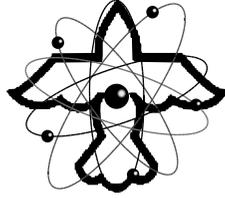


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Preface

Can the question of God’s existence be settled by scientific evidence? In this book, I show that it can and it already has, in God’s favor. But the evidence is subtle, based on the concept of the *primacy of consciousness* from quantum physics, which remains Greek to many people, and so the message is very slow to penetrate both scientific and popular consciousness. This book attempts to accelerate the acceptance of God once again in our society and our culture.

One question needs to be settled at the outset. What is the “God” that science is rediscovering? Everyone knows that even religious people who talk the most about God cannot agree about what God is. So, is science rediscovering a Christian God, a Hindu God, a Moslem God, a Buddhist God, a Judaic God, or a God of a less popular religion? The answer is crucial.

What almost everyone doesn’t know is that at the esoteric core of all the great religions, there is much agreement about the nature of God. Even at the popular level, most religions agree about three fundamental aspects of God. First, God is an agent of causation, over and above causation arising from the material world. Second, there are more sub-

tle levels of reality than the material level. And third, there are Godlike qualities—love is a primary one—that religions teach people to aspire to as a major goal. What is the God that science is rediscovering? Suffice it to say for now that the God rediscovered by science has all three of these important aspects.

I offer two kinds of scientific evidence for God.

The first kind I label as “the quantum signatures of the divine.” Quantum physics gives us such novel aspects of reality—the quantum signatures—that to understand, explain, and appreciate them, we are forced to introduce the God hypothesis. An example is quantum nonlocality: signal-less communication. Ordinary local communication is carried out via signals carrying energy. But in 1982, Alain Aspect and his collaborators verified in the laboratory the existence of communications requiring no signals. Hitherto, the belief was that such quantum signatures occur only in the submicroscopic world of matter and somehow are not important for the macro domain, or mundane level of reality. But I demonstrate that these quantum signatures also occur at this level, and that they provide indisputable evidence for the existence of God. Research groups conducting experiments with several kinds of phenomena have found such evidence in the laboratory.

The second kind of evidence involves what religions call *subtle domains of reality*. You could very easily label this kind of evidence as pertaining to impossible problems requiring impossible solutions (from the materialist point of view, that is).

An example will make this clear. Recently, there has been a lot of controversy about creationism-intelligent design theories versus evolutionism. Why so much controversy? It is because even after 150 years of Darwinism, evolutionists do not have a foolproof theory. They cannot satisfactorily explain either the fossil data, especially the fossil gaps, or why and how life appears to be so intelligently designed. This is what creates room for controversy. Honest, unprejudiced scientific appraisal of these theories and data shows what follows.

Neither Darwinism nor its later synthesis with genetics and population biology called neo-Darwinism agrees with all the experimental data.

Creationism and intelligent design theories as proposed have little scientific content, with creationism having hardly any scientific content, but there is indisputable data supporting the fundamental ideas of both evolution and intelligent design (although not Bible-based creationism).

The key here is to ask, is there an alternative to both of these approaches that agrees with all the data? My answer is yes, and I will demonstrate it in this book. But this requires the existence of a causally empowered God and a subtle body that acts as a blueprint for biological form; materialism permits neither of these. Nevertheless, impossible problems require impossible solutions!

Another example involves the processing of meaning. The philosopher John Searle and the physicist Roger Penrose have shown that computers can process only symbols, not the meaning that the symbols may represent. For generating and processing meaning, we need the mind. But then the question arises: How does mind interact with matter? The age-old dualism problem of the mind-body interaction still haunts us. This is where I show that the God hypothesis is essential to settle the mind-body interaction problem. And in this new “impossible” context, our creative ability to process new meaning gives us much tangible scientific evidence for the existence of God.

If the good news is that such evidence for God is already here, then what should we do about it? Well, first we must reformulate our sciences within the quantum God hypothesis and demonstrate its usefulness outside of quantum physics. In this book, I demonstrate that this one hypothesis solves all the hitherto unsolved mysteries of biology: the nature and origin of life, fossil gaps of evolution, why evolution proceeds from simple to complex systems, and why biological beings have feeling and mysteriously consciousness, just to mention a few. We also find that within the quantum God hypothesis, the “depth” psychology of Sigmund Freud, Carl Jung, and James Hillman, based on the unconscious, is seen as quite complementary to the “height” psychology of the humanists and transpersonalists of recent times—Carl Rogers, Roberto Assagioli, Abraham Maslow, and Ken Wilber—based on transcendence or super-consciousness. Both these psychologies are now recognized as defining paths to the realization of God in our personal lives.

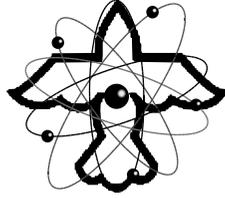
Preface

There are other aspects of the quantum God hypothesis that every one of us can appreciate and even bring to fruition. This new science validates our current preoccupation with meaning, although the materialist worldview is doing its best to undermine it. Equally important is that a God-based science puts ethics and values where they belong, at the centers of our lives and societies.

We may not like some aspects of the old religions that hitherto were the only proponents of the concept of God, but we can agree that all religions gave us ethics and values (the cultivation of Godliness) for our societies. These have been undermined by the current materialist worldview, with devastating results for our politics, economics, businesses, and education. With the scientific rediscovery of God, which also emphasizes ethics and values, we gain an opportunity to revitalize modern social systems like democracy and capitalism that seem to have become bogged down with seemingly insurmountable difficulties.

The preoccupation with meaning, ethics, and values is important for the evolution of humanity. My final message is what I call *quantum activism*: combining the usual activism of changing the world with ongoing efforts to align oneself with the evolutionary movement of the whole. If the latter step requires our creativity and quantum leaps in our processing of meaning and values while engaged in the affairs of the world, so be it. At the least this will bring new meaning and value to our lives; at best, it will usher a new age of enlightenment.

I acknowledge with deeply felt gratitude all the people who have contributed to the rediscovery of God, which is the subject of this book. The names are too many to list, with one exception: my wife Uma, who is also my partner in my current spiritual practice. I also thank all the quantum activists who have worked with me in the past or are currently working with me, and also those who will undertake quantum activism in the future. Finally, I thank my editors, Bob Friedman and John Nelson, and the staff of Hampton Roads for a fine production job on this book.



Prologue

For Skeptics

Before presenting this book to you, Dear Reader, I asked myself what the reaction would be to the basic idea of this book from three types of die-hard skeptics: the materialist scientist, the Western philosopher, and last but not least, the Christian theologian? So I decided to do an exercise employing active imagination to address the skepticism of these three groups head-on.

In my imagination, I create my straw scientist. He is a white American male, complete with coat and tie loosened at the neck (to signify openness, a touch of the eminent American physicist Richard Feynman). He has an air of all-knowing nonchalance and a lighted cigar in hand, emulating the celebrated Danish physicist Niels Bohr. And of course, he has the impatient arrogant smile of the American biologist James Watson, intended to hide his forever-present insecurity. I then ask my scientist, “I am planning to present a book about the scientific evidence for God. What do you think of the idea?”

“Not much,” he says, not too surprisingly. He elaborates. “Look, we’ve heard such claims of scientific evidence before. Take the creationists, for example. For all the noise they make, when you look closely, all their evidence is based on the negatives of our argument. They are clever, I admit. They do make many interesting points about the holes in the Darwinian evolution theory, our antidote to their so-called cre-

ation science. But we've countered by pointing out that their ideas don't constitute science because they're not verifiable." He gives me a challenging look and continues, "Look, I know you want to make a case for God by highlighting all the shortcomings of materialist science in explaining things. But that will never work."

This is not an important part of my approach. But I am curious. "But why?"

"Why?" His smile now becomes condescending. "Because, my idealistic friend, we can always address our negatives by the promise of future scientific discoveries. The answers are blowing in the wind of future science."

"I know, I know." I too can be condescending. "Didn't Karl Popper denigrate that, calling it promissory materialism?"

His cigar has gone out and he becomes busy relighting it. He takes a long puff and spews out a cloud of smoke. Now he gives me a penetrating look, like he's ready to level me with his reply. "What is God?" he asks presently.

But I am ready for him. I say with quiet confidence, "God is the agent of downward causation."

"Oh, that hackneyed answer," he pooh-poohs. "I thought you'd have something better. We eliminated that God long ago, because it's dualism. How does a nonmaterial God dish out downward causation that affects material objects? Any interaction with the material world takes an exchange of energy. But the energy of the material world alone is always conserved. No energy ever flows out to God or comes in from God. How is that possible if God is always interacting with the world?"

"You didn't let me finish . . ."

"And you didn't let me finish," he continues. "Look here. We don't deny that you feel the presence of an almighty God in your religious rituals. But we have an explanation: God is a brain phenomenon. When you tickle certain centers of the mid-brain with your rituals, you elicit experiences of a powerful force. Downward causation makes sense to you then. OK?"

"Not OK." I can also be firm. "God is the agent of downward causation, but it doesn't have to be the dualistic God of old. Your problem

is that since Galileo you've been fighting the straw God of popular Christianity, which isn't the real issue at all. The real issue is: Can your model of reality, with one material level of existence and upward causation from the base level of matter (figure 1-1, page 17), account for everything? And it can't. You have to face up to that.

"Christians of the old traditions tried to explain everything they could not understand with the general principle: God and His downward causation. It's a very limited idea. Science was developed to fight that idea and to discover better ways for understanding the data. Today, you materialist scientists are doing the same thing. With any unexplainable phenomenon, you either deny it or try to explain it away with worn-out concepts like 'God is an emergent epiphenomenon of the brain' or 'God is a useful adaptation under the Darwinian struggle for survival.' We can never verify such ideas."

"You are lecturing me," he grumbles gruffly.

"So? You lectured me." I am stern. "The God I'm talking about is *quantum consciousness*. As you know very well, in quantum physics objects aren't determined things; instead they are possibilities for God—quantum consciousness—to choose from. God's choosing transforms the quantum possibilities into actual events experienced by an observer. Surely you accept the idea that quantum consciousness is scientific."

"Yes, of course. The observer effect: quantum objects are seemingly affected by conscious observers or by consciousness." Then he smiles slyly. "New wine in an old bottle, eh? Trying to make the idea of quantum consciousness provocative by renaming it as God?"

He is not getting the point. "Look, I am quite serious. Quantum consciousness is really what our savants, the mystics, have meant by the word 'God.' I begin my exposition proving that and also pointing out that it's an experimentally verifiable idea."

He interrupts me. "Really? Look, the observership is just an appearance, and there must be a material explanation for this appearance. It's too hasty to postulate real consciousness." He sounds a little exasperated.

"But it's logically consistent to assume so. To do otherwise gives you a paradox."

“Yes, but we can’t let a few paradoxes get in the way of our philosophical convictions,” he says slyly.

He is not getting the point. “Look, I’m quite serious. I repeat that quantum consciousness is really what our mystics have meant by the word ‘God.’ Let me also repeat that it is an experimentally verifiable idea.”

He now hears me and his mouth falls open. “Really? How?”

“Look, ever since the physicist Pierre-Simon Laplace told Napoleon, ‘I don’t need that [God] hypothesis [for my theories],’ you guys have been using that argument to disprove God.”

“And successfully, too,” my scientist interrupts.

“Yes, but now turnabout is fair play. I’ll present theoretical paradoxes and experimental data to show that we do need the God hypothesis, and not only to remove logical paradoxes from our theories but also to explain much new data. Brace yourself.”

My scientist looks away. I know I’ve gotten to him. Scientists respect resolution of paradoxes and, most of all, experimental data.

But my scientist comes around and slyly says, “Surely you don’t expect us to lay aside our convictions just because of a few paradoxes. As for new data, it’s a bit speculative to say that quantum physics, designed for the micro world, also works for the macro or mundane world. This is what you’re implying, isn’t it? I suppose next you’re going to tell me that this has already been verified by objective experiments in the macro world.”

I smile. “That’s exactly what I’m telling you. As to the applicability of quantum physics to the macro world, surely you know about *SQUID*?”

My scientist grins. “Squid? My wife sometimes serves it for dinner. I can’t say I like it very much.”

I shake my head. “You know that *SQUID* is the acronym for *Superconducting Quantum Interference Devices*. It’s too technical to delve into it here, but those experiments showed long ago that quantum physics applies all the way to the macro world, as it should. Also, the God-verifying experiments I will discuss in this book are all macro-level experiments. Some of the new data has even been replicated.”

My scientist looks a little uncomfortable. “Look here. We are never going to accept what you’re doing as science. You know why? Because science by definition looks for natural explanations. You are inviting something supernatural, God, into this hypothesis. It can never be science.” He sounds stubborn.

“If by ‘nature’ you mean the space-time-matter world, then your science cannot even accommodate quantum physics. Shame on you. The Aspect experiment—photons affecting one another without signals through space and time—settled that issue once and for all.”

My scientist again looks away. His cigar has very conveniently gone out again. I get up. I know I’ve gotten to him. Scientists respect objective experiments. One down, the materialist scientist; two to go.

In my imagination, I now create the skeptic philosopher: tall, white American male with a shaved head and looking a lot like Ken Wilber. I tell him about my book on the scientific evidence for the existence of God. I also tell him about my encounter with the skeptical scientist. He surprises me with his question. “What is science?”

I fumble with words a bit. “We have ideas about being, through our experience of the outer and the inner worlds and through our intuitions. Those constitute our philosophy of being that you philosophers call *ontology* or *metaphysics*. Next comes how we know ‘being,’ which you philosophers call *epistemology*, right? Scientists intuitively theorize about being, make deductions from various theoretical insights, and then subject the theories to experimental consensus verification. Science is an epistemology with two wings: theory and experiment.”

I look at him for approval. He says gruffly, “Fine, fine. But what you study and discover through this science is about manifest experience, ephemeral, wouldn’t you say?”

He is right. I nod in agreement.

“Then tell me, how can you use this science of temporal phenomena, space-bound phenomena, to prove the existence of what is eternal, what is beyond all phenomena, what is transcendent? Your idea is worse than those of the medieval Christians who tried to prove God’s existence through reason, because of your scientific pretentiousness. You think people will accept your idea because you cloak it in science, don’t you?”

This fellow is arrogant, also cynical. I try to respond, but he continues in a staccato voice. “I know of your kind of scientific proof of God. You manage to do it not only by redefining God, but by even redefining materialism. You’re a holist, right?”

Actually, I am not a holist—not the usual kind who thinks that the whole is greater than its parts or that novel creations can emerge from simple components but cannot be reduced to them. But his question has perked my curiosity. “So what have you got against the holists?”

He looks at me scornfully. “Look, as even Descartes understood four hundred years ago, matter is fundamentally reductionistic: the microcosm makes up the macrocosm. To suggest that matter in bulk, because of complexity, can have novel emergent features is preposterous. You think God is an emergent interconnectedness of matter, and God’s downward causation is an emergent causal principle of complex matter, but this kind of idea is easily refuted.” He pauses, looking at me for a reaction. I remain quiet. He continues.

“If the idea of emergent holism held water, it would show up whenever we make complex matter out of the simple. For example, when hydrogen and oxygen mingle together to make a water molecule, does any property emerge that cannot be predicted from the interaction of the constituents? No. And if you say that the wetness of water, which we can feel, is such an emergent property, I’ll hit you. Our feeling of wetness of water comes from *our* interaction with the water molecule.”

I try to mollify him. “I’m not saying that anything new and holistic emerges when hydrogen and oxygen combine to make water. Actually, I agree with you. The holists walk on very thin ice.”

He does not seem to hear what I said and continues, “If God were only an emergent interconnectedness of matter, God would be time-bound and space-bound, limited. There would be no transcendence, no sudden enlightenment, and no spiritual transformation. You can call the holist view deep ecology, garb it with the fancy names that satisfy mediocre minds, but it does not satisfy the philosophically astute. It does not satisfy me.”

Again his arrogance is showing. And in this case, he is right, of course, on his basic point. I try to be patient and exclaim, “O great

philosopher, you are right. Holism is a hopeless approach of the fence-straddling philosopher who values God but won't give up materialism entirely. And you are right that science can never find answers about the ultimate truth. Truth is.

"But behold, please. Materialists make the ontological assertion that matter is the reductionistic ground of all being: everything, even consciousness, can be reduced to material building blocks, the elementary particles and their interactions. They hold that consciousness is an epiphenomenon, a secondary phenomenon of matter that is the primary reality. What I demonstrate is the necessity of turning the materialist science upside down. Quantum physics demands that science be based on the primacy of consciousness. Consciousness is the ground of all being, a being that mystics call Godhead. Let materialists realize that it is matter that is the epiphenomenon, not consciousness."

"I see." My philosopher is unruffled. "That all sounds very noble. But now haven't you gone too far the other way? Can you call it science if you base it on the primacy of consciousness?"

"The way I see it, scientists can look at the objective side of consciousness, the It and Its—the third-person aspect of consciousness, so to speak. The mystics, indeed all of us, personally look at the subjective side—the first-person experience. The philosopher can do even better by considering the intersubjective side—the second-person relationship aspect. This is what I call the 1-2-3, the first person, second person, and third person aspects of consciousness. If we extend consciousness study from the purely scientific objective to include the other aspects as well, we get a complete model, the four-quadrant model (figure 3-1, page 45). The problem of consciousness is solved. We don't need quantum physics and your new paradigm thinking about science."

I am a little startled by his claims. This fellow is tough in his own way. Nevertheless, I manage to say, "That's real good. It describes the phenomenon as phenomenology; this is impeccable. But the model does not integrate the four quadrants."

He smugly retorts, "That is precisely my point and that of the mystic. To integrate, you have to go beyond science, beyond reason, into higher states of consciousness."

Now it is my turn to be tough. “This is an elitist position and you know it. Mystics have always said that in order to know reality it takes higher states of consciousness. And then they say to whoever listens, ‘Be good. Because I have experienced these higher states and I know what is good for you.’ But has this ploy ever worked?”

“It works to some extent because being good is part of our nature; hence the appeal of religions. But base emotions are also part of our nature; hence materialism also appeals to us. And this mysticism-materialism debate goes on, in public and in private.”

“So what are you proposing?”

“Quantum physics enables us to develop a dynamic integration of spiritual metaphysics and the science of the material world. It retains the mystery of mysticism, of the ultimate reality. But it allows reason to penetrate deep enough to understand the integrity of your 1-2-3 of consciousness,” I say gravely.

The philosopher is now respectful. “How does that quantum redefinition of science help establish God so scientists and everyone else will accept the idea and try to be good?” he asks.

“Remember my dialogue with the scientist?” I can feel I have his full attention now. “God is quantum consciousness; this is a level below the absolute level of consciousness as the ground of all being. Scientific objectives and experimental tests can be engaged at this level—not to test God directly, but to test God’s power of downward causation that manifests not only the material world but also the subtle levels. We are also finding solid objective data for the existence of the subtle. It is this objective experimental verification that will convince everyone and lead to a paradigm shift. Surely you agree?”

“All right, all right. It will certainly be interesting to read what you’ve got,” he says with an air of dismissal. He needs to have the last word. Recognizing his need, I take my leave.

Two down and one more to go: the Christian theologian. I try to create him carefully, proper garb and everything. To my surprise, this one ends up as a woman. The world is changing indeed; there is hope for God yet.

I greet my theologian. I tell her about the title of my book and also about my bouts with the skeptical scientist and the philosopher. She

chuckles quite sympathetically. Then suddenly her smile disappears as she speaks in rapid staccato.

“You know I’m sympathetic to your cause, but my skepticism comes from our experience with the materialists. Don’t underestimate them; they will eat you alive.”

“They sure ate you alive.” I can’t resist the jibe. “But you know why, don’t you? You don’t take science seriously, materialist though it may be so far. It took the Pope four hundred years to acknowledge Galileo and a decade longer to acknowledge Darwin. And the fundamentalists of your flock still fight the idea of evolution tooth and nail. But we take materialists seriously and respectfully; we give them their due. The new science is inclusive of materialist science.”

“Fine, fine,” says my theologian. “But your inclusion of their science won’t please them, you know. They want to be exclusive.”

“So many times we’ve tried to corner them arguing about the gaps in their science, trying to prove the existence of God and downward causation in those gaps. But materialists have always been able to thwart our efforts and narrow the gaps.”

“We have deeper evidence than gap theology.”

She interrupts me in midsentence. “I know, I know. We have deeper evidence, too. Such beautiful evidence, such beautiful arguments starting from William Paley to the current intelligent design theorists. If purposiveness is not a signature of the divine, what is? If you see a beautiful watch in a forest, how can you not see purpose, how can you ignore the designer, the watchmaker? Likewise, how can you see the beautiful living creatures of nature and not wonder about God’s purpose, about God, the designer Himself?”

“But the philosopher Herbert Spencer and more recently the biologist Richard Dawkins turn the intelligent design arguments around! The purposiveness of the biological world is appearance, they say. Not a signature of teleology, but mere teleonomy, its purposefulness the result of Darwinian adaptation. Dawkins even wrote a book calling God *The Blind Watchmaker*. And another one called *The God Delusion*, as if calling God a delusion will make it so. And people buy into his ideas, too. Even judges.”

Actually, the last assertion is not quite true. Although a federal judge in 2006 ruled against the teaching of intelligent design in schools, that was because the case for intelligent design is somewhat weak as of yet. One of my aims for this book is to correct that.

The fact is, many scientists have seen the weakness of Dawkins' arguments through probability calculations that show the improbability of life originating from matter driven by blind chance and survival-necessity, as Dawkins pretends. But this discussion would take us sideways. I try to get back to the main point.

"Your main problem is that the picture of God you portray is so naïve that it's easy to pick apart, and Dawkins and other materialists have had a heyday doing so. They always use the God of popular Christianity as a straw God to make their point. Let them use the esoteric notions of God and see if they can disprove God using materialist arguments!"

"But I am proposing more than that. Let's talk about signatures of the divine. You'll be happy to know we have a new foolproof track to finding these signatures."

"How so?" I have managed to pierce through my theologian's cynicism. Now she is openly curious.

"You see, madam, you theologians see signatures of the divine in the gaps of scientific understanding. And it is not a bad idea, per se. I respect you for it. But you have failed to discriminate between gaps that are, at least in principle, possible to bridge via the materialist approach to science and those that are unbridgeable using this approach. You have been a little wishy-washy."

"Maybe so. But what is your alternative?"

"We discriminate. We home in on those gaps that are impossible to bridge through a materialist approach. I call these the 'impossible questions for materialism.' And there is more.

"The application of quantum physics gives us another kind of signature of the divine: quantum consciousness. An example is the discontinuous insight of the creative experience, a discontinuity that today we identify as a quantum leap of thought. There are other signatures: non-local interconnectedness that operates without signals through space-time.

“These quantum signatures are made of indelible ink; they cannot be erased or rationalized away by any materialist hocus-pocus.”

“Really? That is incredibly hopeful. But I have to ask you, how does your new approach regard Jesus? Does it recognize the specialness of Jesus?”

“Of course. Jesus is very special. One of a very special category of people, the perfected beings.”

My theologian becomes thoughtful. “You don’t subscribe to the idea that Jesus is the only begotten Son of God?”

“No. But I do the next best thing. I show that the category of people to which Jesus belonged all have regular access to a state of consciousness—call it the Holy Spirit—that is truly the only begotten Son of God.”

“This is interesting. Reminds me of some new-paradigm thinking within Christian theology itself.”

“That it does.”

Here is the book. It is about God—quantum consciousness—a new paradigm of science based on the primacy of consciousness, and about scientifically verifiable quantum signatures of the divine that cannot be rationalized away. It is about the meaning and purpose of our spiritual journeys, and the meaning and purpose of evolution.

For millennia, we humans have intuited God and have searched. What we have found has inspired us to be good, nonviolent, and loving. But we have mostly failed to live up to our intuitions of how to be good, how to love. In our frustration, we have become defensive; we have become believers of God who have to defend the idea of God as an excuse for the inability to live up to that idea. This has given us religious proselytizing, fundamentalism, even terrorism—all in the name of God.

Modern science grew out of the effort to free ourselves from the tyranny of religious terrorism. Truth, of course, is Truth, so it is inevitable that science now has rediscovered God. Unfortunately, I doubt if this alone will make the difficulties of living the ideals of God much easier.

So are we in danger once again of creating a dogma that we have to defend out of the guilt of not being able to live up to its demands? I hope not.

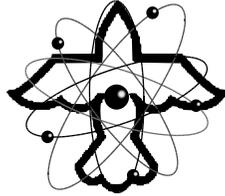
One advantage of Godless materialist science is that it is value-neutral to some extent, and nobody has to live up to any ideals. In fact, it encourages people to become cynical existentialists and indulge in consumerism, maybe downright hedonism. Of course, this also creates the vast wasteland of unfulfilled human potential that we see all around us today.

The new science within consciousness comes with more understanding of where past religions, the past upholders of the concept of God, have failed. The quantum signatures of the divine tell us quite unambiguously what we need to do to realize God in our lives, why we fail, and why we hide our failure and become fundamentalist activists. If you heed the quantum signatures of the divine, the importance of quantum leaps and nonlocal knowing, you have another choice. I call this choice *quantum activism*.

Ordinary activism is based on the idea of changing the world so that you don't have to change. By contrast, spiritual teachers tell us constantly that we should concentrate on our own transformation and leave the world alone. Quantum activism invites you to take a middle path. You acknowledge the importance of your own transformation, and you travel the transformational path earnestly, the difficulties of quantum leaping and nonlocal exploration notwithstanding; but you don't say that it is transformation or bust. You also pay attention to the holomovement of consciousness that is evolving in the world around you and help it along.

So finally, the book is also an introduction to quantum activism. Needless to mention, I am a quantum activist myself. So, dear reader, welcome to my world!

Part One



Introduction

In 1973, after about ten years of being a regular academic scientist, I was unhappy, but I did not know why. The following incident made me realize why.

I was at a nuclear physics conference; nuclear physics was the chosen field of research that engaged my heart and soul—or so I thought. I was a speaker at the conference and, when my turn came, I gave what I thought was a good presentation. Nevertheless, I was dissatisfied because I found myself comparing mine with other presentations and feeling jealous. The jealousy continued throughout the day.

In the evening I was at a party; there was lots of free food and booze along with a lot of interesting company, people to impress, etc. But I felt more of the same jealousy. Why were people not paying attention to me—not enough to relieve my jealous feelings, anyway?? This went on until I realized that I had a heartburn that wouldn't quit. I had already finished an entire packet of Tums that I carried in my pocket.

Feeling desperate, I went outside. The conference was taking place at Asilomar Conference Grounds on Monterey Bay in California. Nobody else was outside, it was a bit chilly. Suddenly, a blast of cool sea breeze hit my face. A thought surfaced (where did it come from?): “Why do I live this way?”

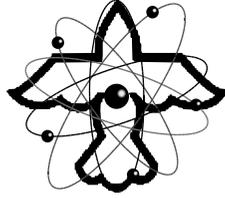
Why did I live this way? Paradigm research in practically every field of science consists of a few people defining the problems that require attention and others following their lead and carrying out the details. To belong to that elite group of trendsetters depends on a lot of things. The easy way for an academic is to be a follower and to publish rather than “perish” in the attempt to become a trendsetter. That was what I was doing; I was following with gusto.

Why did I live this way? Most problems of paradigm science are irrelevant to our lives. They are almost as esoteric as the questions that Christian monks in medieval times studied: how many angels can dance on a pin? So my life and my work were completely out of sync.

Why did I live this way? Is physics at all relevant to us today? Nuclear physics is relevant to weapons research, maybe energy research as well, but it is not relevant to much else. In Einstein’s time, physics was relevant; in Niels Bohr’s time, yes, certainly. Those were times of a paradigm shift that affected not only all of science, but the way we see the world in general.

Why did I live this way? I had academic tenure. There was no reason for me to do unhappy physics. I would find some “happy” physics to do and see.

I had no idea that the decision to pursue my personal happiness in physics would lead to a scientific rediscovery of God. I was a staunch materialist, you see.



Chapter 1

The Scientific Rediscovery of God

The concept of a higher power, popularly called God, is millennia old. The idea is that we experience phenomena that cannot be explained on the basis of material, worldly causes alone; the only explanation possible is that the phenomena are caused by intervention from God. This divine intervention is called *downward causation*.

This concept conjures up an image of God as a mighty emperor sitting on a throne up in heaven and doling out acts of downward causation: acts of creation, different laws of movement for heavenly and earthly bodies, miracle healings for devotees, judgment of the virtuous and the sinners, and so forth. Support for this naïve, outdated picture is implicit in pop religions even today, especially popular Christianity.

Scientists take advantage of the naïveté of the populist God supporters to pooh-pooh this description as dualism that is philosophically untenable, impossible. God is dishing out downward causation, intervening in our world now and then, here and there? Hah! That's impossible, they assert. How does a nonmaterial God interact with things in a material world? Two entities of different kinds cannot interact with-

out a *mediator signal*. But the exchange of a signal involves energy. Alas! The energy of the physical world alone is always conserved or is a constant. But that would be impossible if the world were involved in any interaction with an otherworldly God! Case closed.

The populists of Christianity strike back against this argument of science with attacks on one of the most vulnerable theories of materialist science—the theory of evolution called (*neo-*) *Darwinism*. But these populists, known as creationists and intelligent design theorists, do not deliver any credible alternative to neo-Darwinism, let alone to dualism.

Serious proponents of the God hypothesis respond to the criticism of dualism by stating that God is everything there is, that God is both otherworldly (“transcendent”) and worldly (“immanent”). This philosophy is called *monistic idealism or perennial philosophy*. Here “transcendent” means being outside this world but able to affect what is inside this world. Downward causation is exerted by a transcendent God.

But scientists, equally seriously, have questioned this sophisticated concept, disputing this definition of transcendence. How can something be otherworldly and yet be the cause of anything in this world? This concept also smacks of dualism, they insist.

Scientists long ago attempted to show that the phenomena of the world can be understood without the God hypothesis. René Descartes intuited the idea of a clockwork universe in which a supreme being caused the universe to exist as a system of bodies in motion, providing a fixed and constant amount of motion according to the laws of physics, mechanics, and geometry, and then did not subsequently intervene in any way. Galileo Galilei discovered the two-pronged approach of theory and experiment that we call science. Isaac Newton discovered the laws of physics behind the clockwork deterministic universe, laws that apply to heavenly and earthly bodies alike. Then Charles Darwin discovered an evolutionary alternative to Biblical ideas of life’s creation that fits the fossil data to some extent.

These and other phenomenal successes of a Godless science have prompted the following hypothesis: *All things consist of elementary particles of matter and their interactions*. Everything in the world can be

understood from this one hypothesis. Elementary particles form conglomerates called atoms. Atoms form bigger conglomerates called molecules. Molecules form cells; some of these cells (the neurons) form the conglomerate we call the brain. And the brain comes up with our ideas. These ideas include God, an idea that may be due to the arousal of a spot in the midbrain. In this philosophy called *scientific materialism* or *material monism* or simply *materialism*, cause rises upward from the elementary particles. All causes are due to “upward causation” producing all effects, including our God experiences (figure 1-1).

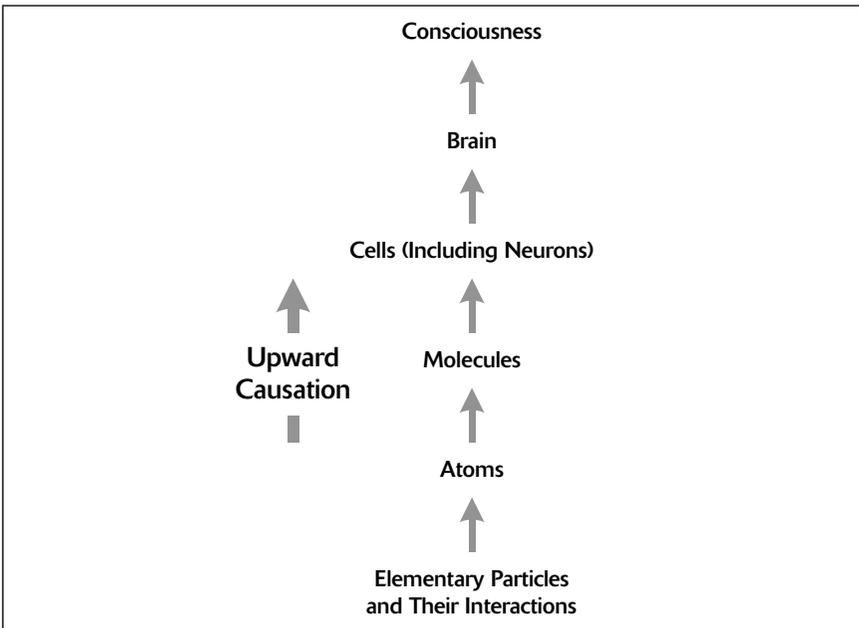


FIGURE 1-1. The upward causation model of the materialist. Cause rises upward from the elementary particles, to atoms to molecules, and so on to the more complex conglomerates that include the brain. In this view, consciousness is a brain phenomenon whose causal efficacy comes solely from the elementary particles—the base level of matter.

But the esoteric spiritual traditions say that God is beyond the brain. God is the source of our essence, the higher consciousness or Spirit in us. The question is: Does the upward causation model really explain us and our consciousness, including higher consciousness?

IS CONSCIOUSNESS A HARD QUESTION?

Currently, some philosophers have begun to call consciousness “the hard question” of science (Chalmers, 1995). Of course, such a designation depends on the context one chooses.

One context is neurophysiology, brain science, which considers that the brain generates all of our subjective experiences. Neurophysiologists posit that consciousness is an illusory ornamental epiphenomenon (secondary phenomenon) of the complex material box that we call the brain. In other words, just as the liver secretes bile, so the brain secretes consciousness.

This reminds me of a Zen story. A man meets a family of four (parents and two grown children), all of whom are enlightened. This is his opportunity to find out if enlightenment is hard or easy to attain. So he asks the father, who replies, “Enlightenment is very tough.” He asks the mother, who replies, “Enlightenment is very easy.” He asks the son, who replies, “It is neither difficult nor easy.” Finally, he asks the daughter, who says, “Enlightenment is easy if you make it easy; it is difficult if you make it difficult.”

If you think of consciousness as an epiphenomenon (secondary effect) of the brain, consciousness is a hard question indeed; you are making it hard. Consider that an objective model always seeks an answer to the question in terms of objects. Thus neurophysiologists seek to understand consciousness in terms of other objects: brain, neurons, etc. The underlying assumption is that consciousness is an object. But consciousness is also a subject—that which does the looking at and thinking about object(s). This subject-aspect of consciousness exposes one weakness of the neurophysiological brain-based model.

The truth is that consciousness is not only a hard question, but also an impossible question for materialists. This is because even pop religions, simplistic as their view of downward causation may be, have always been clear about one thing: that we have free will, and that without our free will to choose God, His power of downward causation would be in vain. If we are choosing God, defined as the highest good, we are choosing values and ethics. But we need free will to be able to make that choice.

But if we have *free* will, there must be a source of causality outside of the material universe. So the proponents of upward causation vigorously dispute the concept of free will. If we have free will, then the behaviorist's depiction of us as the products of psychosocial conditioning does not work so well. They challenge the concept. Like our consciousness, our free will must also be an illusory epiphenomenon of the brain. Insisting that we are behaviorally determined machines or walking zombies, their science not only undermines God and religion but also values and ethics, the very foundations of our societies and cultures.

So is there God and downward causation? Is consciousness an epiphenomenon of matter? Do we have free will? Is the dictum of the upward causation model final? Or is there new scientific evidence to suggest otherwise?

Yes, there is evidence. A revolution in physics took place at the beginning of the last century with the discoveries of quantum physics. The message of quantum physics is: Yes, there is a God. You can call it *quantum consciousness*, if you like. Some people call it by a more objective phrase, *quantum vacuum field*, or following Eastern wisdom, *akashic field* (Laszlo, 2004). But a rose by any other name retains its fragrance.

QUANTUM PHYSICS: THE BASICS

The essence of quantum physics is difficult for scientists to understand; but in my experience, nonscientists have an easier time comprehending it. There are books that explain the scientists' difficulty at length. Here we can present only a quick overview.

Quantum physics is a physical science that was discovered to explain the nature and behavior of matter and energy on the scale of atoms and subatomic particles, but now is believed to hold for all matter. Scientists can describe subatomic particles only in terms of how they interact. That's how the quantum theory started, as a way to explain the mechanics of very small things. But quantum physics is now also the basis for our understanding of very large objects, such as stars and galaxies, and cosmological events, such as the Big Bang.

The foundations of quantum physics date from the early 1800s. However, what we know as quantum physics started with the work of Max Planck in 1900. The mathematics of quantum physics was discovered by Werner Heisenberg and Erwin Schrödinger in the mid 1920s.

In his quantum theory, Planck hypothesized that energy exists in units in the same way as matter, not as a constant electromagnetic wave, as had been formerly believed. He postulated that energy is *quantized*—consisting of discrete units. The existence of these units—Planck named the unit *quantum*—became the first great discovery of quantum theory.

Central to the theory of quantum physics is that all matter exhibits the properties of both *particles* (localized objects such as tiny pellets) and *waves* (disturbances or variations that propagate progressively from point to point). This central concept, that particles and waves are two aspects of a material object, is called *wave-particle duality*. It is also universally agreed that waves of quantum objects are waves of possibility.

Various interpretations have been proposed to explain this duality and other subtleties of quantum physics. One that dominated for years is known as the Copenhagen interpretation of quantum theory. This term actually refers to several interpretations, some quite at odds.

The Copenhagen interpretation is usually understood as stating that every quantum object is described by its *wave function*, which is a mathematical function used to determine the probability for that object to be found in any location when it is measured.

Each measurement causes a change in the state of matter from a wave of possibility to a particle of actuality. This change is known as the *collapse of the wave function*. In simple terms, this is the reduction of all the possibilities of the wave aspect into one temporary certainty of the particle aspect.

Unfortunately, neither the quantum mathematics nor the Copenhagen interpretation can give a satisfactory explanation of the event of collapse. But quantum physicists have been unable to eliminate the concept of collapse from the theory. The truth is, an understanding of collapse requires consciousness (von Neumann, 1955). If we follow this thinking, it means that without consciousness there is no collapse, no material particles, no materiality.

OK, so there are the bare basics of quantum physics. Now, back to the application.

QUANTUM PHYSICS AND CONSCIOUSNESS

To be sure, the mathematics of quantum physics is deterministic and based on the upward causation model. Yet it predicts objects and their movements not as determined events (as in Newtonian physics) but as *possibilities*—*waves of possibility* mathematically described by this wave function as mentioned above. The probabilities for these possibilities can be calculated with quantum mathematics, enabling us to develop a very successful predictive science for a large number of objects and/or events. This is the part of quantum physics that does not embarrass materialists.

Unfortunately, there is a very embarrassing aspect to quantum physics—the collapse event: a proper understanding of it revives God within science. When we look at a quantum object, we don't experience it as a bundle of possibilities, but as an actual localized event, much like a Newtonian particle. And yet, as mentioned above, quantum physics does not have any mechanism or mathematics to explain this “collapse” of possibilities into a single event of actual manifest experience. In fact, quantum physics flatly declares that there is a limit to the mathematics-based certainty of physics. There cannot be any mathematics that would allow us to connect the deterministic quantum possibilities with the actuality of a single observed event. So then, how do the quantum possibilities become an actuality of experience simply through the interaction of our consciousness, by simply us observing them (figure 1-2)? How do we explain this mysterious “observer effect”?

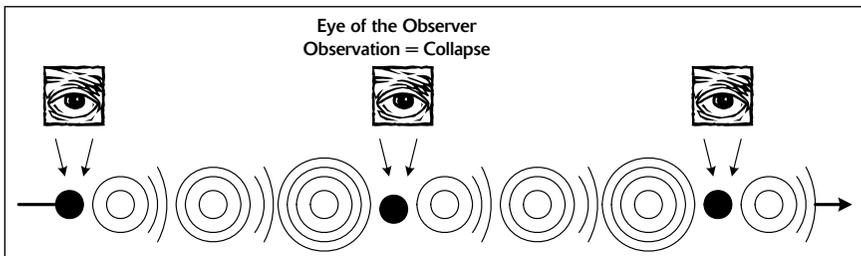


FIGURE 1-2. Quantum possibility waves and downward causation as conscious choice producing collapse.

In quantum language, the neurophysiologists' upward causation model translates like this: possible movements of elementary particles make up possible movements of atoms, which make up possible movements of molecules, which make up possible movements of cells, which make up possible brain states and make up consciousness. Consciousness itself, then, is a conglomerate of possibilities; call it a *wave of possibility*. How can a wave of possibility collapse another wave of possibility by interacting with it? If you couple possibility with possibility, all you get is a bigger possibility, not an actuality.

Suppose you imagine a possible influx of money in your bank account. Couple that with all the possible cars that you can imagine. Will this exercise ever actualize a car in your garage?

Face it. In the neurophysiological epiphenomenal model of consciousness, the assertion that our looking at something can change possibility into actuality is a logical paradox. And a paradox is a reliable indicator that the neurophysiological model of our consciousness is faulty or incomplete at best.

The paradox remains until you recognize two things. First, that quantum possibilities are possibilities of consciousness itself, which is the ground of all being. This takes us back to the philosophy of monistic idealism. Second, that our looking is tantamount to choosing, from among all the quantum possibilities, the one unique facet that becomes our experienced actuality.

To clarify the situation, let's examine how gestalt pictures are perceived—what appears at first to be one picture is actually two pictures. You may have seen the one that depicts both a young woman and an old woman, which the artist calls "My Wife and My Mother-in-Law." Another one depicts both a vase and two faces (figure 1-3). You notice that you are not affecting the picture when you shift from one perception to the other. Both possibilities are already within you. You are just making a choice between them by choosing your perspective. In this way, a transcendent consciousness can exert downward causation without dualism.

The strict materialist can still object: how can reality be so subjective that each of us observers can choose our own realities from quan-

tum possibilities? How can there be any consensus reality in that case? Without consensus reality, how can there be science?

Surprise, surprise. We don't choose in our ordinary state of individual consciousness that we call the ego, the subjective aspect of ourselves that the behaviorist studies and that is the result of conditioning. Instead, we choose from an unconditioned, objective state of unitive consciousness, the non-ordinary state where we are one, a state we can readily identify with God (Bass, 1971; Goswami, 1989, 1993; Blood, 1993, 2001; also see chapter 5).

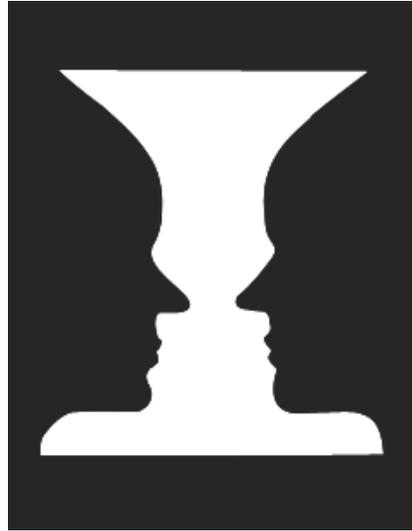


FIGURE 1-3 The vase and two faces. You don't have to do anything to the picture to choose either meaning.

THE QUANTUM SIGNATURES OF GOD

Here, then, are the crucial points that are worth repeating. We experience a quantum object, but only when we choose a particular facet of its possibility wave; only then, the quantum possibilities of an object transform into an actual event of our experience. And in the state from which we choose, we are all one: we are in God-consciousness. Our exercise of choice, the event quantum physicists call the *collapse* of the quantum possibility wave, is God's exercise of the power of downward causation. And the way God's downward causation works is this: for many objects and many events, the choice is made in such a way that objective predictions of quantum probability hold; yet, in individual events, the scope of creative subjectivity is retained.

In this way, the first and foremost scientific evidence for the existence of God is the vast array of evidence that supports the validity of quantum physics (which hardly anybody doubts) and the validity of our particular interpretation of quantum physics (for which there are some doubters).

Fortunately, there are two scientific ways to resolve these doubts: first, by demonstrating that this interpretation resolves logical paradoxes (rather than raising them, as does the upward causation model), and second, by making predictions that can be experimentally verified. The scientific evidence for the existence of God, based on the primacy of consciousness (the theory that consciousness creates reality) and the interpretation of quantum physics that I am presenting, passes both these tests of scientific validity. For future reference, we call this *science within consciousness* (a term first proposed by philosopher Willis Harman) or simply *idealist science*.

Phenomena resulting from downward causation in our model sometimes come with specific quantum signatures that upward causation cannot generate. If caused by upward causation—that is, if possible movements of elementary particles cause a linear hierarchy of increasing complexity that results in our consciousness—macroscopic phenomena of the mundane world would always be continuous, always consist of local communications with clear signals, and always be hierarchical in one way. The quantum signatures of downward causation are discontinuity (as in our experience of creative insight), nonlocality (as in the signal-less communication of mental telepathy), and circular hierarchy, also called tangled hierarchy (as sometimes experienced between people in love). This first kind of evidence for the existence of God I call the *quantum signatures of the divine*. The details will come later (see chapter 5); here I give you a sneak preview of one of these signatures.

It was Werner Heisenberg, one of the founders of quantum physics, who first unambiguously stated that quantum possibilities reside in transcendent *potentia*, a domain outside space and time. Quantum collapse, downward causation (the effect of our consciousness), must then be nonlocal: something outside space and time is affecting an event inside space and time. And then Alain Aspect, Jean Dalibar, and Gérard Roger (1982) brought quantum nonlocality (which implies that causes and effects can occur at a distance without an exchange of energy signals) to the experimental arena by demonstrating nonlocal connection between correlated photons (discrete objects called *quanta* of light) across a distance in a laboratory. Later measure-

ment increased the distance of nonlocal communication between the correlated photons to more than a kilometer. Quantum nonlocality is for real.

Two things to bear in mind. First, it has become a bad habit of scientists to claim that science is about finding a “natural” explanation for phenomena while defining “nature” as the space-time-matter world. In this view, God and the subtle worlds of spiritual traditions belong to “supernature.” In view of quantum nonlocality, clearly we must broaden this narrow view of nature. If science is to include quantum physics, then nature must include the transcendent domain of quantum potentia, the resident address of all quantum possibilities. In the view of quantum physics, all attempts to distinguish between nature and “supernature” have lost complete credibility.

Second, quantum nonlocality completely clarifies one confusing component of the esoteric spiritual model of God, that God is both transcendent and immanent: how some cause outside can affect something inside. This can happen because both the cause and the effect involve quantum nonlocality—signal-less interaction or communication.

A SECOND KIND OF EVIDENCE: IMPOSSIBLE PROBLEMS REQUIRE IMPOSSIBLE SOLUTIONS

Materialist science has had much spectacular success and has given us many useful technologies, but the more we apply it to biological and human problems, the less it seems capable of giving us palpable solutions. One key to developing a science with real solutions for human problems is to realize that what we experience as matter is but one important domain of the many domains of quantum possibilities of consciousness—the domain that we experience through our senses.

The psychologist Carl Jung discovered empirically that there are three more domains of conscious possibilities that we experience: feeling (of vitality), thinking (of meaning), and intuition (of supramental themes—archetypes—that we value) (figure 1-4). Recent work by Rupert Sheldrake (1981), Roger Penrose (1989), and the author

(Goswami, 1999, 2001) has established that feeling, thinking, and intuition, respectively, cannot be reduced to material movement; they really do belong to independent domains or compartments of consciousness. These domains are variously recognized as the *vital energy body* that we feel, the *mental meaning body* that we think, and the *supramental theme body of consciousness* (archetypes) that we intuit. All these compartments are nonlocally connected (without signals) through consciousness; consciousness mediates their interaction and there is no dualism involved (figure 1-5).

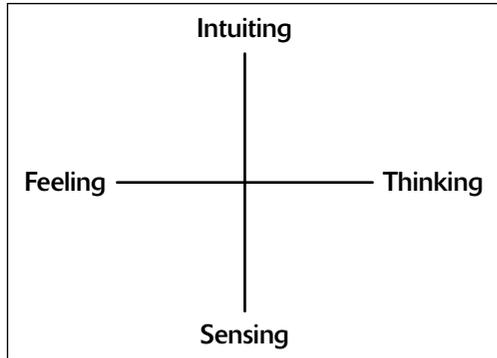


FIGURE 1-4. The four ways of experiencing according to Jung. The dominance of one or another gives us four personality traits.

All these compartments are nonlocally connected (without signals) through consciousness; consciousness mediates their interaction and there is no dualism involved (figure 1-5).

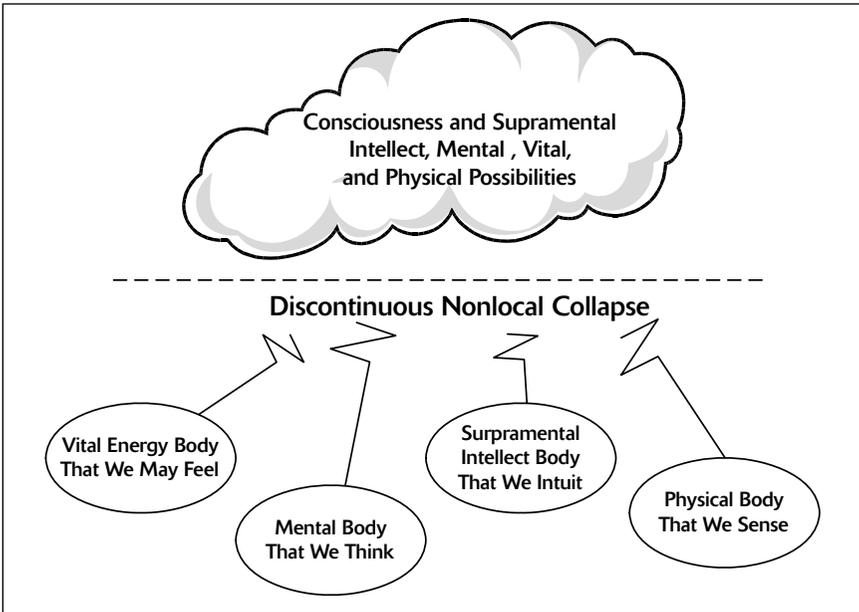


FIGURE 1-5. Quantum psychophysical parallelism. Consciousness mediates for physical, vital, mental, and supramental domains of quantum possibilities functioning in parallel.

Try to comprehend this figure; this is a breakthrough in the logjam of our thinking that has existed ever since Descartes. Our “inner” psyche (the conglomerate of vital, mental, and supramental that we experience as inner) and “outer” material world are not separate; they are parallel, ongoing possibilities of one interconnectedness that we call consciousness. This way of conceptualizing can be called a *quantum psychophysical parallelism*. It is consciousness that maintains the parallelism of the inner psyche and the outer world, and it is consciousness that causally chooses the experiences of both the outer and the parallel inner thus mediating between them. In the process, consciousness projects representations of the “subtle” inner onto the “gross” outer to experience the subtle in gross manifestation. It is like drawing a sketch of a subtle mental picture on a gross canvas to see it better. The mental picture acts like a blueprint that you represent on canvas. (How does the outer-inner distinction arise? This is explained in chapter 10.)

This is the central secret of how the world operates. Manifest reality, the world of our inner and outer experiences, is run by one central intentionality: to allow quantum consciousness, God, to experience its subtlest aspects, the supramental archetypes (such as love) in gross manifestation. So far in its evolution, consciousness has been using blueprints—the vital and the mental—to make the manifest representations (software) of the supramental on the physical (hardware). The future of our evolution can now also be told: consciousness some day will additionally make direct representations of the archetypes onto the physical, and heaven will descend to the earth, so to speak.

If you are tuned to the religious and the spiritual, here you will hear the echo of the Biblical saying, “God makes us in His/Her own image.” At first, when you don’t understand it, the statement jars you. Can Adolf Hitler be God’s image? “Image” means representation. So far in our evolution, the representational process, image making, has been less than perfect. God has been using the blueprints of the vital and the mental. And the results have been rough and progress slow. But the prognosis for the future is glorious.

You can also understand something else. The reason that the material compartment has historically dominated our science is that the

material makes (quasi) permanent representations of the experiences of the subtle levels of the psyche. Once the representations (software) are made in the material (hardware), we tend to forget the maker (consciousness) and the representation-making process (of using the blueprints—mind and the vital body).

Basically, what then is emerging is a second kind of scientific evidence for God. This consists of recognizing the many domains or “mansions” in which God’s downward causation takes abode beyond the material mansion (as for example, feeling, thinking, and intuiting). Phenomena in these nonmaterial domains are all impossible problems for the materialist’s upward causation model. And hence they require the solution that’s impossible from a materialist’s point of view: downward causation from God. Naturally, the introduction of these ideas is revolutionizing biology, psychology, and medicine. (See Parts Two, Three, and Four.)

CAMOUFLAGE

It is our patterns of habit, the ego/character that is the locus of our psychosocial conditioning, that camouflage God and the oneness of quantum consciousness. Why is this camouflage necessary? The answer is important. Our egos are necessary to give us a reference point. Without the ego, who would we be?

Similarly, the material macro world of massive objects acts as a camouflage that hides their quantum nature. Like all waves, quantum possibility waves also spread. When an electron is released at rest in a room, its wave of possibility spreads so fast that in a few moments it fills the room (in possibility): it is possible to detect the electron in various places in the room with varying probability. But in quantum mathematics, massive objects expand very sluggishly as a wave of possibility. Yet expand they do, make no mistake about it. To see through the camouflage, you must not get sidetracked by trying to see any runaway movement of the micro components of a macro body, which are bound to the center of their mass. They do their quantum waving while standing in place. Really, in the time it takes you to blink your eyes, the center of a macro object’s mass is able to move by one million-trillionth of a centimeter or

so. This movement is imperceptible to our eyes, but physicists, with their wonderful laser instruments, have measured such quantum movements.

Why such a camouflage? Again, it is to give us reference points for our physical bodies. If you and I manifest some of the same stuff at basically the same places every time we look, we can talk about it with one another; we can build a consensus reality. This is important. Even more important, macro physical objects can be used to represent subtler quantum objects, such as thoughts, that do tend to run away when we are not observing them. It is a good thing, too. Imagine how you would feel if, as you were reading this page, the printed letters were running away before your eyes due to their quantum movements. Of course, there is a downside to this fixity—we develop the misconception that the world of macro objects is separate from us!

To discover that we are not separate from the universe, that the entire world is our playground, we have to penetrate both of these camouflages. We have to move beyond the ego-conditioning. We have to stop being so enamored of the macro physical outer environment and look at the subtle inner environment, where objects move about with their quantum freedom much more intact.

The sun rises in the East and sets in the West. Our ancestors understood this as the evidence that the sun moves around the earth. Today we see it differently, as the evidence that the earth moves around its own axis. This explanation allows for further expansion of our understanding—that the earth moves around the sun rather than the sun around the earth. Similarly, the macro physical world has certain fixities. You can understand this through Newtonian physics and conclude that there is a world out there. Or you can discern that, because the possibility waves of macro objects are sluggish to expand, it is creating the impression that there is a world out there. In other words, there is no such world until you look! This, too, will open enormous doorways for your understanding.

If you learn to think the quantum way, it expands your mind; maybe the movement of thought is also quantum movement. You may ask, is there a way to ascertain the quantum nature of thought without going beyond conditioning? Yes. When you follow the direction of your

thought, as when you free-associate during creative thinking, have you noticed how you lose the content of your thoughts? Similarly, if you focus on content, as when you meditate on a mantra, notice that you lose track of where your thought is going. In quantum physics, we call this an *uncertainty principle*, a sophisticated signature of quantum movement. If thoughts were Newtonian movement, this kind of restriction would never arise (Bohm, 1951).

I read a book, *Precision Nirvana*, in which the author, Deane H. Shapiro, illustrated what I am trying to say with two cartoons. In the first one, a good-looking girl, wide-eyed and bushy-tailed, is asking a bearded scientist type, "Professor, how do you know so much?" To this the professor replies, looking smug, "Because I open my eyes." In the second cartoon, a student is asking a Zen master serenely sitting in closed-eye meditation, "Master, how do you know so much?" To this the Zen master says, "Because I close my eyes."

Indeed, the materialist scientists cannot get over the wonders of the outer being forever bound by its camouflage. So blinded they are by the camouflage that they even try to apply their science of the outer world to denigrate the inner as epiphenomena. Didn't Abraham Maslow say that if you have a hammer in your hand, you see every problem as a nail?

And indeed, it is the effort to penetrate this camouflage that has given us the very mature spiritual traditions and their methods for reaching subtle states of consciousness beyond the ego. The camouflage of the separateness of macro objects dissolves from such subtle states of consciousness. But can one see the unity of the outer and the inner, body and mind, without the benefit of higher consciousness?

The paradigm shift of our science now taking place is revealed in depth psychology and transpersonal psychology and the branch of medicine that is called alternative medicine. The paradigm shift is also revealed in the work of organismic biologists who see causal autonomy in the entire biological organism, not merely in its microscopic components. Some evolutionary biologists even see the necessity of invoking "intelligent design" of life to break the shackle of Darwinian beliefs. The practitioners of these branches of science have penetrated the camou-

flage to some extent. With the help of quantum physics, the penetration of the camouflage is much more extensive, as you will see.

Quantum physics, the visionary window to the subtle, is itself very subtle; it has to be. The Nobel laureate physicist Richard Feynman used to say, “Nobody understands quantum mechanics.” But he was only talking of materialists. If you are willing to look beyond the remaining vestiges of materialist beliefs, or at least if you are ready to suspend your disbelief about the primacy of consciousness and God, you’ve already made more progress in understanding quantum physics than many physicists and scientists.

What the Dance Is

To summarize, the old science gave us upward causation and possibilities; the new science rediscovers the agency of choice from these possibilities: God and downward causation. Together they give us the manifest reality where freedom (of the possibility wave) seeks its home in temporary bondage (of the manifest particle).

Descartes, Galileo, and Newton get the credit for most of the old scientific ideas that began the era of what philosophers call *modernism*. One of Descartes’ ideas was inner (which he called mind) and outer (matter) dualism, and we are just now overturning it, although the debate over whether the monism is one based on matter or on consciousness (or God) will probably continue for a while. Descartes also gave us the philosophy of reductionism, and it has had enormous success in the material realm. But as Descartes himself recognized (unfortunately in the context of dualism), reductionism does not describe the workings of the inner realm. There one has to remember the movement of the whole. The outer fragmentation makes us individuals; the inner holism gives us feeling, meaning, goals, and purpose. Together the individual and the whole make up the partners for the dance of reality.

The legacy of Descartes, Galileo, and Newton is causal determinism, giving the scientist the hope of total knowledge and total control over reality. But it fails even for the material realm, in the submicroscopic domain where quantum indeterminacy reigns. Even so, the lure

of control and the power that comes with it is so enchanting that most scientists continue to believe in causal determinism. Downward causation, which is free and potentially unpredictable, is anathema to these scientists. God they don't mind as long as it is a benign God.

The breakdown of causal determinism is just a trickle in the realm of submicroscopic physics. This is because in the material domain, at least statistical determinism holds, God builds the material world in such a way as to give us a reference point. But the trickle of freedom becomes an avalanche when it comes to the affairs of the inner. It's important to note that creativity requires movement toward the new as well as the fixity of the old. The outer—soma—gives us the fixity and the inner—psyche—gives us new movement. Together they make the dance of reality creative.