THE UNIVERSE: A GREAT MACHINE OR A GREAT THOUGHT?

Ken Olson Lewistown, Montana February 2023

> I don't know the meaning of the journey I was forced to make, between one and another night, in the company of the whole universe.
>
> Fernando Pessoa

Today there is a wide measure of agreement, which on the physical side of science approaches unanimity, that the stream of knowledge is heading toward a non-mechanical reality: the universe begins to look more like a great thought than like a great machine. Mind no longer appears as accidental intruder into the realm of matter; we are beginning to suspect that we ought rather to hail it as the creator and governor of the realm of matter.

Sir James Jeans, astronomer 1930

> The opposite of a fact is a falsehood, but the opposite of one profound truth may very well be another profound truth.
>
> Niels Bohr, physicist, attributed

> The inadequacies of the naturalistic and reductionist world picture seem to me to be real. There are things that science as presently conceived does not help us to understand.
>
> Thomas Nagel, philosopher 2012

I believe the first living cell
Had echoes of the future in it, and felt
Direction and the great animals, the deep green forest
And the whale's-track sea; I believe this globed earth
Not all by chance and fortune brings forth her broods,
But feels and chooses. And the Galaxy, the fire-wheel
On which we are pinned, the whirlwind of stars in which
our sun is one dust-grain, one electron, this
giant atom of the universe
Is not blind force, but fulfills its life and intends its course.

Robinson Jeffers, *De Rerum Virtute*

INTRODUCTION

Our human ancestors of 50,000 years ago lived in world of severe challenges, but those conditions were likely perceived to be simply the way things were and had always been. Day and night came and went, and the seasons, too, but, beyond that, the world that was experienced by any single individual seemed much more nearly fixed, and, without written records, a human mind focused largely on the present. Now, we know that we are surrounded by constant change, and in ways inconceivable before just the last few centuries. No one could have imagined that time itself would come to be measured in terms of billions of earth's years; that entire continents have moved about the globe and that, again and again, they have been transgressed by seas; that whole mountain ranges have been worn away by the erosive trickle of raindrops magnified over countless eons; that the Tree of Life itself has had such an immense history of radical transformations, with entire families of organisms emerging and then passing away; that every cell in our bodies is replaced by another, some in just days, but virtually all in just a few years. The hymn, *O, God, Our Help in Ages Past,* speaks of "Time, like an ever-flowing stream…." Emerson had that long view of time, with all the transient entities that are carried in its flow, for he wrote in his 1845 essay, *The Over-Soul*, "The things we now esteem fixed, shall, one by one, detach themselves like ripe fruit from our experience, and fall. The wind shall blow them none knows whither. The landscape, the figures, Boston, London, are facts as fugitive as any institution past, or any whiff of mist or smoke, and so is society, and so is the world."

When it comes to human culture, that "things change" is obvious. However, its rate in recent times is startling when one thinks that only in the last single lifetime did anyone, anywhere ____ , and you could fill in the blank to reference the use of all sorts of new inventions. Rapid change has often been met with resistance. In 1865, a newspaper editor told his readers, "Well-informed people know that it is impossible to transmit the voice over wires and that, were it possible to do so, the thing would be of no practical value." As the 20th century dawned, another expert pronounced that it was "…nothing less than feeble-mindedness to expect anything to come of the horseless carriage movement." Of radio, television, computers, and many other innovations, similar stories have been be told. Many of them hugely altered peoples' day-to-day lives, and this over a very short period of time. It was in 1970 that Alvin Toffler published his bestselling book, *Future Shock*, an aptly named 500-page survey of the effects of rapid change and the challenges they posed. He quoted the words of scientist Ralph Lapp: "No one –not even the most brilliant scientist alive today—knows where science is taking us. We are aboard a train that is gathering speed, racing down a track on which there are an unknown number of switches leading to unknown destinations. No single scientist is in the engine cab, and there may be demons at the switch. Most of society is in the caboose, looking backward." That was a rather scary picture then, and it is not entirely out of date today.

The scenarios in the above paragraph had to do with the technological aspects of science and their varied impacts. However, as important as those have been, there were two changes wrought by science that were of a completely different order of magnitude, and they had nothing to do with gadgets: they were conceptual, i. e. they concerned how human beings understood their place in the universe.

As is well known, the first concerned the theory of Copernicus in the early 16th century that the sun, not the earth, was the center of all things. A century later, Galileo used the newly invented telescope to largely confirm the fact that our planet was in orbit around the sun. Later discoveries would reveal that the sun itself is one of billions of such stars rotating around the hub of our galaxy, The Milky Way, and advanced optics would reveal that there were millions and then, even, hundreds of billions of other such galactic systems. Some people saw this as an expanded version of "the heavens declare the glory of God and the firmament shows His handiwork," and the new cosmology was happily embraced. But for many others, to consider that the earth was not the center of things was an uncomfortable displacement. Eventually, adjustments were made along the lines of: "Well, at least we humans, of all living creatures, are preeminent; we are the Crown of Creation, occupying the uppermost rung of the ladder of the Great Chain of Being." The story then had an order, a direction, however immense and complex the universe might be, because God's hand was on the rudder of the ship, so to speak, an idea that is easier to maintain if humanity is seen to be at the center of it all.

That changed, too, at least for many, with the second major shift. Charles Darwin's theory of the evolution of species by natural section placed life itself in the river of time. In contrast to the common literalist interpretation of the Genesis stories, which saw creation as a once-for-all event just a few thousand years ago, nature was seen by evolutionists to be anything but static. Rather, all living things, man included, were subject to the same laws concerning population pressures, competition for food and space, and genetic variation. Thus, life-forms ebbed and flowed, developed, went extinct, and some survived, all this as a consequence of changes in the environment. Those transformations over immense spans of time were sufficient to produce, not just new species, but major groups and families of living things.

At first, large numbers of Christians completely rejected the entire idea; over time, they had adopted a fundamentalist and literalist reading of Scripture, and that is still the case with many. In effect, they view the acceptance of evolution as the equivalent of taking an anesthetic that puts a believer to sleep while faith in God is amputated.

However, most Christians made accommodations to Darwinism, because they had not taken Gen. 1-3 literally and realized that, ultimately, science and religion do not conflict. Rightly done, the two endeavors raise completely different questions of the world. Science asks *what* and *how*; religion asks *who* and *why*. Science makes inquiries about the *processes* of secondary causes; religion looks to the ultimate *source*. Thus, hundreds of millions of Christians have espoused the view, simply put, that God *created* the variety in the natural world and that the self-unfolding process of evolution was the *way* that God did it. In that account, God remains the central part of the narrative of history from past to present and future. Thus, as with the knowledge of a much larger physical universe, more detailed information about how things proceed in the biological world has been seen as an enhancement of the idea of creation, making it, not less complex and less wonderful, but more so, an outlook to which I subscribe.

(Sigmund Freud believed, and his many disciples agreed, that he had added what amounted to a third all-encompassing discovery: that the human animal is not, mostly, the rational creature that people of former ages believed it to be. Instead, Freud's picture of the complex human psyche included the hidden but dominating Id, which, as someone has said, is "a fiercely predatory beast of prey stalking the jungles of the unconscious." Historians would disagree regarding the significance of the conclusions drawn by Freud. In addition, very few would call them scientific, inasmuch as they are speculative, widely disputed, and not verifiable, unlike the first two conceptions we described, those of Copernicus and Darwin.)

Thus, mental adjustments are made often and in relation to all sorts of issues. That this is something to be expected and, in fact, should be seen as part of the benefits of education is the perspective espoused in a verse of the hymn, *Once to Every Man and Nation*, words by James Russell Lowell (1845), which has been published in no less than 176 hymnals:

New occasions teach new duties,
Time makes ancient good uncouth;
They must upward still and onward,
Who would keep abreast of truth.

PART I

However, concerning God's relationship to the world, not any and every idea can be made to fit with Christian ideals. Not every conception can be absorbed into the Christian credo. There are boundaries or limits to what can be accommodated, and one of them, plainly, is the idea that nature is self-caused and self-sufficient. It is the idea that nature, the cosmos, all of reality, does not include God.

There is a vast difference in this view, atheism, compared to that of the writer of Psalm 8: "O Lord, our Sovereign, how majestic is your name in all the earth! …When I look at your heavens, the work of your fingers, the moon and the stars that you have established; what are human beings that you are mindful of them, mortals that you care for them." The sense of our smallness, and likely irrelevance of mere mortals, is certainly there. However, the response of the Psalmist to that is a great in-spite-of: "Yet, you have made them a little lower than God and crowned them with glory and honor." (NRSV)

Atheism necessarily holds that the universe is an immense collection of matter hurtling blindly through space, devoid of purpose. More than a few scientists characterize this as a "Science says" sort of conclusion. Any idea of intent, guidance, or benevolence in the process is shunned and is often met with ridicule, because, it is said, the scientific method can find no such thing. Nature must *be*, therefore, a mindless mechanism with all its components, including life itself, the result of pure chance and random happenings at every level. As one said to me, "It's all just matter in motion," a phrase that has become a cliché. Tennyson noted the implications and described the mood that was often fostered by this emerging world view with his poem, *In Memoriam* (1850):

"The stars," she whispers, "blindly run;
A web is wov'n across the sky;
From out waste places comes a cry,
And murmurs from the dying sun;

And all the phantom, Nature, stands—
With all the music in her tone,
A hollow echo of my own, —
A hollow form with empty hands."

The poem concludes with the question:

"And shall I take a thing so blind…
Upon the threshold of the mind?"

The view that Tennyson found so disturbing is much more common now, often traceable to the same outlook, I. e. that the *only* existing truths are scientific ones and that all else, including ethics, consists of merely subjective and emotionally-based opinion. It represents a simplistic stance that truth is of a single kind, that science is omnicompetent, and that all the myriad values, ideals, and commitments that lie outside its scope --those that cannot be weighed or measured—might be dismissed as being mere sentiments and the result of custom or tradition.

With the poet, we should take note of the implications. If logical consistency is valued, as should be the case among scientists, this means that all ethics are relative, that they are merely human inventions, and cannot be said to describe truth or reality. Thus, qualities and behaviors that we describe with terms such as love, loyalty, devotion, honesty, honor, kindness, and sacrifice have no value, except as emotive tools to move people to do this or that. Those who hold to the view outlined above are reluctant to admit it, but the conclusion does follow: that if there is nothing higher than ourselves, and we are here just by happenstance, then why not justify any action as simply being in the service of "the survival of the fittest," the same principle that rules in the rest of nature? However wicked or repulsive some behaviors may be, they simply are: they cannot be held as right or wrong. That is what one should expect --IF the universe is made up only of accidentally-begotten particles of matter coming from nowhere and headed to the same. Then, Ideals may be called dreams, yes --but in only the sense of delusions. (The atheist Freud said it clearly in his books, *Totem and Taboo* and *The Future of an Illusion***.**)

Other poets, again, in their own unique ways, have reflected the tone. The English writer Matthew Arnold (1822-1888) begins his poem *Dover Beach* with two verses describing the moonlit sea and the tide's ebb and flow upon the shore. He then uses the image as a metaphor represent the decline of faith, both in the wider world and in himself.

The Sea of Faith
Was once, too, at the full, and round earth's shore
Lay like the folds of a bright girdle furled.
But now I only hear

Its melancholy, long, withdrawing roar….

Oh, love, let us be true
To one another! For the world, which seems
To lie before us like a land of dreams,
So various, so beautiful, so new,
Hath really neither joy, nor love, nor light,
Nor certitude, nor peace, nor help for pain;
And we are here as on a darkling plain
Swept with confused alarms of struggle and flight,
Where ignorant armies clash by night.

Shift the image from the seashore to the night sky. Today, there are many who cannot see the magnificent telescopic images of nebulae and spiral galaxies without adding a similar mental parenthesis, that of a chilling vacancy, an absence, an emptiness. For them, life, whether on earth or on supposed habitable planets elsewhere in the vast realm, is seen as accidental and meaningless**,** simply the results of pure chance acting at one or another location in the unimaginably immense and complex machine called the universe.

And, in a culture so largely adrift, we are seeing what I would maintain are the attendant consequences: the loss of some of those same qualities of "joy, love, light, certitude, peace, and help for pain," to which Arnold alluded. These days, the old slogan of "Eat, drink, and be merry, for tomorrow we may die" has many adherents. The compensating mechanisms for short-term-happiness include drugs, media distractions, fleeting pleasures, self-righteous anger, and thoughts and acts of violence, all so evident in society today.

Friedrich Nietzsche, *el primo* atheist, said next to nothing about nature or cosmology that I could find in my reading of most of his 1,088 pages included in Modern Library's *The Philosophy of Nietzsche*. However, he did quite famously address, time and again, what he saw as the complete absence of a Creator. He also maintained that "Christianity remains to this day the greatest misfortune of humanity." In *Thus Spake Zarathustra*, his title character says, "What are these churches, but the tombs and sepulchers of God?" Nietzsche loved to shock his readers with such remarks, but he must also have been tormented by his own insignificance in the cosmos, for he wrote, "But that I may reveal my heart entirely to you, my friends: *if* there were gods, how could I endure it to *be* no God. *Therefore*, there are no gods." His *hubris* also played out in his view of his fellow travelers in their journey on earth, for only some had value: "Man shall be trained for war, and woman for the recreation of the warrior." Also: "The beauty of the superman came unto me as a shadow. Ah, brethren! Of what account now are –the gods to me!" In other words, a substitute Super-man is better.

Too much has already been forgotten about what happened when the superman, the "over-man" or *Ubermensch* ideal, was morphed into the myth of the blonde Aryan invincible warrior and completely substituted for the peace of Christ. The concept was used by the Nazis to facilitate the horrors of the Second World War, which was truly nothing less than an attempt by the self-designated "master race" to enslave the entire world. Their leaders held to a varied and

muddled mix of atheism, religion, the occult, astrology, white supremacy, Darwinism, and anything else that would promote their cause, including mouthing language claiming God's favor. What is clear is the *reality* of God played no role for them; theirs was an in-practice atheism. The word God itself was transformed into another ingredient in nefarious political speech, which was intended to serve as a cover for godless behavior. The use of God-language was part of designing perverse slogans to be directed toward the masses and which could serve to buttress and sanctify the speaking –and doing-- of unspeakable things. As early as 1935, the Gestapo arrested some 700 Protestant pastors of the newly formed Confessional Church that stood in opposition to the Nazis and hundreds more in the next several years. Nothing else of Christianity except the word "God" was of use to the Nazis at their huge rallies in Nuremberg, where Christ's words in the Beatitudes, "Blessed are the peacemakers, for they shall be called children of God," were never heard. Neither was heard any of the rest of the Sermon on the Mount, nor the Golden Rule with its admonition to do unto others as we would have them do unto us. Instead, all was about war. The swastika was placed on many church altars as part of the attempt to create a new Nazi religion. The Old Testament was banned and the attempt was made, even, to cast Jesus as a blonde Aryan warrior wearing swastikas and battling Semites. William Shirer lived in Berlin in the years leading up to the war and during much of it, as well. In his authoritative 1,100-page account, *The Rise and Fall of the Third Reich,* published in 1960, he tells us that Alfred Rosenberg, one of Hitler's confidants, was charged with drawing up a program for a "National Reich Church." Among its 30 decrees were: that the entire Bible was to be banned, because, "The Fuhrer's *Mein Kampf* is the greatest of all documents…. On the altars there must be nothing but *Mein Kampf* …and to the left of the altar a sword. …On the day of its foundation, the Christian cross must be removed from all churches, cathedrals, and chapels …and it must be superseded by the only unconquerable symbol, the swastika." The leadership finally accepted what, to normal people, was obvious: that the atrocities they were committing could not be harmonized with Jesus' call to love our neighbor as ourselves. However, that changed almost none of them.

Modern atheists need not be barbarians. There have been many people of education and some of eloquence, such as the French writer Jean-Paul Sartre. In his famous play, *No Exit,* Garcin says, "There's no need for red-hot pokers. Hell is –other people!" Another play, *The Flies*, is set in ancient Greece and, at the conclusion, Sartre gives expression to his own ideals with the words of the main character, Orestes:

> Only yesterday I walked the earth haphazard; thousands of roads I tramped that brought me nowhere, for they were other men's roads. Yes, I tried them all: the haulers' tracks along the riverside, the mule-paths in the mountains and he broad, flagged highways of the charioteers. But none of these was mine. Today, I have one path only, and heaven knows where it leads. But it is *my* path.

[Upon changing my college major from wildlife biology to philosophy and transferring from South Dakota State University to Augsburg University, a Lutheran liberal arts institution in Minneapolis, I was drawn to existentialism. Before classes began, I knew that I would likely be reading some of the works of the god-intoxicated Danish writer, Kierkegaard. (Over the years, I would purchase and read 11 volumes of the primary sources.) However, I also wanted to be confronted by some

of the existentialist authors on the other side of the God-issue, certainly the famous Nietzsche, but others, too. So, as a college Junior- to-be, I went to a small but wonderful bookstore and asked the highly serious owner --no cowboy or romance novels there-- for something by the French writer of whom I had heard, Albert' Camus, which I pronounced as "Al'-bert Kam'-us." After all these decades, I can still visualize the store-owner rolling his eyes at such ignorance.]

In Camus' novel *The Fall*, a figure says, "Anyone who has considerably meditated on man, by profession or vocation, is led to feel nostalgia for the primates. They at least don't have any ulterior motives. …I sometimes think of what future historians will say of us. A single sentence will suffice for modern man: he fornicated and read the papers." In *The Myth of Sisyphus*, Camus aligns his view of humanity with the ancient story of a man condemned by the gods to forever roll a huge boulder up a steep mountain, only to have it roll back down again and without end.

The fundamental themes of both Sartre and Camus (as with many other atheists) are those of freedom, authenticity, and perseverance. It is the determination to keep going on one's own path, no matter what, up one's own mountain, with head "bloody but unbowed." This "be true to self" and "never give up" attitude is presented as heroic in a God-absent world that has no intrinsic meaning. (It is also portrayed as the highest virtue in most action movies in our time – with "tons" of violence added.) That life is absurd is a common theme among most of the writers of the existentialist school. But, again, while this makes for good drama, one finds no foundation to those ideals. (Camus died, at just 47, in a 1960 car accident, which, to his supporters, was entirely consistent with his view of life's absurdity and of a cosmos without God.)

It has been my observation, concerning most of the scientists who have concluded that the universe is empty of everything except an immense machine in motion, that they commonly attempt to fill the void with the emotion of awe. They stand in wonder, as do I, at the immensity and, yes, the beauty of it all, as captured in images such as those of "The Pillars of Creation" by the Hubble and, now, by the new James Webb Space Telescope.

At the same time, many of the viewers do not appear to be in awe of humanity. I've noted in numerous documentaries that science consultants seem, even, to take some pleasure in diminishing humanity: that, in such a universe as science reveals, we are "really, just, merely, only, nothing but" a speck upon a speck upon a speck; that we are insignificant next-to-nothings; we who come and go in the night of such a vast and indifferent cosmos that has been getting along very well without us for more than thirteen billion years, and there's nothing special about us. In 1945, the thought of a seemingly mindless and uncaring universe was reflected even in a Broadway musical, with the vast heavens being the catalyst for such a thought. In Rodgers and Hammerstein's *Carousel,* the bravado of the brawling fisherman Billy Bigelow is brought up short by the view of what lies above, and he says (or rather, sings) to Julie Jordan, his beloved-to-be:

> There's a helluva lotta stars in the sky,
> And the sky's so big the sea looks small.
> And two little people you and I,
> We don't count at all.

A great many examples in world literature illustrate the theme of insignificant beings against a vast backdrop of stars. Consider one of the most acclaimed novels of the 19th century, the 1862 work, *Fathers and Sons* by the Russian author Ivan Tergenev, in which Barozov, the young sophisticate, the new nihilist, says to a like-minded companion:

> I think. Here I lie under a haystack. The tiny space I occupy is so infinitely small in comparison with the rest of space, in which I am not, and which has nothing to do with me; and the period of time in which it is my lot to live is so petty beside the eternity in which I have not been and shall not be. And in this atom, this mathematical point, the blood is circulating, the brain is working and wanting something. …Isn't it loathsome? Isn't it petty? … Aha! There goes a valiant ant dragging off a half-dead fly. Take her, brother, take her! Don't pay attention to her resistance; it is your privilege as an animal to be free from the sentiment of pity –make the most of it—not like us conscientious self-destructive animals!

For Tergenev, love has the last word, but he was illustrating that how a person views one's place in the totality of things is certain to affect almost every other aspect of life, as well.

As a conception, atheism has a long history, and central to it, always, has been *materialism*. Democritus was the presocratic philosopher of ancient Greece who held that everything that exists is composed of physical "atoms." Those tiny particles vary in size, with empty space in between. Atoms, he said, are indestructible and eternal, and they are all that exist. Sounds familiar, does it not? That ancient idea of solids being composed of minute and indivisible particles was a guess that lay fallow for more than two millennia until the arrival of what would come to called The Atomic Age.

However, "materialism" can also mean simply that the workings of the world, including the human body, can best be understood by focusing on the physical, much as does modern medicine. Concentrating on physical material and forces: that is simply the entirely appropriate *modus operandi* of science; it's science "doing its thing." Rene' Descartes (1596-1650), the French philosopher (not an atheist) and a key figure in the Enlightenment, made an attempt at that, but ended up viewing the body as a mechanism; his followers conducted pitiless experiments on animals based on that idea that they were simply machines that could not feel pain, no matter the cries and howls. Every conception of the world involves a position regarding matter, whether recognized or not, whether clear or cloudy, defined or assumed, as being either self-existent or created. Common to all versions of atheism is the idea that, ultimately, *all that exists* is matter. It can be transformed (energy) but not destroyed. Matter is eternal.

Modern astronomy has produced several competing models of the universe. One idea, known as the Steady State theory, as the name suggests, saw everything as staying very much the same. However, beginning in the 1920s and peaking in the 1960s, evidence accumulated for the startling fact that Everything had a beginning, this in a single instant in the primal explosion known as the Big Bang. Many scientists seem to have been uncomfortable with the religious implications of the discovery, i. e. that it sounded too much like Genesis 1, and they went on to posit, instead, a universe in which the expansion slows down; then, gravity finally catches up and

everything rushes backwards to a Big Crunch, which would initiate another explosive expansion, and on and on, endless cycles *ad infinitum*. This Oscillating Universe conception is one more variation on the view that, in spite of all the motion, the universe has always been the same: no need for a beginning (and no need for a creator). But this view, too, crumbled in the face of evidence to the contrary. For, based on observations by Edwin Hubble and confirmed by many others, expansion rate of the universe is not slowing down; in fact, it is accelerating. The galaxies are hurtling outward at ever-increasing velocities, the outermost shell of them approaching the speed of light. I mention all this only because it illustrates the fact that, so often, there are presuppositions attached to supposedly objective scientific investigations. It seems there have been quite a few physicists and astronomers who have wished and hoped for signs of a universe where everything is ordinary (instead of unique and thus extraordinary), where nothing is special and all that exists is matter in motion.

However, the picture of a vast, indifferent, and ordinary cosmos is counter-argued by still more scientific revelations, including the discovery of the extremely narrow constraints in the universe coming into being in the first place, as shown, again in features of that pivotal discovery of 20th century astronomy: the primeval explosion of the so-called Big Bang. The problem is that physicists calculate that the "margin of error," so to speak, in conditions that allowed the expansion is …well, let Stephen Hawking tell it: "If the rate of expansion one second after the big bang had been smaller by even one part in a hundred thousand million million, it would have collapsed before it reached its present size." Thus, the tiniest too little or too much in the gravitational constant, the nearly immeasurable difference from what actually occurred in the balance between the force of gravity and the outward velocity of the explosion --and there would have been no universe. Everything needed to be *exactly* right. Again, Hawking, in spite of being known for his own atheism, said, "The odds against a universe like ours emerging out of something like the Big Bang ae enormous. I think there are clearly religious implications." In 1986, *The Christian Century* published an article titled **"**Shaken Atheism: A Look at the Fine-Tuned Universe" by Holmes Rolston III, who taught philosophy at Colorado State University. He wrote:

> It is simply a tautology to say that people who find themselves in a universe, live in a universe where human life is possible. Nevertheless, given the innumerable other things that could have happened, we have reason to be impressed by the astonishing fact of our existence. Like the man who survives execution by a 1,000-gun firing squad, we are entitled to suspect that there is some reason we are here, that perhaps there is a Friend behind the blast.

The odds of the universe coming to be are so very, very much, etc. etc. slimmer than that, but this comparison definitely got my attention.

But in case you wondering "why in the world" (or universe) you should care about my thoughts on the subject, let me offer, instead, those of someone with expertise on the subject: Arno Penzias, PhD in Physics from Columbia University, longtime Vice-President for Research at ATT Bell Laboratories, and awardee (along with Robert Wilson) of the 1962 Nobel Prize for Physics for the discovery of the cosmic microwave background radiation that provided key confirmative evidence for the Big Bang:

> Today's dogma holds that matter is eternal. The dogma comes from the intuitive belief of people (including the majority of physicists) who don't want to accept the observational evidence that the universe was created –despite the fact that the creation of the universe is supported by all the observable data that astronomy has produced so far. As a result, the people who reject the data can be described as having a 'religious' belief that matter must be eternal. These people regard themselves as objective scientists. **…**Since scientists prefer to operate in the belief that the universe must be meaningless –that reality consists of nothing more than the sum of the world's tangible constituents—they cannot confront the creation easily, or they take it lightly. [However,] Astronomy leads us to a unique event, a universe which was created out of nothing, one with the very delicate balance needed to provide exactly the conditions to permit life. **…**Thus, the observations of modern science seem to lead to the same conclusions as centuries-old intuition. At the same time, most of our modern scientific intuition seems to be more comfortable with the world as described by the science of yesterday. Kind of interesting, isn't it?

In the face of the major fact that argues against mere chance, some have sought to add still one more possibility in order to dismiss even that. Well, the story goes, *what if* the universe that survived those unimaginably iffy circumstances is "actually" *just one of many*, many, many possible universes and, thus, it only *seems* to be unique? In this attempt to make that credible, they imagine, not just an "astronomically high number" of exploding/expanding "universes," but an "infinite" number of them. What would bring *them* into being is not said, but, perhaps, *one* of them could arrive, even within such narrow constraints, and *that* is the one we inhabit. So, roll the dice often enough, they say, and the one we have is what you could get as the result of the purely random activity of matter popping (somehow) into existence, from nothing, over and over again. The idea posits that those seemingly rare universes might even be common, ordinary and everyday sorts of cosmic entities. This contorted scenario, going by the name of "the multiverse," is proposed in order to suggest, again, that there is *nothing special* about o*ur* version of Everything, because, *overall*, it is blind and mechanistic randomness that rules.

It is obvious, but let's say it: the "multiverse" is a contradiction in terms, since the very word *uni*verse means All, Everything, the One and Only. More importantly, what is meant by an "infinite" or "almost infinite" number of universes is inconceivable: the idea does not enable deeper thought but shuts it down. The multiverse idea should be seen for what it is: another effort to convince the public that we are "only, simply, merely, just nothing buts." In this, the concept smacks of no small amount of desperation, since, not only is there absolutely no observational evidence offered for the multiverse, nor could any such evidence even be conceived. There is no way for its existence to be confirmed --ever. So, the old stereotype of medieval theologians obsessing over fine points, such as how many angels can stand on the tip of a pin, has been equaled and perhaps greatly, if not "infinitely," exceeded by certain scientists.

In the examples above, a key element was the consideration of time. Along closely related lines, there is another hypothetical that makes use of abundant time, this one concerning human evolution. I'm guessing we have all heard of it, but the historian Thomas Roszak in his book, *The Voice of the Earth*, describes it so well:

> There is a parable that was popular among militant atheists in the last century. It was meant to illustrate the omnipotent power of chance. Place one thousand monkeys in a room filled with one thousand typewriters and let the beasts bang away indefinitely. Given enough time (monkeys are apparently immortal, the typewriters indestructible) and by the 'laws of probability' the monkeys will produce the complete works of Shakespeare. No Shakespeare needed.
>
> Maybe nobody takes this old chestnut seriously any longer. One attempt to calculate the odds for composing one line from Shakespeare by random monkey power concluded that there was one chance in 10,000 million million million million million million. Within the time span such odds would require, it is easier to imagine the monkeys evolving into intelligent beings capable of creating their own literary masterpieces. But while this example has a facetious tone to it, it does allow us the opportunity to ponder the unutterable complexity of nature –and the embarrassing bravado with which scientists once confronted its study.

I would add that the complexity of the typewriter and the remote chances of it being invented by the monkeys were not even factored into the calculations. ☺ It seems that, in order to accept the monkey-typewriter scenario, a person must rank quite high on the Gullibility Index or be lacking even a minimally functioning baloney detector; yet no doubt a good many did fall for the analogy, "hook, line, and sinker." Television personality Bill Maher promotes his atheism by quoting Richard Dawkins that, "On a scale of 1 to 7, the odds are 6.9 that there is no God: that's pretty certain." No one pushed back. Where did that "scale" and those "odds" come from? *How* arrive at 6.9? Numbers are used to make a hunch appear scientific and to cast oneself as being superior. (By the way, Dawkins, empiricist keen observer of God's absence, did not see "the Gorilla" in that famous U of IL experiment.) There are lots of internet village atheists online; some have pod-casts and are quite influential, but both the promotion and the acceptance of such arguments most often come down to mere pretense and, perhaps, wish-fulfillment.

There are more than a few concepts that are presented as "science" to an uncritical public that, upon a bit of examination, do not hold up. That includes the ones that utilize the idea of "infinite" or "endless" time, wherein, *ergo*, the most otherwise-unexpected things can thereby be accomplished, "given all that time." (Yes, time is long. I have found hundreds of dinosaur specimens from the late Cretaceous Period. Most of them date at c. 67 million years in age. To me, such a date is more impactful if we rephrase it as -- 670,000 centuries! And --at more than 13 billion years-- the origin of the entire universe is unimaginably more remote.) However, the relevant point is that current and rather longstanding knowledge indicates that the universe is *no*t, in fact, eternal but, instead, had a beginning in a single instant in the so-called Big Bang. The material universe that we know, and with it, time, has *not* been here "forever."

Ulrich J. Becker taught at MIT, and his area of specialization was high-energy particle physics. When asked how scientists should approach questions of origins, he replied:

> Honestly, with clear separation of scientific knowledge from plausible or pretentious speculation. If you discovered how one wheel in the "clock" turns, you may *speculate* how the rest move, but you are not entitled to call this scientific and better leave off the question of who wound up the spring. (He who cannot –for ego-cosmetics or other reasons—distinguish fact from speculation, please stay off TV and public debates.)

That appropriately caustic response is an indication that, in more than a few scenarios, we are not really talking about science, as much as science-flavored preconceptions in search of support. And that gets one into philosophy. The big underlying issues are always philosophic.

PART II

The renowned mathematician Alfred North Whitehead was, at the same time, one of foremost philosophers of the modern age, and his *Process and Reality* continues to be widely read. In his Lowell Lectures, published in 1925 as *Science and the Modern World*, he said,

> If my view of the function of philosophy is correct, it is the most effective of all the intellectual pursuits. It builds cathedrals before the workmen have moved a stone, and it destroys them before the elements have worn down their arches. It is the architect of the spirit, and it is also their solvent: --the spiritual precedes the material.

[An interesting tangential question –how to say it— is whether mathematics is a human invention or something that exists, not merely as a descriptive tool of the imagination, but is "out there," as something in and of itself, as an inbuilt, intimate and inseparable consequence of the very nature of everything. (My wife majored in math. She was given a plaque that reads, "I like to think outside the quadrilateral parallelogram.") Einstein implied that God, as Creator, was The Great Mathematician; he thus maintained that when he and his fellow physicists constructed their elegant formulas to describe the way the universe works, they were, in the words of Johannes Kepler several centuries before, "tracing God's thoughts after Him."]

Whitehead is surely correct. Adding to his sentiment, a decent functional definition of philosophy might be simply "the persistent effort to think things through." But what things? Once upon a time, i. e. for the thinkers of Ancient Greece who started it all, it was defined as the search for the Good, the True, and the Beautiful. The word itself, from *philia* and *Sophia,* means "love of wisdom," and it dealt, not just with the realm of facts, as in information, but also with values, ethics, and character. It concerned how to know --and to practice– truth in a "truly" good and humane existence. And this was not just for self-enrichment: it was also to elevate others. It had much in common with what we call the religious.

In fact, in Medieval times, philosophy was known as "the servant of theology." No one pursued that understanding more than Thomas Aquinas, who spent decades in efforts to accommodate Aristotle to the Christian Faith. In later centuries, philosophy would center mostly upon epistemology, the process of how we arrive at knowledge. In that, the primary task was to consider the presuppositions of thought, exposing into daylight the assumptions that so often determine conclusions in advance. The Cambridge philosopher C. D. Broad (d. 1971) wrote, in an essay on philosophy and science, "A man's final view of the Universe as a whole, and the prospects of himself and his fellows, is peculiarly liable to be biased by his hopes and fears, his likes and dislikes, and his judgments of value. One …tends to be influenced to an altogether

undue extent by the state of one's liver and the amount of one's bank balance." (😊 Humor: not entirely unknown in the discipline, but very rare.)

Just in my own lifetime, the dominant school of philosophy came to be something very different from its predecessors. Known as Logical Positivism, its practitioners sought certitude --by radically reducing the field of inquiry. Rudolf Carnap, a leading spokesperson, said, "The *only* proper task of philosophy is Logical Analysis." In line with that, *only* those statements that could be verified, either actually or in principle, were to be accepted as worthwhile; all others were seen as meaningless, including any statement with the word *ought*. Of course, that rules out any concern with ethics or values. (What the Positivists overlook is their *own* unspoken covenant that their practitioners *ought* to behave this way.) The role of philosophy was redefined as linguistics and, mostly, as the objective clarification of *scientific* language. Philosophy was made subservient to science and reduced to philology, the literal meaning of words and sentences. The question of truth with a capital T was abandoned. In a kind of feedback loop with science, it further impoverished science along reductionist lines, since many great scientific discoveries have their genesis, not in such reduced thinking, but in in moments of insight that are only later confirmed by experimentation. Thus, Positivists have restricted and hampered science itself and contributed to a world view that embraces simplistic materialism.

Of course, Socrates and Plato, with their heartfelt agony and ecstasy concerning human nature and their determination to live in accord with truth, would not have recognized this as being anything remotely resembling the love of wisdom. The poet Wallace Stevens might have been thinking of the new school in writing, "I followed his argument / With the blank uneasiness which one might feel in the presence of a logical lunatic." In addition, Andre' Gide's words can apply: "I wonder at the outlay of subtlety on the part of those who …exhaust the unrest of their strong minds in the examination and critical analysis of the works of others." Why would anyone think that language, a human invention, could be, or should be, completely accurate in describing anything? Why should that be the overriding goal, a person's lifework? And, of course, the most complete rational knowledge is possible only in regard to objects, for which descriptions are more easily produced. But what if living beings are much more than objects?

Fortunately, other endeavors in the rest of the humanities: literature and the arts, and, yes, religion, too, these continue to deal, in a variety of ways and, as they always have, with those pressing concerns of what it means to be human. Great literature of all the ages is replete with consideration of dimensions of life that are beyond definition. Therefore, symbolic terms and mythological language are often employed, because the human condition has dimensions that are boundless, and so does the natural world around us.

In Edward Abbey's 1982 book, *Down the River*, there is a brief essay titled "Aravaipa Canyon," in which he describes "a short deep gorge" in the Pinal Mountains northeast of Tucson:

> 'The world is big but it is comprehensible,' says R. Buckminster Fuller. But it seems to me that …any portion of its surface, left unpaved and alive, is infinitely rich in details and relationships, in

> wonder, beauty, mystery, comprehensible only in part. The very existence of existence is itself suggestive of the unknown –not a problem but a mystery. We will never get to the end of it, never plumb the bottom of it, never know the whole of even so small and trivial and useless and precious a place as Aravaipa. Therein lies our redemption.

The microbiologist Lewis Thomas was Dean at Yale Medical School and President of the Memorial Sloan Kettering Cancer Center in New York City (and the list of his other credentials in medical science is "about as long as your arm"). He also wrote many essays on the natural world, and the collection entitled *Lives of a Cell* received the National Book Award. *Time* magazine said of him, "If Wordsworth had gone to medical school, he might have written something like this." Concerning realities which escape definition or quantification, he said that "…it is a mistake to try to explain them away; they are there for marveling at and wondering at, and we should be doing more of this." Consider, for example, music. The following quote is from another such collection, *Late Night Thoughts on Listening to Mahler's Ninth Symphony* (1983), in which he says:

> If you are looking about for really profound mysteries, essential aspects of our existence for which neither the sciences nor the humanities can provide any sort of explanation, I suggest starting with music. The professional musicologists …haven't the ghost of an idea about what music is or why we make it and cannot be human without it, or even –and this is the telling point-- how the human mind makes music on its own, before it is written down or played. The biologists are no help here, nor the physicists, nor the philosophers, wherever they are these days. Nobody can explain it. It is a mystery, and thank goodness for that.

There are different categories; science is not suited to everything. (Of course, that is true of ethics, also: are peaches right or wrong?) The results obtained by the scientific method are impressive; we are grateful for them, and we will continue to need more science, not less, but much escapes its filter. So, how much does love weigh? What is the specific gravity of hope?

In addition, the sentiment that "science is pretty much all we need" is soundly refuted by the daily headlines telling of strife, greed, prejudice, and war. The ranks of millions of scientists, working around the clock, have not ushered in the New Jerusalem, far from it. "Our Age can build a tower with a thousand brilliant lights, but cannot find the formula for simple human rights." New inventions and increasingly sophisticated technology designed for war --what could better illustrate the inadequacy of mere technical competence to deal with "the heart of the matter" for human beings? People well-schooled in science are strongly opposed to living with illusions, but it is, itself, a huge illusion to pretend that humanity is merely the rational, analytical animal of the science textbooks and that the multitude of humanity's most serious problems can be fixed by "more science," i. e. by a more rigorous application of the method. Every tool has limitations, and we would be fools, ignoramuses, "dumkopfs" not to recognize the elementary fact that science is insufficient for the biggest issues we confront. Those range from terrorism and conflict between nations to community strife, from lying politicians to murder and mass shootings, from alcohol and drug addiction to teen and young-adult suicides,

from crime of all sorts to agitation and discontent in all its many forms, with which the television news absolutely abounds. The aimlessness and nihilism so evident in the culture is graphically mirrored in the visual arts and film –full of violence, revenge, greed, despair (and an apparent relishing of The Walking Dead and Zombies of the Apocalypse!). Almost nothing of the dis-ease those symptoms reveal is amenable to a technological fix, because the underlying issues are fundamentally spiritual and moral and have to do with how we regard ourselves and others in and through a kind of entire world view or philosophy of life. Thus, the situations are not transformable *via* better microscopes, experimental techniques, or chemical formulas. Yes, ignorance there is, and it must be fought. But we face all those larger evidences of a growing crisis in meaning and values, and strictly scientific progress seems to have little to no effect upon them.

Not only that, but It might also be the case that science itself, in its very attempt to describe and explain nature, has unwittingly been prone to distort our concepts of reality along lines that constrict and narrow. Such is the cogent argument by the historian Theodore Roszak in another work, his 500-page volume, *Where the Wasteland Ends: Politics and Transcendence in Postindustrial Society* (which I highly recommend for a very serious and challenging encounter). Roszak describes William Blake's early 19th century critique of a narrowing "single vision" of science, and then goes on to "second the motion" concerning how reductionism has so heavily influenced modern societies in the western world:

> The dominant tone in the work of the early scientists is exuberant celebration. They exalt in human understanding and glorify God's handiwork. That tone (though purged of its theological resonance) still lingers on today. But there has been mixed with it since the beginnings a darker motif: the compulsive need to disenchant whatever was mysterious, immaterial, transcendent: in a word, …to reduce all things to the terms that objective consciousness might master.

Isaac Newton's grand achievement, in his *Principia Mathematica* (1687) dealing with celestial mechanics, described the motions of objects in the heavens ruled by gravity. In 1692, he exchanged several letters with a London theologian who was desirous of using certain aspects of the theory in the so-called Boyle lectures. Newton was happy to oblige, and responded: "When I first wrote my treatise on our Systeme, I had an eye upon such principles as might work with considering men for the beliefe of a deity, and nothing can rejoyce me more than to find it usefull for that purpose." However, in succeeding generations, others were more than eager to be about reconfiguring all the world in terms of clocks and billiard tables ruled by iron-clad laws; known as Deism, the conception left little to nothing for the Deist's god to do. Some adherents even ruled out any semblance of free will for either human beings or divinity (or the existence of the latter). The language of celestial mechanics was applied, not just to the heavens above and to the inanimate components of the world, but also to flesh and blood, with some indicating that there was nothing at all metaphoric about the language: all that existed was matter. First published in 1747, the terse title of LaMettre's work said it all: *Man-Machine.* He followed that, three years later, with *The System of Epicurus*, in which he wrote, "Elements of matter, by moving and mixing with each other, managed to make eyes…. Nature, without seeing, has made eyes, and without thinking has made a thinking machine."

The great Thomas Jefferson, a Deist, did not go that far. More akin to Newton, Jefferson thought it "…impossible for the human mind not to perceive and feel a conviction of design, consummate skill, and indefinite power in every atom of composition." Not only the stars above, but the variety and order in the animal kingdom of life as laid out by the classification system of Linnaeus in his great *Systema Nature* (1735), all spoke to Jefferson of "…the necessity of a superintending power, to maintain the universe in its course and order." It was in 1620 that Francis Bacon published his *Novum Organum*, i. e. The New (Scientific) Method, with the goal of providing the tool to enable greater control of the physical world. But neither could he have imagined the sentiment in a statement by Francis Crick, co-discoverer of the structure of DNA: "The ultimate aim of the modern movement in biology is to explain *all* biology in terms of physics and chemistry." (Italics in original, indicating that "biology" really refers not just to inert organic lab specimens, but to Life.) The behaviorist B. F. Skinner, overseeing his white-rat mazes to measure stimulus-response and to determine how such results could be applied to human beings, stated, "And as for admiration in the sense of wonderment, …the goal of science is the destruction of mystery." Those statements make clear that here we have, not simply a method for dealing constructively with the material aspects of the world, but an entire world view that is known, more properly, as material*ism*. In it, a great deal comes down to a kind of pre-seeing, to frameworks or mental glasses that determine how much or how little we see and what sort of worth is placed upon it all.

In an earlier essay, I simply referenced an incisive quotation by Iain McGilchrist that I repeat here in order to add more context. It is from his book that was inspired by recent research into the brain's two different hemispheres, a massive 500-page tour through history, as seen in the light of such discoveries. The title is *The Master and His Emissary: The Divided Brain and the Making of the Western World,* published by Yale University Press and which won the Scientific & Medical Network book prize of 2009. Its focus is on the many ways in which the masterful brain's left and right hemispheres are adapted to very different priorities and that they function best in a complementarity manner. The author's thesis is that the left side, intended to deal with objects and cause-effect sequences of events, has been accented and has, so to speak, grabbed much more than its fair share of processing from the right side, which is more attuned to values, aesthetics, and wholistic relationships. Among the consequences is a thoughtless modeling that leads to simplistic reductionist explanations:

> The model we choose to understand something determines what we will find. …Our first leap determines where we will land. If we assume a purely mechanical universe and take the machine as our model, we will uncover –surprise, surprise— the body, and the brain with it, is a machine. To a man with a hammer, everything begins to look like a nail.

I sometimes wonder when it was that a tool became just a tool. In former ages, tools were cherished and cared for, partly because they were not easily replaced. The roof and spire of grand Notre Dame cathedral in Paris is being rebuilt. The process is revealing more about the original builders' ingenuity and their respect for the materials they used. No doubt they also highly valued all the various tools that enabled a project that spanned

generations. I can remember watching an episode of the TV show *This Old House*, in which the foreman of a painting crew was interviewed. It was striking, because he said that before taking a coffee break, even of just 10 or 15-minutes, they would clean and dry their brushes, and I doubt that it had much to do with saving money, because it also added work. Instead, it had something to do with respect for the tools themselves, even paint-brushes. It is rare to see such a sentiment in this era, in which the impulse to throw something away is so often stronger than the one to fix it. Think of the planned obsolescence that is attached, not only to fashions, but to all sorts of equipment and instruments, including the television set on which I watched that episode.

In a roundabout way, I inherited a dozen woodcarving chisels that are approximately a hundred years old, and, as is the case with lots of things, "they don't make them like that, anymore." The handles of these English Addison tools are somewhat worn, not from abuse, but from diligent use. The blades still take an extremely keen edge, because both the material of which they are made and the art enabled by them has been honored. One more tool that was passed down from a previous generation consists of a homemade combination of two others. It was fashioned by welding an ordinary chisel, at mid-length and at a right-angle, onto the steel handle of a crescent-wrench; the result was something of a hammer-like tool that the maker might have called a "chismer." This hybrid was most likely made in the 1920s or 30s when the entire country was in the grip of the Great Depression, and people, especially farmers, put all sorts of efforts into repairing, getting by, and making things last. Still useful, the tool is curious. It is also humbling in its effect, a reminder to not take physical things for granted, including the wide variety of items that are now easily available at local hardware stores. This was not always the case. I need such reminders, and I expect that all of us do.

The Grapes of Wrath is John Steinbeck's powerful novel of the Great Depression and of families being forced off their land by large corporate farms. It has insights about respect and tools and matter and obsolesce and human beings:

> …when a horse stops work and goes into the barn, there is life and a vitality left. …But when the motor of a tractor stops, it is as dead as the ore it came from. The heat goes out of it like the living heat that leaves a corpse. …for the tractor is dead. And this is easy and efficient. So easy that the wonder goes out of work, so easy that the wonder goes out of the land and the working of it, and with the wonder the deep understanding and the relation. For nitrates are not the land, nor phosphates; and the length of fiber in the cotton is not the land. Carbon is not a man, nor salt nor water nor calcium. He is all these, but he is so much more; and the land is so much more than its analysis. The man who is more than his chemistry, …kneeling in the earth to eat his lunch, that man who is more than his elements knows the land that is more than its analysis. But the machine man, driving a dead tractor on land he does not know and love, understands only chemistry and he is contemptuous of the land and of himself.

Summed up, Steinbeck is saying that simplistic materialism is a perverted point of view and that there is profoundly more to us than usually meets the eye (or the test-tube) and that we should

live in light of that truth. "For man," Steinbeck says, "unlike any other thing organic or inorganic in the universe, grows beyond his work, walks up the stairs of his concepts, and emerges ahead of his accomplishments." The author is seeking to arrive at the best or most complete rendition of the truth about all of us.

With that, we are once again into things philosophical. Anyone who would consider how knowledge is obtained and the quality of the result must continue to reckon with the great Prussian philosopher Immanuel Kant (1724-1804). A long line of Rationalists held that knowledge was obtained by pure reason (thinking about thinking). Empiricists held, instead, that there was nothing in the mind that was not first in the senses, that the newborn mind was a blank sheet upon which experience writes (so, one may take notes and run experiments), and, for them, "seeing" was rather simple. Kant arrived at a middle view that the mind takes in sense experience, but can only deal with it by making it bend or conform to our mental frameworks or intake capacities (which may leave out a lot of what he called "the thing-in-itself"). Thus, our senses and all our mental equipment resemble lenses though which we apprehend the world, and there is no completely getting away from or beyond those lenses; there is no such thing as an immaculate perception.

Goethe (1749-1832), in considering the scientific demand for clear, objective, visible, matter-of-fact evidence, wrote, "This demand seems odd, because it is useless to simply look at something. Every act of looking turns into observation, every observation, into reflection, every act of reflection into making associations; thus, it is evident that we theorize every time we look carefully at the world." Most often, the act is not deliberate or even conscious. To recognize something is to "re-cognicize" it. That is to say, It is to place it somewhere in our already existing mental categories, where it can make some sort of sense to us. Thus, in science, as in all else, the process does not grasp the entire, by any means, and this has implications.

The physicist Sir Arthur Eddington is famous for observations that confirmed Einstein's theories and for relaying them to the public. In his book, *The Philosophy of Physical Science*, he compared **t**he scientific method to a net, which is very good at capturing fish of a certain size and substance, but the specific size of its mesh, inevitably, allows others to slip through. Thus, what is discovered by science is not all that exists, because the physical and conceptual tools of the discipline are only equipped to deal with a portion of reality. (Eddington, a Quaker, put the experience of God at another level entirely.) In other words, science does not know what it does not and cannot know, something that should come as no surprise, but it needs to be said. Heisenberg, the physicist, would sum up the issue quite crisply: "In natural science, the object of investigation is not nature as such, but nature as exposed to man's mode of inquiry."

And even then, those methods are less secure than many believe, for we must start with certain assumptions: belief in the external world, the principle of cause and effect, and more. Science journalist George Johnson stated, quite accurately, in *Fire in the Mind,* that "Any effort to explain the world must begin with a leap of faith. …We build these great towers of abstraction, but ultimately, they all rest on a platform of belief, the postulates we must accept because there is no way ever to prove them." Even assuming there is one single, objective

reality –language fails here —any assessment made of it, again, is not independent of our senses. For us, everything, not just beauty, is in the eye of the beholder. As cosmologists Paul Halpern and Paul Wesson put it in *Brave New Universe*, "No measurement we make is wholly independent of our human experiences. Because we filter all information through our own perceptions, we generate our own parallel universes –each a different facet of a multifarious prism." Hence, mystery will always remain.

None of this means that we can know nothing or that any opinion is just as good as any other, as now implied in in some corrupt quarters of politics and which then soon devolves into what amounts to a frontal assault on the very idea of Truth. Rather, concerning anything we think that we know, it means that some qualifications are usually in order and that humility is never a bad thing.

The point is reinforced if we turn to consider some of the other creatures that share the planet with us. Diane Ackerman, in her 2021 book, *The Bird Way*, writes: "Scientists are shedding biases that have blinkered research for generations. Sensory prejudices, for instance –the notion that the world we humans see, hear, and smell is the world experienced by other creatures. In fact, it's strictly our reality, constrained by our cognitive, biological, even cultural limitations. Other animals experience other realities." She had in mind the nearly 10,000 species of birds, but it applies to other animals, too. Dogs, for instance, live in a world of scent that we cannot even begin to imagine; for them, it must be a very large part of what exists. Steinbeck, in another work, *Travels with Charley*, asks the right question after describing his own canine companion: "It is my experience that in some areas Charley is more intelligent than I am, but in others he is abysmally ignorant. He can't read, can't drive a car, and he has no gasp of mathematics. But in his own field of endeavor, which he was now practicing, the slow, imperial smelling over and anointing of an area, he has no peer. Of course, his horizons are limited, but how wide are mine?"

How wide, indeed? The point of all this is that, locked inside ourselves, we do not and *cannot* know just how complete is our apprehension of reality, whether by direct human experience or by intricately configured equations. We celebrate knowledge as good, and the more of it the better. However, only arrogance would say that we know all, that we have plumbed the depths of nature and that, because we cannot collect, assess, measure, or comprehend the mysterious, it must be reduced to something else, or it simply does not exist. Foregone conclusions and dogmatism, which often spoil religion, should also be ruled out for the pontificating materialists, whose program appears, increasingly, to resemble a secular catechism with many articles of faith. So, it is often the case that a person is moved by a prior disposition, or an amorphous "hunch," or a "gut feeling" that, over time, has solidified into mental certainty. Graham Greene's novel, *The Power and the Glory*, is set in Mexico in the late 1920s in a time of severe persecution that was designed to exterminate religion. Regarding one of the police officials in charge of the purge:

> The lieutenant sat down upon his bed and began to take off his boots. It was the hour of prayer. …It infuriated him that there were still people in the state who believed in a loving and merciful God. There are mystics who are said to have experienced God directly. He was a

> mystic, too, and what he had experienced was vacancy –a complete certainty in the existence of a dying, cooling world, of human beings who had evolved from animals for no purpose at all. He knew.

All the atheistic philosophies of recent centuries, including those that were the most influential, those of Feuerbach, Marx, and Freud, have one thing in common: in their case, they *begin* with the assumption that there is no God; therefore, the sources of such misguided God-beliefs must be found, in order to dismiss them. Those include, respectively, a malfunctioning reason, repressive social and political structures, and the subconscious compensation of a heavenly father for the self's frustration at not having control of events. Being circular, the arguments are unconvincing. (It is somewhat similar with a position that simply begins with God and seeks to rationally demonstrate the basis of faith.) An algebraic equation is nothing more than ink on paper, until one enters it by engaging in the process by going through the steps. There is a very real sense in which religion is thoroughly existential and cannot be comprehended from the outside. In order to understand religion, one must be religious oneself.

The great Einstein is remembered for his physics, but also for statements he made while speaking at a conference on science and religion at Union Theological Seminary in New York: "Science without religion is lame; religion without science is blind." His personal beliefs included: "The most beautiful thing we can experience is the mysterious. It is the fundamental emotion that stands as the cradle of all true art and science. He to whom this emotion is a stranger, who can no longer stand rapt in awe, is as good as dead, a snuffed-out candle."

In the definitive biography, *Einstein: His Life and Universe,* Walter Isaakson relates Einstein's answers to questions that were posed to him at interviews in Berlin:

> Try and penetrate with our limited means the secrets of nature and you will find that, behind all the discernible laws and connections, there remains something subtle, intangible and inexplicable. Veneration for this force beyond anything that we can comprehend, is my religion. …I am not an atheist. The problem involved is too vast for our limited minds. We are in the position of a little child entering a huge library filled with books in many languages. The child knows someone has written those books. It does not know how. It does not understand the languages in which they are written. The child dimly suspects a mysterious order in the arrangement of the books but doesn't know what it is. That, it seems to me, is the attitude of even the most intelligent human beings toward God. We see the universe marvelously arranged and obeying certain laws but only dimly understand these laws.

While Einstein did not speak of God in personal terms, his biographer tells us that "Unlike Sigmund Freud or Bertrand Russell or George Bernard Shaw, Einstein never felt the urge to denigrate those who believe in God; instead, he tended to denigrate atheists. So, Isaakson writes, "Einstein tended to be more critical of the debunkers, who seemed to lack humility or a sense of awe, than of the faithful." As Einstein himself explained, "What separates me from most so-called atheists is a feeling of utter humility toward the unattainable secrets of the cosmos." Then, a letter is referenced in which Einstein says: "The fanatical atheists are like slaves who are still feeling the weight of their chains which they have thrown off after hard

struggle. They are creatures who –in their grudge against traditional religion as the 'opium of the masses'—cannot hear the music of the spheres," and in still another letter to a friend: "There are people who say there is no God. But what makes me really angry is that they quote me for support of such views."

[More on the respective spheres of science and religion can be found in my 2011 book, *Lens to the Natural world: Reflections on Dinosaurs, Galaxies and God*.]

These days, not all expressions of atheism are dogmatic, although many of them certainly are (note the large number of vociferous and often obscene screeds of that sort on the internet). Some are simply rather thoughtless. Recall the words to John Lennon's famous song, *Imagine*:

> Imagine there's no heaven
> It's easy if you try
> No hell below us
> Above us only sky
> Imagine all the people living for today
>
> Imagine there's no countries
> It isn't hard to do
> Nothing to kill or die for
> And no religion too
> Imagine all the people living life in peace

The sentiment was and is popular. It is also naive. People do not simply live: they live in the context of specific countries. That has been the case for thousands of years, and there is no way to go back from that, except in the Lala-land of daydreams. The items referenced might be easy to merely "imagine" but, according to the evidence, moving beyond their mere conception is difficult, indeed. In addition, pressing the delete button on the idea of God is not a previously untried experiment, as Lennon seemed to think. That effort has sometimes been in reaction to warped religion. The themes of God, religion, and worship are subject to terrible perversion, as are all powerful ideas, precisely because they have so many ramifications.

Consider religion of the sort described by Dostoyevsky in his greatest novel, *The Brothers Karamazov* (1880). It is fleshed out in the chapter called "The Grand Inquisitor." Here religion has usurped the place of God. In a chilling thought-experiment composed by the novel's character Ivan, Christ returns to earth, to 16th century Spain, where the Inquisition is at its height. Christ is cast into prison and is visited by the Grand Inquisitor, who says, "Is it Thou? …Why, then, art Thou come to hinder us? …But tomorrow I shall condemn Thee and burn Thee at the stake as the worst of heretics. And the very people who have today kissed thy feet, tomorrow at the faintest sign from me will rush to heap the embers of Thy fire." The aged Inquisitor calls to mind the temptations of Christ in the wilderness to "turn these stones into bread", as well as Christ's reply that man shall not live by bread alone. That fact that any obedience bought at the price of bread is really at the price of freedom, and is thus worthless,

is met with the Inquisitor's scornful rebuttal that "…nothing has been more insupportable for a man and a human society than freedom. …In the end they will lay their freedom at our feet and say to us, 'Make us your slaves, but feed us.'" In this, he indicates that the Inquisition has *corrected* the Lord's work. "I repeat, tomorrow Thou shalt see that obedient flock who at a sign from me will hasten to heap up the hot cinders about the pile on which I shall burn Thee for coming to hinder us. For if anyone has ever deserved our fires, it is Thou. Tomorrow, I shall burn Thee."

Anything can be perverted, and, again, abuse that utilizes religious concepts has been real, time and time again. Even today, Iran executes people merely for protesting state policies, based on the twisted thesis that such dissent is against God. In our own country, political figures address crowds in which large wooden crosses are carried and "Jesus banners" are waved; they wear the symbol of the cross as jewelry and mouth platitudes about God, all while promoting hate, racism, and violence against minorities. Those promoting this so-called Christian nationalism are blatantly engaged in nothing less than a bastardization or prostitution of the Faith.

On the opposite side of the issue, there have been nations that sought to implement horrific policies that flowed directly from their atheism. In America in 1789, the US Constitution establishing freedom of religion was ratified. What occurred in the French Revolution that began in that same year is also history, but of a dramatically different sort. In Paris, the Bastille prison, filled with political captives and the poor, was stormed with the slogan, "Liberty, Equality, Fraternity." That action continues to be celebrated today, for it was a rebellion against grievous wrongs. But those lofty sentiments did not characterize what followed. In their thirst for absolute power, the leadership tolerated no dissent. It was declared that the Revolution would not rest until it had "dethroned the King of Heaven as well as the kings of earth." They melted church bells into canon, used the inside of Notre Dame as a horse stable and warehouse for the army, and put a young beauty on the high altar to serve as a personification of "Reason" --not exactly rational, and neither was the horrific Reign of Terror that ensued, beginning in 1793. The flag of the executed monarchy was, in effect, replaced by the Guillotine, and the leaders shifted from decapitating the statues of Christ's disciples on the stone facade of the great cathedral to beheading multitudes of real people. In just one period of seven weeks, the number was 1,376, an average of more than 28 a day. If one had a title of nobility or a bit of royal blood, then blood would be shed in copious amounts. If you were simply a priest, one of hundreds, that was reason enough for you to be forced underneath the huge gleaming blade. In a quotation often attributed to Diderot and with several only slight variations, the hope was that the revolutionaries would live long enough "to see the last king strangled with the entrails of the last priest."

(Somewhere, I read about Tallyrand, who was a French statesman during the Revolution. He was sought out by a friend who was trying to start a new religion, a project which had met with no success. Tallyrand's advice: Try getting crucified, dying, and rising again on the third day.)

Here, atheism, which has sometimes been imagined as being gentle, open-minded and tolerant, was "anything but." And this was the case even in the very recent past of the 20th century. The

ideal of “no religion” was put into effect –and with brute force— in The Soviet Union. Communist China, which continues to fly the hammer and sickle flag, plus Cuba and North Korea, all indicate that they are, officially, atheistic states. The residents in those countries have not “lived in peace” --far, far from it. The total death tolls in the Soviet Union and in Communist China were in the unparalleled tens of millions, because people came to be regarded as nothing higher than mere flesh and blood instruments of the state. Rule was characterized, not by a warm fuzzy *Imagine*-no-God-type-niceness, but, instead, by *1984*-type brutality, and on the largest possible scale. The horrific record of abusing human rights incudes a preponderance of firing squads, gas chambers, and forced starvations. In large part, this was the consequence of the idea that there is nothing higher than Man. Atheism has often taken quite seriously the idea that, since there is no Higher One to watch or to care, there is no judgment: in any final sense, no one will be held accountable. And it makes sense, as summed up by Dostoyevsky’s pointed words in *Notes from Underground* that “Without God, anything is permitted.”

A bit more related *back*ground indicates that philosophical ideas do not always stay in so-called ivory towers. Quite often, they make it out to influence daily life in the “real world.” This was the case in 1867 when the social reformer Karl Marx published *Das Kapital*, in which he made the famous analogy that dialectical materialism is the foundation on which the superstructure of ideas is built, that history progresses when opposing social classes struggle in conflicts over physical resources, and that, in all of this, religion is simply “the opiate of the people.”

The idea that matter is ultimate, and that atheism is the logical consequence of that, found a champion in Marx’s disciple, Friedrich Engels, who was more nearly a philosopher. In Engels’ view, “…nothing is eternal except eternally changing, eternally moving matter and the laws according to which it moves and changes.” He wrote, “…we have the certainty that matter remains eternally the same in all its transformations, that none of its attributes can ever be lost, and, therefore, that with the same iron necessity that it will exterminate on the earth its highest creation, the thinking mind, it must somewhere else and at another time again produce it.” The point of the leaders’ pointless universe, the grim scenario, which they held with such religious fervor, was threatened by new developments in science. In 1905, Lenin even alluded to what he called “the crisis in modern physics,” saying that “…the principle of the conservation of mass has been undermined by the electron theory of matter,” and he apparently was alarmed that the energy of the atom was about to dethrone the claim for the ultimate character of matter. In spite of that, he doubled down on materialism and its reductionist implications, and it was his engineering of the Russian Revolution in 1917 that would lead, ultimately, to something like half of the world’s population, from approximately 1950 to 1990, living under repressive and officially atheist regimes.

In the 1950s, another Russian author, Boris Pasternak, wrote *Doctor Zhivago,* a story centering on the oppression and dehumanizing effects of the Revolution, in which Leninists used clubs and bullets to implement their goals. Denied publication in Russia, the novel was smuggled out of the country and published elsewhere. (As a high school student, I joined The Book of the Month Club to read works like this.) Pasternak was awarded the 1958 Nobel Prize for

Literature, but the Communist Party did not allow him to accept it. In the back of that first edition of the book, there was a section consisting of the author's poems, including one titled, *The Garden of Gethsemane*, the 14th (and last) verse of which is:

> I will suffer death and on the third day rise,
> And, as rafts come floating down a river,
> Like a caravan of sails, the centuries
> Will come to me for judgment from the dark.

In the early 20th century, and just as the heirs to Karl Marx feared, it turned out that so-called "materialism" *did* become an antiquated concept *within science itself.* The much-celebrated Quantum Theory indicates that, in any instant, there is no such thing as an atom; that "things," at any point in time and space, are abstractions, products of the scientist's imagination. In the new physics of Einstein, matter changes back and forth to energy. And in the thought and experiments of Bohr, Plank, and Heisenberg, the dividing lines between space, matter, and energy were obliterated in favor of the idea that reality consists of waves and particles, the latter being mysterious entities that took the place of atoms; they were not easily explained and that is still the case. In the words of philosopher Albert William Levi, the "…shift was away from the traditional metaphysics of matter in motion and enduring substances to a conception of matter as 'energy' or 'process,' to the notion that 'a thing is what it does,' in short, to a *metaphysics of events.'"*

These days, whatever is designated by the very odd words that physicists use –fermions, mesons, and bosons, quarks, quirks, strings and superstrings—is beyond the imaginings of anyone, for a superstring is said to be as small in relation to a proton as a proton is compared to the solar system. Those subatomic "entities" are *not* the totally-reduced, ultra-simple elementary physical objects that were originally expected when the supercolliders were first switched on. Instead, they turned out to be involved in "events" of ambiguous or even contradictory sorts. The highly publicized Uncertainty Principle indicates that atomic location and motion can be observed separately, but not at the same time, and either one "materializes" only when you look for it. How can observations *create* atomic reality? In *God and the New Physics*, the physicist Paul Davies of Arizona State University says of Quantum Theory that it "…provides the most convincing scientific evidence yet that consciousness plays an essential role in the nature of physical reality." Also, this: "In the absence of 'matter,' then, what can it possibly mean to be a 'materialist?'**"** [Disclaimer: Forgive me, if the description in this paragraph is not entirely correct in the details, for I am neither a physicist nor an astronomer. …but, ah, er …I do have a telescope.]

Thus, some of those who, for a living, ruminate about the nature of the universe are giving voice to ideas that are moving away from materialism and increasingly toward indescribable but overarching systems or designs, something akin to the laws of nature that were there *before* nature itself could exist. In this, they seem to regard the much-touted "purely random chance" as being worthy of little attention, except for casino operators and lottery-ticket sellers. Theodore Roszak, in *The Voice of the Earth***:**

> The problem is this: among the elements of an ordered whole there is a ghostly presence. It is the enduring nonphysical pattern of the parts, a structure which is 'there,' but not in the same sense that the isolable physical components are there. The structure resides *between* the parts; or it is some phantom framework *surrounding* the parts. …When the structure holds together as it moves through time, retaining its identity while constantly altering its physical makeup, the pattern becomes a process that is historical as well as spatial. …Structure and process do not present themselves empirically like the simple observation of an object on a pointer-reader; they have to recognized and explicated by the observing mind. …Old orthodoxies die hard. And yet mind does exist in the universe: the human mind. And in some sense science cannot fully express, the possibility was there from the outset. It was as much part of the Big Bang or the first hydrogen atom, or the galactic clusters, or the first enzyme.

One thinks of that prescient remark of Sir James Jeans of Cambridge, a leading astronomer of his day and quoted at the head of this essay, that the universe resembles, more nearly, *not* a great Machine, but a great Thought. In his book, *The Mysterious Universe,* he saw the human ability to discover mathematical laws that permeate and govern the universe as an indication that we are created in the image of God, Himself the Great Mathematician. As Jeans put it, "Mathematics enters the universe from above instead of from below. …We discover that the universe shows evidence of a designing or controlling power that has something in common with our own individual minds**."** Jean's generation of scientists was forced to reassess all sorts of things. His *Astronomy and Cosmogony* (1928) deals with the structure of matter, the life cycle of stars, and the superstructures of nebulae and galaxies, in which he adds the question:

> What, if any, is our relation to the remote galaxies? …Do their colossal uncomprehending masses come nearer to representing the main ultimate reality of the universe, or do we? Are we merely part of the same picture as they, or is it possible that we are part of the artist…. Are they perchance only a dream, while we are the brain-cells in the mind of the dreamer?

An imaginative and fertile image that pushes boundaries and offers much food for –thought. We mention also the words of the highly regarded philosopher of science Karl Popper, that "Mind is the universe becoming aware of itself." These are issues relating to the ultimate nature of all reality, likely to remain forever unanswerable and beyond the human intellect.

PART III

The issues under consideration in this essay thus involve not only the origin and development of the purely physical universe, but also the evolution of living beings. The publication of Darwin's *Origin of Species* in 1959 was the pivotal event that brought the subject to the attention of all sorts of scientists and to the public at large.

To begin with, the evolution of new species by natural selection is as well documented as almost any concept in the biological sciences and has been for quite a long time.

However, one can come across sloppy renditions of it, even by scientists. These occur most often in television documentaries, wherein, for example, we hear the account of a mammal or a land-lizard evolving paddles, as with whales and prehistoric mosasaurs, "*in order to* take advantage of" a rich food source available in the oceans. That phasing gives the impression that wishful thinking on the part of individual creatures promoted bodily change. That crude imagery is not natural selection: it is the long-discredited conception of Lamarck, and a poor rendition, even of that. It should not be excused as "merely a shorthand version" of the real science: it is an incorrect and lazy thinking that that hinders public understanding of biological evolution. Another typical example, in print: "Since their first appearance back in the middle of the Cretaceous period about 100 million years ago, flowering plants have evolved structures called fruits, designed to attract fruit-eating animals, in order to disseminate their seeds." It is striking that those who say there is no design find it so difficult to rid themselves of the term.

Despite the fact that the role of natural selection continues to be substantiated year after year, it is a severe embarrassment that nearly one-half of the US population actively denies what is one of the greatest discoveries in science. By getting proper explanations, the hope is that those deniers will realize that their own position is, not only an untruth, but also a huge "stumbling block" to the public's acceptance of the core items of the religion they value.

Stephen Jay Gould, Harvard evolutionary biologist (died in 2002), was the preeminent and most articulate exponent and interpreter of the concept of evolution and its implications. Not only was he a great scientist, but he was also a great humanist who often advocated for clarity concerning the separate realms of science and religion, as in his final book, *I have landed*:

> No scientific theory, including evolution, can pose any threat to religion –for these two great tools of human understanding operate in complimentary (not contrary) fashion in their totally separate realms: science as an about the factual state of the natural world, religion as a search for spiritual meaning and ethical values. …Factual nature cannot, in principle, answer the deep questions about ethics and meaning that all people of substance and valor must resolve for themselves. When we stop demanding more than nature can logically provide (thereby freeing ourselves for genuine dialogue with the outside world, rather than clothing nature with false projections of our needs), we liberate ourselves to look within. Science can then forge true partnership with philosophy, religion, and the arts and humanities, for each must supply a patch in that ultimate coat of many colors, the garment of wisdom.

Note that Gould indicates that science, too, like all other endeavors, has definite parameters. This is something he found necessary to state because there are scientists who do seem to regard their discipline as being omnicompetent. It is not. I have been re-reading some works of G. K. Chesterton, which is so worthwhile for many reasons and certainly for this succinct statement that is applicable, also, to both science and religion.

> Art is limitation; the essence of every picture is the frame.

Darwin struggled to describe how one generation transmits characteristics to the next, for he knew nothing of genes: sub-microscopic bits of matter that hold the key and make the transfer.

The basic laws of inheritance, of dominant and recessive characteristics that are passed from one generation to another, these were being worked out by the monk Gregor Mendel in his monastery garden using no less than 10,000 plants of peas. Mendel published in 1866, but in an obscure journal, so very few knew of it. It was only many years later that his work was widely recognized as being hugely significant and relevant to what Darwin had been trying to unravel. And, of course, it was only recently that knowledge was acquired concerning the spiral double-helix DNA molecule located within every cell, of which co-discover James Watson said that it "was too beautiful to not be true." (How such a molecule of two strands intertwining around an axis like a twisted ladder can replicate in cell division is, shall we say, "miraculous.")

When accurately stated, evolution by natural selection does not/cannot address the idea of intentionality or purpose in evolution. The militant atheist Richard Dawkins wrote *The Selfish Gene* to make clear to the unenlightened rest of us what the theory of evolution, by itself, does not: that "We are survival mechanisms –robot vehicles blindly programmed to preserve the selfish molecules known as genes."

That genes are instruments of reproduction, no one disputes and, according to reviews by cell biologists, the book accurately lays out the processes involved. But why, from those processes, would one conclude, as Dawkins does, that an entire animal or whole person is merely a survival mechanism, a robot vehicle? That is hard to say …except that it fits with his suppositions, well-documented elsewhere, that the entire universe exhibits no signs of a purposeful agent; that it has no reason to exist; and that, for living beings, everything is about evolution and survival in the "me first" sense. According to Dawkins, even molecules can be "selfish" –who knew? These miniscule sub-cell agents of the autonomous development of bones and brains are, themselves, imagined to be little critters who "struggle" and "anticipate," and they are compared, not only to computer programmers and architects, but to Chicago gangsters! The language is anthropomorphic, i. e. of the sort that is rightly used to characterize the *Anthropos*, the Man, the whole person, but not the miniscule parts. (By the way, it is exactly the sort of language which scientists routinely condemn.) Of course, at some point, Dawkins must qualify this, to the effect that we must *not* regard genes as "conscious, purposeful agents,"—this, in spite of the title for the entire book. He must say that all such talk has been merely metaphoric. So, once again, the "convenient shorthand" hedge emerges, not unlike the one about the skinny-dipping land lizard. More than one thing is going on.

Perhaps the author's use of that strange terminology about microscopic sub-cell genes having selfish dispositions is *in order that* the same can be associated with the whole being, i. e. the selfish person that the selfish genes inhabit. Is this an intentional case of using the micro to illustrate the macro? Is it another attempt to show that nobody is truly altruistic and that survival, and only that, is what life, at *every* level, is all about. The language smacks of being an under-the-table add-on, one that fits with the author's reductionist outlook. What is clear is that Richard Dawkins, if not his genes*, does intend* to convince us that we, ourselves, are actually/simply/nothing but "survival mechanisms" and "robot vehicles."

Near the end of his huge volume of *Collected Poems*, the compendium of his life's work, W. H. Auden posted these two lines:

> Why should the cleverest minds so often hold the religion
> *Sacred is any Machine, all that's alive is profane?*

Of course, the question is rhetorical: Auden is not really asking, as much as he is *answering* Why, exposing a certain narrow left-brain type of intelligence and suggesting that it is the reductionist mind is that is attracted to reduced things. Machines are attractive because they have precise boundaries, have limited functions, and can thus be comprehended and manipulated by their masters. Life itself is seldom that way; and so, arrogance, when confronted by mystery, attempts to reduce it. Richard Wilhelm Ferdinand von Helmholz was the German engineer who made numerous advances in designing locomotives. Was it an advance when he also assured us that "…the animal body does not differ from the steam engine"? Marvin Minsky, a leading computer scientist and promoter of artificial intelligence, said that the human brain is a "meat machine." (He also offered merely technological solutions to the social problems created by technology. In contrast, Stephen Hawking regarded AI, artificial intelligence, to be a greater threat to humanity than the H-bomb.)

In some quarters, the reductionist outlook has led to a simplistic, absolutist viewing of life in mechanistic terms: nuts and bolts, pieces and parts; and that, in turn to the dismissal of characteristics that humanity has cherished as our highest virtues. So, love is reduced to hormones and appetites, and generosity is not really generous but always has some ulterior and selfish motive in terms of survival value, if not immediately, then surely in the long run. So, a mother's love is not really love, and self-sacrifice is really only selfishness, "after all."

In that great American novel, *Babbitt* by Sinclair Lewis, it is said that "Babbitt loved his son and warmed to his companionship and would have sacrificed everything for him –*if* he could have been sure of proper credit." That qualification was very telling evidence of a corrupt character. However, a hypothetical reductionist might also use it to suggest, again, that self-promotion is paramount and simply natural for absolutely everyone. So, in such a dog-eat-dog world, no matter how that underlying motive might be disguised or construed, if only we could get to the bottom of it, we would discover that all of us, not just Babbitt, are really, just, merely selfish bastards. This, it would be said, is a necessary consequence of applying the theory of evolution to human beings. (Of this sort of thing, I must add that "I am not making this up.") To those of us who still insist that humans might be, at heart, empathetic, kind, or altruistic, the answer flung back to us is: "No! It only *seems* that way."

Thus, there have been some well publicized attempts to completely explain away altruism by describing it in scientific terms --and quantifying it. (Remember: no numbers = no science.) What follows is a variation of the "selfish gene" concept, one that is sometimes attributed to Maynard Smith, among others, and Dawkins has found use for it, too. It goes like this: "I would be willing to sacrifice my own life for two brothers --or eight cousins." (It could be extended to include thirty-two second cousins, and so forth. Less-shared DNA explains the lower level of

commitment to each one; it's like a single pie that must be divided into many pieces.) The idea is that persons who have any compassion or any level of attachment to another are *not actually* altruistic: instead, people are, at a subconscious or mindless level, again, *merely* out to preserve, protect, and pass on their mechanistic genetic material. And all of this is proven, supposedly, by the reality that less caring is involved in more distant biological relationships.

These arguments are completely demolished by all those parents who would gladly give their lives to save the children whom they have *adopted* and, thus, with whom they have shared absolutely nothing of their genes. Should it not have been immediately obvious that there is more to a love than molecules? Not to reductionists. Would they tout their altruism hypothesis at the Omaha beachhead in Normandy? Will they bring it to Arlington National Cemetery? Have they no shame?

Our view of all sorts of other creatures, too, has often been cluttered with materialist preconceptions that diminish their stature. Countless species of so-called lower animals have been seen as being little more than complex automatons. However, anyone who has visited the zoo and witnessed the affection displayed by a tigress for her kits, or viewed a documentary that shows a mother elephant using her trunk to gently position her calf to nurse, or through a spotting scope has watched a Red-tailed Hawk nuzzling and preening her chicks might begin to doubt the usual explanation that such demonstrations of commitment are completely explained by the genetic programming of instincts. Instincts are surely operative, but myriads of creatures might have much more "mind over matter" than the recent wildlife paradigm has allowed. Animals do not write autobiographies, but they have them. They know not just pain but joy, also. They live in relationships, have memories, and many mourn the loss of their mates. They feel. If people cannot see this, perhaps it is because they do not want to. (Of course, denying emotions to animals makes it easier for us to manage them --and to exploit them-- as being just another "natural resource.")

Once again, it is important to note that a reductionist mentality, while it characterizes some members of the scientific community, surely does not apply to all who "do science." It is certainly not something required by the scientific method; instead, it is an additive and a corruption. Robin Wall Kimmerer is a plant ecologist with Native American roots and an enrolled member of the Citizen Potawomi Nation. In *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*, she writes:

> Doing science with awe and humility is a powerful act of reciprocity with the more-than-human world. I've never met an ecologist who came to the field for the love of data or for the wonder of a p-value. These are just the ways we have of crossing the species boundary, of slipping off our human skin and wearing fins or feathers or foliage, trying to know others as fully as we can. …Heart-driven scientists whose notebooks, smudged with salt marsh mud and filled with columns of numbers, are love letters to salmon.

That is science at it best. But Kemmerer also knows that not everyone is heart-driven. Science can give us knowledge but, by itself, does not create caring, and so, those tools are sometimes

put in the service of special interests who care not much at all. Thus, she asks, "Does science allow us to perceive the sacred in the world, or does it bend light in such a way as to obscure it?" It depends. Science as a method and as a repository of certain kinds of knowledge is different from what she calls "…a scientific worldview that is all too often an enemy of ecological compassion." The two ideas, she says,

> …are too often synonymous in the mind of the public. Trying to understand the life of another being or another system so unlike our own is often humbling, and for many scientists, is a deeply spiritual pursuit. Contrasting with this is the scientific worldview, in which a culture uses the process of interpreting science in a cultural context that uses science and technology to reinforce reductionist, materialist economic and political agendas.

"What would happen," Kemmerer asks, "if Western scientists saw plants as their teachers rather than their subjects?"

Diligent investigations of nature enable a greater understanding of the parts and pieces in relation to the whole, but this should not diminish our sense of astonishment that all of it exists, that it works in such marvelous ways, and that we, ourselves, are part of it. I'm taking the words of philosopher George Santayana in *Reason in Religion* (1905) in the same sense: "Science, which thinks to make belief in miracles impossible, is itself belief in miracles –in the miracles best authenticated by history and daily life."

The Transcendent Brain is the title of an interesting article published recently by *The Atlantic* in a recent online newsletter. The author is Alan Lightman, a physicist who teaches at The Massachusetts Institute of Technology. He tells us that he is "a spiritual materialist." The statement is in the same vein as the faddish sentiment voiced by many these days, that they are "spiritual, but not religious." In his research, Lightman has been considering questions such as: "How do complex human experiences such as falling in love or feeling a connection to nature or appreciating beauty emerge from the material brain –a collection of atoms and molecules." This is the latest version of the truly ancient conundrum having to do with the relationship of the physical brain to the mind, something that has been pondered for millennia by philosophers and farmers, acrobats and aristocrats, and everyone else, too. Lightman and others have been examining a few of the 100 billion neurons in the human brain and how these interact to produce a variety of sensations, "…the way that electrical ions are exchanged across neuron membranes," and "the way that neuron chemically connects to another neuron." The author indicates that the effort is toward being able to describe how

> …consciousness can emerge from the collective interaction of billions of neurons, following the known laws of chemistry, physics, and biology, without the intervention of some additional ethereal or 'psychic' force.' …I firmly believe that consciousness and all mental experiences are sensations brought about by the chemical and electrical currents in the brain. But we may never be able to show how this highest level of consciousness emerges. …we still cannot fill in all the blanks for how the collection of neurons produces the sensation we call consciousness.

Ever since I first read of it in textbooks, I been struck by fact that physicists and astronomers have concluded that the heavy elements in our bodies could only have been formed in the thermonuclear furnaces that exist in the hearts of stars and that those elements were then scattered throughout space by supernovae explosions –that we are made of stardust! –an insight that was unimaginable before the 20th century. Lightman, too, alludes to this cosmic connection and then concludes his article with "I don't believe in miracles, but I believe in the miraculous."

A more complete understanding of physical processes might increase, instead of diminish, one's sense of awe at them. And we do live in a material world: our bodies are made of calcium, iron, and carbon, etc.; so, why not figure out how everything functions to the greatest extent possible? The author does say, I think with some disappointment, that consciousness itself may remain forever inexplicable. In this, I'm not sure he recognizes that, no matter how extremely refined or detailed is the description of *how* anything works, this does not explain *why* the various laws operate or their existence in the first place, i. e. their ultimate origin. Thus, the writer, like numerous others, attempts to sidestep that underlying and fundamental issue of why there is something instead of nothing. So, let's now direct our neurons a bit more to the article's final sentence, the one that makes for a succinct and catchy way to end, the one that dismisses the God-tinged term *miracles* and puts *the miraculous* in its place.

In this context, the use of that term *miraculous* changes the character of the prior word that it modifies into something more common, more nearly like "Amazing!" Language changes, in the same way that "Incredible!" no longer means "not-credible, which it once did, but now something quite different: "Wow!" Here, also, *miraculous* becomes, in reduced fashion, "surprising, totally unexpected, extraordinary," etc. I'm glad the author thinks there are amazing things, but people of faith have always used the word miraculous to describe an event which *is itself* an actual *miracle.* And, further, that it has something to do with God. Words matter, and they have a history. So: another bit of reductionist slight-of-hand by another author, or so I think.

Graham Greene's gripping novel, *The Power and the Glory* (1940) is once again relevant. The story centers on a disillusioned priest in western Mexico of the 1920s and 30s, when the ruling powers, out of atheistic presuppositions, were radically suppressing religion, even to the point of hunting down and killing its leaders. Those in political authority feared that religion would support the poor in a revolution. In this iteration of "Imagine no religion," priests were not allowed to wear their garb; they could be imprisoned for possessing wine for the sacrament and simply for saying *Adios*, which does not mean "Goodbye" but "God be with you." [This is not a fiction. In an eight-year period, between 1926 and 1934, at least 45 priests were killed and, whereas, not long before, there had been 4,500 priests, by 1934 there were only 334 priests left to serve 15 million people, the rest having been nearly eliminated by threats, emigration, expulsion, imprisonment, execution, and assassination. There are numerous Catholic martyrs and saints from this time. There were huge migrations of Mexican citizens to the U. S., and some portion of our Latino population is traceable to this time. How is it that so few of us have even heard of this? If you want to learn more, look up The Cistero War.]

In Greene's story, the main character, a nameless priest, is finally hunted down, and a police lieutenant interrogates him, saying, "You're a danger. That's why we kill you. I have nothing against you, you understand, as a man." The priest replies, quite directly, "Of course not. It's God you are against." The conversation moves to the subject of miracles, with the irritated policeman scornful of "things like that." The doomed priest's response:

> "Oh, it's funny, isn't it? It isn't a case of miracles not happening –it's just a case of people calling them something else. Can't you see the doctors 'round the dead man? He isn't beathing any more, his pulse has stopped, his heart's not beating: he's dead. Then somebody gives him back his life, and they all –what's the expression? —they reserve their opinion. They won't say it's a miracle, because that's a word they don't like. Then it happens again and again perhaps –because God's about the earth—and they say: there aren't miracles, it is simply that we have enlarged our conception of what life is. Now we know you can be alive without pulse, breath, heart-beats. And they invent a new word to describe that state of life, and they say science has again disproved a miracle." He giggled again. "You can't get 'round them.

Many of us hold that miracles, in the sense of *suspending* the laws of nature, are, in fact, exceedingly rare and are never beyond debate. (The shroud of Tourin may never be folded to final rest.) I can pray for miracles but, as is the case with most people, it must be said that I do not often expect them. However, many of us have the view that the entirety of nature and its everyday processes (not just certain happenings or unusual circumstances) is "miraculous" -- because those things *truly are* miracles, everywhere and all the time. And they exist in us and all around us --regardless of what they are called—for they are the result of that "something-out-of-nothing" primeval First Miracle: Creation in which Everything was brought into being. This includes not only the materials described by physics and chemistry, but *also* those all-pervasive laws and processes that hold things together and by which matter moves, organizes, and interacts to creates newness in each and every instant of time. "In the beginning, God created the heavens and the earth." *The* Miracle, with a capital M, is "*the whole shebang*."

Turning now to consider more of the qualities beneath the physical, these in the sense of our inner selves, the mental, emotional, and moral aspects, i. e. human nature. In that, there is a great deal that gives us pause. In human history, there is much at which to shudder; the nightly news bears witness, time and again, and so does Scripture. And yet, idealism, altruism, kindness, friendship, and love: these things do exist. The biblical view of humanity has always had a certain dualistic aspect to it. Thus, when we observe people "at their worst," that is, in itself, a recognition that there is also another side, symptomatic of those "better angels of our nature," in those oft-quoted words of Lincoln. So, balancing the dark aspect, we find a genuine "however" that is quite inexplicable in reductionist terms. For, people do expend themselves for others, often without expecting anything in return and, within them, there is much that is noble. Carl Sandburg, historian, Lincoln biographer, and poet, in *The People, Yes*:

> I am credulous about the destiny of man,
> and I believe more than I can ever prove
> of the future of the human race

and the importance of illusions,
the value of great expectations.

In spite of failures in in our efforts to be completely gracious, loving, or noble, we have that inner sense that we should not depreciate life down to the lowest common denominator. The values expressed in the Commandments and the Golden Rule are high, like the stars, which we cannot touch but, because they are constant, many a voyage has been charted by them. Possibilities beckon, beyond self, with the side-effect of deep fulfillment. In *Summer and Smoke*, the playwright Tennessee Williams describes the human attraction for living beyond minimums and beyond mere self-interest with the image of a cathedral:

> How everything reaches up, how everything seems to be straining for something out of reach of the stone –or human fingers. …The immense stained windows, the great arched doors that are five or six times the height of the tallest man –the vaulted ceiling and the delicate spires –all reaching up to something beyond attainment! To me, that is the secret, the principle back of existence –the everlasting struggle and aspiration for more than our human limits have placed in our reach. …Who was it that said that, oh, so beautiful thing! 'All of us are in the gutter, but some of us are looking at the stars!'

The famous Lewis and Clarke expedition was commissioned by President Jefferson to traverse and to describe the newly acquired western territory in the Louisiana Purchase. In May of 1804, it left St. Louis by keelboat and canoe, following the Missouri River upstream in this grand adventure that was to extend all the way to the Pacific Ocean and back again. (I have just finished reading the two leaders' account in their *Journals*.) In August of 1805, the team of explorers were high in the Bitterroot range of The Rocky Mountains in what is now Idaho. Their tribulations had included extreme weather, the threat of hostile tribes, scarcity of food, and numerous harrowing encounters with ferocious Grizzley Bears that, unaccustomed to seeing people, were fearless in the attack. A brief but welcome pause was used by the young Captain Meriwether Lewis for self-examination. On the 18th of the month, he wrote:

> This day I completed my thirty-first year. …I reflected that I had as yet done but little, very little, indeed, to further the happiness of the human race or to advance the information of the succeeding generation. I viewed with regret the many hours I have spent in indolence, …but since they are past and cannot be recalled, I dash from me the gloomy thought, and resolved in future, to redouble my exertions and at least endeavour to promote those two primary objects of human existence by giving them the aid of that portion of talents which nature and fortune have bestowed on me; or in future, to live for *mankind*, as I have heretofore lived *for myself*.

Lewis easily could have been frustrated, fear-filled, and disillusioned. Instead, with a maturity beyond his years, he humbly chose the side of the greater good, the benevolent disposition that can make such a positive difference to others, all the while bringing fulfillment to oneself (Italics for emphasis are in his original).

Pascal, writing long before, was being a true realist when he described, again, both sides of human nature: "What a chimera then is man! What a novelty! What a monster, what a chaos, what a contradiction, what a prodigy! Judge of all things, imbecile worm of the earth;

depositary of truth, a sink of uncertainty and error; the pride and refuse of the universe." At still another point in his *Pensees*, or *Letters*, he comments about what might be called the glory of the human mind:

> Man is but a reed, the most feebel thing in nature; but he is a thinking reed. The entire universe need not arm itself to crush him. A vapour, a drop of water suffices to kill him. But, if the universe were to crush him, man would still be more noble than that which killed him, because he knows that he dies and the advantage which the universe has over him; the universe knows nothing of this. All our dignity consists, then, in thought. By it we must elevate ourselves, and not by space and time which we cannot fill. Let us endeavor, then, to think well.

I do not doubt that Intelligence is of more than one kind, and that some types are better at apprehending aspects of reality wherein the whole truly is more than the sum of those intricate constituent parts. The lower-case poet e. e. cummings:

> one's not half two. It's two are halves of one.

That is thinking well. Yes, for certain purposes, the body can and often must be *treated* in mechanical terms (the tooth drilled, the broken bone pinned, the incision stapled, even a heart or lung transplanted); it that sense, scientific materialism not only works, it works brilliantly. But so many aspects of life cannot be reduced to the physical and the numerable, however much a merely clever individual may attempt.

Thus, in regard to science and nature, I have long felt that one of the most widespread fallacies is the assumption that to *describe how* something works is to *explain* it. Recently, it was good to run across the words of famous paleontologist George Gaylord Simpson, from a couple of generations ago, that "Many a scientist claims to have explained some phenomenon when in truth all he has done is to give it a name."

Again, not all science writers are guilty of reductionism. For instance, I can read Neil Shubin's *Your Inner Fish* and marvel at his detailed descriptions of the way in which the human body still reflects the origins of this or that bodily part in the evolutionary development of ancestral creatures back to, not only millions of years, but to hundreds of millions of years, i. e. "clear back" to amphibians of the Carboniferous Period. A skeletal feature for one function is refashioned for another, "creating form from form." In a sense, what else would one expect than life developing out of life? The process of evolving seems to be the usual thing --but is, at the very same time, absolutely astonishing and wonder-full. (At the fine encouragement of *The Clergy Letter Project*, which communicates with thousands of spiritual leaders, hundreds of congregations have held observances to indicate that the fact of evolution is not merely something to be noted, but *celebrated*.)

As is well known, the English theologian William Paley wrote a book seeking to counter the trending of mechanistic lines of thought, the full title of which is *Natural Theology, or Evidence*

of the Existence and Attributes of the Deity, Collected from the Appearances of Nature (1805). This is his most famous analogy:

> "Let's say you're walking around and you find a watch on the ground. As you examine it, you marvel at the intricately complex interweaving of its parts, a means to an end. Surely you wouldn't think this marvel would have come about by itself. The watch must have a maker. Just as the watch has such complex means to an end, so does nature to a much greater extent. Just look at the complexity of the human eye. Thus, we must conclude that nature has a maker too." Thus, a person would be "…surprised to be informed that the watch in his hand was nothing more than the result of the laws of metallic nature. It is a perversion of language to assign any law, as the efficient, operative cause of anything. …Without this agent, without this power, which are both distinct from itself, the law does nothing, is nothing."

Some scientists met Paley's argument with derision; Paley even flagged those himself by saying, "How do you refute a sneer?" But it was also a catalyst for serious discussion of the entire subject of nature and creation. Watches are not living beings, but Paley's argument, given his time in history, deserves much more respect than a modern movement, one that has access to two centuries-worth of additional information on how the living world works, but which, nevertheless, has adopted the idea of "Intelligent Design" by maintaining that absolutely everything, in detail, is the result of the God's specific design. I find it to be ironic, because this, too, could be seen as a sort of a "machine-type" or assembly-line-theology by substituting for evolution lots of divine micromanaging, crafting, tinkering, and the manipulation of features in order to produce different species. In this, the creationists' goal is, of course, to support the literal interpretation of the six-day creation story in Genesis by attempting to find instances of "irreducible complexity" down to and including the flagella of a protozoa. (Evolutionary biologists have examined such particulars promoted by advocates of Intelligent Design and have provided a credible accounting for them by natural selection. "You can look it up.")

Leonard Krishtalka is Emeritus Director and Emeritus Professor of the Department of Ecology and Evolutionary Biology at the University of Kansas, where his work centered on the evolution of mammals in North America. He has been responding to "creation science" for quite some time, as in his 1989 book, *Dinosaur Plots: and Other Intrigues in Natural History*:

> If the proponents of 'creation science' studied the history of evolutionary thought as fervently as they do Scripture, they would learn that it was the great natural theologians who paved the evolutionary road for Darwin. They cataloged, classified and ordered nature, organic and inorganic, living and fossil. To them, Nature was God's handiwork, and in it they perceived the grandeur of creation manifest in the forms of life and their rhythms of change. They anchored God at the beginning of an evolved nature as the ultimate progenitor; once Nature had been set on its evolutionary way, He did not dabble with the coming billions of anatomical mutations and transformations. Otherwise, as one of them, Robert Chambers, asked, would God really spend His time invoking special miracles just to alter the tubercles on teeth of different species of mice? The natural theologians saw in evolution a deity more personal and an origin more magisterial. If creationists would read *Origin of Species*, they would learn that Darwin saw likewise.

Darwin certainly knew of Paley's argument, and he wrestled with the idea of design in the species issue. Darwin's thought has often been oversimplified and sometimes distorted. For instance, he did not address the origin of life on planet earth; his subject was limited to the change undergone by already existent living things over the course of time. I have a volume of Darwin's correspondence on the topic, *Evolution: Selected Letters of Charles Darwin 1860-1870*. There, we get a more nuanced and accurate view of his own mind on the subject, including his qualifications and uncertainties This is especially the case in the letters he exchanged over the course of many years with the American botanist, Asa Gray of Harvard, a Presbyterian who couched his own religious beliefs in terms of the Nicene Creed. (After one of his many bouts with illness, Darwin wrote to "My Dear Gray," saying, "You have been so kind & good a friend to me" and, after describing his malady, signed off as, "Your poor broken down brother naturalist & affectionate friend, C. Darwin.") Quoted at some length, the following is a section of his letter to Gray on May 22, 1860, in which he addressed the controversy generated by the publication of *The Origin* the year before:

> With respect to the theological view of the question: this is always painful to me. –I am bewildered—I had no intention to write atheistically. But I own that I cannot see, as plainly as others do, & as I should wish to do, evidence of design and beneficence on all sides of us. There seems to be too much misery in the world. I cannot persuade myself that a beneficent & omnipotent God would have designedly created the Ichneumonidae [the wasps] with the express intention of their feeding within the living bodies of caterpillars…. Not believing this, I see no necessity in the belief that the eye was expressly designed. On the other hand, I cannot anyhow be contented to view this wonderful universe & especially the nature of man, & conclude that everything is the result of brute force. I am inclined to look at everything as resulting from designed laws, with the details, whether good or bad, left to the working out of what we may call chance. Not that this notion *at all s*atisfies me. I feel most deeply that the whole subject is too profound for the human intellect. A dog might as well speculate on the mind of Newton. –Let each man hope & believe what he can. Certainly, I agree with you that my views are not at all necessarily atheistic.

(In writing this essay, I have sometimes thought that the dog-analogy, extreme as it is, should be even more so: the comparison should involve a *flea* on the dog's back that "might as well speculate….")

A comprehensive biography of Darwin's correspondent is *Asa Gray: American Botanist, Friend of Darwin* by A. Hunter Dupree, who tells us, concerning the new biology, that Gray used this image: "Natural selection is not the wind which propels the vessel, but the rudder which, by friction, now on this side and now on that, shapes the course…. Variation answers to the wind." Gray thus accepted both evolution and natural selection, still the core of Darwinism, while adding his personal conviction, one not discoverable by science, that "the *Divine* it is that holds together all Nature."

Others would grasp the basics of evolution by natural selection but then gallop off in all sorts of other directions that were beyond the theory itself, just as Darwin had feared. In 1886, the German biologist Ernst Haeckel, was able to describe in great detail the composition of a single

cell and, from that, concluded: "With this single argument the mystery of the universe is explained, the Deity annulled, and a new era of infinite knowledge ushered in." In England, Herbert Spencer, in his 1864 book, *Principles of Biology*, coined the phrase "survival of the fittest" and applied it to human populations. The idea later inspired so-called "Social Darwinism," and even eugenics, to sometimes justify oppression of one group by another. (Again, the Nazis did not appear in a social vacuum.) Says Dupree, "Darwinism moved further from science and became a monstrous worship of blind competition and brute force." However, this was not the case regarding the main proponents of Darwin's ideas in *The Origin*, the geologist Charles Lyell, the biologist Joseph Hooker, and the botanist Asa Gray:

> They had one thing in common that would prove lasting. They were, above everything, devoted to science and to research. None of them succumbed to the spell of the metaphor of the church, to make the *Origin* a new Bible. Plenty of lesser men would do that. But not these original Darwinians, especially not Darwin himself. …Science was not a religion or a description of the universe to which one must be converted and which one must worship. It was a limited and useful instrument which had nothing to say about questions that could not be asked of it.

The same, and more, could be said of the brilliant Thomas Henry Huxley, who quickly became the very foremost promoter of Darwin's ideas in the wider culture, earning the nickname, "Darwin's Bulldog." In the famous 1860 public debate regarding evolution, Bishop Wilberforce had asked Huxley whether he preferred to be descended from an ape on his grandfather's or on his grandmother's side. Tradition has it that Huxley whispered to the person alongside, "The Lord has delivered him into my hands!" He then rose and, in the eyes of many, proceeded to demolish the opposition by saying, "If the question is put to me would I rather have a miserable ape for a grandfather, or a man highly endowed by nature and possessed of great means and influence and yet who employs those faculties for the mere purpose of introducing ridicule into a grave scientific discussion –I unhesitatingly affirm my preference for the ape." (This quote is from Huxley's own account as recorded in the *British Journal for the History of Science.)*

It is impossible to overestimate the influence of Huxley in his time. He was trained as a physician and had served in that capacity aboard the Royal Navy's 28-gun warship, *Rattlesnake*, this in a more official capacity than did the "naturalist" Darwin on the *Beagle*. Throughout his life, Huxley continued to be conversant on the latest developments in biology, something that is evident in an address presented in in November of 1868 at a forum organized by one Rev. J. Cranbrook concerning nontheological topics. It was entitled *On the Physical Basis for Life* and was presented as a response to the rising currents of materialist thought in England. (It is still in print.) This situation, said Huxley,

> …weighs like a nightmare, I believe, upon many of the best minds of these days. They watch what they conceive to be the progress of materialism, in such fear and powerless anger, as a savage feels, when, during an eclipse, the great shadow creeps over the face of the sun. The advancing tide of matter threatens to drown their souls; the tightening grasp of law impedes their freedom; they are alarmed lest man's moral nature be debased by his increased wisdom.

Most of the lengthy address is devoted to showing how the material in and around us is composed of the much of the same stuff, simply serving different functions: "What hidden bond can connect the flower which a girl wears in her hair and the blood that courses through her youthful veins? …I can find no intelligible grounds for refusing to say that the properties of protoplasm result from the nature and disposition of molecules." He indicated that science, *as science*, by its very nature, is confined to using material explanations. After strumming the materialist chord for a very long time, he finally turns to defining its limits, saying that "… the materialist position that there is nothing in the world but matter, force, and necessity, is as utterly devoid of justification as the most baseless theological dogmas." And by "necessity," he meant the idea of determinism, thus strongly rejecting the idea that a world of matter and of cause and effect dictate a loss of the freedom of the will. Such an "ism," he said, "…lies outside the limits of philosophical inquiry" and is completely beyond any demonstration. Huxley's conclusion along those lines exhibits a humility unknown to some of the famous reductionists of his day, or ours:

> Thus, there can be little doubt that the further science advances, the more extensively and consistently will all the phenomena of nature be represented by materialistic formulae and symbols. But the man of science who, forgetting the limits of philosophical inquiry, slides from these formulae and symbols into what is commonly understood by materialism, seems to me to place himself on a level with the mathematician who should mistake x's and y's with which he works his problems for real entities; and with this further disadvantage as compared with the mathematician, that the blunders of the latter are of no practical consequence, while the errors of systematic materialism may paralyze the energies and destroy the beauty of a life.

Huxley thus strongly opposed the stance of any who would justify man's inhumanity to man, this either by overly accenting life's physical, material substratum or by the Darwinian model. He wrote in his 1863 work, *On the Relation of Man to the Lower Animals*, that "…whether *from* them or not, he is assuredly not *of* them." Thirty years later, In *Evolution and Ethics*, he indicated that progress in society depends, not upon imitating what he called the cosmic process, but upon combatting it: "In place of ruthless self-assertion, it demands self-restraint, …its influence is directed not as much to the survival of the fittest, as to the fitting of as many as possible to survive. It repudiates the gladiatorial theory of existence."

The concept of biological evolution, it seems to me, provides so many windows to help understand the world both around us and within us. However, in the attempt to affirm its truth, its explanatory sufficiency has sometimes been exaggerated, and I find the remark of paleontologist G. G. Simpson (d. 1984) in *Tempo and Mode in Evolution* to be such an overreach as to be bizarre: "The question 'What is man?' is probably the most profound that can be asked by man. It has always been central to any system of philosophy or theology…. The point I want to make now is that all attempts to answer that question before 1859 are worthless and that we will be better off if we ignore them completely." That statement merits the satirical response: "When you've got a good thing going, overdo it!" Accepting that evolution applies to humankind, yes. But why not also consider the values that, over thousands of years, became important to this end-product of hominid evolution, because those have shaped not only human

society but, in many respects, have impacted the very planet itself? When Socrates said that "The unexamined life is not worth living," or the Apostle Paul that "faith and hope and love abide, but the greatest of these is love" –were they not legitimately addressing the question of what is man? Thus, one more time: attention to the issue of *how* we got here does not do away with the ever-present one of *why* we are here and should keep on going. Our humanity is complex, and more than one thing can be true or valuable at once.

Simpson was one of the foremost researchers in the subject of mammalian evolution in general and, in particular, of the horse. He worked at The American Museum of Natural History in New York City for many years and later was Director of the Museum of Comparative Zoology at Harvard. Simpson's 1953 book, *Life of the Past*, was widely influential and it remains an excellent introduction to the science of paleontology. On the very last page, he laments that there are so many who "…prefer to not know the truth if it disturbs an error they have cherished." I share the lament. He has in mind the erroneous idea of creationists that life has only a brief and recent history and he indicates that the fossil record soundly refutes that view. Then, from the picture that Simpson paints of life's "long and incredibly slow progression," he draws another wide-ranging conclusion: that man "…responds to no plan and fulfills no supernal purpose. He stands alone in the universe, a unique product of a long, unconscious, impersonal, material process, with unique understandings and potentialities. This he owes to no one but himself, and it is to himself that he is responsible." Concerning the facts that a human is an animal, a chordate, an amniote, a vertebrate, a mammal, a primate, and a hominid, we might say, "This is most certainly true." But does humanity's kinship with the rest of the evolving kingdoms of life and their long journey through time really mean, with the certainty claimed, that man is the result of a purely natural process that could not possibly have had him in mind? This could be the case, but is this really a "scientific" conclusion?

More than a few scientists reject all attempts to regard human beings, when compared to the rest of fauna of planet earth, as in any major way unique. Some of those are famous, including E. O. Wilson. I have read seven of his books and am very appreciative of his work in ecology. However, he, like many others, could not resist drawing sweeping conclusions from biology and applying them to every aspect of human existence. So, Wilson maintains, religion is subject to the same laws of natural selection. He supposes that we have religion because it worked to provide group cohesion and thus contributed to survival (likely true), but religion should not be trusted for anything else, because, according to him, its ideas of things supernatural are not true. Religion summarized: false, but useful, at least early on, but not useful now, so get rid of it. In *On Human Nature*, Wilson writes, "If religion, including the dogmatic and secular ideologies, can be systematically analyzed and explained as a product of the brain's evolution, it's power as an external source of morality will be gone forever." It is strange that he does not recognize that the same logic could be applied to the issue of science and its attempt to arrive at truth. That science is a truth-provider is something Wilson clearly assumes: but, by the same token, could it not be seen as a just-happens-to-be-useful byproduct of the development of the human brain? That question is not addressed.

Richard Dawkins, in *River Out of Eden*, has thoughts very similar to those of Wilson, although more baldly stated:

> In a universe of physical forces and genetic replication, some people are going to get hurt, other people are going to get lucky, and you won't find any rhyme or reason in it, nor any justice. The universe that we observe has precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil, and no good, nothing but blind, pitiless indifference.

Another atheist of the adamant sort, William Provine, who taught at Cornell University, put forth his views in the journal *Science* in a 1988 article titled "Science and the Foundation of Ethics:"

> Modern science directly implies that there are no inherent moral or ethical laws, no absolute guiding principles for human society…. We must conclude that when we die, we die, and that is the end of us…. Finally, free will as it is traditionally conceived… simply does not exist. ...There is no way that the evolutionary process as currently conceived can produce a being that is truly free to make moral choices.

Do such all-encompassing declarations represent science, or scient*ism*? Happenstance happens, as few would deny. That evolution was involved in how our *capacities* for both faith and free will came into being: that is not something to deny. But to claim, because it was the *process* of evolution that led to those capacities, that they are invalidated –this is something other than a logical scientific conclusion.

These days, when even straightforward science, (as with vaccines, etc.) is sometimes under attack by those who see it as some sort of sinister threat, part of the explanation for this negative state of affairs may be found in this very sort of blending, intentional or not, of what are actually two separate issues. The same applies to those espousing creationism and the need they feel to defend a literalistic interpretation of Scripture. Such a disposition among fundamentalist Christians may be due, not only to a lack of appreciation for various literary forms in the ancient documents, although that is a sizeable part of it, but also, and to no small degree, to a fairly understandable reaction to militant atheists and their hostility to religion. In other words, creationists are responding defensively, not just to evolution but to the aggressive promotion of a radically reductionist world view that often accompanies it and which they regard –not inaccurately—as being alien to their values and denigrating their very lives.

Kenneth R. Miller, is a cell biologist and biology textbook author who taught at Harvard, as well as at Brown University in Providence, R.I. He has written:

> Over years of teaching and research, I have come to realize that the presumption of atheism or agnosticism is universal in academic life…. It would be difficult to overstate how common this presumption of godlessness is, and the degree to which it affects any serious attempt to investigate the religious implications of ideas.

In his book, *Finding Darwin's God*, he also assesses the situation in the wider public realm, and begins by referencing one of the quotations above:

> 'Nothing but 'blind, pitiless indifference?' Little wonder that people who see the world as a place of deliberate moral choice, who see clear differences between good and evil, and who cherish virtues such as courage, honesty, and truthfulness, would take issue with that statement. Since such characterizations are presented as the direct implications of evolutionary theory, one might fairly conclude from them that evolution itself is their enemy.

Of course, that is not the case, as Miller shows in very convincing fashion. In fact, I may never have read a more ardent, completely *scientific* defense of evolution and its ramifications. [Thus, allow me here to take a few lines to highly recommend Miller's 300-page book, the subtitle of which is *A Scientist's Search for Common Ground Between God and Evolution*. Published in 1999, I regard it as still one of the very best works available on the subject. The then-president of the American Academy of Science, Bruce Alberts, endorsed it, thus: "*Finding Darwin's God* is an artfully constructed argument against both those who deny evolution and those using science to justify a materialist worldview. …I know of no other that would surpass it in being mindful of different views, while still forceful. Miller has an uncanny gift for expressing profound ideas in clear and graceful pose."]

Miller tells us that many of his scientific colleagues thought that it would be "crazy" for him to write something about God. Or, if he were to do so, that it would simply be something slick and tailored to contemporary feelgood culture: that perhaps he would just be saying that love is God, or that gravity is God, or the universe itself. To that, Miller says No. Such gods, he says, "are just clever and disingenuous restatements of empirical science to wrap an appearance of religion around them." He makes clear his position as a person of faith by adding, "Nor …does it make any sense to pray to the Second Law of Thermodynamics, which has never given me a break, and probably never will. …In this book, I am interested in a traditional view of God –the one described by the great Western monotheistic religions." He then identifies their three shared core beliefs: the primacy of God in the universe; that we exist as the direct result of God's will; and that God has revealed himself to us.

One can imagine that God could have created everything, including all living beings just the way they are now; it *could* have happened in a puff of smoke just a few thousand years ago, but the evidence says otherwise. Miller:

> The irony is that only those who embrace the scientific reality of evolution are adequately prepared to give God the credit and power He deserves. By recognizing the continuing force of evolution, a religious person acknowledges that God is every bit as creative in the present as He was in the past. That –and not a rejection of any of the core ideas of evolution—is why I am a believer.

Many of the new atheists who claim that evolution supports their position see themselves as being on a militant crusade and, for some, that term is more than fitting. (The philosopher Daniel Dennett would like to see church buildings repurposed as museums of religion. We might recall that something that was tried –in The Soviet Union. Actually, his imaginings are more extreme: that religion is like a lion and, "Safety demands that religions be put in cages, too.")

When Dawkins says that there is "no evil and no good," he is making an all-inclusive declaration that those very terms are descriptive of nothing, represent illusions, and that the concepts exist only in peoples' minds (--this, in spite of the fact that science, too, has no reality apart from the minds conceiving it). He apparently does not realize that the idea that there is no evil/no good is a fundamental characteristic of nihilism. In addition, when people cannot sense or have no feelings in relation to good or evil, what comes to *my* mind is the way in which psychiatrists define sociopaths and psychopaths: qualitative verities, such as good and evil, are simply not real –*for them*-- and this lack of feeling is designated as a disorder, an abnormality. It is *this* syndrome that has been proven, time and again, to be dangerous to others. Given Dawkins' absolutist and supposedly science-based claims (concerning what is real or not) suggests that it is not too much to say that his version of science is one that approaches, even, a sort of sociopathic rendering of it. The idea that science cannot see, find, or even rightfully describe anything in the world as being good or evil: yes, that surely has implications, but not of the sort drawn by Dawkins, which is their non-existence. Rather, what is quite clearly demonstrated is that the scientific method is simply not suited to morals.

Most people know this. This should not be news. In a jury trial, forensic science can be used to help determine the sequence of a series of events. Physics and chemistry can show what is possible in harnessing the forces of nature. They can tell us *how* to do many things in terms of engineering and manufacturing, and do so with great success. But science cannot tell us whether we *should* do them. Such a division of labor should be elementary. However, the quotes we've referenced reveal the profound extent to which materialist presuppositions can color many conclusions. Thus, a healthy skepticism should be part of the logical process that we use for all sorts of things. It is put to good use in relation to an ideologue in the pulpit or on the television screen who promotes his personal "revelation" as being vested with great authority, "because it came from God." In similar fashion, we need to have serious reservations when sweeping anti-religious sentiments and value judgements *about values* are promoted as being authoritative and incontrovertible, "because Science says."

In considering what sorts of things are true, it is appropriate to expect of ideas and admonitions that there be something of an overall consistency. However, many of the most vocal atheists give the impression that they have not thought a great deal about that, even though they maintain that they are led by "facts and only facts**."** Evolution by natural selection is supposedly their sword that slays the *mythos* of religion. For them, it is quite certain that humans –all of us necklace-and-necktie-wearing-primates-- are merely apes in underwear, highly developed animals, to which all the laws of evolution must fully apply. But when it comes to ethics and values, they do not actually carry "the survival of the fittest" to its logical conclusions.

However, three years ago, at least one individual got their message and acted in a consistent fashion: the one in Ohio who posted a sign directed at a house that held an infant boy suffering from a very serious medical condition. The boy's parents were doing everything they could to give the child the best chance to live, and friends started a fund to which others could contribute. One day, the hard-pressed and heartsick family woke up to be confronted by the words on that

sign: “Stop asking for money. Let the baby die. It’s called Darwinism. Happy Holidays.” The sign-maker must have agreed with Dawkins, that there is “no good, no evil, nothing but blind pitiless indifference” in nature, and he did his pitiless part see to it that society reflected what he took to be reality: that highly developed hominids are not more than meat for the great grinder of natural selection and that we had better get used to it. (--At least, I’m guessing, this is to be the case when it applies to situations other than his own.)

Politics, too, have morphed into an arena of ruthless competition, with many a candidate fire-hosing lies to get elected. Again, why would we say there is anything wrong with that --*if* “everything is all about winning/surviving?” Normal people recoil at that idea. One of our deep-seated convictions as human beings has to do with the sense of what is fair. This moral concept is a foundational element that cuts across times and places and the relativity of cultures. It is part of conscience, which our religions affirm as one aspect of our being created in the image of God. Fairness tells us that things can be legal and still not be legitimate; we know fairness when we see it, and we feel it when we don’t. (It is because it is such a powerful concept, for that very reason, that it is abused and turned upside down by demagogues. Donald Trump is constantly complaining that he and his accomplices “are being treated so unfairly” –he who has made virtually a life’s work out of assaulting the very ideas of honesty, truth, and fair dealing.)

And then there are wars, in which all conflicts are writ large. How can we say that those ultimate gladiatorial conflicts are wrong, and why even distinguish between just and unjust wars? For, “there is, you know, that constant ‘struggle’ to survive built into the very fabric of things: it’s just nature, don’t you see?” The *Monk* television series was about an obsessive-compulsive detective investigating murders; the theme-song was, “*It’s a Jungle Out There*.” Should not the law of the jungle be allowed to function throughout the big city and in the suburbs, too? Why should morality enter into human relations any more than it does than when the crocodile attacks and rips to shreds the zebra calf attempting to cross the Mara River in southeast Africa?

The issues raised here reveal that it is when things get practical and specific that we discover where a mental construct actually leads. So, what if someone actually does try to kill you, because, in order to feed his kids or to provide for them a classy ride, he wants your credit cards? Why protest, and why criticize that, and on what basis? “Evolution” would say the criminal is “simply” trying to pass on his genes and to survive, as he understands survival. Wm Provine promotes the idea that “there are no inherent moral or ethical laws.” In this scenario, why, then, would he call the cops to arrest the evil-doer, if there is no evil? Also, according to Provine, there is no such thing as free will, so how can there be any blame? But, of course, even the most extreme materialists, like him, do not actually operate that way. In their own lives, they discover that ethical norms and moral precepts – historically, so often derived from theology--are highly relevant and exceedingly useful.

Many of us believe that the shortest route to the Brotherhood of Man has always been the Fatherhood of God, something signaled in the message of the first Assembly of The World Council of Churches in Amsterdam in 1948, “In seeking Him, we find one another.” Those who advocate for the contrary conception attempt to replace the reality of God, who established and

cares about creation, with something else --but what? Sometimes, it is simply with the idea of the Cycle of Life, which Scripture recognizes, too, "dust we are, to dust we shall return." Usually, it is with an almost religious sense of awe at the immense universe, as in the repackaged atheism called "non-religious naturalism." This sees the totality of physical nature as being all there is, as self-sufficient and eternal. However, again, this ignores the strong scientific evidence for a beginning, the Big Bang. In addition –if logical consistency matters-- such a view must also hold that morality, like religion, is simply part of humanly-fabricated ideals and that, as above, those should be rejected as having no foundation. Thomas Huxley knew better: that, in some aspects, such as having free will and a moral sense, humanity is a special case, and he said so. (And each and every week on the tube, Adrian Monk worked to protect individuals and society at large. He fought hard against the idea that anyone's cunning or brute force should override the ideals of fairness and justice, and so *should* we.)

Concerning the existence of God, Huxley, in spite of his strong anti-clericalism, was not a dogmatist in either direction. He was an *agnostic*; in fact, it was he who coined the very word. It was obvious to him, as it should be to us, that neither the properties of inorganic matter nor the accounts of how biological evolution proceeds can resolve questions that, while difficult to articulate. are, nonetheless, real. The English writer Thomas Hardy, in his poem *The Last Chrysanthemum*, scrutinized nature and attempted a dialog with a single flower:

I talk as if the thing were born
With sense to work its mind;
Yet it is but one mask of many worn
By the Great Face behind.

PART IV

Loren Eiseley, naturalist, evolutionist, whose research delved into the life and times of Ice Age man, was the first Benjamin Franklin Professor of Anthropology at The University of Pennsylvania. Over the course of his career, he was the recipient of an astonishing 36 honorary doctorates for his work in both science and literature. The first of his more than a dozen books, *The Immense Journey*, was published in 1956 to widespread acclaim. In an essay entitled "The Flow of the River," he observes:

> Men talk much of matter and energy, of the struggle for existence that molds the shape of life. These things exist, it is true, but more delicate, elusive, quicker than the fins in water, is that mysterious principle known as 'organization,' which leaves all other mysteries concerned with life stale and insignificant by comparison. For that without organization life does not persist is obvious. Yet this organization itself is not strictly the product of life nor of selection. Like some dark and passing shadow within matter, it cups out the eyes' small windows or spaces the notes of a meadow lark's song in the interior of a mottled egg. That principle –I am beginning to suspect—was there before the living in the deeps of water.

--"*Before* the living." In Eiseley's ruminations, one will find no reservations concerning the evolution of species *via* natural selection, but he, and others like him, were moved to wonder about an additional and pervasive Something Else. Here, the question remains whether evolution can happen without there being, for want of a better term, an *inclination* to change and growth in a direction that is not entirely encompassed by environmental pressures and genetics. In fact, the thought of "mind" keeps "coming to mind," in some inexplicable way. For, nature has plainly exhibited the development of consciousness throughout the geologic record, and this on an increasing level. What does that imply about the entire process? (On the very next to the last page of his great book, Darwin himself said that his theory accords "…with what we know of laws impressed on matter by the Creator." His final sentence is of "…life's several powers, having been originally breathed by the Creator into a few forms or into one." And recall, at the beginning of this essay, that wonderfully bold verse (part of a longer poem) by the ecologically-minded poet, Robinson Jeffers, "**I** believe the first living cell…."

Additional perspective comes from the great English journalist, G. K. Chesterton (d. 1936). It is, once again, that there is a uniqueness to humanity, similar to Huxley's idea that we are "from but not entirely of" the rest of mammals. In his essay, "Authority and the Adventurer," Chesterton recalls that "many a sensible modern man" must have abandoned Christianity under the pressure of the conviction "…that men, with their shape, structure, and sexuality, are, after all, very much like beasts, a mere variety of the animal kingdom." He then says that the only objection to that idea --is that it is untrue:

> If you leave off looking at books about beasts and men, if you begin to look *at* beasts and men, then (if you have any humour or imagination, any sense of the frantic or the farcical) you will observe that the startling thing is not how like man is to the brutes, but how *un*like he is. It is the monstrous scale of his divergence that requires explanation. That man and brute are like is, in a sense, a truism; but that a being so like them should be so insanely unlike, that is the shock and the enigma. …the first superficial reason for materialism is, if anything, a reason for its opposite; it is exactly where biology leaves off that religion begins.

Alfred Russell Wallace is justly regarded as the co-discoverer of how natural selection functions in the origin of species. (He was on an island in the Malaysian archipelago when the insight came to him, strangely, while he was suffering with a severely high fever from malaria.) Wallace dashed off a letter to Darwin containing a summary of his idea. It is not too much to imagine that Darwin, upon reading it, "almost fell off his chair," so clearly and succinctly did it summarize his own theory. Darwin was then forced to set about completing his great work, which had been in process for some twenty years. In 1858, both men summarized their theories before the Linnean Society, and Darwin published the following year.

Wallace would go on to ponder the extent to which the theory applied to the extraordinarily rapid increase in size and functions of the human brain and to reflect upon the source of the mind's capabilities that were beyond those required by natural selection, something readily seen in native or so-called uncivilized peoples: "We may safely infer that the savage possesses a

brain capable, if cultivated and developed, of performing work of a kind and degree far beyond what he ever requires it to do." (Hominid brain-volume nearly tripled in a geological instant of two million years, a rate of change not seen in any other creature.) The puzzling issue could be summarized as: How could it be that natural selection, which most certainly exists, have led, all by itself, to something so unnatural as the human mind with all of its varied capabilities?

Eiseley, in still another essay, "The Real Secret of Piltdown," also included in *The Immense Journey,* writes:

> As a modern man, I have sat in concert halls and watched huge audiences floating dazed on the voice of a great singer. Alone in the dark box I have heard far off, as if ascending out of some black stairwell, the guttural whisperings and bestial coughings out of which that voice arose. Again, I have sat under the slit dome of a mountain observatory and marveled, as the great wheel of the galaxy turned in all its midnight splendor, that the mind in the course of three centuries has been capable of drawing into its strange, nonspatial interior that world of infinite distance and multitudinous dimensions.
>
> Ironically enough, science, which can show us the flints and broken skulls of our dead fathers, has yet to explain how we have come so far so fast, nor has it any completely satisfactory answer to the question posed by Wallace long ago. Those who would revile us by pointing to an ape at the foot of our family tree grasp little of the awe with which the modern scientist now puzzles over man's lonely and supreme ascent.

Many scientists do know a good deal of such consternation, and of reverence, too, but not only they. I have read a great many books dealing with the evolution of life as witnessed by the fossil record; literally millions of specimens reveal the long procession of diverse and wondrous forms throughout the inconceivable reaches of geologic time. But my reading also included a work by Thomas Nagal, University Professor in the Department of Philosophy and the School of Law at New York University. His 2012 book, *Mind & Cosmos: Why the Neo-Darwinist Conception of Nature is Almost Certainly False*, is devoted to the suggestion that a strictly naturalistic picture of evolution is inadequate and that it fails, most conspicuously, in describing how mind could have developed from mindless matter. Think of it: we are chemical elements that can walk and talk –and think. Nagel leans to the position of a self-described atheist, yet has been driven to pursue this line of thought in this book because he could not ignore certain problematic aspects, which many others do, in fact, ignore. A world-famous paleontologist of my acquaintance says of Nagal, and with no small amount of admiration, "A dangerous fellow – thinks for himself!"

Nagel is very well-informed regarding natural selection and, as a philosopher, he is highly conversant with the issue of selective perception of the sort discussed in this essay and of the obstacle it poses to arriving at the most complete version of reality. The sort of scrutiny that he gives to what is often an unquestioned scientific orthodoxy is quite rare. Therefore, his thoughts are truly important and well worth putting forth in his own words and at some length (I am including page numbers referenced):

"Consciousness is the most conspicuous obstacle to a comprehensive naturalism that relies only on the resources of physical science. The existence of consciousness seems to imply that the physical description of the universe, in spite of its richness and explanatory power, is only part of the truth, and that the natural order is far less austere than it would be if physics and chemistry accounted for everything." (p. 35)

"On a purely materialist understanding of biology, consciousness would have to be regarded as a tremendous and inexplicable extra brute fact about the world." (45) "It is not enough to say, 'Something had to happen, so why not this?' I find the confidence among the scientific establishment that the whole scenario will yield to a purely chemical explanation hard to understand, except as a manifestation of an axiomatic commitment to reductive materialism." (49)

"Whatever one may think about the possibility of a designer, the prevailing doctrine --that the appearance from life from dead matter and its evolution through accidental mutation and natural selection to its present forms has involved nothing but the operation of physical law—cannot be regarded as unassailable. It is an assumption governing the scientific project rather than a well-confirmed scientific hypothesis." (11)

"The materialist version of evolutionary theory cannot be the whole truth. …No visible account, even a purely speculative one, seems to be available of how a system as staggeringly functionally complex and information-rich as a self-reproducing cell, controlled by DNA, RNA, or some predecessor, could have arisen by chemical evolution alone from a dead environment." (123)

"A propensity for the development of organisms with a subjective point of view must have been there from the beginning, just as the propensity for the formation of atoms, molecules, galaxies, and organic compounds were there from the beginning…." (61) "The teleological hypothesis is that these things may be determined not by value-free chemistry and physics but also by something else, namely a cosmic predisposition to the formation of life, consciousness, and the value that is inseparable from them. (123)

"It would be an advance if the secular theoretical establishment, and the contemporary enlightened culture which it dominates, could wean itself of the materialism and 'Darwinism of the gaps' –to adapt one of its own pejorative tags. I have tried to show that this approach is incapable of providing an adequate account, either constitutive or historical, of our universe." (127)

To my fellow Christians, clergy, and theologians, we who believe in God: are we, once again, in too much of a rush to have our beliefs be compatible with modern science? That has surely happened at certain points in the past. Is it still happening, at least in the sense that we may have settled into the habit of not raising any questions regarding the rather large number of scientists who adamantly declare that the laws of nature are autonomous and that such laws indicate that that God cannot, even *possibly* be involved, in any way, in the processes of evolution (this because of their *assumption* that God does not exist). Conceding to a God who is uninvolved --whether in the development of a paramecium or a parasite, a hyena or a human, *or* the universe as a whole—leads to a concept of God that would be little different from that of the heartless Unmoved Mover of Aristotle, whose deity gave the cosmos all initial momentum, but then retired and, henceforth, laid not a finger nor a thought upon it, forevermore. Does not that most extreme evolutionary version of Deism amount to "atheism, for all practical purposes"? That is worlds away from the Judeo-Christian outlook that holds that God is intimately involved in the created order. Annie Dillard sums up what she sees as a regression in the history of thought concerning God, at least in a broad sense, when she writes in *Teaching a Stone to Talk*, "We have drained the light from the boughs in the sacred grove and snuffed it in

the high places and along sacred streams. We as a people have moved from pantheism to pan-atheism." So, it seems. How to more nearly recover the sense of the presence of God, the idea of the holy, the numinous, a spirit that permeates Dillard's own writings? And those of Eiseley, too, who wrote, "For many of us, the biblical bush still burns, and there is a deep mystery in the heart of a seed." Like him, we gaze with reverence upon "…this strange world into which we have been born –we, compounded of dust, and the light of a star."

The descriptive terms of pantheism and atheism are familiar, but there is another one that is both authentically biblical in its meaning and that speaks to the issues. In Acts chapter 17, Saint Paul says, "The God who made the world and everything in it …he himself gives to all mortals life and breath and all things…. Indeed, he is not far from each one of us, for *in him we live and move and have our being*." (NRSV) The term for this is "pan*en*theism," --note the "en," with the connotation that God is not only transcendent, remaining God, but is also immanent and *in* everything, everywhere present in ways too profound for words. It also implies that creation is continuous: that creation was not only a past event but includes the ongoing evolutionary process. So understood, nature is contingent, i. e. it is not self-generating but only exists because God causes it to be. Rabbi Menachem Nahum of Chernobyl: "All being itself is derived from God and the presence of the Creator is in each created thing." God is not nature (pantheism), but nature does not exist apart from the ongoing creative activity of God. Thales of Ancient Greece said, "All things are full of God." Creation is, again, not a "long ago and far way" past event but continues to happen now and in each and every instant of time. The novelist Tom Wolfe paid a fine tribute to Yellowstone National Park when he said that it was "…the one place where miracles not only happen, but where they happen all the time." They do happen there, but not only there: instead, more like everywhere. Miracles, I think, are ubiquitous. In the lively and appropriately exuberant statement by William James from a century ago, "The universe is wild –game-flavored as a hawk's wing. Nature is miracle all."

While he does not use the term panentheism, this is also the way that Paul Tillich thought about the relationship of God to creation. In his *Systematic Theology, vol. 1* dealing with the First Article of the Apostles' Creed, he writes that God does not exist" –which might strike one as a jarring statement from a theologian—however, he clarifies: "It is as atheistic to affirm the existence of God as to deny it. This is because God is not *a* being." He means that existence is a category of finitude, and to say that God exists would be to designate God, however elevated, as one being among others, in the same company as a turtle or a table. Thus, of statements such as God is the most powerful, the most perfect, etc., Tillich indicates that, "When applied to God, superlatives become diminutives." Instead, God is sustaining each and every particle of Creation in and through God's own self. Thus, says Tillich, God is not *a* being, one among many, but "the Ground of Being Itself." Tillich, a Lutheran, did not quote the explanation to the First Article of the Christian creed found in Martin Luther's *Small Catechism*, but he might well have: "I believe that God has created me and all that exists, that he has given *and still preserves* to me my body and soul and all that exists."

The concepts of immanence and continuous creation lead, like nothing else can, to the thought that, because God is present in and through all of nature, nature is utterly sacred. It suggests

that all the universe is a "take off your shoes, because the place on which you are standing is holy ground"-sort of place. (By the way, such an understanding is also more compatible with the new physics? --Although, again, we should have learned, by now, not to tie theology to the latest science; that type of wedding has led, a number of times, to widowhood, when a dominant explanatory framework has been replaced by a different one. Yes, the various accomplishments wrought through the scientific method are many, and we are indeed grateful for them, but it should not be the case that the highest compliment paid to God is our being able to list a certain number of scientists among the ranks of those who believe.)

It all comes down to seeing. In a bygone and simpler age, when Christmas presents were few and far between, children were sometimes given a toy that consisted of a sheet of paper that displayed a tangle of blue and red lines. Two additional components of the gift were translucent sheets of cellophane, one each of red and blue. It was impossible to make anything of the confused tangle …until a red sheet was placed upon it to merge with the red lines; then, the blue lines stood out separately and became the image of, say, a bear. Doing the same with the blue sheet produced a red-line drawing of a clown. It was a matter of filtration. A simple analogy, but something like that occurs in the mind in the process of perception. And this is before the deliberate choices that we make, such as physicist deciding to study reality or even a mystic seeking to experience it more intimately/directly.

To what degree are our mental processes accurate and objective, producing self-evident truths? We may never know. The shape of knowledge is surely influenced by the tools the mind uses to find knowledge, so there is no such thing as an immaculate perception. That there is a good deal of such mental selectivity, both conscious as well as in immediate sense perception, is enforced by both science and philosophy. What we see depends upon the size and direction of the windows through which we gaze. Thus, biologists say that nature selects, but so must the mind be selective in the thinking process; we abstract from the whole and focus here and there. Thinking too much about this would produce mental paralysis, but our problem is that we think too little of it in the face of the reductionist one-window tendency in our culture. Another takeaway from this is that it should not be surprising that humans have not produced a single complete and entirely consistent picture of reality --even apart from the God issue, but certainly regarding it-- that there is a good deal of room for mystery and, even, that reality itself may have about it something of what is, to us tiny beings on planet earth, inescapably paradoxical.

This much we do know: how we "look" at the world has huge consequences in society. Several decades ago, there was a popular song by Peggy Lee, "Is That All There Is?" The implied answer, "yes," was symptomatic of a culture that was absorbing the conceptual reduction of humanity to the status of just another primate who must seek momentary pleasure to keep going: "If that's all there is, then…." and the darksome "eat, drink, and be merry" platitudes followed. Frank Sinatra, at about the same time, said: "I'm for God or a bottle of Jack Daniels, whatever gets you through the night." But the question is always, "If?" *What if* there actually *is* More? And much more? What if we are much more than B. F. Skinner's white rats who know only pain and pleasure, stimulated to avoid the first and to seek only the second? Once again, beyond

the sciences, it is the humanities that exist to explore the possibilities and to offer alternatives. Those, and the thoughts that arise from direct experience of the natural world.

In her 2014 book, *H is for Hawk*, Helen McDonald tells us that, in the 1930s, long walks in the English countryside, often by night, were extremely popular. So-called Rambling Clubs sprung up, calendars of full-moons were widely published, and a number of train companies offered trips leading to moonlit amblings along the coasts. In 1932, one such excursion planned to sell something like forty tickets, and an astonishing one and a half thousand people showed up:

> The people setting out on these walks weren't seeking to conquer peaks or test themselves against maps and miles. They were looking for mystical communion with the land; they walked backwards in time to an imagined past suffused with magical, native glamour: to Merrie England, or to pre-historic England, pre-industrial visions that offered solace and safety to sorely troubled minds.

These days, such attempts to "get away from it all" are much less likely to succeed, because of the extensive encroachment of asphalt and concrete and by finding parks and ocean beaches littered with garbage from previous and much less thoughtful meanderings.

If one has either assumed or consciously decided that nature is, in fact, "all there is," one may be more easily conditioned to accept the reductionist view of nature as being merely the scenic backdrop for human activity, that it is there mostly for raw material to produce the luxury cars, clothes, jewelry, and vacation homes that are constantly pitched to us in commercials, i. e. the most simplistic and empty version --and perversion-- of success. This is materialism in its most common, superficial, and thoughtless form, and it is, indeed, all the more liable to pervade a culture that is increasingly distanced from first-hand experience of the natural world. Peter Mathison, in *The Snow Leopard*, tells us of reflecting upon this when waking mid-night in his sleeping bag in the high mountains of Tibet: "Above is the shimmering galaxy of childhood, now hidden in the Western world by air pollution and the glare of artificial light; for my children's children, the power, the peace, and healing of the night will be obliterated." Henry Beston anticipated this when, a century ago, he was living in a remote cabin on the point of Cape Cod and writing what has since become a classic, *The Outermost House*:

> Nature is part of our humanity, and without some awareness and experience of that divine mystery man ceases to be man. When the Pleiades, the wind in the grass, are no longer part of the human spirit, a part of very flesh and bone, man becomes, as it were, a kind of cosmic outlaw, having neither the completeness and integrity of the animal nor the birthright of a true humanity.

The syndrome is seen in the replies given by college students to polls concerning the "why" of their education: the large majority of them answer that it is to make lots of money and to have lots of stuff. Such polling results are a change from not all that long ago. Spiritual values, the idealism of wanting to make a difference, and the awareness of the preciousness of existence have receded in favor of the anthem, "Glory to Man in the Highest, for Man is the Maker of things." (There are even those who suggest, with shocking ignorance, that, if we can synthesize

food, we will be able to "get along without nature.") In spite of physical riches unknown to previous cultures, a sense of meaninglessness is widespread. In *The Torch of Life*, the renowned microbiologist Rene' Dubos penned this succinct summary: "Western civilization still moves mightily under the momentum of scientific materialism, but it does not succeed in defining the good life. It is all dressed up with no place to go."

Kurt Vonnegut, when a young US soldier in WWII, was captured by the Germans in the Battle of the Bulge. He survived the Allied bombing of Dresden and the resulting firestorm that engulfed the city only by the fact that he and some other prisoners were being forced to labor in an underground meat-locker. He knows about danger. In 2005, he published *Man Without a Country* (with that, he broke his promise to never write another book). Vonnegut speaks of a childhood when kids drew pictures of houses, boats, cars, and planes of tomorrow, "all those dreams for the future." Then, he writes of human slavery, pollution, epidemics, and of

> …nuclear submarines slumbering on the floors of fjords in Iceland, and elsewhere, crews prepared at a moment's notice to turn industrial quantities of men, women, and children into radioactive soot and bone meal by means of rockets and H-bomb warheads…. The biggest truth to face now –what is probably making me unfunny now for the remainder of my life—is that I don't think people give a damn whether the planet goes on or not. It seems to me as if everyone is living as members of Alcoholics Anonymous do, day by day. And a few more days will be enough. I know of very few people who are dreaming of a world for their grandchildren.

King Louis XV of France was uniformly condemned for saying, in 1757, "After me, the deluge!" Some two centuries before him, Leonardo da Vinci, that holotype of Renaissance Man, had already identified more than a little of that same disposition in his own contemporaries, declaring, in the strongest possible terms, "How many people there are who could be described as mere channels for food, producers of excrement …for they have no other purpose in this world; they practice no virtue whatsoever; all that remains after them is a full latrine!" As I am writing this, the Christmas season, with all of its materialistic perversion of so-called giving, is upon us. If you "follow the money," it is evident that we have contrived economies that are now almost completely dependent upon stoking increasingly insatiable needs, which are then only temporarily sated by ever-increasing consumption. In history, there have been many so-called Ages. Ours might well be named the Age of Immediate Gratification, ignoring as we do, contentment, sustainability, and concern for the long run. How near are *we* to the last word in self-centeredness, "What has posterity ever done for me?"

Already, we see hints that manned space exploration will be justified, not as much by the idealistic quest for new knowledge, as by the push to beat other nations to mine both the moon and Mars for precious metals and minerals that we think will be needed to sustain the unsustainable growth-mode of the world's population, which, in November 2022, reached 8 billion. It is astonishing --and should be absolutely frightening-- that the increase from seven billion to eight took just twelve years! In spite of that, the economists' charts appear to tolerate only the upward curve of an endlessly increasing Gross Domestic Product. Alarms go

off at the slightest decline, and even at stability. The economist Julian Simon must live on hallucinatory mushrooms, for he has said that we could feed the world's population as it continues to grow for the next 7 billion years and that "Copper can be made from other elements." (Copper is a basic element; *therefore*, it is "elementary" that it cannot be made from other elements.) The source of such fantasies is a complete commitment to not altering, even in the least, our consumption-oriented and materialistic lifestyles. Meanwhile, both Elon Musk and Pope Francis say we should be upping the birth rate. Neither one of these, apparently, can do basic math. Jared Diamond can. He has been an anthropologist and Professor of Geography at UCLA and is the author of *Guns, Germs, and Steel: The Fates of Human Societies,* for which he was awarded the Pulitzer Prize. In 2003, he also published *Collapse: How Societies Choose to Fail or to Succeed,* in which he says, "Continuation of our current population growth rate [just over "a mere" 1% per year] would yield 10 people per square yard of land in 774 years, and a mass of people equal to the Earth's mass in slightly under 2,000 years." The curve on the chart is going almost straight up.

There is an old tale, supposedly from ancient Persia, of a king who was well pleased with his principal advisor for inventing the game of chess and wanted to reward him. Asked what he would like, the advisor requested a single grain of wheat on the first square of the chess board, twice that on the second, twice that on the third, etc. doubling for each of the 64 squares on the board. The king felt this was an extremely minor request and offered, instead, gold, jewels, dancing girls, and palaces. But the advisor still craved those little piles of wheat, so the King agreed to the payment. Then came the surprise. The number starts out small: 1, 2, 4, 8, 32, 64, 128… but the increase is exponential, so by the time the 64th square is reached, the number of grains is nearly 18.5 quintillion! How much does that much wheat weigh? Around 75 billion metric tons, which is the equivalent of about 150 years of the *present* wheat production of the entire world. There are several versions of the tale; astronomer Carl Sagan, who referenced this one in his 1997 book, *Billions & Billions*, says that "Had chess been invented with 100 (10 X 10) squares instead of 64 (8 X8), the resulting debt would have weighed as much as the earth." The numbers don't lie, and continually increasing numbers having to do with the human population are no joke. We will stop growing, materially. The only questions are when and how (and some alternatives are not pretty).

Thus, the consequences of present trends can only lead, in the near future, to even further severe exploitation and denigration of all the Earth, and this for just a single species. We could imagine that it might not be all that long before we set our totem, the Machine, to the task of bulldozing the last acre of the Rain Forest. (You may or may not recall the old movie, *Soylent Green,* that imagines a future New York City unable to house or feed its 40 million people, almost none of whom have never even seen a wild animal and who, unknowingly, subsist on protein wafers manufactured from the city's own human dead. At first, dismissed as depicting a wildly exaggerated future, the tale is not easily brushed aside today.) Tokyo, Japan now has over 40 million inhabitants, and the world already has a number of cities of more than 30 million, with less and less space between them. Think of it: the two most numerous large animals on earth are now people and livestock. When will there not be sufficient resources? We always treat rare items as being more precious, precisely because of their rarity, and

common ones much less so. Will this prove to be the case regarding human beings? If, in the process of exploring other planets, evidence suggests that that "the universe may, in fact, be 'teeming' with life," this might be regarded simply as vindication of Engels' idea that, *ergo*, life is the routine result of evolution--nothing special—which could further contribute to our *treating* it as just that. It all depends, and *will* depend, upon how we look at it.

Although we are indeed approaching limits to finding physical solutions to the physical problems referenced above, for quite some time we did make seemingly endless progress in employing that child of science, technology, so much so that it often seemed that almost any such tool as could be conceived could also be invented and almost any imagined task involving the material world could be achieved: "nothing is impossible." That was/is an illusion, but the simple fact of so many successes indicates that all those science-type of endeavors, even the most complicated or difficult –that these are actually the easier ones. The truly difficult challenges lie, instead, in the realm of values and human relations. "We can send a man to the moon, but…." "Can't we all just get along?"

Leonard Bernstein, for so many years the Conductor of The New York Philharmonic, was once asked, "In the entire orchestra, what is the most difficult instrument to play?" Without missing beat, he replied, "Second Fiddle. I can get plenty of first violinists, but to find the one who plays second fiddle with as much enthusiasm as *first,* --now that's a problem. And yet, if no one plays second fiddle, we have no harmony!" That is such a witty remark and one with such insight concerning individuals, groups, and nations. Again, technological prowess has done little to nothing to tamp down the tendency to see our life together in terms of ceaseless competition, to see life as a contest, one motivated by inexorable selfishness and perverted pride, the "gladiatorial spirit" that Huxley so deplored.

In all of human history, it is the glorification of war, more than anything else, that has been the cause of wars; thus. conflicts have required very little provocation. Consider the so-called Spice Wars that consumed the European nations in 1600s. There was a long precedent. In the year 408 AD, the barbarians really were at the gates of Rome. In order for them to lift the siege, Alaric, the leader of the Goths, demanded a tribute of 5,000 pounds of gold, 30,000 pounds of silver, 4,000 silken tunics, and 3,000 pounds of *pepper*. "What will be left to us?" asked the Romans. "Your lives," said Alaric. (His demands for precious metals were not entirely met, so he finished the job and sacked the city in 410, the year that has traditionally marked the fall of the Roman Empire.) The lust for territory, property, material goods, even the least essential, has been enough to launch entire navies upon the high seas and armies marching across mountain ranges.

Inside our own politics, it is battle-type imagery that abounds, and the veneration of "the fight" is everywhere. (The beer company *Modelo* even markets its brand –over, and over again-- as "brewed for those with the *fighting* spirit!" --the effect of which may not be entirely harmonious at the local bar.) There are reasons why violent and degrading so-called pro-wrestling and nearly bare-knuckle fighting matches are popular --and why people are so easily taken in by "fight like hell" rhetoric in all sorts of other contexts, too. Around the world, the

political realm is seeing more and more so-called strongmen and wannabe-dictators who would rule in authoritarian manners. Spiritual vacuums will be filled by something.

A leading researcher on human evolution is the paleo-anthropologist Chris Stringer. His 2012 book is *Lone Survivors: How We Came to be the Only Humans on Earth*. He concludes it by writing, "Sometimes the difference between success and failure in evolution is a narrow one, and we are certainly on a knife edge now as we confront an overpopulated planet and the prospect of global climate change on a scale that humans have never faced before. Let us hope our species is up to the challenge." The challenge is huge, because it is the same hand that once fondled the stone ax in front of an Ice Age cave that now fingers an assault rifle on what we presume to call civilized streets; that same hand also draws the blueprints for the next generation of mega-weapons for possible use against our fellow human beings. The habits that demean life's sacred character are deeply rooted, but they will need to be deeply transformed, if humanity is to thrive or, even, to survive. There is overwhelming evidence that what is required is something that is forever beyond the reach of any level of matter-manipulation and expertise in things scientific. We need new eyes.

The 19th century Dutch-German musician and composer Wilhelm Willms:

> All things are meaningless
> accidents, works of chance
> unless your marveling gaze,
> as it probes, connects, and orders
> makes them divine….
> The world is godless
> if you are not holy.

Thomas Mann (1875-1955), another German, was the 1929 recipient of the Nobel Prize in Literature for his novel, *The Magic Mountain*, and other works. He was a strong and influential critic of Hitler. In 1951, he participated in a radio program, "This I Believe," in which he shared one of his articles of faith:

> Astronomy –a great science-- teaches us to consider the earth as a companion of a most insignificant star in the giant cosmic turmoil roving about at the periphery of our galaxy. This is, no doubt, scientifically correct. But I doubt that such correctness reveals the whole truth. In the depth of my soul, I believe –and I consider this belief to be natural to any human soul—that this earth has a central significance in the universe. In the depth of my soul, I entertain the presumption that the act of creation which called forth the inorganic world, was aimed at humanity, a great experiment was initiated whose failure by human irresponsibility would mean the failure of the act of creation itself, its very refutation. Maybe it is so, maybe it is not. It would be good if humanity behaved as if it were so.

Victor Weiskoff was one of a number great physicists who emigrated from Europe to America to work on the Manhattan Project, the race to produce a nuclear reaction before the Nazis did. In his book, *The Joy of Insight*, he gives us a glimpse into some of the personalities of that highly

gifted assembly, Niels Bohr, for one. We are told that going to the movies was a good distraction from the group's intense delving into questions of matter and energy. Bohr liked westerns, although it was said that he was sometimes "unable to suspend his sense of scientific reality." Weiskoff tells of one particular trip to the theatre and relates that, after they had seen a cowboy show, Bohr said, "I don't think the action was really plausible. The hero just happens to arrive when the girl is in dire need. Well, I suppose that could happen. But then the hero is able to kill all the villains who had harmed her. Well, that is also possible, perhaps. And it is possible that he takes her on his horse and gallops through the desert with her. I can even believe that the horse would be able to carry them both and manage to jump the river." "So, what's the trouble?" we asked. "What don't you believe?" "What I can't believe is, during all this, a photographer would just happen to be there." "And so," says Weiskoff, "we learned something of Bohr's sense of humor." [There's also the orchestra that just happened to be in the bushes, setting the mood at each and every scene.]

Human nature is complex, more so than the physical world over which we have sought so much dominion. In his book, Weiskoff told of how the countdown to the explosion of the first atomic bomb was accidently mingled with background music, because the loudspeaker had picked up the frequency of a local radio station: it was playing Tchaikovsky's beautiful *Swan Lake*. I can't imagine a more profound illustration of the contrasting alternatives faced by a divided humanity and, also, of the multifaceted creativity of the divided human mind**.**

Weiskoff would go on to teach at MIT, serve as science advisor to Pope John Paul II, help found *The Bulletin of the Atomic Scientists*, and he became the Director General of CERN, the first particle physics laboratory or supercollider in Europe, which was also a multinational venture. In describing his career and his motivations, he writes:

> There are many modes of thinking and feeling, and each of them contains a part of what we may consider the truth. Science and technology comprise some of the most powerful tools for deeper insight and for solving the problems we face. But science and technology provide only one path toward reality; others are equally needed for us to comprehend the full significance of our existence."

He often illustrated that idea with music:

> In my talks on the origin of the universe, I try to show that the question of the beginning of the world is not only a scientific one. I use scientific language to characterize it as a sudden blast of light of tremendous size and force, the famous big bang. Then at the end of my talk I play a fragment of Haydn's *Creation* to demonstrate another way of describing the same event. We hear a choir of angels singing mysteriously and beautifully, 'and God said let there be light.' Then, at the words 'and there was light,' the entire choir and orchestra explode into a blazing C-major chord. There is no more beautiful and impressive presentation of the beginning of everything.

An eye and an ear and an attitude toward the sacred would suggest that science, art, and religion, at least at their best, need not be as far apart as they are often portrayed.

Jacob Bronowski was a mathematician, historian, inventor, humanitarian, and author of a dozen books, some of them uplifting and clarifying the scientific endeavor for public

understanding. I can remember being greatly moved by reading, some fifty years ago, his fascinating account of humanity's pivotal discoveries, *The Ascent of Man*, and double-underlining what I saw as his summary statement near the end: "We are nature's unique experiment to make the rational intelligence prove itself sounder than the reflex."

In November of 1945, Bronowski was in Japan, one of the first people to set foot on the desolation wrought upon Nagasaki by the atomic bomb to finally end World War II. He tells about it in his book, *Science and Human Values*. Darkness was falling as his group left their ship in the harbor and continued on by jeep. They quickly arrived at their destination but, surrounded by thick ash and twisted debris, Bronowski, at first, did not know it:

> I had blundered into this desolate landscape as instantly as one might wake among the craters of the moon. The moment of recognition when I realized we were already in Nagasaki is present to me as I write, as vividly as when I lived it. I can see the warm night and the meaningless shapes. I can even remember the tune that was coming from the ship. It was a dance tune which had been popular in 1945, and it was called, 'Is You Is or Is You Ain't Ma Baby?'

That question applied both to the industrial slum that the city was before the bomb and to the lightless desolation it was afterwards; and he knew that it would never leave him. Nor should it leave any of us, this issue of a heightened responsibility for the earth and all its inhabitants.

Whether in science or in art, Bronowski regards the act in which an original thought is born to be very much alike. He writes: "It is wrong to think of science as a mechanical record of facts, and it is wrong to think of the arts as private fancies. What makes each human, what makes them universal, is the stamp of the creative mind." He does not distinguish between the attitudes that produced the Scientific Revolution and the Renaissance: "The sense of wonder in nature, of freedom within her boundaries, and of unity with her in knowledge, is shared by the poet, the painter and the mountaineer. Their values, I have no doubt, express concepts as profound as science…." And Bronowski himself was also a poet. *The Abacus and the Rose* illustrates and celebrates both the design and the substance, both the form and the constituent material of the world. It suggests that those are, at one and the same time, rational and mysterious enough to need both numbers and images, both math and poetry, in order to assess, experience, and appreciate them**:**

> The force that makes the winter grow
> Its feathered hexagons of snow,
> And drives the bee to match at home
> Their calculated honeycomb,
> Is abacus and rose combined.
> An icy sweetness fills my mind,
> A sense that under thing and wing
> Lies taut, yet living, coiled, the spring.

Leonardo da Vinci **(**1452-1519) was the holotype of the Renaissance Man, having an extraordinarily wide range of interests and expertise. He envisioned flying machines and worked on the construction of bigger and better military machines for his overlords. He was, in

short, a technical genius. But, at the very same time, he was the great artist who saw beneath the surface of things to their spirit, and his attitude towards nature was expressed by his frequenting the marketplaces, where he bought caged birds --in order to set them free. He even envisioned the entire earth as a living organism: "We can say that the earth has a vegetative soul, and that its flesh is the land, its bones are the structure of the rock …its blood is the pools of water …its breathing and pulse are the ebb and flow of the sea."

Isak Dinesen (pen name for Karen Blixen), in her real-life account entitled *Out of Africa,* relates how her life-perspective was profoundly altered by moving from Denmark to Kenya in 1914 and living there for many years, this in order to manage the coffee farm that she had inherited. Of a certain occasion, she writes, "In a little while on all sides the Cicada would begin to sing. The grass was me, and the air, the distant invisible mountains were me, the tired oxen were me. I breathed with the slight night-wind in the thorn-trees." I do not see pantheism intended here, but a welcome removal of the compartmentalizing mind-set that so often separates reality into bits and pieces. She was sensing nature as being not an external other; that it was not a mere setting or background for herself; rather, she was experiencing the realization that Anything is part of Everything. (Henry David Thoreau said something similar in his *Journals*: "Sometimes as I drift idly along Walden Pond, I cease to live and begin to be.")

Dinesen also tells of her occasional-companion, the young English big-game hunter Denys Finch-Hatton, taking her for a flight in his 1920s airplane (in which he would later crash and die). Upon landing, one of the very old men of the Kikuru tribe came up and talked to them.

> "You were up very high today," he said. "We could not see you,
> only hear the areoplane drone like a bee."
> I agreed that we had been up high.
> "Did you see God?" he asked.
> "No, Ndwetti, I said, "we did not see God."
> "Aha, then you were not up high enough," he said, "but now tell me:
> do you think that you will be able to get high enough to see him?"
> "I do not know, Ndwetti," I said.
> "And you, Bedar," he said, turning to Denys, "what do you think? Will
> You be able to get high enough in your areoplane to see God?"
> "I really do not know," said Denys.
> "Then," said Ndwetti, "I really do not know why you two go on flying."

The old man was not an agnostic on the subject; life had convinced him that there must be something of God to be seen, perhaps not any and everywhere but in this world, if only one could attain to a vision high or deep enough. (There are anecdotes that the first Soviet cosmonauts in space came back from their rocket trip saying that, way up there, they did not see God, and that this was more proof that God must not exist. Completely accurate or not, it is entirely in keeping with the ideology of The Soviet Union in 1961.) Many Native American tribal peoples have *seen* nature as animated by an irreducible Spirit. How do we see the world?

We enter the world as babes. Then, we have to learn what the world is. In the process, we accommodate our growing self to the conventional world, becoming accustomed to the same mental glasses as are worn by everyone else. It seems that we can never get back to encountering the world freshly, as it is, or as it appeared to us at the age of one, two, or three. Which is the real world? The one wherein we adults are cocooned in our vehicles of manufactured steel, hurtling through traffic in the concrete canyons of a metropolis? Or the one of the enchanted child for whom everything, but especially the natural world, is new and fresh and wondrous --the world as alive, all-encompassing, and yet personal, and which, thus, can be vividly re-presented by fairy tales and animals that speak? Have we grown up, or down? Are we now more perceptive, or less? I do not know.

I have only recently become aware of the poetry of Thomas Traherne that raises just this issue. He was born in England in 1674, just a few decades after Newton. Traherne had the utterly rare faculty of remembering many of his earliest sensations, calling to mind his impressions and experiences of the world, before they would be so neatly categorized and labeled by language. He was astonished by what he saw around him. His adult memory still retained the wonder of the time when the world was complexly new, freshly seen for the first time, when it spoke:

> …the first Words mine Infancy did hear,
> The Things which in my Dumness did appear,
> Preventing all the rest, got such a root
> Within my Heart, and stick so close unto't
> It may be Trampld on, but still will grow;
> The first Impressions ae Immortal all.
>
> …evry Stone, and Evry Star a Tongue
> And evry Gale of Wind a Curious Song.
> The Heavens wer an Orakle, and
> Spake Divinity.

The transformation that routinely happens to individuals over the course of years may also be well along in happening to entire cultures: that innate sensibility toward the numinous creation is being overridden by a narrow but currently more acceptable science-colored objectivity. But which is the real world? It depends on how you look at it.

When we are adults, such moments as those to which Traherne alluded are rare, but, perhaps, every bit as real. So, it is, with what many have called the experience of God. Are such moments hallucinations? No doubt, many are. But that some others cannot be described with words may simply indicate that words separate and isolate what the universe does not. It may be that we are trying to express the inexpressible: that we are in the presence of the numinous, the unutterably sacred. And, further, it may be that in acknowledging the reality of such things, we are practicing the very opposite of lax or sloppy observation: i. e. that we are involved in what is, in fact, a *more* rigorous empiricism, one that takes account of the *whole* of one's experience of the universe --not just the aspects we can more easily observe, describe, catalog, calculate, and inventory. In the words of Arthur Koestler, "A true science of life must let infinity in."

Think of Wordsworth's famous *Lines* written in 1798 above Tintern Abbey: "I have felt a presence …a motion and a spirit that impels all thinking things, all objects of thought, and rolls through all things." His was the sense of the presence of God, whose being defies all equations and descriptions, and to whom words can only "point." In his *Journal* entry for January 7th, 1847, Thoreau wrote of the "stillness, solitude, and wildness" of nature and then hinted at what he, too, was seeking there, and finding, beyond all physical things: "It is as if I always meet in those places some grand, serene, immortal, infinitely encouraging, though invisible, companion, and walked with him." In 1940, *The New Yorker* essayist E. B. White wrote in *One Man's Meat* concerning his encounter with liberty, "this lady of infinite allure, this dangerous and beautiful and sublime being who restores and supplies us all." It began, he says "…with the haunting affirmation (which I presume every child receives) of his mystical inner life; of God in man; of nature publishing herself through the 'I'."

Language is limited. How could it not be? We avoid some misunderstandings mainly by taking more seriously that not all language is the same. Usually, our conception of language is that it exists to give us information. Thus, Christianity is often misrepresented as a set of objectively-stated propositions, rather like bullet-points: "I believe that…." What is one asked to do, so often, with propositions? Analyze and demonstrate their truth. However, not all words specify; some suggest or intrigue, and some inspire. It may be that in the modern world, so colored by scientific methodology and by the Positivist approach, we have become too nearly strangers to the richness of language. Surely, if a man tried to communicate with his spouse using only the fact-oriented language of science, that fellow would end up, not just sleeping on the couch, but "livin' in a van down by the river" (phrase by Chris Farley in SNL comedy sketch).

O. K. Bouwsma was a professor of philosophy at the University of Nebraska from 1928-1965. In his unique sardonic style, he writes: "I'll just suggest that a caress is nothing like a weather report. There are caressing words, as every girl knows. There are also cold facts --'It is now 100 degrees in the shade.' To treat a caressing word as something to be checked on in the thermometer or on the caressometer would show a misunderstanding. What are you doing? Checking."

Thus, hope is not a proposition. Neither is faith something to be dissected and analyzed. How can we speak of the deepest occasions in our own lives, to say nothing of the presence of God in our world? We use words, but these words point, instead of designate in a simplistic sense. We say of Scripture that it is God's Word, as with a message, "Did you get the word?" It is not God's word*s*, in the plural, as if every syllable dropped from heaven.

Only a portion of Scripture is devoted to ideas, ideals, and doctrines that are stated in abstract terms. Much of it has to do with stories or events. The very word Gospel means Good News. It is not so much "Believe/accept this concept," as it is, more often, "This is what was done, and these are the results/consequences; this is what happened." And, in that case, the storytellers are not functioning as investigators who are out to demonstrate or prove something "beyond a reasonable doubt," but simply as witnesses. A witness is one who has heard or seen or had something revealed to him/her. Nature, too, becomes a witness, as "The heavens declare the

glory of God and the firmament shows his handiwork." The Psalmist says that "the floods clap their hands," and "the hills sing for joy together." But it's not as though anyone and everyone could see or hear it at any old time in order to put it to the test.

Thus, the classic arguments offered for the existence of God are inconclusive. (The same is true of arguments, on the other side, those for the non-existence of God, partly because one can never prove the negative.) Many, adamant in their unbelief, still demand proof (in spite of the fact that one cannot even prove, for certain, the existence of the external world!). The State Paleontologist of Utah wrote on Twitter: "Science is based on evidence; faith is based on bulls#$%." No doubt, he has encountered plenty of people for whom faith was the end of reflection, not its beginning. Yet, faith is not blind. "I believe in order to understand," said Saint Anselm of Canterbury. Faith may open a door to avenues of thought otherwise left unexplored.

To the insistence upon proofs, Bouwsma replies:

> The challenge itself is an expression of a confusion, since insofar as this arises in the context of Christianity, which is a gospel, proof is precisely what is ruled out. …Revelation is not geometry. Neither is God on trial in a court of laws. There is neither proof nor evidence. But this does not mean that anything is lacking. You might as well complain that no one has proved, as yet, not only that the angels did sing, but the song itself. Prove 'Glory to God in the highest.'

Bouwsma then uses satire to suggest just how inappropriate, hubristic, even, are the argumentations and mental acrobatics concerning God's existence. They claim the ultra-impossible; they reduce and compress a personal God to a next-to nothing syllogism. How inappropriate are attempts at demonstrating the divine. At least, that is my interpretation of his verse:

First, I squared the circle.
Then I wrestled with a unicorn.
Another time I invented perpetual motion.
On Tuesday, I proved the existence of God.
Later I pulled a rabbit out of a hat with no rabbit in it.
After that I circled the square on my tricycle.
They say I am a genius.
Which God was that?
The one you proved the existence of.

Kierkegaard, too, in his *Journals* from 1841, parodied the pseudo-sophisticated professors who sought to substitute understanding for faith; he pointed out that "… to stand on one leg and prove God's existence is a very different thing from going on one's knees and thanking Him." And in his *Concluding Unscientific Postscript*, he affirmed "That God has existed in human form, grown up, and so forth, …is surely the Absolute Paradox." That is the Incarnation, the God-Man, and in relation to it, "…the only understanding possible is that it cannot be understood."

We also run up against severe limits to understanding any time we endeavor to speak logically of God's relationship to Creation; in fact, "that is putting it mildly." (One might recall Tillich's

conception of God, which makes a crucial point, but could you/would you/even want to pray to GodasBengItself? Something is missing there, which is why the Creed has more than one Article, although nothing eliminates conundrums in those, either.) Thus, we take seriously the thought of Chrysostom, who wrote, "A god explained is not God." Saint Augustine said to a certain group, "We are talking about God. What is it you do not understand? If you *do* understand, it is not God." In his *Confessions*, he asked the creatures, from creeping things to those in the air, to the heavens, the sun and moon and stars, all these, concerning the characteristics of God. He was given no answer; instead, he received the testimony, "He made us!" Once again*, Nature is not to be treated as evidence but as witness.* Augustine does not say, "from this and that, we can conclude…." Rather, he relates the circumstance that the world and its inhabitants are wonders and cause for celebration. Nature does not prove; it does not argue. It exclaims, declares, sings, and shouts for joy, but only to the ears and eyes of faith.

Earlier, I quoted Kurt Vonnegut. He also wrote this:

> No matter how corrupt, greedy, and heartless our government, our corporations, our media, and our religious and charitable institutions may become, the music will still be wonderful. If I should ever die, God forbid, let this be my epitaph:
>
> THE ONLY PROOF HE NEEDED FOR THE EXISTENCE OF GOD WAS MUSIC

PART V

John Berendt tells us in *Midnight in the Garden of Good and Evil* that the poet Conrad Aiken lived in Savannah, Georgia and that he often enjoyed sitting in a local cemetery to watch the ocean-going freighters pass by. One time, and at a great distance, Aiken thought he could make out a certain name painted on a ship's bow. So, he checked the commerce news of vessels in the city's port and, sure enough, included in the listings was the name, which greatly pleased the wordsmith. He was even more delighted to note a two-word comment having to do with where the ship was headed. Aiken would be buried at that very same viewing spot, and, to share it, he had fashioned a bench to serve as his gravestone. His name is carved upon it, along with the words:

COSMIC MARINER: DESTINATION UNKNOWN

To a large degree, that description can be applied to each and every one of us. There is much we do not know. The fact that faith does not tumble out at the end of an equation means that faith must always live with doubt and that faith and doubt are not opposites; the first includes the second. Fredrick Buechner, a deep thinker on human nature and who recently died at the good age of 96, once wrote, so candidly:

> Not the least of my problems is that I can hardly even imagine what kind of an experience a genuine, self-authenticating religious experience would be. Without somehow destroying me in the process, how could God reveal himself in a way that would leave no room for doubt? If there were no room for doubt, there would be no room for me.

As for those who do not share our belief in God and who say that our belief has no proof: surely, when it comes to the ultimate questions, they must admit that their own stance, too, is beyond proof and perhaps includes a substantial amount of "faith." Faith, in that minimal sense, is a constant, here, there, and everywhere. Thus, both in spite of and because of the inevitable uncertainty, everyone must choose. After all, even doing nothing is a choice, just not a productive one. A few lines from one of W. H. Auden's poems, *Leap Before You Look*, underscores it:

> The way is certainly both short and steep,
> However gradual it looks from here.
> …Look if you like, but will have to leap.
> A solitude ten thousand fathoms deep
> Sustains the bed on which we lie, my dear:
> Although I love you, you will have to leap;
> Our dream of safety has to disappear.

The beloved that he was addressing in the verse may have been the nation itself, for I doubt that it was an accident that the poem was composed in December of 1941; America's entry into WWII must have been heavily on his mind**.** Thus, whether it is a Sargent in a helmet or a teacher in a seamless robe who says, "Follow me!" a response is necessary. Life is just that way. Kierkegaard, this time in *Philosophical Fragments*, also wrote of what he called the leap of faith: "There is no other road to faith; if one wishes to escape risk, it is as if one wanted to know with certainty that he can swim before going into the water." And it is not accidental that Auden used the thought of the "ten-thousand fathoms" underneath as an image for uncertainty, for it is similar to Kierkegaard's description of faith in the *Postscript* as "holding fast the objective uncertainty so as to remain out upon out upon the deep, over seventy thousand fathoms." In 1973, Auden would credit the great Dane as one of those who called him back to faith: "Finally, the hair-raising things that Hitler and Stalin were doing forced me to think about God. …wild Kierkegaard, Williams, and Lewis guided me back to belief."

Many of America's Founders were Deists. They believed in God, but held that God's involvement in our world was very limited, this in spite of their frequent oratorical use of the term Providence to designate God. No small number of them, taking their cue from Tom Paine's *The Age of Reason*, considered miracles as being ruled out *a priori.* All of us are bound to have favorite Bible verses; we underline, finding some teachings to be more meaningful than others. Jefferson took the radically demonstrative step of using scissors. He revised the New Testament by literally cutting out all those passages that he regarded as being superstitious nonsense. The result of his do-it-yourself project was *The Life and Morals of Jesus of Nazareth,* a document in which the lame do not walk and the blind do not see. Completed in 1820, this slim humanist volume contained only Jesus' ethical teachings, which were, to Jefferson, "the most sublime and benevolent code of morals which has ever been offered to man." Those precepts, he maintained, when compared to everything else recorded in the Gospels, were "…as easily distinguishable as diamonds in a dung-hill." Apparently, he himself was blind to the fact that, without the items that he left on the cutting-room floor --most of all, the accounts of the resurrection-- it is very doubtful that the name of Jesus would ever have been known beyond 33 A.D.

And so it is, with many who voice the idea that they want to be *spiritual*, but not *religious*: they pick and choose. They tell us, for example, that the real meaning of Christmas is the warm feelings of hearth and home and the spirit of giving (actually, mostly exchanging high-priced material things). They might go so far as to say something along the lines that "Jesus was a good person with some good ideas" (such as, "God helps those who helps themselves." 😊) Many have not thought things through. Finally, it is enough for them to be able to say, "After all, this is the 21st century; so, you know, science…."

The teachings of Jesus concerning ethics still do have a wide appeal, even among those who are dismissive of the central items of the Faith, such as the Incarnation. They may continue attending choir concerts and the like; after all, Handel's *Messiah* is great music. Robert Lowell penned a sardonic summary description of what he assessed to be another's point of view, "There is no God, and Mary is his mother." The clever statement implies that this other individual found Christian art, music, and architecture --all the accoutrements of religion-- to be very beautiful and moving, but, underneath, there was nothing to it. It was simply a myth in the sense of a wishful illusion: it was not true.

In addition, among those who have completely rejected religion, there are many who cite hypocrisy as reason, i. e. they have witnessed individuals who have behaved badly while presenting themselves as believers in God and in the Good. That humanity is made up of individuals who range from flawed to despicable should not be a surprise, but seeing hypocrisy in religion brings out the very broad brush with which to paint all who are religious. Critics focus on a perversion, as if it disqualifies the positive original. Profound love, compassion, generosity: these have surely characterized millions of people of faith. Throughout the centuries, they have done anonymous acts of mercy, striven publicly for justice on behalf of others, and they have built universities, thousands of hospitals and nursing homes that care for all. In spite of that and much more, how long has it been since you watched a movie or a television series that depicted a Christian as anything other than hypocritical –or evil? No agenda there? I don't think so.

Of course, there are those who go even farther along the spectrum of rejecting religion; they seem to say, in effect, that religion is something to be feared and fought against. Out of this mindset, the organization called *Freedom from Religion* (spokesperson Ron Reagan, son of the 39th President) often runs an ad in magazines quoting the words of sexologist Havelock Ellis, who wrote in 1914, "Had there been a Lunatic Asylum in the suburbs of Jerusalem, Jesus Christ would infallibly have been shut up in it at the onset of his public career. That interview with Satan on a pinnacle of the Temple would alone have damned him, and everything that happened after could have confirmed the diagnosis." Thus, a wooden literalism is not an interpretive mode unique to religious fundamentalists, i. e. it can and often does characterize atheists and anti-religious experts of various sorts. In this case, that rigid and unpoetic interpretation is applied to that biblical scene in order to provoke ridicule from a superficially science-schooled public, and so, to dismiss the Christian Faith in its entirety.

However, it could be noted that "the crazy Jesus" is an option and always has been. C. S. Lewis highlights it in *Mere Christianity,* referencing the two alternatives, basically, of lunatic or Lord:

> I am trying here to prevent anyone from saying the really foolish thing that people often say about Him: 'I'm ready to accept Jesus as a great moral teacher, but I don't accept his claim to be God.' That is the one thing we must not say. A man who was merely a man and said the sort of things Jesus said would *not* be a great moral teacher…. You must take your choice. Either this man was, and is, the Son of God; or else a madman or something worse. You can shut Him up for a fool, you can spit at Him and kill him as a demon; or you can fall at his feet and call him Lord and God. But let us not come with any patronizing nonsense about His being a great human teacher. He has not left that open to us. He did not intend to.

This also speaks to a few theologians who maintain that, "After all, Jesus never actually *said* he was God." In this (and all of a sudden), they have become literalists, while casually ignoring all those "I AM" passages in the Gospels. For, in addition to claiming to be the Way, the Truth, and the Life, the Door, the Vine connecting the branches, and the Light of the World, Jesus also said, "I and the Father are one." "He who has seen me has seen the Father." "Before Abraham was, I am." How can one take anything else from those but a claim of a unique identity linked to God? If you or I would make such claims, we *would* belong in the proverbial rubber room. No doubt the passage from Lewis, Defender of the Faith against its cultured despisers, and in similarly cynical times, had all of this in mind when he wrote.

We must choose. What comes first in life, whether one's ultimate concern is turns out to be for that which truly is Ultimate: that is the choice and the challenge in relationship to God. In this, alternatives and qualifications of various sorts present themselves, and there will never be enough data, never sufficient information by which to make such a determination. Nevertheless, we must decide. Concerning belief in God, it remains what Pascal --mathematician, scientist, person of faith— said that it was: a Great Wager. Pascal writes,

> Yes; but you must wager. It is not optional. Which will you choose then? …Let us weigh the gain and the loss in wagering that God is. Let us estimate these two chances. If you gain, you gain all; if you lose, you lose nothing. Wager, then, without hesitation, that He is.

It may not be that simple. On the other hand….

What is involved is not only one's conception of God; it also relates to how we regard our own selves and the world here and now. The bet is on the nature of absolutely Everything. Many of us cannot help but perceive the material world as *not* being as dead and mindless as it is often portrayed. For, the inanimate world of atoms and molecules not only *can* be animated but actually is, and all around us. After all, we, ourselves, are living proof: "Dust we are," and yet…. That completely astonishing circumstance of being alive is, most of the time taken for granted only because it is almost ubiquitously common. The planet throbs with life in every quarter, and we should never get over it --this miraculous business of living, feeling, being-- this fact that the minerals of The Periodic Table walk and talk, perceive, and think and dream.

In this, it is not too much to say that the radical separation between matter and spirit that so transfixed the Greeks of ancient times was an illusion. They held the body to be almost a hindrance, something to be minimized in life and a kind of "mortal coil" to be shuffled off by the soul at death: "John Brown's body lies a-moldering in in the grave, but his soul goes marching on:" that is the idea of intrinsic and automatic immortality, regardless, an idea that is very different from Christian resurrection. In Scripture, death is utterly real, and eternal life is a total gift and a re-creation and enhancement of the psychosomatic unity that is the whole person.

How to speak of mind? It is intimately imbedded in matter, but not reducible to it. It is when we see a once-living being no longer alive that we recognize and appreciate the deep and mysterious connectedness. Last Spring, the Robins that migrated to our part of Montana came back too soon. Shortly after they arrived by their thousands, a deep snowfall occurred, and I'm sure that very few of the birds survived. They are ground-feeders, subsisting on insects and worms, so feeders filled with seeds were of no help. When pressed, they do eat some fruits, fallen crabapples, and such, but the ground was covered with eight inches of snow and ice. Thus, on the day before Easter Sunday, I witnessed one of the most *pathos*-filled scenes in the natural world. A dead robin lay on its back on the cleared sidewalk, this where more than a dozen birds had congregated a couple of days before. There was only a single one still alive, and that one (likely the dead bird's mate) was bent over the other one. Every few seconds, it used its beak to grasp the feathers under the chin of the lifeless bird, trying, time after time, to lift its head, but, of course, to no avail.

I watched the scene for ten minutes before turning away. It was so very pitiful, in and of itself, but it was also strikingly comparable to situations on the human level: First Responders giving CPR to a victim of a highway accident; the attempt at a river's edge to resuscitate a person who had drowned; hospital technicians in an operating room trying to keep the spark of life going against all odds; and all those deathbed situations in which many of us have been involved and have been helpless to change. The biggest challenge to faith has always had to do with the amount of suffering and premature death. (For both Darwin and Huxley, the most disturbing situation was the loss of some of their young children; they lived in a time when that was very common.) Faith has always been "in spite of" such realities: witness the Books of Job, Jeremiah, Lamentations, and The Psalms.

Of all those countless situations, we can say that they are, of course, tragic. But surely the Christian Faith has more to say than that, and the only thing that adequately speaks to suffering and death is the affirmation that this life, whether long or short, is not the end –because of the Resurrection. Because of what God has done in Christ, the sequence is not just life & death, but life, death, & new life.

Imagine the disciples knowing that Jesus was crucified, dead, and buried: sealed in a dark tomb, stone-cold, and dead as doornail. Then, the disciples, Thomas and the rest, meeting, seeing, touching the living, resurrected Christ. "Why, that would take a miracle!" --Exactly. The fact that the Christian Faith has been a majority religion in the West for such a long time has sometimes led to a rather thoughtless acceptance of its dramatic claims, taking them for granted, so that

Chesterton's words in his essay "*The Paradox of Christianity*" apply: "People have fallen into a foolish habit of speaking of orthodoxy as something heavy, hum-drum, and safe. There never was anything so perilous or so exiting as orthodoxy."

This radical message has sometimes been watered down in the attempt to produce a science-friendly naturalistic devotional to the effect that, because Christ loved, we now have the perfect example and inspiration for how we, too, should love. The example surely does inspire, and loving is no small thing. However, the proclamation of the Gospel is also nothing less than "because He *lives,* we too shall *live*." It is the Resurrection that stands as the warrant and the authentication of all else. For, the Resurrection addresses tragedy, with which the world is so riddled, as nothing else can. It speaks to random suffering of all sorts, as well as to the issue of all the horrific human wrongs that escape human courts and thus cry out for ultimate justice.

Thus, I have very little sympathy for the simplistic idea that suffering produces resilience, as alleged in Nietzsche's most popular adage that "Whatever does not kill you, makes you stronger." The maxim, quoted by the many admirers of the supposed ultra-realist, turns out to be patently false. It is a booster-type cliché that doesn't hold up, because strengthening is only *one* possible outcome and thus surely does not apply to "whatever." Happenings can, and just as often do, result in weakening or in crippling people emotionally, or in making them callous or bitter. Anyone whose profession involves dealing with people has seen this demonstrated countless times. (And, of course, some events can kill us, and, eventually, one of them will.)

Along similar lines, every Spring sees much well-intentioned "blending" of the Easter message with so-called "resurrections" in the natural world, this to illustrate the human determination to "try one more time, to get up again, to keep on going." That sentiment is addressed by Frederick Buechner in his stimulating book of daily meditations, *Listening to Your Life*:

> We try to reduce it to poetry: the coming of spring with the return of life to the dead earth, the rebirth of hope in the despairing soul. We try to suggest that these are the miracles that the Resurrection was all about, but they are not. In their way, they are all miracles, but they are not this miracle, the one to which the whole Christian faith points.

In Scripture, the Resurrection of Christ is put forth, not as a tale meant to illustrate a die-hard spirit; not as something to encourage a very hopeful "in spite of" attitude; and not as a profoundly significant myth (not even as the best one yet). Instead, it is declared as a world-shaking *event*. It is proclaimed as history and as happening, as Gospel or Good News, and as a foretaste and promise of what is to come. In other words, as True. As such, the followers of Christ can neither prove it nor explain it, only announce it with the words of Corinthians 15:

> Lo, I tell you a mystery. We shall not all sleep, but we shall all be changed, in a moment, in the twinkling of an eye, at the last trumpet. For the trumpet will sound, and the dead will be raised imperishable, and we shall be changed. For this perishable nature must put on the imperishable, and this mortal nature must put on immortality. And we shall be changed.

In this context, then, mystery is not a word to connote ignorance; it is, instead, a term that eludes precise definition but which is expressive of something not at all reducible to the material and the mundane. It relates to an aspect of reality that sounds too good to be true, but that is true, nevertheless, as when we affirm that the Spirit of God is holding together and continually renewing the substance of the entire universe.

In a culture that is focused on individualism, the attempt is often been made to turn the resurrection into a story concerning personal salvation. It is that, but much more. The entire universe is involved. In Romans 8, St. Paul writes that "…the creation was subjected to futility," and "…the whole creation has been groaning in travail together until now," and "the creation waits with eager longing" for this ultimate fulfillment of God's promises. There are intimations in Isaiah 11 of an unimaginable peace, symbolized with metaphoric language such as, "The wolf shall dwell with the lamb, and the leopard shall lie down with the kid, and the calf and the lion and the fatling together, and a little child shall lead them." The vision in the 21st chapter of Revelation:

> Then I saw a new heaven and a new earth; for the first heaven and the first earth had passed away…and death shall be no more, neither will there be mourning nor crying nor pain any more, for the former things have passed away. And he who sat upon the throne said, 'Behold, I make all things new.'

The Resurrection has truly cosmic dimensions. In the words of Tennyson, it is the

> …one far off event
> To which all creation moves.

Thus, the final counter and corrective to the Great-Machine-conception of a mindless and heartless universe is the revelation of the Mind and Heart of a gracious God.

Many of the great European cathedrals were designed so that the worshipping assembly would be facing East, symbolic of the rising sun and of resurrection morning. That simple fact called to mind the ultimate new day, the new age that will dawn in fulfillment of God's promise. Thus, for Christians, Christ has everything to do with cosmology, for our Faith says that our human procession, along with the entire universe, is headed towards fulfillment. On this way, often so dark and confusing, there is much we do not know. But we travel as Easter people in an Easterly direction. Now, that –that's what you call a Great Thought.

Kenneth H. Olson Lewistown, Montana