialist account of the human mind fails to account for such extraordinary mental feats. Second, the periodic table itself is a masterpiece of order, precision and intellectual beauty, an order that appears designed for both life and discovery. Chemistry, rather than being that which everything can be reduced to, seems to point upward toward life, as if meticulously crafted for just such a purpose. Finally, in the way the order of the elements has wrung from great scientific minds their best efforts and only then yielded up its secrets, the genius of the elements would seem also to have had in mind not merely life, but specifically the development of human genius.

The suggestion is scandalous only in the narrow room of materialism. Outside that room, we will argue, the conclusion is as natural as a leaf reaching for sunlight. Against the materialist attempts to reduce biology to chemistry, we find instead that the latest science is uncovering more and more evidence that the elements are strangely fit for biology, the lifeless fashioned for the living.

Following this flow, we turn our attention to biology last of all, to the ingenuity of living things. Here we intend to show that it is as misguided to reduce the living world to blind forces as it was to reduce Shakespeare to brute urges. The layer upon layer of complexity and beauty, the ingenious designs and the majestic integration all point beyond pointlessness to a meaningful world and, more than this, to the genius of nature.

Contemporary design theorists until now have not explored the category of genius in a formal and extensive way but instead have focused on one narrow quality of intelligence: its ability to choose among options for a future end. Perhaps some have felt that rationally reconstructing an argument to genius would be difficult to do without creating vulnerabilities. After all, even a poorly constructed automobile possesses the hallmark of design. In the same way, a species with an apparent defect could nevertheless possess the clear signature of design, even if the reason for the defect remained unexplained.

But we will argue that the explanatory category of genius actually strengthens rather than weakens the design argument. As philosopher Jay Richards and astrobiologist Guillermo Gonzalez note in *The Privileged Planet*, where one adds to evidence of design evidence of a specific purpose, the argument for design becomes more robust.<sup>16</sup> We would like to push the argument further, demonstrating that where one can show evidence not only of design and purpose, but of genius, the argument to design becomes still more robust, providing a tighter specification as well as additional explanatory power.

But what about seemingly bad design? Why is the universe largely uninhabited and uninhabitable? Why are there earthquakes, back aches, junk DNA? It's important to make clear at the outset that seeing the signature of genius in nature does not entail a Panglossian view of nature as "the best of all possible worlds." One can recognize the hand of genius without turning a blind eye to disease and deformity, pain and suffering.

One of us hopes to address the question of apparent bad design at greater length in a future book.<sup>17</sup> As the reader will see, our experience with the artistic works of human genius lead us to expect depths that outstrip our immediate understanding, even in regard to our judgments concerning the caliber of particular aspects of the design. Moreover, the careful study of works of genius encourages investigative optimism—the conviction, born of experience, that many inscrutable things in a work of genius are only apparently so and, that, with sustained effort, the work will yield up more and more of

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<sup>16</sup>Guillermo Gonzalez and Jay Richards, *The Privileged Planet: How Our Place in the Cosmos Is Designed for Discovery* (New York: Regnery, 2004), p. 307.

<sup>17</sup>The book is in progress with the provisional title *Darwin and Shakespeare: Aesthetics and Bad-Design Arguments Against Intelligent Design*. It builds on Jonathan Witt, "The Gods Must Be Tidy! Is the Cosmos a Work of Poor Engineering or the Gift of an Artistic Designer?" *Touchstone*, July/August 2004, pp. 25-30.

its secrets, giving us a clearer eye and a more comprehensive viewpoint. In sum, the scientist who recognizes nature as a work of genius can explain—rather than merely explain away—our collective experience of repeatedly uncovering new mysteries and of repeatedly uncovering answers to those mysteries.

And what about the problem not merely of bad design but of evil? That subject isn't the focus of this book, but our argument lends support to an orthodox view of evil as parasitic on good, in the same way that disorder is parasitic on order and meaninglessness on meaning. To view evil in this way does not eliminate evil or even render it a thing of little account; but it does put it in proper perspective. In some fundamental way, goodness, order and meaning are deeply related, and evil, disorder and meaninglessness are related in that each is a falling off from being. We shall return to this insight in the last chapter, but only after an extended examination of the many ways the world is charged with meaning.