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# **The Ground of Being**

## **God and the Big Bang**

### **Glenn F. Chesnut**

Let us talk a little about trees and the ground they grow in. The maple tree which grows in my front yard shades my lawn throughout the Indiana summer with its multitude of many-pointed leaves. The tree and its branches form a totally concrete and tangible thing. One can put one's hand on its trunk and feel the roughness of its bark and its sturdy solidity. One can hear the summer breezes rustling its leaves. Birds fly down — little twittering sparrows, brilliant red cardinals, colorful blue jays — and perch on its branches. The tree is a reality which I can know and depend on, and is part of a larger physical world which is familiar and understandable.

In the fall, the maple's leaves turn a beautiful yellow and red, and seem almost to glow against the clear blue of the sky. Autumn in Indiana is a season of incredible beauty. One can see the furry gray squirrels scurrying up and down the tree's trunk, beginning to prepare a nesting place in which to shelter for the frigid months ahead.

Then comes winter, when I can look out at the tree and its now bare twigs covered with white snow. The birds are gone now, except for occasionally a few little snowbirds (the bird books call them "juncos") with their dark slate gray backs and white breasts, pecking around the base of its trunk on sunnier days. The only thing separating us here from Canada and the Arctic is the vast expanse of Lake Michigan, so as the frigid wind howls in, we feel grateful for the warm, snug house and the fire flickering in the fireplace. On some winter days the twigs and limbs of the maple tree become coated with ice, but then they twinkle like little diamonds whenever the sun comes out. We

drink hot chocolate and pop popcorn as we sit in front of the fire and look out the window at the snowdrifts piled against the porch.

In a few months though, spring comes again: bird songs fill the air once more, and one can smell the wet earth and the fresh growing things. First the daffodils planted around the base of the maple tree come out in brilliant yellow flowers, and then the first light green leaves start to appear on the tree itself. The little children come out once again, riding their bicycles and tricycles up and down the sidewalk which runs past the maple tree, laughing and calling out to one another.

An important part of spirituality is learning to appreciate the beauty of the universe again, from the grandeur of its mighty heights to the ordinary little things which surround us every day. When those of us who were locked into self-destructive behaviors first start noticing the world outside our own heads and enjoying it once more — with all of our five senses — we know that our souls are beginning to be healed of all the self-centeredness which had driven us into that grim place inside our minds. But to continue growing spiritually, we must go beyond simply enjoying all these things which we can see and hear and smell and touch and taste, and ask where all this beauty and goodness came from, and in what ultimate source it is grounded.

Using this metaphor of the tree and the ground in which it is planted, it is true that we could continue to study every part of that maple tree for all the rest of our lives: the leaves, the twigs and branches, the trunk, and the roots which extend deep down into the ground. But what about the ground it grows in? The ground is something different from the tree. Yet that tree could only sprout and grow when its seed was first planted in the ground many years ago, and the tree will continue to grow and prosper only as it remains firmly planted in that ground.

This enables us to make an important observation about science and the universe. If the physical universe which we study in the natural sciences is like a tree, then the ground from which it sprang into being — which is a different kind of reality — is what we can call “the ground of being.”

### **The ground of being and the Big Bang**

Modern physicists tell us that the world of nature in which we live had a beginning in time, around 13.7 billion years ago. It burst into existence in what they call the Big Bang, where all the matter and energy in the physical universe — along with time and

space itself — came exploding simultaneously into being. But what was there before the Big Bang? That was the ground of being, that infinite Mystery which has always existed, continues to exist as that which keeps our present physical universe in existence, and will always exist, for it exists by necessity.

The ground of being — whatever it was which existed before the Big Bang — cannot be analyzed by the same scientific laws and methodologies which we use for investigating the universe which it created. Everything in the created universe, for example, is compelled to follow the laws of thermodynamics. These laws were first worked out when James Watt and others began designing new and improved steam engines during the 1760's. Proof of the validity of these newly discovered laws of physics appeared when they were able to use these principles to engineer steam engines which were efficient enough to power railroad locomotives and paddlewheel steamboats. The first internal combustion engines (which were later to enable us to build the first airplanes and efficient automobiles) also came out of their experiments and their discoveries about the laws of thermodynamics.

One of these laws of thermodynamics which Watt and his coworkers discovered was the law of entropy, which says that all energy sources eventually run down. When we use flashlights to find our way around after dark, the battery progressively runs down, until finally the light dims and fades away. When we burn fossil fuels like oil and gas and coal for energy, even if we attempt to save all the ashes and gases which are the combustion products, we cannot reuse these materials to run our automobiles another few miles or produce another few kilowatts of electricity from our generators. Eventually even the sun up in the sky will use up all its nuclear fuel and cease emitting light and heat, and finally everything in our universe will collapse into the random movement of particles which have expended all their useful energy, so that nothing meaningful will ever be able to happen again.

Nothing in the physical universe is immune from the law of entropy, nothing at all. Our universe came into being 13.7 billion years ago, and in another few billion years it will have run down. Nothing within our physical universe can escape this fate. And yet the law of entropy cannot apply to the ground of being, because this ground has to have existed from all eternity. If this ground could run down and run out of energy, it would already have done so at some time in the infinite past, long before the Big Bang which created our universe. The ground of being is therefore omnipotent, in this sense. Its extraordinary reserves of energy can apparently exist forever.

And in addition, the ground of being is by necessity something even more extraordinary yet. Space and time were not created until the Big Bang occurred, which means that the ground of being lies outside of the box of space and time. Our human minds are so imprisoned within the box of space and time that we can barely even imagine such an alien reality: it confronts us as *das ganz Andere*, the “Wholly Other,” and sends a shiver down our spines.

This ground of being is the infinite itself, the boundless, what the pre-Socratic philosopher Anaximander called the *apeirôn*, that primary existent out of which everything else in the universe came into being and was formed. In Ancient Near Eastern religion, it was the Primordial Abyss which existed before the creation of the world, what the ancient Greek creation myth called Chaos, the gaping void which was all that existed at the beginning of all things. It was the all-swallowing gulf which the ancient Babylonians mythologized as the she-monster Ti’amat.

Our ordinary laws of science cannot be applied to the ground of being, because they are all phrased in the form of mathematical equations which make no sense when infinity is introduced into the formulas. What happens to equations from mathematical physics like  $F = ma$  and  $E = mc^2$  when we try to introduce infinity into any of their terms? We get nothing which makes any sense at all. The concept of infinity does not work that way. Is X plus infinity bigger than just infinity by itself? The question itself is mathematically meaningless. Multiplying X by infinity is mathematical nonsense. Infinity is not just an extremely big number, but something quite different: a process which proceeds without limit and goes on forever.

### **God is the ground of being**

Let us think about the traditional attributes of God. For thousands of years the theologians have said that God is *eternal*, in the sense that this ultimate reality (unlike the physical universe) has no beginning or end. The theologians have said that God is *omnipresent*, which actually means that — since this reality lies outside our box of space and time — it is everywhere and nowhere. The word “where” we remember refers to physical location at a specific point in space. The ground of being is *immaterial* and *incorporeal*, because it is not composed of the electrons and protons and neutrons and other types of matter which form our physical universe. It is *omnipotent* because it is not subject to the law of entropy, and can never run down or decay. It is also *ineffable*,

which means that we cannot talk about it in ordinary human words, because even the greatest scientists cannot fit it into their mathematical equations and precise definitions. It is not just a matter of cleverer scientists coming along and working out new laws of physics which will enable us to analyze the ground, because that which is truly infinite cannot be constrained within the kind of mathematical equations which would have to be drawn up in order to bend it to our manipulations.

In calculus and in the construction of infinite series, mathematicians can sometimes talk intelligibly about processes which are infinite in the sense that they proceed without limit, but the only processes which give us useful information are those which *converge toward a finite limit*. The ground of being cannot be described by mathematical formulas of this sort, because it involves infinite processes which do not converge toward any finite limit.

The ground of being not only created all the matter and energy in the physical universe, it also supplied — and continues to supply — the laws of nature which the physical universe is constrained to follow. The electrons and protons and various kinds of energy which make up our physical universe do not create these underlying laws of nature which the scientists explore. This realm of scientific law was also supplied by the ground at the time of the universe's creation, and it is this underlying ground which continues to maintain and enforce all these fundamental laws of physics.

What this means is that the ground of being not only created our physical universe 13.7 billion years ago, but that it is still there today, and that it is still connected to our physical universe today, in such a way that if our physical universe lost its link to the underlying ground, it would blink out of existence on the spot.

The ground of being is what the philosophical theologians of traditional western theism — in Judaism, Christianity, and Islam all three — have always called God. In classical Hindu philosophy, this ultimate ground was referred to as Brahman.

### **Whether regarded as personal or impersonal, the ground is the ultimate divine Mystery**

In ancient pagan Greek neo-Platonism, the ground of being was called the One, the single and unitary divine Mystery which stood above everything else: the gods, the human soul, and even the power of reason itself. It was regarded as a completely impersonal transcendent ground. It was not a personal being because it was above and

beyond all multiplicity, above and beyond all thoughts and concepts, and above and beyond everything which could constitute a distinct personality filled with individual cares and concerns and desires.

In Hindu philosophy down through the centuries there have been a variety of interpretations of this ground of being. In the philosophical system called Advaita Vedanta for example, Brahman (the ground of being) was described as a kind of infinite “cosmic consciousness” (an ecstatic absorption in the sense of the unity of all reality), which formed an infinite field of bliss from which shone the infinite radiance of the outpouring of pure knowledge itself. But this was not the same as a truly personal God, since it was believed that Brahman possessed no specific personal attributes. It functioned simply as a universalized ultimate ground from which other lower forms of being could emerge. Vedantist philosophers of this school taught that a fully personal understanding of God, where God was personified as one of the particular Hindu gods like Vishnu or Shiva — a specific god or goddess with his or her own individual personal characteristics and traits — was simply a reflection of Brahman (like the reflection of the moon in a pool of water) down into the realm of Maya (the domain of the illusions which rule the material world). So it is clear that they regarded any kind of belief in a deeply personal God as part of the realm of ignorance, illusion, and fantasy from which good spirituality was supposed to save us.

In early and medieval Christian theology, we see the full gamut of interpretations. In the early Christian period, St. Macarius (the author of the *Fifty Spiritual Homilies*) and St. Augustine taught a deeply personal God. But during that same period of history (the fourth and fifth centuries A.D.), St. Denis (the early Christian theologian who wrote under the pseudonym of Dionysius the Areopagite) gave an interpretation of God which was even more impersonal than the Hindu system described in the previous paragraph, and St. Gregory of Nyssa asserted that the ultimate vision of God was that only of a bottomless abyss of No-thing-ness which threw us into vertigo and total disorientation.

### **Theism vs. atheism: personhood not the issue, but Mystery**

The real issue which has divided theism from atheism down through the centuries had not been a debate over whether God is personal or not. That is important to recognize. What is fundamentally at stake is something very different. Theism

recognizes that the ground of being is a Mystery of which the human mind can never grasp more than hints and reflections. Atheism — the kind of repudiation of God which has flourished in the modern western world since the 1840's — is, on the other hand, above all *an attempt to deny that mystery*. Modern western atheists want to reject the notion of human powerlessness in the face of anything at all. Human science, they desperately want to believe, will ultimately be able to explain all things. The universe will eventually be proven to be an adequate explanation of itself. Human beings will then be able to control all things and solve all of their worldly problems — on their terms, not God's terms — with machines and scientific instruments, and with pills which we can swallow, which will fill our minds with sanity and bliss.

And back the other way around, theism in all of its forms recognizes that whenever we attempt to describe our service at the altar of the *Agnôstô Theô*, the Unknown God whom we encounter within the Cloud of Unknowing, we will always end up having to be involved with what the Hungarian philosopher Polanyi called tacit knowledge, and various kinds of indirect ways of knowing and speaking: metaphors, symbols, allegories, and other such devices. As we saw from Locke's example of the taste of pineapple, we will always eventually run into real experiences of God's reality for which we have no words, where we know that God is there but cannot explain what it is we know to those who have never felt or sensed it. We will be able to see the concrete evidence that God's works of saving grace have been manifested in the world, when we observe human beings undergoing major psychic changes as part of their encounter with God's grace, but in our scientific accounts of what happened, all we will be able to talk about is some kind of strange x-factor at work, disrupting the normal sequence of cause and effect.

And above all, whenever we approach that ultimate power which heals and saves us, we will be thrown into awe and overpowering wonder at the numinous reality which shines through, the *mysterium tremendum* which is the power of the sacred and is incomparably greater than anything in the created world.

So is the ground of being a personal God who thinks and wills and is conscious of the world and us human beings who live in it? I think so myself, but let us wait until the latter part of this book to discuss the reasons why. For now, the most important thing to say in response to the kind of modern western atheism which has swept the globe since the 1840's, is that God is real — something out there, distinct from us and the scientifically observable universe — which can be shown to exist. God is the Great Mystery out of which the universe emerged in the Big Bang. God is the power of the

numinous shining out of that primordial abyss and filling all the created world with the light of the holy and the sacred. Full God-consciousness — fully sensing that sacredness and bringing its numinous power within ourselves — is what we mean by salvation.

For over two thousand years it has been demonstrated all around the world, that a very satisfying and effective spirituality can be devised — one which will heal the human soul and bring us lives filled with peace, joy, and love — as long as belief is present that the ground of being is the great sacred Mystery underlying all things, regardless of whether that ground is regarded as personal or not. So for the next few chapters, that is what we will be primarily talking about.

### **The prelude to the rise of modern atheism: eighteenth and nineteenth century attacks on the infallibility of the Bible**

In the Middle Ages and Early Modern period, the greatest thinkers were willing to turn to the Bible as a source of infallible truth on a vast range of issues. St. Thomas Aquinas, for example, the greatest Christian philosopher of the thirteenth century, believed that it was impossible to prove that the universe either did or did not have a beginning in time using natural science and philosophy. But since the Bible said that the world in fact had a beginning in time, he believed that we could take this as a dependable truth.

In the Early Modern period, the Anglo-Irish theologian James Ussher, who served many years as Archbishop of Armagh and Primate of All Ireland, made one of the most famous attempts at calculating the age of the universe using biblical texts, producing a date which was still printed in Gideon Bibles in hotels and motels all across the United States when I was a child. In his *Annales veteris testamenti, a prima mundi origine deducti* (“Annals of the Old Testament, deduced from the first origins of the world”), which appeared in 1650, and in its continuation, *Annalium pars posterior*, which appeared in 1654, Archbishop Ussher calculated the date of creation to be the nightfall preceding October 23, 4004 B.C.

But by the end of the next century, the rise of modern science and modern historiography had begun to show increasing problems with any kind of attempt to use the Bible in that way. Thomas Jefferson for example, the principal author of the Declaration of Independence and the third president of the United States, wrote a book in



1781 entitled *Notes on the State of Virginia*, in which he commented on the bones of an elephant-like creature which had been dug up in Virginia, the remains of a prehistoric animal which we would today describe as a mammoth or mastodon. Jefferson noted that no known species of modern elephant could survive the cold of a Virginia winter, which led him to speculate that either this was a different kind of (now extinct) elephant-like species or that the climate of Virginia had been far different in the distant past. Today we know that both of these speculations were correct.

A man named James Hutton presented a paper entitled “Theory of the Earth” to the Royal Society of Edinburgh in 1785. In that paper, he argued that the planet earth must be far older than had previously been supposed in order to allow enough time for mountains to be eroded and for sediment to form new rocks at the bottom of the sea, which in turn were raised up to become dry land. The idea that the beginning of the universe only dated back to 4004 B.C. was rapidly coming to appear more and more preposterous.

Following up on observations of that sort, geologists and paleontologists over the course of the next century began to estimate the true age of the earth at anywhere from 100,000 years old, up to even perhaps billions of years old. At the end of the century, in 1899, John Joly of the University of Dublin calculated the rate at which the oceans should have accumulated salt from erosion processes, and determined that the oceans were about 90 million years old.

As a brief note, in the last half of the twentieth century real precision finally began to be obtained. The mass spectrometer was invented in the 1940’s and began to be used in radioactive dating techniques in the 1950’s. The oldest known minerals on the surface of the earth were determined to be 4.404 billion years old. Numerous meteorites have been discovered however which are slightly older, 4.567 billion years old, so modern scientists push the creation of the earth back to that point, and regard that as the date when the planet earth would first have begun to form as part of the same process which created those meteorites and not only the earth, but also the other planets which circle our sun.

The important thing to note is that the date of the creation which is implied in the Judeo-Christian Bible could not conceivably be correct, and that this date was already being seen to be impossible by the early nineteenth century. Other ancient sacred texts, from India and elsewhere, fared no better than the Bible. Their guesses were wrong too,

and the accumulated evidence discovered by modern science over the past two centuries shows overwhelmingly that none of them were even remotely correct.

Adding to the problems raised for the biblical account by the geologists and paleontologists, Charles Darwin in 1859 published his book *On the Origin of Species by Means of Natural Selection, or The Preservation of Favoured Races in the Struggle for Life*, which brought the theory of evolution into the fray.

Moreover, during the 1840's western scholars began figuring out how to read ancient Egyptian hieroglyphics and ancient Mesopotamian cuneiform writing, and that, coupled with the beginnings of modern archeological excavation in the decades that followed, began to show other kinds of discrepancies in the Old Testament accounts of ancient historical events.

The New Testament also came under attack by modern historians. Research by numerous scholars on the synoptic problem increasingly showed that the three synoptic gospels (Matthew, Mark, and Luke) reported the words, deeds, and even the chronology of Jesus' life so differently in some places, that there was no way to reconcile them. Rarely do we have a saying of Jesus reported verbatim, in exactly the same words, in all three of these gospels (even though his basic teaching can be reconstructed, I believe, with a good deal more accuracy than some of the more recent radical New Testament scholarship acknowledges). Nevertheless, by the end of the nineteenth century, it had become clear that none of the gospels were written by eyewitnesses, and that the gospel accounts of what Jesus said and did during his active ministry, which took place around 30 A.D., were based on oral traditions passed on from person to person, which were not fully put down in writing until around 80-90 A.D., which meant that they could and did contain errors and distortions (and sometimes even the purely legendary) in the form in which we now have them.

It was a traumatic period for traditional Jewish and Christian belief at every level. More and more intellectuals in the western world began realizing that the Judeo-Christian Bible was a product of an ancient world which knew nothing about modern science or the modern historical method. Any kind of belief in God based solely on the idea that the Bible was inerrant and infallible in all of its statements began to crumble quickly during that period of western history.

## The rise of modern atheism in the 1840's

Atheistic and quasi-atheistic ideas had begun to appear on occasion in public contexts by the end of the eighteenth century. David Hume's *Dialogues Concerning Natural Religion* in 1779 demolished any hope of drawing up a conclusive proof of the existence of any clearly defined God within a Lockean philosophical system (the system of thought which was assumed at that time to provide the simple and common sense basis of the modern scientific method), and Immanuel Kant's *Critique of Pure Reason* in 1781 appeared to demonstrate that even if God existed — which he argued was unprovable one way or the other — we could know nothing at all about him. Completely atheistic ideas surfaced temporarily during the most radical phase of the French revolution, with the abolition of the worship of God on November 10, 1793 and the formation of a short-lived governmentally-sanctioned alternative called the Cult of Reason.

Nevertheless it was not until the 1840's that modern western atheism began to spread widely among European intellectuals. At the beginning of that decade, in 1841, Ludwig Feuerbach published a book called *Das Wesen des Christentums* (The Essence of Christianity), which laid out some of the most important assumptions of the new atheistic theory of the universe (it was translated into English in 1853 by the famous Victorian novelist Mary Anne Evans, better known by most under her pen name of George Eliot). Feuerbach said that what religion calls "God" is simply our minds' projection onto the universe of what are only subjective human goals, ideals, and fears. There is no real God out there, merely an impersonal universe running according to scientific law.

In the years which followed, a long string of atheistic thinkers built their ideas on Feuerbach's theory. Sigmund Freud claimed that God was only a fantasy image of our human fathers which our subconscious projected onto the universe. The sociologist Émile Durkheim said that "God is society, writ large" — that is, the gods whom we worshiped on social occasions were simply symbols of our own culture, so that religion was actually the group worshipping itself. Karl Marx argued that religion was a projection of the class structure and economic structure of a society onto the material world, used as a tool for maintaining the subjugation of the lower classes.

## **Modern atheism as control fantasy and utopian fantasy**

Modern western atheism, on the surface, was made up of theories like these: God is only ancient primitive superstition, or my father, or society, or a tool for subjugating the masses. But to truly understand the power of this new atheistic movement and the way it came to grip so many people's hearts and souls in the nineteenth and early twentieth century, we need to take a deeper look into the atheistic mind.

It was believed by these dedicated atheists — deeply and devoutly believed — that modern science would eventually be able to account for everything, including the origins of the universe, on the basis of mathematical laws that were completely understandable to the human intellect, without anything “left over” that would fall outside complete analysis by the modern scientific method. We would be able to explain everything that happened by scientific law, and with that, we would gain total control of Nature.

That was what was really at stake to the devotees of modern western atheism. It was a control neurosis, a control fantasy, where they talked themselves into believing that, as we human beings made more and more scientific discoveries, we would eventually be able to take over from God and run everything ourselves. If one reads contemporary science fiction novels, one can see the full atheistic fantasy coming out in a number of these works. We will live surrounded by electronic gadgets of every sort, with all the hard work being done by computerized robots which never break down or malfunction or refuse to come online. Modern medicine would conquer death, so that we would no longer get sick and die, but would live forever. And so on and so forth.

Already by the time I went to university, there were psychiatrists claiming that we would soon be able to fix any problem which afflicted the human mind — any kind of disturbance or unhappiness, any sort of neurosis or psychosis or addiction — by having the patient swallow the right kind of pills. There was no longer going to be any need for God or religion, atheists proclaimed, because physics and chemistry and biology and psychology were going to become the new gods, and replace all the old religious systems with completely scientific methodologies which were totally under rational human control. Modern atheism was going to bring in a Brave New World<sup>1</sup> in which human beings were going to be happy, healthy, free, and fulfilled.

It is interesting to note that the principles of the twelve step program, which appeared at the end of the 1930's, were a rebellion against this sort of atheism. This was made clear from the very first two steps in their spiritual program: First "we admitted we were powerless ... that our lives had become unmanageable." Then we "came to believe that a Power greater than ourselves could restore us to sanity." We had to learn to quit playing God. We had to learn that this never worked. Could I as a human being ever have the power to create an entire universe, with all of its stars and planets and galaxies, out of empty space? This is a fantasy so silly that it is difficult to see how an intelligent adult could be taken in by it.

In addition to control fantasies, modern western atheism became involved in utopian fantasies as well. I remember back during the 1960's and 70's, first I was a student at Oxford University where some of the Communists among my fellow students were proclaiming that their politico-economic system would bring happiness and prosperity to human beings all over the earth. Then I obtained a teaching position at Indiana University, where some of the behaviorist psychology professors were teaching their students that, if only the government could be persuaded to allow them to put all the children in the country in Skinner boxes for the appropriate behavioral conditioning, they would be able to produce utopia on earth. It should be clear to anyone who looks at them carefully, that these atheistic utopian theories are just another kind of control neurosis. The reality was that neither the Communists nor the Skinnerian psychologists were actually able to produce what they promised.

Modern western atheism is built on the fantasy that we can use modern science to literally control everything: that we will learn how to remove all uncertainty and chance, bend everything around us to our will, and turn ourselves into the all-powerful Masters of the Universe. Their grandiosity is without bounds. Theism on the other hand points to the fact that the universe arose out of Mystery, that it will vanish back into Mystery at its end, and that this Mystery which underlies all things may bring chance and uncertainty into the universe, but also produces creativity and novelty. The x-factor which appears in our lives over and over again is the tiny Mystery that lies inside me (the miracle of free will) interacting with the grand universal Mystery in a way which brings grace and new life.

## **How the scientific discoveries of the twentieth century tore away the supporting pillars of modern western atheism**

There is a great and infinitely tragic irony in the survival of atheism among many intellectuals in today's world. The classical western atheists of the 1800's knew nothing about the discoveries that were going to be made by twentieth-century science and philosophy, and for that one supposes they can be forgiven. They thought they could remove all the Mystery from the world, and in the process, put themselves into godlike control of all things. But we know better nowadays, or at least we ought to.

During the course of the twentieth century, further advances in science and philosophy truly revolutionized the human understanding of the world, but contrary to the expectations of the previous century, the most important discoveries brought the Mystery back into the universe — that Mystery which the nineteenth century had tried so hard to remove. It began with the discovery of statistical thermodynamics (Ludwig Boltzmann's *Lectures on Gas Theory* was actually published slightly before the beginning of the twentieth century, in 1896), which made it clear that the element of chance and randomness could not be removed from the universe. Einstein published his famous initial studies in 1905, and introduced the strange world of relativistic physics, where the fabric of space and time itself could be stretched and bent. Quantum theory (Niels Bohr developed his model of the atom in 1913) led eventually to wave mechanics and the discovery of the peculiar way in which electrons can function both as waves and as particles (deriving from Erwin Schrödinger's publication of the Schrödinger equation in 1926). The uncertainty principle (discovered by Werner Heisenberg in 1927) made it clear that science would never be able to explain all things in the universe with infinite precision. Gödel's proof (published in 1931) showed that in any reasonably complex scientific theory of the universe, it would be possible to ask questions to which the theory could not give an unequivocal yes-or-no answer. Scientists found themselves in a strange new world where threads of Mystery ran through the entire fabric of the universe.

The atheists of the nineteenth century had believed that scientific knowledge would automatically keep growing more and more complete and precise until finally all the possible questions about the universe had been answered, with no uncertainties, mysteries, or loose ends left over. We human beings would be in possession of godlike knowledge, and would become our own gods. By the end of the twentieth century

however it had become clear that what actually happened in real life was that we human beings were continually called upon to make creative and novel responses to an ever-changing universe which was shot through with Mystery from beginning to end. Where we got into trouble was when we fooled ourselves into believing that we knew more than we really did, or that we could control more than we were really able to. God — the great, eternal Mystery — was the real ruler of all.

### **An eternal universe, or one with a beginning in time?**

The theory of the Big Bang, which said that the universe had a beginning in time, went back to the beginning of the twentieth century: Edwin Hubble published his first observations on the red shift in 1929.

But in reaction to this, some physicists and astronomers tried to come up with arguments which would show that the physical universe had no beginning in time, and that it was eternal and had always existed. Many of them openly acknowledged that their primary motivation was to undermine the idea of God. If the universe had always existed, then (they believed) there would no longer be any need for a God.

So what was called the steady state theory, for example, defended by scientists like Fred Hoyle, Thomas Gold, and Hermann Bondi, argued that the universe has been kept in existence from all eternity, in spite of its perpetual expansion, by the continual spontaneous appearance of new matter in empty space. Other astronomers and physicists tried to devise cyclic models, such as the theory of an oscillatory universe, in their attempt to deny any beginning to the universe. In theories of this sort, it was argued that each Big Bang introduced an expansionary phase which continued until gravitational attraction finally halted the expansion and started a period of contraction which ended in a Big Crunch. But out of that, another Big Bang would explode, followed by another contraction into a Big Crunch, and so on, in such a way that the universe would continue to exist — alternately expanding and contracting — for all eternity.

The discovery in 1964 of the cosmic microwave background radiation which had been predicted in the theory of the Big Bang<sup>2</sup> put an end to these particular attacks. It is now generally acknowledged that the Big Bang theory is fundamentally correct: that our universe had a beginning in time around 13.7 billion years ago (according to most current

calculations), where it exploded into existence at a point in space and began an expansion which is still going on.

Atheistic physicists and astronomers who upheld the theory of the Big Bang tried to fend off any talk about God at work in this event by referring to it as a “singularity,” a word which gave a quasi-scientific aura to that part of the theory. But what the word singularity means is an event which is like no other events which science has ever observed and which seems to violate the laws of nature at the most basic level. In old-fashioned English an event of this sort is called (and has been called for many centuries), not a singularity, but a *supernatural* event. That means exactly the same thing, but makes it far clearer that the present universe came into existence out of the great eternal Mystery, that ground of being which Jews, Christians, and Muslims call God.

Attempts are still being made by physicists and astronomers to devise theories which would account for the existence of the universe where *everything* could be explained, without exception, on the grounds of natural physical law, without bringing in any concept of a supernatural ground. But all of these theories involve the claim, at one level or another, that one has successfully devised a perpetual motion machine. By one strategy or another, the theorists end up claiming that they have gotten around the problem of the first law of thermodynamics (the conservation of energy) as well as the second law of thermodynamics (entropy and the arrow of time problem). But a perpetual motion machine is still a piece of hokum, the sort of thing that is only peddled by con men and frauds, even if you build one as big as the entire universe.

### **How the utopian fantasies of modern western atheism turned sour**

Modern atheism has in some situations been able to liberate people from some of the intolerance, bigotry, authoritarianism, and stupidity of the past. And in addition, in parts of the globe, we live today with more food and material belongings, and far better health care, than any previous century of human history was able to enjoy. But there are also numerous places where human beings are still starving to death.

All in all, modern atheism tends to have too good a conscience. In writings promoting atheism, there is still apt to be an absence of any admission of the evil that has been done in the name of this philosophy of life. Even if some good has been done in some small parts of the world, it is difficult to exaggerate the negative effects which



modern western atheism has also had over the history of the last century and a half. It produced Hitler's Nazi Germany, Stalin's Soviet regime in Russia, the deaths of millions of Chinese as the effect of Mao Zedong's theories, the proliferation of nuclear weapons (and other weapons of mass destruction) beyond all reason, the genocidal murder of millions of human beings in Europe and Africa, and a whole series of other catastrophic effects.

The kind of atheism which began sweeping through the western world in the 1840's should have a very guilty conscience indeed. Its defenders are in no position to deliver moral lectures at people who hold other beliefs.

### **The ground of being as the basis of real spirituality**

So let us not be duped by the more grandiose promises of modern atheism, and instead use the idea of the Big Bang and the ground of being to create a spirituality which respects the findings of modern science, but which also recognizes the presence of Mystery and the numinous power of the holy. Only in this way will we be able to bring out the true goodness and beauty of human life, and learn how to link ourselves with the life-giving power of freedom and creativity rather than the dark power of fate and destruction.

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## NOTES

1. *Brave New World* was the title of a novel by Aldous Huxley (1894-1963), published in 1932, which described a rather grim future utopia, a hedonistic society which was driven by the pleasures of promiscuous sex and drugs, particularly an imaginary new drug which he called “soma” in the novel. It was described as a powerful stimulant which washed away pain and unpleasant memories with hallucinatory fantasies. Many years later, he was one of the people who talked Bill Wilson, the cofounder of Alcoholics Anonymous, into taking experimental doses of the newly discovered hallucinogen called LSD.

2. A. A. Penzias and R. W. Wilson, “A Measurement of Excess Antenna Temperature at 4080 Mc/s,” *Astrophysical Journal* 142 (1965), 419.