QUANTUM THEOLOGY

DIARMUID O'MURCHU, M.S.C.
INFO @ EARTHSPIRITRISING.ORG
EARTHASTEACHER@AOL.COM

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Acknowledgments

This book feels more like a *process* than a *product.* It draws together the ideas and dreams of many people. In recording my gratitude, I do not differentiate between the living and the dead, because in a quantum world, these are merely two dimensions of the one-life experience.

Theologically, I belong to the Catholic tradition, often perceived to be restrictive and legalistic. For me, it has been a fermenting ground of many questions and few answers, abetted by inspiring people to whom I owe so much. Chief among these are Pierre Teilhard de Chardin, Ladislaus Boros, John Macquarrie, Karl Rahner, Mary Daly, Ursula King, Sallie McFague, Gustavo Gutiérrez, Leonardo Boff, Mary Grey, Katherine Zappone, and Thomas Berry.

Scientifically, I am very much a late developer, and I cherish deeply those colleagues and friends whose patience and tact opened up for me the wonders of science, reassuring me, time and again, that what I was talking (writing) about made a great deal of sense (and, occasionally, a good deal of nonsense!); in this context, Paul MacAlevey and Chris Elliot merit special mention. I have engaged with scientific exploration as much through books as through people; from a quantum perspective, ideas are rich in potential whatever their source. Whether through personal or written contact (sometimes, both), I wish to record my indebtedness to David Bohm, Stephen Hawking, Ilya Prigogine, Paul Davies, Danah Zohar, Kitty Ferguson, Peter Russell, James Lovelock, and Rupert Sheldrake.

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be understood in the narrow linguistic sense of a special set of words which state what reality is, or determine what it should become. This literary understanding and application of concepts is very much the subject of modern linguistic analysis, highlighting the relative nature, on the one hand, and the symbolic significance, on the other, of all spoken language and written text (see Alston, 1989, and the valuable feminist critique in Nye, 1990).

From within the Christian tradition itself is a rich, inclusive, global sense of *logos,* which dominates the opening verses of John's Gospel, and is specifically outlined in the Hebrew Scriptures, where *logos* is translated as *dabhar*, meaning wisdom as a creative, divine energy. The task of theology, therefore, could be understood as an exploration of that wisdom which awakens and sustains the creative impulse of life. Central to this inquiry is the ability to *listen,* to be open and receptive to the life-giving energy of the divine *logos*. According to Collins (1995, 226), "It is increasingly in the cathedral of the environment that our contemporaries are rediscovering a way into the realm of the transcendent; they are discovering the sacred presence that stands behind the natural world."

It may sound sophisticated and grandiose, but in fact humans have been exploring spiritual meaning from time immemorial. When we examine primitive (so-called) and prehistoric religious behavior, we find a wealth of custom, ritual, and ceremony, not bestowed by a formal religion, but invented by the human imagination as a means to discern, accommodate, and internalize the primitive fascination with mystery.

Long before we humans ever invented the formal study of theology, people *did* theology. They grappled intuitively and ritually, sometimes in awe, sometimes in fear, with the encircling mystery of life. Long before they thought of God as a divine being, they felt and celebrated a sacred presence which evoked in them feelings of amazement and trepidation, respect and intrigue, but above all a reassurance that, despite everything, the ultimate mystery of life is benign and benevolent.

Over the millennia — some seventy thousand years — we humans lived in a spiritual ambience.[1] We sought and discovered meaning in the events and experiences of daily life. We sensed the frightening, yet benevolent, power of the divine in the rhythms of nature, in the changing seasons, in the warmth of sunshine, the light of the moon, the destruction of storm and thunder. The entire universe was alive with potential meaning, perceived for over thirty thousand years as a Divine Mother of prodigious fertility and nurturance; fortunately there were no theologians around to accuse us of pantheism.

Then came the Agricultural Revolution (around 8000 B.C.E.) and with it the insatiable desire to control the precarious elements of life, including the religious ones. We began to take over the planet and claim it as our own, dividing it into segments, later known as continents and nations. We began to master and control the environment, and we didn't know when or where to stop. We even invented warfare so that we could conquer and control every alien force.[2]

Prior to this time, quite a different worldview prevailed. Despite occasional tendencies toward cannibalism and other macabre practices, Planet Earth was revered as the Great Mother Goddess, birthing forth a prolific variety of life, the sacredness of which dominated all other concerns. Prehistoric cosmology sometimes engenders a sense of fear and trepidation, as people confront the vast unknown, but far more prevalent is the feeling of being at home in Planet Earth, nurtured and sustained by its egalitarian and prodigious creativity. Consequently, rivalries between nations, races, and religions were largely unknown and warfare, as a dominant mode of declaring superiority, is very much an invention of the postagricultural era.

The craving to dominate took on diabolical proportions. Tribal and ethnic groups vied for ultimate supremacy, as Planet Earth was carved into sections and nations. Finally, we humans tried to conquer and control the Godhead itself, that divine, mysterious force, that fascinates, puzzles, and frightens us. And how did we decide to do it? *By inventing religion!*

Religion is one of the great anomalies of our evolution as a human species. It is the instrument with which we tried to gain supremacy over the Godhead itself, by anthropocentrizing the divine power and molding it into a system of duties and expectations of *our* making. In the name of religion we have invented a litany of gods, many made in our own image and likeness, and not a few serving as projections of our own distorted will-to-power. Religion is the greatest idolatry of all time, and in many ways, the most dangerous also.

The major religions known to us today came into being in a time span of about forty-five hundred years (3000 B.C.E.–1500 C.E.). Formal religion is a very recent visitor to Planet Earth. It has been around for about 5 percent of humanity's spiritual journey, which began to unfold about seventy thousand years ago.

That religion should have arisen as part of the ethos of the Agricultural Revolution is understandable. One could even argue that it was appropriate and necessary for that phase of our evolution as

a human species. What we cannot escape is that we as a species have outlived that phase of our evolutionary development and so, quite appropriately (it seems to me), thousands of people are leaving religion aside, no longer feeling the need for it. One of the most precarious dilemmas of our time, however, is the vacuum created by the demise of formal religion.

Theology and Spirituality

Most of us have grown up with a religious legacy. Even those who have never partaken of a formal practice of their faith carry within them cultural norms and expectations. Our surrounding culture is heavily tinged with religious symbol, feeling, and expectation. I don't wish to deny that religion has brought benefits to our lives and to our planet. My concern is that it is, and for some centuries has been, overshadowing a more fundamental human aspiration, namely, *spirituality.*

The word "spirituality" has several meanings. I use it with a very basic connotation: *the human search for meaning.*[3] All of us, all of the time, operate out of a sense of being connected to an inner core of meaning. Thompson (1990, 196) even suggests that the autonomic nervous system communicates and transmits information in order to enhance meaning. A DNA helix can validly be spoken of as carrying meaning because it bears information which is transmitted, received, and interpreted in terms of protein structures used to build the body and enhance the quality of life.

Throughout life, we humans are exploring meaning, searching for it, and imposing it where we feel it doesn't exist. We cannot do otherwise; it's our very essence as human beings. We're creatures of meaning and the drive toward meaning comes from deep within — not just within ourselves, but also, I dare to suggest, from deep within creation itself. In this context, therefore, spirituality is *planetary* (and cosmic) as well as *personal* — which may be another rendition of the feminist claim that the personal is political.

From the beginning of our evolution as a species, we have been exploring and expressing our spirituality — with both its light and shadow. Not everything in our spiritual unfolding is necessarily good — but *always* activated for a perceived good. The spiritual search, the pursuit of meaning, has several mediations and expressions. We worship several gods, many of which are false, including some of the most cherished in our formal religions.

Our spiritual identity is inescapable; without it we simply wouldn't exist. How we enculturate and express it is a separate question, which I have explored in another book (O'Murchu, 1986). Religion is one aspect of our spiritual unfolding, but only one. Our spiritual evolution as a species took place for an estimated seventy thousand years without formal religion, and there are many indications that we are, once more, evolving spiritually into a nonreligious ambience. As a human species we are outgrowing our need for formal religion.

It seems important that we differentiate between *spirituality* and *religion.* Spirituality is inherent to the human condition — also to planetary and cosmic growth; in my estimation, religion is not. Spirituality has an enduring quality, coterminous with human evolution; religion serves a transitory and temporary purpose.

Theology, therefore, has a great deal more in common with spirituality than with religion. Theology belongs to the primal and primordial aspirations that underpin the search for meaning, predating religion by thousands of years. When our ancient ancestors grappled with the mystery of life, even at the "primitive" stage of prearticulate speech, they were already doing theology. They were connecting with the divine energy; they were opening their hearts and minds to divine wisdom.

By adopting theology as a religious phenomenon, and using it — as happened for much of the Christian era — as a tool to suppress and oppress others (pagans, infidels, heretics, among a range of other *labels*), we humans were debasing one of the oldest and most sacred of the sciences. Since it is also one of the most creative and subversive fields of exploration, it is understandable, if regrettable, that we sought to curtail its influence.

Contemporary Theology

Formally, theology still belongs to official religion, and in its general usage it is almost exclusively a Christian concept. Informally and unofficially, it is a powerful ferment for thought, reflection, dialogue, and provocation. It is emerging as one of the most multidisciplinary of all the sciences and in recent years has assumed new political, global, and cultural significance (see Lash, 1986; Hopper, 1987; Liechty, 1990; Krieger, 1991). The new theological agenda is multifaceted, as can be gleaned from four recent developments which I outline briefly.

personal context. Each religion is understood to be a cultural, historical attempt at contextualizing the one divine plan of revelation and salvation. This is not to say that all religions are equal, or that one religion is as good as another. Rather, it declares that each religion is right for its time, that each offers a partial and limited view of reality, yet each can genuinely lead us to God and communicate God's design for ourselves and for the world.

As a new theological paradigm, the multifaith dialogue is only beginning to create an impact, and it seems that it will be quite some time before the religions will feel free and safe to participate as equal partners in the dialogue. Meanwhile, the dialogue raises even more acute concerns beyond the formal agenda of multifaith research:

a. The perception that all religions, even the so-called revealed ones (Christianity, Judaism, and Islam), are human attempts to construe and contextualize God's revelation to humanity.

b. The fact that each religion — and religion in general — perpetuates forms of idolatry which have caused, and continue to cause, immense pain and suffering in our world.

c. The possibility that the religions, understood in evolutionary terms, properly belong to the Age of Patriarchy (c. 8000 B.C.E.–2000 C.E.), and may have diminished importance for humanity as we move into a new evolutionary epoch.

d. The fact that although in the past religion was the chief means through which people explored and articulated their spiritual desires and their search for meaning in life, today increasing numbers of people are discovering their spiritual identity in contexts other than those of formal churches or religions.

As a new paradigm the theology of interreligious dialogue relativizes the very foundations that theology has always taken for granted, namely, religion and religious belief. As that basis is progressively eroded — which does not necessarily mean a world engulfed in atheism and agnosticism — theology will begin to outgrow its narrow religious niche in preference for the open arena of the world. Some people would consider this to be the end of theology, and, indeed, multifaith dialogue is only one of a number of recent developments that pushes theological exploration toward renewed and enlarged horizons.

Conclusion

These theological trends, and a host of others that could be named,[6] invite us to engage in a new theological discourse. The *spiritual landscape,* rather than the *religious tradition,* has become the arena for theological exploration. And the theological excursion may no longer begin with God and work downward; rather, it will originate in the human experience of searching and seeking and move outward to embrace ever wider horizons of life and reality. Like the universe itself, our theological parameters are expanding, not contracting. The *context* in which we do theology is becoming as important as the science of theology itself (see Bevans, 1992).

To this day the Christian church claims a monopoly over theological discourse and conscientiously believes that it has a duty to safeguard the purity and integrity of doctrine. Meanwhile, theological exploration — by which I understand the human attempt to grapple with divine-human co-creativity in the world — is outstripping not merely its ecclesiastical context, but even its religious one. The emerging theological agenda is based on questions from the *world* to the *world;* the earthly and cosmic dimensions can no longer be ignored or relegated to a secondary role. If the churches and religions wish to be involved they seem to have little choice other than dialogue with the world of our time.

Instead of feeling threatened and responding in a negative and defensive fashion, surely the churches and the religions can find here a moment of liberating grace to allow and enable the world to take future responsibility for that treasure which the churches and the religions have reserved to themselves for so long. Are our churches and religious institutions broad-minded and big-hearted enough to cut the proverbial apron-strings and entrust the theological heritage to a new parent or, perhaps more appropriately, to its own emerging maturity?

This book sets out to explore another theological horizon: the mystery and meaning inherent in the quantum theory. This is not an attempt to make science sacred, godly, or holy; rather, it is an exploration of the divine co-creativity emanating from one of the most ingenious scientific discoveries of the twentieth century. Nor is it a new way of exploring the dialogue between science and religion (outlined in comprehensive review by Rolston, 1987, and Barbour, 1990). No, it is a great deal more, embarking upon a creative threshold that will push both the scientific imagination and the religious fascination to new frontiers unknown to previous generations.

situated elsewhere, my perception — in minute details — would be considerably different. In other words, *innately* I perceive in wholes, not in parts; my brain is tuned to perceive wholistically.

Wholistic Consciousness

The work of Karl Pribram (1971) in the 1960s and 1970s confirms these discoveries in his holographic model of the human brain. The brain, functioning as a hologram (described below on pp. 55–56), interprets bioelectric frequencies, not at individual centers, but throughout the brain. Information is not localized but spread throughout in wave-like, frequency patterns along a network of fine fibers on the nerve cells. Only such a model could interpret and understand our holographic, wholistic universe.

Danah Zohar (1990, 1993), acknowledging the holographic model of mind and consciousness, seeks to push the quantum vision even further. She proposes a quantum, mechanical model of consciousness to explain how the brain and its neurons can act in a coherent, unified way. The necessary physical mechanism, which functions at normal body temperature, seems to be similar to the "pumped system" of electrically charged molecules (dipoles) first described by Herbert Frohlich (1968). When energy is pumped into electrically charged molecules, a threshold of excitation is reached beyond which the molecules begin to vibrate in unison. They do so increasingly until they pull themselves into a highly ordered form known as a "Bose-Einstein condensate." When all membranes vibrate sufficiently to pull themselves into the most coherently possible form of order, we have a Bose-Einstein condensate, with the aid of which we can distinguish conscious from nonconscious systems: In Zohar's own words:

> Evidence for coherent states (Bose-Einstein condensates) in biological tissue is now abundant, and the interpretation of its meaning lies at the cutting edge of exciting breakthroughs in our understanding of what distinguishes life from non-life. *I think that the same Bose-Einstein condensate among neurone constituents is what distinguishes the conscious from the non-conscious. I think it is the physical basis of consciousness.* (Zohar, 1990, 67–68).

Zohar works on the assumption that consciousness is a property of all living systems and, in a quantum context, becomes the basis

not merely for awareness, but more importantly for *relationships*, an innate potential for mutual cooperation between all beings and systems within the one quantum universe. In this model, the dualistic dichotomy between observer and that being observed itself breaks down; the collapse of the wave function leads only to reductionistic confusion. Instead, it is suggested that observation gives way to relationship, a complex mode of interacting, fluctuating between giving and receiving, until a sense of *resonance* (see Taylor, 1991; Metzner, 1987) emerges, whereby the individual parts (giver and receiver, observer and observed) lose their dualistic, independent identities, but rediscover a sense of the "quantum self" in the interdependent relationship of the new whole, which might be anything from the marriage of two people to a newly felt bond with the universe itself.

Living systems are by their very nature neither subjects alone nor objects isolated, but both subjects and objects in a mutually communicating (and defining) universe of meaning. At a deep level, each living being is implicated in every other. Each suffering, each extinction, affects us and impoverishes us. Similarly, we partake of the joy and creativity of each individual organism. The capacity of organisms to evolve thus depends on their capacity for communication. This deeper truth has been ignored by neo-Darwinian theory, which sees evolution only in terms of competition of the fittest in the battle for survival. Ultimately, it is not the individual species which evolves as much as all living systems connected interdependently within a coherent whole.

Contemporary advocates of the quantum theory, while acknowledging the historical significance of the Copenhagen interpretation (which, among other things, claims that the observer influences — to the point of determining — the outcome of any experiment or observation), no longer adhere to its anthropomorphic impact. We humans do not and cannot determine the final outcome, except by a quality of interference and control that is often deleterious rather than beneficial to progress and growth.

We humans are not the masters of creation; we are participators in a co-creative process that is much greater than us and probably quite capable of getting along without us (as happened for almost fifteen billion years before our species evolved). If we are to influence global and planetary life, we'll do it in cooperative interaction rather than in competitive strife. Our interrelationship with life — at both the micro and macro levels — is a learning process of mutual interdependence, and not that of exploitation, combat, and warfare, a lethal process which is almost certain to destroy us in the end.

We can now return to some of the key concepts of the quantum theory and explore their meaning in the light of our new vision.

Cause and Effect

In a quantum universe, all life is understood to operate within the context of relational interaction. Everything is affected (rather than caused) by everything else. The poet Francis Thompson seems to have imbibed this view when he wrote: "Thou can'st not stir a flower without disturbing a star." At the observational level, my action of turning on the TV may be described as cause and effect. The quantum vision invites (and challenges) me to the realization that such an "effect" is only possible in an electromagnetic universe; my ability to move my hand in order to push the switch is also affected by the universal law of gravity. There is a great deal more to switching on the TV than mere cause and effect. In fact, cause and effect has to do with the "part" which can be fully understood only within the wider, global "whole."

Determinism

In a quantum universe, nothing is predictable, and the idea of life being in any way determined is abhorrent. Quantum theorists very much like the word "probability" (for which Heisenberg's uncertainty principle[9] is a basic tenet). Surprise, expectancy, wonder, creativity, beauty, and elegance are the kind of words that enable the quantum scientist to make sense of reality.

There is a shadow side to this description which goes something like this: if the universe is not determined by an external agent (e.g., God, as both Newton and Einstein believed), then we can begin determining and controlling it for our own self-aggrandizement. Let me emphasize: this is *not* quantum theory in its purity (if there is such a quality of theory); this is an aberration of what the original theorists conceived. Throughout the 1940s and 1950s it became the dominant orientation of the scientific and medical communities, and it still prevails, although its prevalence is beginning to wane in the face of recent scientific awareness and the challenge of a growing wholistic consciousness.

In abandoning determinism, the proponents of the quantum theory were, inadvertently, advocating a quality of mystical receptivity: be open to the unfolding (evolving) nature of life at all levels. Life is not determined by blind external forces; it is affected, for weal or for

woe, by the quality of our respect for its inherent processes and our willingness to interact with (relate to) all life forms in a gentle, non-exploitive, cooperative manner. Modern ecology, with its acute sense of planetary homeostasis, is deeply in tune with the original dream of the quantum physicists.

The Whole Equals the Sum of the Parts

Although quantum theory is widely accepted in scientific circles, there are very few scientists who understand it fully or who claim to be able to explain it in a simple and succinct way. I would submit that quantum theory is complex, but not necessarily complicated. The human body — a prime example of quantum theory at work — is highly complex, yet exhibits an amazing sense of order, rhythm, and purpose.

What makes the human body special is the complex interaction of so many forces and energies that we do not (and cannot) observe in everyday life. There is no scientific, sociological, or psychological means of measuring the intimacy and exhilaration of courtship, the eroticism of sexual embrace, the ecstasy of contemplative prayer, the gripping excitement of sport or achievement, the placid serenity of a beautiful sunset, or, alternatively, the rending terror of pain and suffering or the mental and physical exhaustion of agony and torture. In all these situations, and in many others, what is happening in the *whole* person can be neither analyzed nor understood in terms of some or all the *parts* of the human personality.

For the quantum theorists, the fact that the whole is greater than the sum of the parts underpins all reality. For everything in life, there is more to it than meets the eye. The real essence, and the real meaning, is deep within, which in effect often means both inside and outside the object we are observing.

Like many discoveries in the early years of the twentieth century, it took some thirty to forty years before the new quantum awareness seeped through the sturdy barricades of rationalism and conservatism. Eventually the barricades began to crack and crumble. It all hit us in the 1960s as "bundles of energy" seemed to be cascading from all quarters. Among the leading discoveries was that of the quark assemblage, generating a precocious sense of excitement that the long-sought fundamental "building blocks" might at last be nailed. But nature was speaking a different language, and its quantum significance we'll review in a later chapter.

In modern physics, the image of the universe as a machine has

struments such as the drum (see Swimme and Berry, 1992, 44), rasp, rattle, and harp were used. In prehistoric times, music was considered to have magical qualities, facilitating communication with the gods, and capable of driving away evil forces. Music was used to induce altered states of consciousness in an attempt to realize in oneself and awaken in others (and in nature) the God-consciousness which pervades all life. According to some theorists (e.g., Hayes, 1994), music is based on notational structures which reflect the fundamental design of nature itself (e.g., the predominance of combinations of *three*, further explored in chapter 7).

Our ancient ancestors seem to have had an intuitive appreciation of music as a primordial, archetypal form of sound. And that sound was a creative energy — a vibration resonating through the instrumentation of created forms. Thus, the original power of creation is described in many religions as the power of sound, which in Judaism and Christianity we refer to as the "Word." As already indicated, the Aramaic *dabhar* does not mean "word" as understood linguistically, but rather an irresistible creative energy exploding into voluptuous and prodigious creativity (see Fox, 1984, 35–40).

Music, song, incantation, droning all embody this primordial, creative potential which animates the created order. It is not by accident, therefore, that contemporary physicists are rediscovering the musical undercurrent to our creative universe. Echoes can be detected in the fascination and controversy engendered by *superstring theory*, which postulates that the fundamental energy that enlivens everything in the universe may be compared to the vibrating energy that occurs when we move the bow over a musical string, the music being the "voiced" language of the silent energy. Swimme and Berry (1992) make liberal use of the music metaphor and in a rather inspirational passage (p. 40) describe humanity's role as a sounding board for a universe that is essentially melodious in nature.

For science and theology alike, I believe we are touching here on a truth of great depth and originality. The medium of scientific research can no longer be constrained by classical categories nor by traditional methods of observation and measurement. We can conceive of a universe in which the spheres themselves are dancing, and from the musical vibrations we are beginning to glimpse a whole new sense of what the universal life is about. In the poetic words of Davidson (1989, 402), we are invited to dance "according to some higher strings."

The energy that animates and enlivens all life may well be supersonically melodious, and the life force itself may be something more

akin to an orchestra than to any spiral of subatomic particles. These considerations enable us to formulate our first principle of quantum theology:

> *There is more to our world than what can be perceived by the human senses or envisaged by the human imagination. Life is sustained by a creative energy, fundamentally benign in nature, with a tendency to manifest and express itself in movement, rhythm, and pattern. Creation is sustained by a superhuman, pulsating restlessness, a type of resonance vibrating throughout time and eternity.*

The God Question

Theologians in general are not likely to quibble with these ideas, but those of more orthodox leaning will question our starting point, which is not God, but rather our experience of the world as perceived with the quantum imagination. Even in the specific terms of quantum mechanics, the universe is fundamentally mysterious. We can break down its constituent parts and reassemble them. No problem there! When we try to understand how the parts interact and function for the sake of the whole, then the mystery begins to unfold, and we confront questions of ultimate meaning that concern theological discourse. At the heart of that mystery is the sense of a superhuman, creative restlessness.

The reader will notice that I refrain from using the word "God." I do so for a number of reasons:

a. Traditionally, theology began with God and the divine revelation as disclosed through the "deposit of faith" as contained in sacred writings (the Bible) and their interpretation by lawful (church) authorities. In that context, only those who believed in God (as described by formal religion) could be theologians. Quantum theology seeks to dismantle this exclusivity and open up the theological exploration to everybody, to all who are prepared to engage with their lived experience of the universe as a quantum reality.[11]

b. In traditional theology, there tends to be an emphasis on the God who creates from nothing (*ex nihilo*), and is therefore superior and external to the created order. Even in an incarnational religion like Christianity — with the focus on the God who becomes human in the midst of creation — the God "up above" often takes priority over the God who is immanent in the world of our experience.

In quantum theology, the creative potential emerges (evolves) from *within* the cosmos. "God" co-creates in conjunction with the evolutionary process. Questions of the "beginning" or "end" of creation are considered to be anthropomorphic speculations (i.e., human constructs) that distract from the immediacy and challenge of how we *experience* our world as participants in its emerging evolution.

c. Traditional theology is characterized by a strong fear of pantheism, the notion that God becomes so identified with the created order that (s)he has no identity apart from it. Scholars like the late J. A. T. Robinson adopted the notion of "panentheism" — God is present in all aspects of creation but not confined to it — to offset that fear. Quantum theology wishes to transcend the dualistic (either/or) undercurrents that lead in the first place to the perception that God must be either inside or outside the created order. As we shall see in later chapters, quantum theology seeks to demolish all dualisms, on the conviction that life is fundamentally one, that there is no inside or outside, that the divine energy operates as an open-ended, creative vibration, full of surprises, probabilities, unpredictabilities. Pantheism may be of concern to us humans, but it is unlikely to be of any consequence to the creative life force which impregnates and enlivens our world with prodigious resourcefulness.

d. For quantum theology, idolatry and blasphemy are among the great sins of traditional theology. By attempting to state clearly, logically, rationally, and philosophically the attributes and nature of God, traditional theology begets an *ideology* (blind, irrational, and irrevocable convictions) rather than a *theology*, of God. It has generated images of God largely made in the image and likeness of man(kind). It has stripped God of the splendor, elegance, and intimacy of the divine co-creativity.

Quantum theology seeks to recapture the mystery of God without in any way diminishing the incarnational aspect (cherished by Christianity). In conjunction with Buddhism, it refrains from confining the divine power to religious categories. It opts for more dynamic namings like the creative energy, the ultimate life force, the source of being, rather than the word "God," which is perceived to be loaded with idolatrous and ideological connotations. In conjunction with Islam, it seeks to uphold a sense of reverence, awe, and respect for the divinity, and with the great Eastern religions advocates deep silence as a primary mode of connecting with the divine wellspring of pure possibility.

Quantum theology abhors the human tendency to attribute literal significance to the sacred writings of the various religions. It

acknowledges that the sacred texts of all the religions may be divinely inspired, but that inspiration has been, and continues to be, mediated through the human mind and imagination and is committed to human language which is always conditioned by the particular influences and nuances of specific cultures. Language is a human invention, a symbolic system which seeks to convey meaning in local cultural settings. It can never be absolutized to communicate the depth or totality of the divine intent.

e. Finally, quantum theology radically challenges the cosmology (worldview) of traditional theology. Although mainstream theology has changed many of its views on the world — quite profoundly in some cases — it has not made the quantum leap of acknowledging the evolving world as the arena for the drama of divine revelation; this marks the starting point for quantum theology.

Although the quantum theory highlights the illusive and transitory nature of the observable world, its primary concern is the pervading and permanent sense of reality that both underwrites and transcends that transitoriness. In the quantum view, the reality of our world does not need an external supernatural raison d'être or explanation to uncover what is really real. No, the ultimate rationale is within the creative, evolving process itself. Our world is not devoid of, nor lacking in, reality; its potential is vast, largely unmanifest in the creative dance of energy that will unfold — perhaps forever — certainly for billions of years into the open, unlimited future.

The dance and its vibrating music are key metaphors for this new theological vision. They help to uncover that sense of dynamism and movement which characterizes the divine unfolding within the evolutionary process. There are other dimensions to this dynamic for which the metaphor of the *holon* is frequently used. We'll explore its meaning in the next chapter.

of matter, influenced as it is by consciousness, is a recapitulation of all past creation and carries an inherent propensity to become something more than it is at any present moment. For this continuous, creative movement, Bohm coined the term "holomovement."

Everything in the cosmos is made out of the seamless, holographic fabric of the implicate order. An electron is not just an elementary particle; it is a name given to a certain aspect of the holomovement, one of the several dancers in the great cosmic sequence of movement and pattern. Despite the apparent separateness of things at the explicate level, everything is a seamless extension of everything else, and ultimately the implicate and explicate orders blend into each other. These considerations lead us to a second important tenet of quantum theology:

Wholeness, which is largely unmanifest and dynamic (not stable) in nature, is the wellspring of all possibility. In seeking to understand life, we begin with the whole, which is always greater than the sum of the parts; paradoxically, the whole is contained in each part, and yet no whole is complete in itself.

The World as Subject

Traditional Christian theology, along with Judaism and Islam in particular, tends to focus on the parts rather than on the whole. Consequently, mainstream theology portrays quite an ambivalent attitude toward the *world*. All the major religions view the world as an object to be studied, analyzed, and dissected, not as a subject to be related to with love, respect, and admiration.

When we look on the world as object, we then tend to adopt toward it a confrontational, clinical attitude. We set ourselves up as the masters of nature and the conquerors of alien forces. Finally, we develop a notion of God as the supreme (masculine) controller — loving the world, yes, but from a safe distance. We retain the divisive, dualistic mode that begets fragmentation and destruction rather than growth and development.

Haught (in Birch et al., 1990, 171) reminds us that the perception of the universe as subject marks a return to a very ancient wisdom underpinning evolution itself. Our tendency to perceive and treat the cosmos as an object to be conquered and controlled has alienated us humans, not merely from the cosmos (especially from the earth), but from our very selves as relational creatures. Because everything in

our universe is interdependent, evolutionary growth is fostered not by the competitive ability of the various life forms to outwit each other (as in the Darwinian-type survival of the fittest), but by the cooperative and concerted interaction, characterized by mutual respect and a communal commitment to the advancement of all. For us humans, to let go of our adversarial and arrogant stance, over against the universe and the earth, and learn instead to befriend universal life, as *subject* in relation to *subject,* is the unique and most urgent challenge of our time.

When we begin with the whole, of which we ourselves and everything around us is a particular aspect or manifestation, we are invited to engage with some fresh insights:

a. Our universe is so vastly complex and mysterious that no one species (no matter how enlightened) and no one religious system (no matter how sophisticated) could comprehend and understand its totality.

b. The creative energy which makes all things possible and keeps all things in being is *within* and not outside the cosmos. The notion of an external creator is a construct of the human mind, a projection initially adopted to assuage our fears of threat and possible annihilation. Creation is sustained from within, not from without.

c. The cosmos survives and grows amid continuous flow and change, in an evolutionary unfolding of great age, complexity, and destiny (developed at length in Part Three). In itself, the evolutionary process is the greatest "proof" of a divine creative energy at work in our world, a conviction that is beautifully illustrated by Swimme and Berry (1992) in their rendition of the universe's story.

d. As a human species, we grossly exaggerate our role within the evolutionary process. The monotheistic religions in particular — Judaism, Christianity, and Islam — consider ours to be the final and ultimate species to inhabit, not just the earth, but the entire universe. This is anthropomorphism of a dangerous and delusory type, leading not merely to a grossly inflated self-image, but also to a caricature of *our* God as the one and only true one.

e. And from our exaggerated anthropomorphism comes another misguided notion of our time, namely, "specieism," the tendency to set humans over against and superior to all other

subject with whom we *relate*, a living organism within which we live, and move, and have our being, and without which we have neither meaning nor purpose in our daily lives.

Our universe is a sphere of belonging. Planet Earth is home to the human species and to all other life forms too (see especially, McFague, 1993, 103–29). It is our sense of "cosmic homelessness" (Haught in Birch et al., 1990) that alienates us, not just from life around us but also from our true inner selves. We are largely out of tune with the creative energies that form and mold us, that sustain and engender our growth, that nurture and enliven our inner being. We are not the masters and controllers of our own destiny; we are not the ultimate species. We belong to something bigger and greater than ourselves which is forever unfolding and evolving, and within that dynamic, creative process we rediscover, again and again, the meaning and purpose of what life is about.

Whither Revelation?

Our considerations of field theory and the sense of our universe as a realm of belonging invite us to address the major theological issue of *revelation.* This is a distinctly Christian notion and a central focus in the dialogue taking place between the major religions (see Hick and Knitter, 1988; Tracy, 1990). Although specifically a Christian concept, all the religions express a sense of divine disclosure. God has "spoken" through specific persons, writings, or experiences, and each religion considers its version to be superior to any other. The Christian church goes further, claiming that what it has inherited from the divine disclosure (contained in the Bible) is *unique* and embodies the *fulness* of revealed truth, not merely for Christians but for people of all creeds. Therefore, from a Christian viewpoint, the revealed truth of other religions is *valid* but not *complete;* only the Christian version is complete.

Not all Christian theologians would be as dogmatic as that; increasingly they appreciate that this understanding of revelation is constricted (and constricting). It arises from an isolated, adversarial view of Christianity and religion in general. It fails to acknowledge the spiritual evolution of the human species over thousands of years before formal religion ever came into being.

In prehistoric times, people acknowledged and responded to the divine disclosure from an innate, primordial sense of the sacred. The divine "spark" within sensed a divine energy without. This led to a

wide range of prereligious rituals ranging from animism (based on the notion that everything has a soul), to nature worship, totemism, magic, etc. No longer do we consider these to be infantile, prelogical, primitive, pagan rites; they were appropriate for our ancestors at their stages of evolutionary development. More significantly, they embody primal and primordial aspirations that are fundamental to our human condition and have been largely subverted by modern, formalized religion.

The primitive urge to connect spiritually is innate to our human nature and, from a quantum viewpoint, it is also considered to be an intrinsic feature of universal life, manifested in the attraction and repulsion of subatomic particles. There is in all things a "within" forever yearning to connect with a "without" which in fact, is itself a larger "within," already described as a realm of belonging. According to Rahner (1969, 16), human beings are essentially and always listeners for a possible revelation from God, because innately we are disposed to fuller life and truth.

Our consciousness does not need to be informed by formal religious awareness in order to be disposed and receptive to the divine disclosure. Our very nature as human beings is to be open and porous to deeper meaning. And the spiritual story of humankind, unfolding over the millennia, suggests that the divine life force (God) reveals itself with a prodigious generosity of presence, power, and cultural expression.

That we can be blind to the divine disclosure, that we can block or hinder its impact on our lives, that we can resist the challenge to change and become whole (conversion), is a painful truth that millions vehemently deny today. To a degree, the religions themselves are culpable for this recalcitrant attitude. Not infrequently, the very system that was intended to mediate divine life and create a climate of openness and receptivity, has been the one that has alienated seeking souls from the wellsprings of hope and truth.

Religious dogma often assumes ideological significance because it fails to acknowledge the initial, experiential context. This applies particularly to the manner in which revelation is portrayed in the various religions. The emergence of formal religion, about five thousand years ago, undoubtedly marks a new stage in human and planetary evolution. But there is a shadow side to this, as there is to every major cultural development. As already stated, formal religion emerged from within the culture and context of the Agricultural Revolution and assumed many of the positive and negative qualities of that development.

Today we focus a great deal on the pros and cons of the Industrial Revolution, to such a degree that we tend to underestimate the enormous impact of the Agricultural Revolution. Culturally, it was a supreme moment of breakthrough, but also one of long-term negative and destructive repercussions. For the first time in history, we humans carved up and fragmented our world, imposing divisions and categories that in time became the basis for separate tribes, cultures, nations, and religions. The dominant patriarchal orientation was to divide and conquer, and hence the introduction of the deadliest divisive force of all: warfare. The idea of *man* being master of creation emerged at this time and became ingrained in the formal religious creeds of subsequent centuries.

The fact that each religion sought individual autonomy and integrity, setting itself in opposition to all others, *with its own unique body of revealed truth,* confirms the "divide and conquer" mentality of the Agricultural Revolution. Today we are rediscovering our sense of *one* world, an essential unity, that we choose to divide and fragment at a terrible price. This creates a new agenda for politics, economics, education, and also for our understanding of religion as a global, cultural reality. It is not the uniqueness of each part that matters anymore, but the uniqueness of the whole, which is fluid and open-ended, an unfolding matrix of possibilities, unlocking the mysterious divine potential as it impregnates creation with hope and meaning.

Consequently, we are invited to move toward a new revelatory horizon. It is new in terms of recent theological reflection, but very old in terms of our human, spiritual unfolding. It suggests that the creation itself is the *primary* revelation (Collins, 1995, 11–12, 219, 224; La Chance, 1991, 79; Swimme and Berry, 1992, 243, 255), of which the various disclosures of the major religions are particular expressions offered in the specific context of a certain historical and cultural milieu.

Two important considerations emerge here:

a. The creative process itself — with its beauty and elegance, but also with its pain and destructibility — is our primary, tangible source for experiencing the divine energy. In this way we have had access to the "divine power" for possibly a hundred thousand years, whereas the formal religions, with their official perceptions and interpretations of divine disclosure, are no more than five thousand years old. To reclaim the sacred nature of the cosmos — and of Planet Earth in particular — is one of the outstanding spiritual challenges of our time. It has also within it the potential for a whole new sense of what theology is about.

b. If revelation is mediated primarily through the creative processes of our universe, then our primary call is to be listeners at the heart of our world (and not just in the context of the church). Our human responsibility as one voice among so many throughout the universe is to develop our capacities to listen as incessantly as the hovering hydrogen atoms, as profoundly as our primal ancestors and their faithful descendants in today's indigenous peoples. In the words of Swimme and Berry (1992, 44), the adventure of the universe depends upon our capacity to listen (see also Grey, 1993, 89–92).

There is nothing particularly revolutionary or heretical about these ideas, because it is exactly what we humans had been doing for thousands of years before formal religions emerged in the wake of the Agricultural Revolution. The role of the church, therefore, is to keep us focused on the world and on the divine unfolding forever emerging therefrom. This is essentially what Jesus was suggesting when he spoke of the New Reign of God (the Kingdom), for which there are over 140 references in the Gospels, with only three allusions to the church (more on this topic on p. 115 below). Contrary to the dominant asceticism of the past few thousand years, Christianity is a world-loving religion, and not one based on dismissing, fleeing, or distancing itself from the world. A church which claims to be opposed to the world is fundamentally alienating itself from God's prodigious creativity at the heart of creation. Little wonder that many people today are abandoning the church.

When we suggest that the world is the arena of divine disclosure, we need to outgrow our dualistic tendency to attribute all goodness to God and all evil to Satan (whom we perceive to be the opposite of all that God stands for). In a quantum universe, dualisms of this nature make no sense. Very negative and destructive experiences may also be deeply enlightening, particularly as we humans co-create (or fail to do so) in conjunction with the creative divine energy. Fresh questions also arise on how we understand the divine energy and whether or not we can develop a sufficiently inclusive orientation whereby we include (rather than split off) our negative perceptions and projections.

Along with the creation-centered focus for the divine disclosure, there is always a historical context that can be liberating or re-

strictive, perhaps both at different times. According to Boff (1987, 62), revelation is historical and uses the sociohistorical context to communicate its call and challenge. Its forms are influenced by the particulars of a place and time. It is important then always to discern the transient historical expression from God's permanent communication. History and revelation are always intermingled, but the revelatory call will always embrace larger vision than that embodied in any one historical or cultural context.

It is this expanded understanding of God's disclosure that engages the quantum theologian. It evokes a whole new way of doing theology and grounds the theological enterprise in the heart of creation itself.

For quantum theology, therefore, *the expanding horizon of divine belonging is the context in which revelation takes place; all creatures are invited to respond, to engage in the co-creative task of being and becoming. All life forms have unique roles in this process, the primary focus of which is creation itself rather than formal religion.*

So where does this leave formal religion? In responding to this question, it may be helpful to return to the field theory. On a universal scale, there is the field experience of spiritual emergence in which the whole of life, animate and inanimate, participates. How the animate and inanimate forms experience this probably constitutes separate but overlapping fields. Within the field of human spirituality, we may consider the various religions to be subfields with a particular cultural realm of influence. For example, Hinduism clearly explores and articulates the Indian subculture (without being necessarily confined to India) in a manner that Christianity cannot do. In this context, the religions have a cultural relevance and may retain their relevance, but it will have to be *within* the horizon of belonging that we call *spirituality*. If the religions can accept and integrate this new challenge, then their self-understanding, along with their cultural and historical relevance, is likely to change significantly. Without that change, religion will fail to have any significant meaning in our quantum universe.

Undoubtedly, some religions will fade into oblivion. That is also appropriate. In a quantum universe, birth-death-rebirth is an unceasing process. And with the death of a religion comes the end of a particular God-concept, which by that stage has probably become an idolatrous burden and hence a barrier to fresh spiritual growth. The life-giving ferment is in the spiritual unfolding, not in formal religious adherence. Quantum theology seeks to safeguard the primacy of spiritual growth rather than the promotion of formal religion.

Spiritual unfolding is a universal field of influence and belonging. We all inhabit it and are inhabited by it. It constitutes a central aspect of our being and becoming and unites us indelibly with the tapestry of creation itself. It stretches far beyond the realm and influence of religion, which for many people is synonymous with spirituality. And this is one of the great misconceptions of our time, one that leaves the spiritual potential of many people dormant, underdeveloped, and often repressed. More than anything else, our world today and its peoples need to be spiritually liberated.

Reclaiming our spiritual identity is not a case of becoming religious again, going to church on Sunday, following the rules and laws of a particular faith, reading the Bible or Koran everyday. No, it goes much deeper than any of this. As many of the great faiths suggest (but poorly implement) spirituality is about *enlightenment* and *liberation*. The spiritual journey is about opening up new horizons of love and understanding, not by ignoring or bypassing the darkness and pain of life, but precisely through experiencing and integrating them. Through this process we are liberated from the confines, restrictions, and limitations imposed on us frequently by our own personal ignorance, but also by the collective oppression of our man-made institutions.

Our spiritual enlightenment is above all else a journey into the mystery of belonging where all is one, and the patriarchal dualisms and distinctions are seen for what they really are: destructive, controlling devices that fragment and alienate. Although we are surrounded by *interconnectedness* (which for Grey [1993] is the core element in the contemporary theology of revelation), we can spend a whole lifetime in the enclaves of our cultural darkness and fail to comprehend or appreciate the mystery of belonging, within which we are all intractably united. And that universal call to unity manifests itself particularly in *relationships* which are the embryonic web of all life forms. And there are quantum ramifications to all our relationships, which we'll explore in the next chapter.

Chapter 7

Beyond Our Isolation

Science cannot solve the ultimate mystery of nature. And it is because, in the last analysis, we ourselves are part of the mystery we are trying to solve.

–MAX PLANCK

I realize I am a maverick, for I can settle for nothing less than the whole.

–RENEE WEBER

Gravitation binds everything so closely that alienation is a cosmological impossibility.

–THOMAS BERRY

The suggestion that our world is an interconnected web of relationships was initially voiced by the physicist Werner Heisenberg. It is a notion that no serious quantum scientist is likely to dispute.

When J. J. Thompson succeeded in splitting the atom in the 1890s, little did he think that he was opening up a mysterious horizon of belonging and interrelatedness. His intention and dream were exactly the opposite: the discovery of the ultimate building blocks, out of which everything is made, a reductionistic pursuit of the tiny units of matter, the bits and pieces, that make up the fabric of universal life. In pursuing the elementary particles, which we presumed (and many still do) to be *isolated and independent,* we continued to split the subatomic particles. We then proceeded to bash them to pieces in powerful particle accelerators of which CERN near Geneva and Fermilab near Chicago are among the better known. By 1960, we had already identified over a hundred different types of particles, without as yet any clear sense on how they related to each other.

In the early 1960s, scientists identified a new set of subatomic particles, about which they became immensely excited. They named them "quarks" (and proceeded to call their opposites "leptons"). At the time everything suggested that these might well be the ultimate

building blocks, the final units of matter out of which everything else was made. It took over thirty years to identify and assemble the total quark repertoire; the sixth and final quark was discovered in March 1995 at Fermilab. The elegance and beauty of the quark world has led to such namings as "strange," "charm," and "truth." (On the discovery of the quarks, see Riordan, 1987; see also the special supplement in *New Scientist,* July 10, 1993.)

The excitement was eminently appropriate, yet it dissipated rapidly when the quarks refused to fit the mechanistic expectations. In experimental conditions quarks cannot be isolated. The hadron within which they are embodied cannot be split nor bashed into smaller units. Nature refuses to reveal her truths in the form of isolated, independent quarks (hence the oft-quoted quip of the 1960s: "Nature seems to abhor naked quarks"). Perhaps nature can't do that; maybe she has never done it!

For the physicists, this was not good news. It posed a threat to the subconscious desire to conquer and control. The quarks were proving to be highly elusive, making sense only in groupings of *two* or *three,* displaying an elegant versatility to manifest their existence only in *relationships.* The capacity to relate seems to be at the heart of the quark world!

And this was not all! Quarks insisted on playing to the quantum dance of the particle-wave duality. Whether it manifested itself as a particle or as a wave, no one could ever be sure. All one could be certain of was that the energetic force was operative, but it was elusive, strange, and yet so attractively elegant, it continued to command attention and fascination. All of this suggests that in the final analysis, nature is made up of *patterns of energy interrelating,* and not of isolated building blocks.

Physicists were becoming impatient with this uncertainty, despite the relatively wide acceptance of Heisenberg's uncertainty principle (which states that we can never be certain of a particle's velocity and position at the same time; certainty in regard to one automatically means uncertainty regarding the other). So the scientific community has agreed to spend billions of dollars building bigger and more powerful accelerators that, it hopes, will eventually provide the experimental conditions to crack open the quarks into smaller isolated, independent units of matter.

Perhaps they'll succeed, but many are skeptical. The quarks might well be the end of the particle line. We may have discovered the "ultimate building blocks," and we are left with the mysterious, paradoxical dilemma that they are not "blocks" with which we can

build a Newtonian edifice. But perhaps they are bundles of experience (quanta) which will enable us to engage more meaningfully in the dance of life and understand afresh the creative energy at the heart of our quantum universe.

Trinitarian Relatedness

While the scientific community continues on the (misguided) task of trying to split the quarks into the hoped-for ultimate building blocks, their very discovery raises urgent theological questions which will occupy our attention for the rest of this chapter. The quarks demonstrate in a compelling and exquisite way that life in our universe thrives not on *isolationism* but on *the capacity to relate*. Zohar (1990, 206; 1993, 190ff.) goes even further and suggests that bosons as the basic glue in the particle world should be described as "particles in relationship." Everything is created out of relatedness, sustained through relationships, and thrives on interdependence.

This is an ancient wisdom, long known to mystics and sages and courageously reclaimed by many feminist theologians today (e.g., Heyward, 1982; King, 1989; Zappone, 1991; Brock, 1992; Grey, 1993). It is also a fundamental, archetypal conviction underpinning all the great religions known to humankind. Over the centuries, that basic, pristine truth has been couched in sacred dogmas which, paradoxically, have often camouflaged rather than disclosed deeper meaning. I refer to what Christianity calls the mystery of the *Trinity*.

In the early centuries of Christendom, theologians grappled with the mystery of the Godhead and concluded that God is fundamentally a unity (hence, monotheism) but one within which there coexist, in total equality, three separate persons, Father, Son, and Holy Spirit. What the councils of the early church understood by "person" continues to be debated even to this day. Seemingly, the intention was to offer an understanding of God as deeply personal, taking personhood (as then understood) to be the supreme mode of meaningful existence. The dogma of the Trinity retains this deep, personal connotation in its description of how the Trinity functions. The Father begets the Son in a manner that includes biological procreation but far exceeds it, and the Holy Spirit is born of the loving union that exists between Father and Son; the Spirit is that bond, but also a "person" in his or her own right.

Belief in the triune nature of God is considered essential to the Christian faith. Most Christians don't comprehend the "mystery,"

nor does it have any real significance for them in their daily lives. Nor indeed do the heavy patriarchal overtones make it a credible or attractive notion for a world yearning for more wholistic and inclusive modes of perception and action (see Brock, 1992, 4, 54–55; Kimel, 1992).

At this juncture we note that many of the major religions have a similar notion in their belief systems. Examples that spring to mind include: (*a*) the triune figures of Vishnu, Shiva, and Shakti in Hinduism; (*b*) the Buddhist doctrine of the three bodies (manifestations) of the Buddha, namely, the dharma-kaya (eternal dimension), nirmana-kaya (appearance body), and sambhoga-kaya (bliss body); (*c*) the Zoroastrian triplicate of Zurvan, the mighty god of time, and his two sons, Ahriman (active force) and Ormazd (passive force); (*d*) the Egyptian cult of Isis, Serapis, and the divine child, Horus; (*e*) the Neoplatonic triplicate of the Good, the Intelligence, and the World Soul. Traces of this triune relationship also occur in the literature on the Great Mother Goddess worshiped by humans for some thirty thousand years in prehistoric times, echoes of which occur in one of the most unexpected of sources — an early version of the Islamic Koran (see Hayes, 1994, 165ff.). We are dealing with something that is not unique to Christianity, but an archetypal phenomenon that transcends all the religions, a key ingredient of universal life and culture.

Greenstein (1988) and Barrow and Tippler (1986) also allude to this trinitarian aspect of universal life. They note that the three-dimensional nature of space is an inherent quality of cosmic interdependence, on the one hand, necessary to maintain appropriate distances of space between the various planets to facilitate their orbital trajectories and, on the other hand, essential to the proper functioning of the human nervous system and the flow of blood in the human body. In two-dimensional space, objects settle down to rest or to stable orbits, whereas those interacting in three dimensions show a unique complexity and a potential for novel behavior as they weave in and around each other. Of the entire range of conceivable dimensions only one number — three — is amenable to life. Any choices above three make it impossible for planets to remain at proper distances from their suns. Anything below three scrambles the orderly communication so crucial to living beings. For gods and creatures alike, *three* seems to be a number of immense cosmic significance.

The Dutch theologian Van Beeck (1979) claims that theology thrives on overstatement. In regard to the doctrine of the Trinity, the

problem may be that we Christians explain it (or explain it away) by understatement. By inventing a type of theological jigsaw puzzle, trying to fit the three into one, we have created a rather mechanistic paradigm for the Godhead that makes little sense in a wholistic age.

For orthodox theology and mainstream religion, dogmas serve as landmarks for guidance and certainty. In a quantum world, they serve a different purpose: they are pointers to a deeper truth, the totality (whole) of which is never fully grasped and demands fresh reformulation in each new cultural epoch. I suggest that the doctrine of the Trinity is an attempted expression of the fact that the essential nature of God is about relatedness and the capacity to relate, that the propensity and power to relate is, in fact, the very essence of God.[15] God's individual identity is of no real consequence (as Buddhists claim). God becomes meaningful in the very process of relating. God's revelation or self-disclosure is, in essence, an invitation to mutuality (see the pioneering work of La Cugna, 1991). In the plain but profound language of the Christian Bible: God is love!

Judaism, Christianity, and Islam pride themselves in being monotheistic religions. They promote and safeguard the oneness and unity of God (particularly, Islam). But historically, monotheism is based on a very spurious polemic. It is very much the product of the political and religious aftermath of the Agricultural Revolution when the planet was divided into continents, religions, tribes, and races. Monotheism became a powerful ideology to suppress and overthrow prehistoric belief systems in which a polytheistic faith (in numerous gods) was widespread, a notion that has been retained in Hinduism, the oldest of the major religions.

The development of the monotheistic religions (as in Judaism, Christianity, and Islam) is often portrayed as a maturation of an inchoate, disparate, primitive set of beliefs, incorporating the notion of many gods rather than one. But that is a perception born out of a particular mode of consciousness, appropriate (perhaps) to humans at a certain time in our cultural and evolutionary development but today inappropriate and irrelevant for our emerging, wholistic (quantum) consciousness.

The real issue for our time is not whether God is monotheistic or polytheistic, a distinction with dualistic overtones of bygone days. What science — for long the perceived enemy of religion — reveals and confirms is what many belief systems have been struggling to articulate in their trinitarian doctrines: God is first and foremost a propensity and power for relatedness, and the divine imprint is nowhere more apparent than in nature's own fundamental desire

(exemplified in the quarks) to relate — interdependently and interconnectedly. The earthly, the human, and the divine are in harmony in their fundamental natures, in their common propensity to relate and to enjoy interdependent coexistence.

Questions arise which become immensely disturbing for orthodox theologians. "Does God, then, have no independent existence?" "Is God somehow dependent on evolution?" (a misgiving often voiced against process theologians). "Doesn't your argument about relatedness slide into pantheism?" These questions — and many others — arise from a human need to couch the God-question in specific, man-made theological categories. They arise from a certain mode of patriarchal consciousness, characteristic of our mechanistic age, needing certainty, precision, and authoritative clarity. They are valid questions, but of no real interest to a quantum theologian, who is happy to live with unanswered questions and wishes to refrain from casting profound, evolving truths into too neat a set of human constructs.

For the quantum theologian, the doctrine of the Trinity takes on a very vibrant meaning, intensifying the call to relate, in love and justice, to all life on Planet Earth and beyond. This in turn calls into question the tendency in traditional Christian theology to uphold the dignity of the *individual* person as a special duty. The notion of individual uniqueness is a relatively recent one in human evolution. Indeed, it is very much a byproduct of industrial society when personal competence and the ability to compete became core values. Around these expectations, covert rather than overt, there grew up an array of cultural systems — educational, medical, ecclesiastical — with the focus on the robust individual, independent and alone. Thus for much of the twentieth century, indeed ever since the time of the Reformation in the sixteenth century, the salvation of the individual soul was considered to be the ultimate goal of the Christian faith.

In prehistoric societies, and in many parts of today's world (especially Africa, Latin America, and Asia), the individual's value and worth are esteemed relative to the person's role within and contribution to the common good. Cooperation rather than competition is the guiding value. But something much deeper is at stake, a conviction that is resurfacing in the emerging consciousness of our time, namely, *we are our relationships.* What we are as individuals, and what we will become in the future, is determined by the quality of our interdependence on others — humans and nonhumans alike.

Our very being as persons is dependent initially on the procreative act of two people. The quality of our life, health, and well-being very

capture this central concept without which its existence is largely a charade.

The Christian churches have also developed a sacramental system, with — in some cases — quite an elaborate ritual (as in the Orthodox churches) to celebrate, communally, the living out of their faith. Baptism and Eucharist are two of the more widely practiced sacraments (with interesting parallels in other major religions). Baptism celebrates the welcome and formal admission into the Christian community, while Eucharist provides a sacred, ritual meal in which members of the community reenact the breaking of bread and sharing the cup, as a celebration of new life bestowed on them by Jesus, their Savior.

Sacraments are intended to serve a purpose similar to rites of passage in other cultures. The participants move into a different mode of being, not to escape from the realities of life, but to reenter, renewed and refreshed for the ongoing task of human, planetary, and cosmic regeneration. A sacramental experience is a distinctly social, communal event; it awakens a desire for communion and confirms the sense of community that already exists. Sacraments in their pristine meaning were never intended to be ritualistic acts designed to set the *individual* at rights with God, and insofar as they have evolved along these lines (as has largely happened in the Catholic tradition) then, proportionately, they have lost their power to be communal and transformative experiences. They have become insipid rituals instead of life-giving experiences.

Donovan (1989) is one of a number of modern theologians who provide a timely critique on how we celebrate sacraments in the Christian tradition and offer creative alternatives, encouraging a relocation of sacramental celebration from the cloister-like, anti-worldly atmosphere of many of our ecclesiastical buildings to the heart of real-life experience. He suggests that in our celebration of Eucharist we try to rediscover the original tradition of the *sacred meal* — celebrated initially in people's homes (a custom still retained by the Jews in the weekly shabat) — and develop a contemporary context in which the celebration of Eucharist becomes a real experience of life around the sacredness and sharing of food.

Ritual and sacraments are not merely inventions of formal religion. We humans are essentially creatures of symbol and ritual. We use symbolic behavior to express and communicate some of our deepest relational intentions, e.g., in the act of sexual intimacy where the physical aspect is transcended into a deeply tender "mystical"

experience. In our contemporary culture, our capacity to relate symbolically and imaginatively is poorly developed; we have become too individualistic, literalist, rational, logical, and clinical. We have largely lost our capacity to dream, to imagine, to be playful, to celebrate, to ritualize, and being thus impoverished, we have lost our capacity to *relate* wholistically. A rediscovery of meaningful ritual and inspirational sacrament is one of the more urgent needs of our time, a prerequisite for rediscovering an authentic sense of human, planetary, and global community.

The search for community is not merely a pursuit of security and intimacy to obviate our loneliness in an anonymous and impersonal world. It is much more than that. It is the expression — however haphazardly and imperfectly made — of a yearning from deep within the created order itself, a groaning arising from the heart of creation (to paraphrase St. Paul), seeking reciprocity and mutuality. The very fabric of creation and the very nature of God sing in unison a song of love. According to Plato, love is the pursuit of the whole. Our broken, fragmented world yearns to be whole again. We humans imbibe this longing and, on behalf of creation, we give it conscious expression, particularly in our desire and efforts to recreate a sense of the earthly and cosmic community (see Swimme and Berry, 1992, 257).

Thus the quantum theologian is concerned with church at the heart of the world rather than with church over against the world. And church is, first and foremost, community gathered around the exploration and articulation of a deep, spiritual yearning. To engage with that yearning, we commune through rituals and sacred rites, in which we become present to one another in a quality of relatedness that often transcends words. In the depth of that sacred experience, we encounter the trinitarian relatedness of the Godhead itself. At some deep, mysterious level, we know in the depth of our hearts that we are in touch with the Whole, the source of all we are and have.

From these reflections we offer another central element of quantum theology: *Because the capacity to relate is itself the primary divine energy impregnating creation, we humans need authentic ecclesial and sacramental experiences to explore and articulate our innate vocation to be people in relationship.*

Humanity today hungers for genuine love, the ability to interrelate and interconnect. We yearn to realign the disparate parts and outgrow our man-made, competitive, and destructive isolation. The future toward which we are evolving, the call to participate in the

Chapter 8

In the Beginning

The nature of the universe was from the beginning such that it would come alive however and wherever possible.

–Elizabet Sahtouris

Only now can we see with clarity that we live not so much in a cosmos as in a cosmogenesis, a cosmogenesis best presented in narrative; scientific in its data, mythic in its form.

–Brian Swimme and Thomas Berry

Every child, and the child in every one of us, is ready to plead: Tell me a story. For the role of stories is to explain life, and the good stories, in their very substance and in the structure of their language, become revelation.

–Andrew M. Greeley

In the beginning, the energy of silence rested over an infinite horizon of pure nothingness. The silence lasted for billions of years, stretching across aeons the human mind cannot even remotely comprehend. Out of the silence arose the first ripples of sound, vibrations of pure energy from the nothingness of the creative vacuum. The stillness became restless and tiny bubbles of ether emanated from the space of infinite emptiness, the featureless ferment of quantum possibility.

And a mighty sound ruptured the tranquil stillness as a single point of raw potential, bearing all matter, all dimension, all energy, and all time, exploding like a massive fireball. The temperature exceeded 1,000,000,000,000 degrees centigrade, so hot that even elementary particles like electrons and protons could not exist. The time, according to human reckoning, was somewhere between fifteen and twenty billion years ago. From that time on, the silence begets the dance and the dance explodes into story.

It was the greatest explosion of all time. An irruption of infinite energy danced into being. It had a wild and joyful freedom about it, and like all dance it was richly endowed with coherence, elegance, and creativity. The earth is still so radioactive from this initial explosion that its core is kept hot by continuing nuclear reactions, and many atoms all over its surface — in rocks and trees, even in our own bodies — are still exploding. In our own bodies, Sahtouris (1989, 35) estimates that three million potassium atoms explode every minute.

Current theories state that after one-thousandth of a second of the so-called Big Bang, the universe had cooled sufficiently (to 100,000,000,000 degrees centigrade) for elementary particles — electrons, protons, and neutrons — to form. Three minutes later, when the temperature had dropped to 900,000,000 degrees centigrade, neutrons and protons combined to form stable atomic nuclei, initially those of hydrogen and helium. The cosmic dance of interrelating and procreating was well underway.

The universe continued to expand and cool until after about seven hundred thousand years, when the temperature fell to about 4,000 degrees centigrade, which is roughly the temperature of our sun. At this stage, the first simple atoms came into being. Below 4,000 degrees, the force of gravitation joined the cosmic dance, and atoms began to clump together forming, over thousands of millions of years, into clusters (communities?) of primordial galaxies. Within these giant clouds, hydrogen and helium gases continued to gather into ever more condensed masses, eventually giving birth to the first stars about five billion years ago.

Many of these early stars were intensely hot. They flared up and exploded in brilliant supernovas, each as bright as an entire galaxy. The force of those explosions sent heavier elements spewing out into space, condensing over millions of years into new stars, of which our sun is probably a fourth generation progeny, dated at 4.5 billion years ago.

It was about this time also that our solar system was formed from a huge cloud of interstellar dust. Most of the cloud consisted of frozen hydrogen, helium, and ice, but Planet Earth was fortunate to condense out of a part of the cloud rich in a diversity of elements, including all those necessary for the evolution of carbon-based life.

Some four billion years ago, with the appearance of the first algae and bacteria, the dance of life reached a more complex level of integration. Molecules clustered together to form the first cells; it was the beginning of biological life as we know it today.

Fish began to inhabit the waters about four hundred million years ago, and two hundred million years later the first mammals appeared on earth. Mammal and animal evolution became more elaborate and sophisticated right up to the emergence of humankind, which today we can trace back to some 4.4 million years ago (preceded by primitive forms dating back possibly to 14 million years ago), with our species Homo sapiens sapiens emerging around 40,000 B.C.E.

Both religion and theology have largely lost the central significance of our human, planetary, and cosmic story. They have become preoccupied with *fact* and to a corresponding degree have lost touch with *mystery* and *myth*. In a universe which is actually expanding (Hubble's theory of the 1920s) and will continue doing so for some millions of years yet to come, quantum theology calls for a more expansive understanding of the universe and of our role in it. The cosmic evolutionary saga is far from finished. In fact all indications are that this is a relatively young universe, which in evolutionary terms may still be growing through its adolescent phase (Sahtouris, 1989). And in the ensuing millennia or billennia, we humans will be outgrown by other species, as yet not even vaguely imagined in the universal Mind.

The evolutionary narrative is the membrane for every story ever told. It is a quantum story of unlimited potential and indescribable elegance. It is a story without beginning or end, an epic of ceaseless becoming. It embraces all the dreams and aspirations, pains and contradictions, that ever have been or ever will be. It is the context for all science and for all silence. It is the womb of creative vision.

The Potential for Self-Organization

Let's return to the story! As the explosive energy of the Big Bang began to cool — in those first microseconds of space-time — atoms began to form from subatomic particles, which themselves were produced from the cooling of energy. Other invisible forces, which today underpin all life in the universe — gravity, electromagnetism, the strong and weak forces (described in end note 13) — became operative. The universe was already displaying one of nature's most elegant and creative potentials: the power of self-organization.

The ability to self-organize seems to be a function of invisible fields (described in chapter 7), associated with all matter, from the tiniest subatomic particles to the most complex creatures, humans included. When atomic fields interact and join together, a molecular field is evoked; the interaction of molecular fields leads to the cre-

had the initial curvature been a fraction larger, or an explosion into a scattering of lifeless particles, had it been a fraction smaller. Indeed, it is only on a universal scale — at the quantum level — that we can perceive and appreciate the multiple intricacies of the cosmic tapestry. Only when we realize that we humans are totally dependent on the material of stars (carbon) for our existence, and that the very creation of that substance is something of a cosmic miracle, can we begin to contemplate *purpose*, not in terms of a final outcome, but in the very process and nature of evolution itself. (For further elucidation, see Greenstein, 1988; Sahtouris, 1989; Swimme and Berry, 1992).

These conditions are all interdependent. Nothing is brought about by our ability to discover it. It is not because we are here that the world comes to be so disposed, but rather the opposite. The planet survived — and thrived — for billions of years without our aid; and long after we have outlived our usefulness as a planetary species, the earth will continue its evolutionary unfolding.

Propensity for Self-Regulation

At the heart of the Gaia hypothesis is the controversial claim that earth, like all living organisms, functions as a self-creating, self-regulating, autopoietic system. The function of *autopoiesis* (from the Greek for "self-production") occupies a special place in the earth's story (see Jantsch, 1980). The concept was introduced in the early 1970s by the Chilean biologist Humberto Maturana (along with Francisco Varela). A system is autopoietic when its function is primarily geared to self-renewal. Whereas a machine is geared to the output of a specific product, a biological cell is primarily concerned with renewing itself. Upgrading (anabolic) and downgrading (catabolic) processes run simultaneously. Not only the evolution of a system but also its existence in a specific structure becomes dissolved into *process*. In the domain of the living, there is little that is solid and rigid.

It is in this capacity for self-organization and self-renewal that the earth story manifests its uniqueness. Throughout its evolutionary history, the earth has endured and survived several major catastrophes, many of global, universal proportion. Because these often resulted in large-scale extinction, we know relatively little about them. The nineteenth-century French geologist Georges Curvier claimed that in its long evolutionary history, Planet Earth has experienced *twenty-seven* major transitions. Many of these were cataclysmic in nature, involving severe climate changes, widespread volcanic eruptions, and meteorite impacts over large segments of the earth (see Russell, 1992, 184ff.; also Verschuur, 1978).

And yet Planet Earth not merely survives, but thrives. Perhaps one of the most fascinating examples of autopoietic, self-regulatory action was about three billion years ago when photosynthesis (the use of light in the manufacture of food) began, and the first algae and bacteria evolved. Some of these were known as blue-greens (because of their color). By assimilating the energy of light and hydrogen from the seas, they grew and thrived. But all growth is at a price, in this case, the release of a deadly poison caused by the utilization of hydrogen. "Oxygen" was the name of the poisonous substance.

We think of oxygen as good and necessary, a life-giving and life-saving gas that is essential to the maintenance of life. But for the first living creatures it was lethal; in fact, it was more destructive than ultraviolet. If the atmosphere then became full of oxygen, as it now is, the large molecules could never have formed, and life would have ceased to exist. But Mother Earth, ever inventive, and apparently never to be outdone, made an ingenious intervention.

The free oxygen combined harmlessly with dissolved rock minerals, such as iron, and while it was absorbed in this way, it remained safe. About a billion years later, however, all the iron had been turned to rust, and the oxygen began to accumulate in the atmosphere.

Initially, some bacteria responded by burying themselves in the mud where the poisonous oxygen could not get at them; the bacterial agent which today facilitates the digestion of hay in cow's stomachs is believed to be the product of this ancient self-regulatory behavior. Blue-greens invented enzymes which neutralized the oxygen's harmful effects. Others solved the problem by living together in thick colonies where those of the outer layer were burned to death and thus formed a protective cover for those underneath. The blue-greens, while creating food molecules, learned how to use the waste oxygen to burn those same molecules and thus create energy. Today we call this process "respiration." It is a classic example of how Planet Earth converts a potential threat into a resource that not only saved the world from extinction, but made possible the vast array of life forms that have evolved since then.

There is a final chapter to the oxygen story which further illustrates the extravagance of Gaia's creativity. In order to escape the poisonous effects of oxygen, the early bacteria veered more toward

the sunlight and in the process were destroyed by the radiation. A new planetary crisis was imminent, until the extra oxygen combined to form what we now call the "ozone layer" in the upper atmosphere, thus warding off the damaging effects of ultraviolet light. In Lovelock's words, a murderous intruder was turned into a powerful friend!

The story of Planet Earth is a not a descriptive tale about some object out there in space, dependent on us humans for its survival and growth. The true narrative is not about life *on* earth, but about the life that *is* earth. Could it be that we are dealing with a life form more sophisticated, creative, resilient, and integrated than our human mode, perhaps even more enduring than all the known life forms combined? Could it be that our ancient ancestors in identifying the earth with the Great Mother Goddess were in fact unraveling the mystery of our existence with a degree of wisdom and intuition which the rational mind of our time is unable to attain? The answers to these questions are likely to emanate from the planetary story itself. The unfolding narrative of evolution is a wellspring of profound wisdom.

The Creative Vacuum

As the story unfolds, the interdependent nature of planetary and cosmic life becomes all too apparent. A vital clue to the planet's relationship to other planets and stars is the nature of space itself. According to Greenstein (1988), the emptiness and vastness of space is essential to planetary existence and presumably to stellar interaction also. Our cosmos seems to need a vast amount of empty space if it is to be cool enough to generate and maintain the diversity of its life forms. Greenstein suggests that we imagine the earth as a marble, then the sun could be modeled as a medicine ball and would sit three hundred yards away. But the star Alpha Centauri would be a full 49,000 miles away and, in terms of our planet, that is considered to be the closest star.

The vastness of space is not just to accommodate the dance of life. It is an aspect of the dance itself, in fact, a very critical dimension. It is grossly misleading to suggest that it is "empty." Its fulness is a reservoir of prolific energy, which Davidson (1989) very rightly calls the "creative vacuum," and which the great scientist Max Planck once described in these words:

> As a man who has devoted his whole life to the most clear-headed science, to the study of matter, I can tell, as a result of my research about the atoms, this much: *there is no matter as such*. All matter originates and exists only by virtue of a force which brings the particles of an atom to vibration and holds the most minute solar system of the atom together.... We must assume behind this force that existence of a conscious and intelligent Mind. This Mind is the matrix of all matter. (Quoted in Davidson, 1989, 128)

In probing the nature of the vacuum, Davidson reclaims the notion that (a)ether is the fundamental stuff of "empty" space. Underpinning the ether — or perhaps inherent to it — are the various field energies, formative blueprints, a creative memory holding original impressions which, over time, become manifested in the external forms of creation. But for Davidson (1989, 125), there is an even deeper reservoir, namely, consciousness, to which he attributes divine origin and describes it as a vast holigraphically structured mega-computer where the primal power or undifferentiated energy is wrapped around with pattern, vibration, or form, giving rise to the laws of polarity or causality. It is the architect of cosmic justice, a mechanism which never fails since its power comes from the supreme consciousness of God.

The Gaia story focuses on how earth is alive from within; the vacuum is a reservoir pregnant with unlimited possibility. To describe the world as "teeming with life" sounds exhilarating, but in the light of our evolving story it may even be an understatement. The potential for life is so overwhelming, pervasive, and mysterious, it almost defies human comprehension.

Yet, we continue to analyze, rationalize, and interfere. We have created an anthropomorphism that is as deadly as it is irrelevant. We set ourselves up as the masters, not merely of Planet Earth, but of the entire universe and, in the infamous words of Francis Bacon, we ruthlessly set out to torture nature until she reveals her last secrets to us.

The Anthropic Principle

We have scarcely begun to address our insatiable compulsion toward self-inflation. This addictive drive, with its sinister undercurrents of control and manipulation, undermines the wholeness and vitality of

the quantum vision which is at the heart of our planet's story. Instead of addressing the whole, we go part of the way and end up with what seems a praiseworthy "enterprise," but in effect it is flawed in its fundamental logic. One such enterprise is what scientists have named the cosmological anthropic principle.

In 1974, the British physicist Brandon Carter coined the term "anthropic principle," which basically states that if some features of the natural world are required for our existence, then the world doesn't make sense without us. Another formulation focuses on the conviction that the universe would have no meaning unless we were here to give it meaning: the only things that can be known are those compatible with the existence of knowers.

Here we touch on one of the great unresolved debates of the quantum theory. According to the Copenhagen School (Neils Bohr and associates), reality does not exist until we observe it. Therefore, our observation creates the world with which we interact or, to use Wheeler's language, the universe in which we *participate.* The alternative, many-worlds view, suggests that our world, even if created by our observation/perception, is only one of many worlds and, consequently, apart from our observations, an objective world exists out there that can be measured and analyzed *objectively.*

In my opinion, both arguments are flawed and the consequent dualism (the either/or) becomes unavoidable. The major weakness in both arguments is the assumption that we humans, at this stage in our evolution, can pronounce the final word on how things are in the universe. There is no higher wisdom than ours — we implicitly (and often explicitly) claim — and we seem to add, subconsciously, that there never can be. This anthropomorphic strain is one of the major pitfalls of classical science and, sadly, permeates many of the scientific breakthroughs of the twentieth century.

The anthropic principle is the icing on the cake of this misguided anthropocentric drive. It brings into consciousness and validates (or tries to) what for long has been an unquestioned assumption. Now that the issue has been exposed, we can examine more openly what it attempts to state.

Barrow and Tippler (1986) provide a comprehensive overview of the anthropic principle. There are four dominant variations, offering ranging degrees of emphasis on the underlying conviction which claims that the highest, possible levels of intelligence, information, and consciousness are those developed, or due to be developed, by human beings, *in their presently evolved state.* But we humans, *in our presently evolved state,* are not the final goal of evolution. We are

not the ultimate, nor even the penultimate, chapter of the story; in fact there may be no such thing as a *final* chapter. Homo sapiens will evolve into a more highly developed creature who will view, observe, and relate to the planet (and to the universe) in a more sophisticated and enlightened way than we are capable of doing.

Yes, our universe is an intelligent organism, with an infinite capacity for enlightened, autopoietic growth and renewal. In the billions of years of future evolution, we humans will be surpassed by other more highly developed creatures. The time has come to acknowledge this fact, and to reevaluate, soberly, honestly, and humbly, our role in the grand evolutionary story.

From the beginning of time until now, every creature and species has contributed to the intelligent unfolding of life. The process of photosynthesis, which began billions of years ago, is intelligent altruistic behavior of an alive planet where all the parts cooperate under the influence of a higher intelligence which is greater than the sum of the parts. The delicate and intricate interaction of subatomic particles — along with their mysteriously poised measurements (to minute degrees of 1 percent, as in the case of the neutron outweighing the proton, or in the ability of the strong force to hold the deutron together) — illustrates a profound and elegant wisdom.

Humans and Gaia

Theologians may be quick to suggest that this is living proof of divine creation; proponents of the anthropic principle will argue that it's all in place for the sake of intelligent (human) life. But the quantum theologian (e.g., Ruether, 1992) tends to opt for a more wholistic stance and will plead that we:

- refrain from the analysis for a while and simply behold (contemplate) the sheer wonder of it all;
- open up our limited intelligence to the universal Mind, whose resourcefulness far outstretches what we humans have ever achieved;
- at least entertain the idea that the planet we inhabit is endowed with a quality of "aliveness" that supersedes our human form and may be more elaborate and dynamic than all the life forms known to us;

- open our hearts to the "call to conversion," the letting go we need to do if we really wish to be participants in the evolutionary letting-be.

Both Lovelock (1979, 1988) and Sahtouris (1989) in their explorations of the Gaia hypothesis present a grim future for us humans if we don't learn to refrain from our exploitation of planetary life and choose to continue on our ego-inflationary route of self-aggrandizement and deleterious interference. In the evolutionary story — ours and that of Planet Earth — the planet *always* wins out. Mother Earth has an amazing resilience, a very profound intelligence, and can be quite ruthless in maintaining her integrity.

In Gaian terms, we are just another species, neither the owners nor the stewards of the planet. Our future depends much more on a right relationship with Gaia than on enforcing our self-righteous claim to be masters of creation. Gaia is not purposefully anti-human, but so long as we continue to change the global environment against her preferences, we encourage our replacement with a more environmentally benevolent species. We are also discerning that Gaia's incredible complexity makes her tougher and more resourceful than we are. We are far more likely to obliterate our own species by destroying our environment than we are to kill Gaia. We would be wise to remind ourselves often that Gaia's dance will continue with or without us.

We humans have become a cosmic anomaly. We rape and pollute the very womb that nurtures and sustains. We have become a dysfunctional family, blind to our own addictions, heading headlong for self-destruction (see Wilson-Schaef, 1987; La Chance, 1991). As we approach the end of the twentieth century, time seems to be running out for Homo sapiens. The wisdom that begot the Agricultural, Industrial, and Information Revolutions is largely a spent force. Our achievements have become our atrocities. Only an honest confrontation without helplessness or hopelessness can in any way bring us to our senses. That is unlikely to happen — but what we can't do for ourselves, Gaia will do on our behalf; therein lies some semblance of hope for the future! We'll return to this subject in subsequent chapters.

Theological Implications

It is only in the past twenty years that theology has given serious thought to evolution, and as yet few theologians put cosmology

center stage. Meanwhile, cosmologists and philosophers grapple unceasingly with the imponderables of how it all began, particularly who or what caused the Big Bang and what, if anything, was there before it. Did God have to create and to what degree does God's creation inhibit or enhance human freedom?

These questions recur many times in the story of orthodox theology. They take on a fresh significance today, because they arise within a whole new cosmological context. The context is new precisely in its invitation to seek meaning from *within* rather than from *without*. Even those theologians who adopt an evolutionary perspective tend to image God as an *external* agent directing the evolutionary unfolding. On the other hand, process theologians (Whitehead, 1979; Cobb and Boswell, 1982) claim that God *co-creates* in conjunction with the evolutionary process, which often sounds as if the pace and course of evolution dictates the mode and degree of God's creative power.

To these profound and intricate questions, quantum theology wishes to bring some fresh considerations:

a. Since the whole is greater than the sum of its parts, then the "whole" of the evolutionary/creative process will always outstretch our human, scientific, and theological speculations. The evolutionary/creative process is a subject for contemplation and mystical comprehension rather than for theological discourse or scientific analysis.

b. Quantum theology asserts that the greater "whole" of the evolutionary/creative process is empowered and animated by a supernatural life force. However, it considers that life force to be inherent to the creative process rather than external to it.

c. Quantum theology is not particularly concerned about the nature of God. Since any quantum vision has to accept and integrate unanswerables and imponderables, quantum theology happily accepts the dictum: Let God be God! Orthodox theology often seems to collude with mainstream religion in subconsciously trying to "conquer" God by discovering and knowing everything about the divine reality. The outcome is nearly always an idolatrous one — with notorious validations of war and manipulation in the name of one or other omniscient, omnipotent God.

d. These reflections on the Godhead demand novel perceptions on humanity's role in the co-creative process. Since "God" is not into conquering or controlling the world, nor the evolutionary process, neither should we humans be. We are not in charge of the universe; we are participators in its growth and development. We *belong* to the universe and to its unfolding process. Our lives have no meaning apart from the universe. The universe is not an object set over against us, the subjects. No, it is the great Subject, with whom we are invited into a subjective interrelationship (explored in chapter 7).

So what is our role in the grand, evolutionary process? Perhaps we are intended to be the nervous system of Planet Earth, or as increasing numbers of scientists and philosophers are intimating, the *conscious* dimension of the universe — in the sense that reflective consciousness (the ability to reflect on the fact that we can reflect) seems to be unique to us humans. In the mechanistic worldview, we assume that we have been endowed with consciousness in order to subdue all other, "inferior" life forms. In the quantum worldview, we are invited to use this gift in the service of the universe, becoming more conscious, since consciousness is perceived to be embedded in all creation and seems to be awaiting a fuller sense of awakening; hence, Zohar's provocative and perceptive insight that we ourselves might be thoughts (excitations) in the mind of God (Zohar, 1990, 212). Perhaps the fullness of evolution itself is the conscious universe fully alive!

Beyond these speculations and reflections, the quantum vision invites us to a new theological threshold. Since all theology is about the *logos,* the Word and the wording of ultimate reality (God), then the quantum horizon becomes an energy for storytelling. In quantum terms, our theological role as human beings may well be that of narrators of the sacred, cosmological story. Beyond the academic pursuit of ultimate building blocks and the intellectual search for convincing ("provable") answers is the creative, contemplative exploration of the evolutionary story itself, where divine initiative and human response blend into one. Only when we enter deeply into that story, feel its meaning in the depth of our hearts, have we really understood what life is about. We won't have conquered the world, but we will have understood; we will have seen the Light! Then, and only then, can we be truly at peace — with ourselves and with the whole of life.

We conclude with another key principle employed by the quantum

theologian: *Our passionate desire to understand in depth will not be attained by intellectual prowess or technological achievement, but by immersing ourselves in the divine, evolutionary story and committing ourselves to the contemplation and narration of that story in each new epoch.*

ously, this is more apparent in the case of theology. Even the very name, with its focus on *logos,* conjures up narrative impact.

In the scientific literature, we occasionally catch glimpses of the narrative infrastructure. Examples that spring to mind include Einstein's rigid allegiance to the God of mechanistic science, illustrated in the oft-quoted words, "God does not play dice with the universe"; Bohr's sense of shock at the incomprehensibility of the quantum theory: "Those who are not shocked when they first come across quantum theory, cannot possibly have understood it"; Heisenberg's somber and reflective mood when he narrated: "I remember discussions with Bohr (1927) which went through many hours until very late at night, and ended almost in despair.... I went for a walk in the neighboring park and repeated to myself again and again the question: Can nature possibly be as absurd as it seemed to us in these atomic experiments?"; Feynman's poetic quip: "To do science you've got to have taste"; or Hawking's cryptic remark: "Every time I hear about Schrodinger's cat, I want to reach for my gun." Finally, there is the story of Einstein's humble sense of humor that when a newspaper announced: "One hundred scientists prove Einstein wrong," his reply was: "It would only have taken one."

In all these "throwaway" phrases, and a host of others which sporadically turn up in the scientific literature, we get unfiltered access into the struggles, the meanderings, the imaginings, and the questions of the scientific mind. But more than that, we begin to get a feel for the scientific "heart," searching and seeking out the ultimate meanings — those unattainable insights that baffle the seeker to the point of despair, but never culminate in intellectual or spiritual paralysis.

Norman O. Brown one time claimed that meaning is not in things but in between. It's not in events, nor in objects, nor even in proven discoveries that ultimate truth lies, but in the process of seeking, searching, experimenting, and discovering. Behind the external activities is an internal process which manifests itself in the unpredictable moments of surprise, humor, jest, and storytelling. The narrative infrastructure of any science reveals a depth of truth and meaning which no laboratory experiment, no matter how thorough, can convey or communicate. The deeper meaning is embedded in the story, not in the verifiable facts.

Consequently, story and the narrative process are the primary contextual framework, a type of primordial laboratory for the scientific pursuit, for the wisdom and discovery that comprises scientific exploration. Without the underlying story, science becomes a mechanistic ideology, compulsively bent on domination and manipulation, juxtaposed to other branches of wisdom and exploration, and both alienated from and alienating to the wholeness that comprises universal life.

Not only is story at the heart of scientific pursuit, but science itself, in common with all other forms of wisdom, is born out of story. It is very much the product of humankind's need to make sense and meaning out of life. But it goes even deeper: the scientific story is also a statement of the universe's own potential and desire to give expression to its inherent creativity, to narrate its evolutionary unfolding in the various manifest forms that comprise the visible and tangible world around us. When we learn to let go of our anthropomorphic stance over against the universe (as subject vs. object), and re-vision our role as co-creators within the evolutionary process, then and only then will we grasp the deeper meaning, which for science and theology alike is in the story and its narrating and not in irrefutable dogmas or in objective verification.

The Word as Story

Theology has not entirely abandoned its rootedness in story (see, for example, Shea, 1978, 1980; Wright, 1988). Christian theology claims to spring from the revealed word of God in the scriptural story of the Old and New Testaments. But as Fox (1984) astutely remarks, our theology is so focused on words that it has largely betrayed the *Word* (in its original Aramaic, *dabhar,* meaning creative energy). In our attempts to get to the theological building blocks (in what sense was Jesus God and/or man? How do you fit three persons into one Trinity? What precisely makes a sacrament a sacrament?), we have often lost sight of the story which sustains and nourishes theological discourse. And because we have neglected the *story as story,* we have, over the centuries, turned it into an ideological statement giving literal significance to something that was never meant to be taken literally (e.g., the Genesis creation story, the Virgin birth story, the parables).

Over time, facts and dogmas tend to assume ideological proportions. Truths that initially offered liberation, hope, and new life often become millstones, burdens that stifle and stultify. All the major religions today — and theology in general — suffer from narrative deprivation. Even when original myths (beginnings and endings) are still narrated, they are over stylized and couched in legalistic and devotional categories that inhibit, and frequently prevent, the story

from being retold in *today's* context, and not in that of hundreds or thousands of years ago.

Readers of this book, whether Christian or not, will have some contact with dominant Christian stories such as the Virgin Birth of Jesus, the resurrection from the dead, the miracle stories, and such well known parables as the Prodigal Son (Father) and the Good Samaritan. I wish to submit that the entire Bible, along with the sacred texts of other religions, is first and foremost *a story,* and not a record of definite facts and events. In terms of faith, what brings meaning and integration to one's experience, the facts are quite secondary. It's the story (and not the facts) that grips the imagination, impregnates the heart, and animates the spirit within (the spiritual core).

Whether or not there was an empty tomb, whether or not anybody actually saw the Risen Jesus, is not of primary significance. If through modern archaeological research we were to rediscover the remains of Jesus, thus establishing that he never rose physically from the grave, that discovery would not undermine the faith of a genuine believer. It would create immense doubt and confusion for millions who follow a dogmatic creed rather than a spirituality of the heart. (It could also be a catalyst for a profound conversion experience.)

Theologians in general and guardians of orthodox religion will find the above comments quite disturbing; some will consider them to be blatantly heretical. I invite such people to explore the pedagogy used by Jesus and by all the great teachers of the various religious traditions. Jesus did not theologize, legalize, or preach in any formal sense. Jesus *told stories,* the best known being the *parables.* Catechists and religious educators often portray the parables as simple stories to illustrate important truths. Often the parables are reinterpreted, in preaching and teaching alike, in terms of immediate daily and personal experience. A sense is conveyed that everybody and anybody can apply the parables to contemporary experience and get the full impact of the original message.

This is a reductionistic approach, with the accompanying risks of oversimplification, misinterpretation, and narrative deprivation. Often the original context is not appropriately acknowledged. Scant attention is given to the hermeneutical task of translating ideas, concepts, and language from one culture to another. Consequently, the narrative impact, along with the inherent call to change and conversion, is often negated.

The parables of the Christian story, and corresponding narratives in other faith systems, bear an archetypal, primordial significance.

They are not just ordinary stories; in fact, there is no such thing as an "ordinary" story. Their original context and impact is one of a newly emerging culture engaging with an established, orthodox one and confronting it with its inevitable demise. The parables in the New Testament largely belong to the vein of prophetic discourse in the Old Testament, where the old order is crumbling and a new vision is struggling to be born. The parables are transitional stories that are intended to disturb and challenge the hearers, and motivate them to move into a radically new way of engaging with the world and the call of the times.

Bausch (1984, 117–37) delineates six characteristics of the New Testament parables:

- They uncover our competitiveness and envy and invite us to brotherhood and sisterhood instead.
- They uncover our wrong centering and invite us to a right centering.
- They uncover our need to hoard and exclude and invite us to share and include.
- They uncover our assumptions and challenge us to turn them around.
- They uncover our timidity and invite us to risk all for the sake of God's Kingdom.
- They uncover our self-centered despair and distrust and invite us to hope.

The Central Myth of the Christian Story

In the Christian context, the parables serve as subplots in an even more embracing story, which the Gospel writers invariably call the "Kingdom of God" or, as in Matthew's Gospel, the "Kingdom of Heaven." This is the central myth of the New Testament, the core message of Jesus for humanity and for the world. It is the archetypal truth that underpins all that Christianity stands for, the fundamental norm that makes Christianity unique, not in the sense of being apart from, but in what it has to share with the other great religions and with all people who embark on the spiritual journey of life.

What Jesus meant by the "Kingdom" (what others prefer to call the "New Reign of God" or, in feminist terms, the "Kindom") is

So how do we get sufficiently close to obtain the crucial information without getting sucked into the depths of no return? Hawking's response is highly speculative but, nonetheless, commands the respect and credibility of many scientists. In quantum terms, empty space is never really empty. It is always active and cluttered. Pairs of elementary particles like electrons and their anti-matter opposites (positrons) exist for a fraction of a second before annihilating each other. At an event horizon, it is conceivable that, prior to annihilation, one particle gets caught in the grasp of gravity, but the other escapes back into universal space. To an observer, it would look as if the second particle had just popped out of the black hole. In fact, the escapee has become a new particle in its own right having assimilated some of the properties of the black hole.

Let us assume that this process is happening on a large scale with perhaps millions of particles impinging upon the event horizon. What in fact is transpiring, in Hawking's opinion, is that the black hole is gradually "evaporating" as it explodes more and more "new" particles into the universe. In time, over millions or billions of years, the orderliness of the universe will absorb the disorder of the black hole.

Quite an amount of research and exploration centers on the black hole phenomenon, briefly but comprehensively surveyed by Powell (1993). What is progressively emerging is that black holes are not as destructive as we once assumed. Indeed, evidence to the contrary is accumulating, suggesting that they may be reservoirs of enormously creative energy.

The black hole is a metaphor of profound scientific and religious significance. It has a Bermuda triangle connotation of mysterious alien power from the clutches of which nothing can escape. And yet, if Hawking and other scientists are right, it possesses crucial information on the origin, meaning, and creativity of our world. But more than that, its power to captivate and destroy may not be as definitive as we have long assumed.

If our present universe began with the explosion of a *singularity*, as is widely believed, and that singularity was itself the product of black hole activity, which would normally be the case, — then our universe originated from a black hole. Such speculation has led scientists like Hawking (1993) to suggest that our cosmos may consist of many universes, born from the mysterious forces which defy human intelligence but continue to fascinate the human imagination. According to these speculations, the black hole produces a worm tunnel in space-time, and whatever disappears down its singularity exists

somewhere else at another time through a reciprocal *white hole* (an object from which matter and radiation escape, but nothing falls in). There may well exist an intriguing interplay of order and disorder where the forces of life do not merely win out, but stretch the will-to-live to proportions our feeble brains have not as yet even vaguely comprehended. (More on worm holes in Boslough, 1992, 189–91, 206–9).

What is worth noting at this juncture is that we humans have little or no control over the quantum behavior at the heart (singularity) or at the verge of the black hole (although the Copenhagen school would claim that whatever is happening there is caused by our perception or observation of it). The electrons and positrons are doing their own dance on the periphery where the forces of life and death interact in fascinating ways. Perhaps it is one of the few situations where we humans can do little other than stand still, contemplate, and behold the wonder inherent in the creative process itself.

There is a paradoxical quality to black holes, whereby their destructive power of absorption seems to be a precondition for their life-giving power of "evaporation." The particles that escape may be endowed with information about the black hole, obtained from its counterpart that has been sucked into the black hole; in this way we may obtain access to a profound cosmic wisdom which, otherwise, remains trapped within the entropy of the black hole. Perhaps here we have on a grand cosmic scale an insight known to mystics for centuries: abnegation is a precondition for fulfillment; struggle is a pathway to happiness; sickness is the shadow side of health; failure is success in disguise; Calvary precedes resurrection; darkness gives way to light.

The Theory of Chaos

What the black hole represents as a quantum phenomenon stretches the human imagination to its absolute limits. We are only at the earliest stages of this fascinating and enormous exploration. Not at all unrelated to these considerations is the theory of chaos, also of recent discovery and far more comprehensible (but no less mysterious) than the black hole phenomenon. Readers are likely to be familiar with the notion of chaos from the popular work of James Gleick (1987).

Now that science is looking, chaos seems to be everywhere, and it provides the crucial link to interpret and comprehend aspects of universal life that heretofore tended to be regarded as deviations. Be-

cause it is a science of the global nature of systems, it has brought together thinkers from widely diverse fields of study. In fact, many scientists now believe that the theory of chaos may be as central to twentieth-century exploration as relativity and quantum mechanics.

In classical science, chaos was attributed to randomness, a freak of nature that science might one day understand and control. Classical examples of chaotic behavior include the dripping of a water tap, the turbulence of a river, the design of snowflakes, the unpredictability of weather, the fibrillation of the human heart. Now that chaotic systems are being mathematically modeled, we are discovering hidden patterns of order and beauty embedded in the chaos — the approach adopted by Gleick (1987), Stewart (1989), Feigenbaum (1978, 1979), Mandelbrot (1977), and Wilson (1983) in his development of renormalization. There is an alternative approach, developed primarily by Prigogine and Stengers (1984), suggesting that chaos is a precondition or stimulant for activating the self-organizing creativity inherent in all living systems. These two approaches may be considered complementary rather than opposed to each other.

What in fact is happening is this: advocates of many scientific disciplines are acknowledging that our universe, at all levels of existence, has a strange and amazing propensity that often comes to light most elegantly in dealing with irregularities and chaotic behavior. Feigenbaum Constants, named after the American physicist Mitchell Feigenbaum (1978, 1979), offer an intriguing example. In attempting to calculate movement in irregular or chaotic systems such as dripping taps or pulsating stars, researchers tend to encounter period-doubling, where the solution curve breaks into two directions, known as a bifurcation. On this first break, the curve can take on two values and for some time it will oscillate between the two. Further on, more bifurcations occur leading to what is known as a bifurcation tree. The rate of dividing or branching gets faster until an infinity of possible branches is reached. This point is often described as the onset of chaos.

In numerical terms, the critical value at which chaotic behavior begins is calculated to be 3.5699. The gaps between successive branchings become closer and closer; one finds that each gap is slightly less than one-quarter of the previous one, a ratio that tends to have the fixed value of 1/4.669201. Feigenbaum also noticed that the rate of shrinkage between the prongs on the bifurcation tree is also close to a standard two-fifths of the previous one and calculated to the numerical value of 1/2.5029. We are describing a phenomenon known as scale-invariance: as we examine the detailed nature of

the bifurcation tree, we discover within the detailed (deep) structure patterns which enable us to comprehend and understand the whole.

Feigenbaum initially came across the curious magic numbers 4.669201 and 2.5029 by accident while toying with a small calculator. The significance of these numbers lies not in their values but in the fact that they recur, again and again, in completely different contexts. It seems that chaos has universal features and that Feigenbaum's numbers are fundamental constants of nature. Thus, although chaotic behavior is by definition dauntingly difficult to model, there is still some underlying order in its manifestation, and we now have mathematical models that enable us to understand the principles that govern this particular form of complexity.

The theory of chaos draws together many strands of research on the complexities and irregularities inherent in nature. Gone are the days when the isolated building blocks were the main target of research and exploration. We now acknowledge that our universe cannot be broken down into a few simple elementary units of matter. Not only is that ultimate simplicity based on false assumptions, but it undermines the very creativity of life which requires *complexity* as an essential dimension of all living systems.[17]

Today chaos has become big business. Peters (1991), Wheatley (1992), and Chorafas (1994) are all specialists of the commercial, business world who are encouraging their colleagues in commerce and finance to explore the possibilities for growth presented by a fluctuating, chaotic market. Arbuckle (1988) suggests that contemporary transitions within church life need to be understood and interpreted in a way that accommodates (rather than denies) chaotic dimensions. Hayles (1991) provides a fascinating and comprehensive review of how contemporary literature explores the metaphor of chaos. Around the world, mainstream institutions — political, economic, social, and religious — are scarcely able to hold together the chaotic forces that seem to threaten the very fabric of our "civilized" society. Chaos is all around us. Chaos abounds! (For a recent survey on chaos theory in a quantum context, see Gutzwiller, 1992).

The major problem confronting us is not the chaos itself but our attitudes toward it. By and large, we *deny* its very existence, because we are scared of its impact. Why? Because we perceive and interpret its significance within an old paradigmatic context. Within the old paradigm, chaos was considered to be evil, disruptive, dangerous; it threatened the status quo of our patriarchal value system, and threatened our power as the managers of a hierarchical, orderly system. Within this paradigm, there was no room for deviation,

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differences, disagreements. The shadow side was totally suppressed. Our linear mindset was neat and orderly, but so much out of touch with personal and planetary reality.

Denial, more than anything else, is what we use to subvert the potential creativity of chaos. We pretend not to see what is so glaringly obvious: old institutions and their accompanying values are fraying at the seams. But we continue to plaster over the fissures, hoping that some day the storm will abate and we'll return to "normality": full employment, proper balance of payments, elimination of crime, diminution of poverty, strong religious allegiance! No, we live in a different era; the old world order is collapsing, and as we approach a new evolutionary threshold, the chaotic forces are likely to intensify before they abate. Chaos will be around for a long time to come!

But, of course, is there ever a time in which chaos is not around? Perhaps chaos is as integral to order as conflict is to harmony and darkness is to light. Life is not about the dualistic either/or, but the integrative both and. We are more aware of chaotic forces at the present time for two main reasons:

a. Our species and our planet seem to be undergoing a major evolutionary shift, and movements of this nature have never been smooth or easy, as is convincingly illustrated by Swimme and Berry (1992).

b. We are emerging from a protracted era of masculine domination and control in which negative experiences like chaos tended to be suppressed. Consequently, we are now having to endure the massive eruption of repressed and submerged feelings, long subdued by repressive forces.

Learning to embrace the chaos, acknowledging its cultural and personal impact, and striving to integrate its effect on our lives, personally and collectively, are among the major challenges of our time. What makes the task so daunting is that most of the main institutions (of church and state) to which we look for guidance and support are unable to assist us in this endeavor. The institutions for the greater part are playing the old games of *denial* and *resistance*. Only when the changing consciousness reaches a more critical mass can we hope to (co)create institutions that will enhance rather than inhibit our evolutionary development.

In today's world, traditional scientific values such as determinism and predictability yield pride of place to openness and creativity. Instead of equilibrium, we seek movement and imbalance as being

"normal" states of being. Instead of trying to conquer and eliminate the negative, we try to comprehend and appreciate its complementary role for the positive. Finally, instead of the second law of thermodynamics, which predicts that everything in the universe is declining in a progressive, entropic deterioration, toward the ultimate destruction of a heat-death, we now realize that our universe is an open, creative system, capable of self-regeneration over and over again (which, in fact, may be consistent with other interpretations of the second law; see Pagels, 1985). Once more, we encounter the inescapable paradox: in destruction life is redesigned; in chaos it is reformed; in death life flourishes anew!

Being and Nothingness

Starhawk (see Fox, 1984, 135) describes the dark as "all that we are afraid of, all that we don't want to see — fear, anger, sex, grief, death and the unknown." We dread the dark and we fear the chaos. In the Western world, we tend to suppress pain and we shudder at the thought of death. We are scared of being alone. We have largely lost touch with our human vulnerability and, to a corresponding degree, with our planetary home, the earth.

We surround ourselves with all types of gadgetry and material acquisition to numb our senses against the reality of life. We seek to drown out our alienation with alcohol, drugs, sex, and hedonism. We try to keep life as *full* as possible, totally cluttered on the outside but, alas, a lonely empty shell within.

Contemporary writers such as Wilson-Schaef (1987) and La Chance (1991) vividly portray the addictive trap which we humans have created in our world. Its central feature is an illusion of power and control which has become progressively compulsive, acquisitive, manipulative, and self-destructive. According to Wilson-Schaef (7–8), this cultural/global addiction is based on a fourfold myth:

a. The White Male System is the only thing that exists.

b. The White Male System is innately superior.

c. The White Male System knows and understands everything.

d. It is possible to be totally logical, rational, and objective.

In our addictive commitment to power, we ourselves have become quite powerless, but like all addicts we vehemently deny and disown

that fact. We have become a dysfunctional species, codependent on forces that alienate us from them and from ourselves, because we ourselves have created and sustained that alienation. The very resources of life, intended to nourish and sustain us, are poisoning us through our cultural intoxication (see La Chance, 1991, 46). By polluting our water, we pollute our own unconscious. We do the same when we cough industrial filth into the air. The destruction of the soil community is the destruction of the community of which we are all members. When we eliminate a species, as we do by the thousand yearly, we diminish the vocabulary of our own unconscious. Because we are the conscious phase of the earth's process, everything we flush into the earth washes back to intoxicate us.

We are caught up in a spiral of power and powerlessness; the more we try to control, the more everything gets out of control. The only way we can break that cycle is to admit our powerlessness, but that would mean the collapse of the great Western empire that we have fabricated — and it is highly unlikely we'll agree to that. We are then left with the grim option of species self-destruction, which is manifested in behaviors ranging from the chronic toxification of the planet to the elimination of so many life forms, to our rabid nationalism, to our several forms of addictive consumption. Each of these is progressive and potentially deadly to our spirit, to our culture, and even to our planet.

We live in a dark age, but, alas, nobody wishes to entertain that notion. We are unable to befriend the darkness because our addictiveness and compulsiveness keep us firmly rooted in *denial*. The whole thing is too painful to look at, so we choose to befriend our pathology rather than befriend its deeper truth. And our denial becomes even more convoluted when people who are striving for personal integrity realize that the social and political structures are themselves addictive. This is where the real sinfulness is embedded, where the darkness assumes demonic proportions, as we'll explore at greater length in the next chapter.

The reader is left bewildered, wondering what to do about it. Where does one begin? Even to allow or enable oneself to become more *aware* is a step toward befriending the dark, which is the critical response needed to break the addictive cycle.

We dread emptiness of any type, and we dare not even think of nothingness. Yet, most of the known universe is made up of empty space, total nothingness, in the Buddhist sense of no-thing-ness. Most humans take for granted the vastness and emptiness of open space. To our mechanized, pragmatic Western consciousness, it is neither

of interest nor of concern. It doesn't earn us money, nor enable us to produce arms, oil, or motor cars. And yet, therein lies the paradoxical secret to much of life's meaning and purpose.

The emptiness is in fact a fulness from which everything emanates, what Coveney and Highfield (1991, 141–42) appropriately call "the seething vacuum." And the fulness is not a neat smooth accumulation of life forces, but a boiling, chaotic conundrum of raw potential. When matter and anti-matter meet, physicists talk of "annihilation." Actually, it is not annihilation, but a process of "transformation," bringing into being a totally new reality (see Zohar, 1990, 207).

But let's not diminish the painful, destructive force; the transformation is a diminution, a dying, a dissolution, for the sake of something else, for the benefit of new life. There could be no "newness" without a painful termination of the old. Such is the mysterious interplay of life and death, chance and necessity, rest and activity, emptiness and fulness.

Salvation and Redemption

Many of the issues explored in this chapter tend to be treated in a fragmentary and partial fashion in orthodox theology. Notions such as "original sin," "salvation," and "redemption" explain away rather than explain the encapsulating mystery. Quantum theology offers a very different set of insights.

1. Creation is an unbroken whole, a totality within which everything — including darkness, chaos, pain, and suffering — plays an interdependent role.

2. Creation is essentially *good* and not *evil*. Original blessing rather than original sin characterizes life in its fundamental essence. Negative forces such as suffering, pain, and chaos ensue from the free, indeterminate nature of evolution itself. In Teilhardian terms, suffering may be understood to be the byproduct of an open and free creative process (e.g., the "waste" created in making a suit of clothes).

3. Much of the meaningless pain and suffering is directly, and often deliberately, caused by human beings. Daly (1988, 167) claims that the greatest and most meaningless sufferings ensue from human behavior, intensified by the conscious or unconscious desire to inflict pain on others. Nonhuman violence, devoid of this conscious malice, is more easily tolerated and integrated. If the human contribution to the world's pain was eliminated, or at least diminished significantly,

the unconscious to be located in the *id* and thus emanating totally from within the individual person. It is, therefore, up to each individual to change and modify the instinctual forces by bringing them into consciousness under the guise and direct control of the ego. This was, and still is, considered to be the work of Freudian psychoanalysis.

Freud's influence on the culture of the twentieth century is largely underestimated. He is often depicted as a liberal thinker who brought sexual ghosts out of the closet of repression and encouraged us to ventilate our anger openly. Perhaps that was his intention, but what society extrapolated from Freud was his image of the sick, neurotic individual forever battling with the instinctual drives of passion and power. Proponents of original sin had a heyday with Freudian theory; so had all regimes which sought to justify oppressive measures of any type.

Jung never warmed to the Freudian image, and in fact spent his whole life striving to dismantle it. Even to this day, Jung is not taken with great seriousness — although scholars of many disciplines acknowledge the depth and profundity of his vision. Where Freud and Jung differ most radically is in their understanding of the human personality. For Freud, each person is a unique, independent phenomenon in his or her own right; the world is populated with *individual* (atomized, if you wish) beings. Underpinning the Freudian vision is the classical scientific claim that the whole equals the sum of the parts, and hence, the acceptability of Freud among mainstream scientists and theologians alike.

For Jung, people are unique, not in their own right, but in terms of the larger entities to which they belong. All of us are products of our relationships. Our very attempt to be independent is itself a statement of our mutual interdependence. And our interdependence is not merely interpersonal, but also planetary and cosmic, even in minute details. From this vision, Jung coined his notion of the "collective unconscious." He called it a *Grenzbegriff,* a concept used to describe something that feels very real but somehow beyond analysis or even description. (Kant used the same term to designate the concept of God.)

For Jung, the collective unconscious is a vital force permeating all creation; it contains both past and future, light and shadow, presently active in humans and in all created reality. It may be described as a type of ethereal energy, containing all the thoughts, feelings, and dreams of the past and all the hopes and aspirations of the future, even the evolutionary "aspirations" of the universe itself. It contains both good and evil, more as complementary rather than opposite poles, and its attraction or magnetism is toward growth and integration.

According to Jung, the reality of the unconscious represents the mysterious, suprarational within humanity and within creation, and this for Jung is as real, and merits as much attention, as the rational and observable. It is at this juncture that many colleagues of orthodox psychiatry and academic psychology part company with Jung, considering his taste for the spiritual and mystical to be unscientific, misleading, and even dangerous.

What I wish to adopt from the Jungian vision for the purposes of the present study is:

a. the commitment to the greater totality (the quantum) as being the more authentic reality;

b. the rejection of dualistic thinking and dualistic value systems because dualisms misrepresent reality in its deeper meaning.

The Power of Dualisms

Dualisms are so attractive, and yet so lethal! They enable us to divide things up into neat constructs of opposing forces. Obviously, we all favor what we perceive to be good, and we begin to develop mental constructs, attitudes, values, educational systems, and political regimes which set us so defiantly on the pursuit of the good that we, unconsciously, adopt all sorts of strategies to eradicate the "bad." Every now and again, something reminds us that the negative is also part and parcel of life, which usually provokes us to activate yet another set of culturally learned reactions (defenses), first to *deny* what we perceived and, second, to *bury* it even more deeply in the personal unconscious. Unknowingly, we are driving ourselves mad, in a world that is already largely insane. Why? Because it has chosen to cut itself off from 50 percent of its essential nature.

Let's take the case (already cited) of an alcoholic, a person who, according to the medical/psychiatric textbook, is addicted to alcohol, a condition that cannot be cured, but can be remedied by eliminating the consumption of alcohol. We assume the condition to be an *individual* one and we label the condition "alcoholism." No matter how we try to understand the condition, the label takes on a negative, derogatory connotation. So do all labels ("schizophrenic," "manic-depressive," "homosexual"). Labels are also highly dangerous insofar as they provide a partial explanation of what is usually

a complex condition, demanding not one, but several frames of reference.

The traditional treatment for alcoholism involved hospitalization (drying out) and counseling. Often the recovery was remarkable and lasted, perhaps, for the rest of one's life, but not always! On returning to the social context of one's family or workplace, the old habit commenced again, or if it didn't, it recurred elsewhere in the social system, e.g., the spouse or another family member began to drink heavily, and not infrequently the pattern recurred in a subsequent generation.

Today the focus of treatment has shifted significantly. Even in orthodox medical circles, it is generally recognized that alcoholism can have not just one, but a range of significant meanings. The biomedical model is perceived to be too individualistic and mechanistic. Systemic factors have become quite central, especially the family unit, for which the alcoholic person may be serving the unconscious role of scapegoat. In other words, it is the family as a system that is sick, and within the intriguing dynamics of the family system, a vulnerable member has been loaded with the unresolved pain of the sick system. Hence the popular but poignantly true statement: "They drove me to drink."

It is when we refuse to deal with the sickness within the system that the problem recurs in all sorts of unexpected places, especially in subsequent generations, and even in the partners we choose as significant others. Healing, therefore, is mediated by addressing, not just the individual problem (which may not even need address at an individual level), but the whole system, for which the individual problem serves as a symptom, as a classic example of scapegoating. Only by healing the "family tree" can we hope to bring healing to the individual person. Hence, the increasing popularity of family therapy and systems therapy to address addictive behavior today.

What we are witnessing here is another shift from the mechanistic to the wholistic worldview, from the atomized (individualistic) approach to the quantum (whole) one. It makes so much sense, and yet meets with enormous resistance — for a range of reasons:

a. Our traditional mode of thinking is so deep-seated; we have turned individualism into such a heroic ideal that we shudder at the thought of destabilizing it.

b. In the systems approach, we are all called to be coresponsible and to carry the burden of our mutual deviation. That presents a totally unacceptable option for our patriarchal culture. Patriarchy of its very nature demands idols to be emulated and deviants that

stand condemned. Patriarchy thrives on dualistic divisions; it would crumble to pieces if it didn't have scapegoats. (In former times, women were classic scapegoats for our predominantly patriarchal culture.)

c. Our mechanistic, patriarchal culture cannot stomach too much vulnerability. Feelings, emotions, woundedness — and even positive feelings of joy, exuberance, and imagination — must not become public property. They are relegated to the private domain of the clinic, the surgery, the psychiatric hospital, the confessional, to be sorted out before they become too public. Our dominant culture today is fundamentally alienating, deceptive, oppressive, and immoral.

d. The systems approach invites us to acknowledge and own our darkness as well as our light. It invites us to integrate our fundamental goodness, but also our fundamental self-destructiveness. This is enormously difficult and very threatening to a culture that from the cradle to the grave is being brainwashed, through advertising and patriarchal propaganda, but also through childrearing, education, and social influence, to strive for a perpetual high of achievement and success. Little wonder we live in such an addictive society.

e. The systems approach seeks to confront our subtle (and at times very open) tendency to collude with evil rather than engage meaningfully with it. Western political systems and mainstream religious organizations are notorious for duplicity and collusion. Both Christianity and Islam morally endorse modern warfare (the just war and jihad theories). The British government proudly displays its National Health Service, which is effectively a National *Sickness* Service, with the national quality of health deteriorating all the time while annual health costs continue to rise. Governments all over the world give assent to helping Third World nations and add injury to insult by spending approximately ten times more on armaments than on food relief. Little wonder that our Western culture — along with its major institutions — is scared of systems analysis, wherein *all* are called to be accountable.

Integrating the Shadow

Jungian psychotherapy (and analysis) focuses very specifically on the integration of the shadow. Instead of splitting off the nasty bits of ourselves (and thus giving them power over us), we are invited to acknowledge and own those aspects of ourselves we would ordinarily

Sins of Our Time[18]

For the quantum theologian, the following are among the major sins of our time, needing urgent redress:

Biocide/Geocide

All the formal religions include suicide, homicide, and genocide among their major moral transgressions, with only scant or negligible attention to our destruction to, or neglect of, the earth itself and its various life forms. Legally and morally we seek to protect human beings, with legislation also intended to foster growth and development. Only in recent years have we begun to recognize that the resources of creation, on which we depend for life and meaning, also have a claim on our concern and protection. The political gestures made to date, particularly by the United Nations, on issues of environmental protection, fall well short of comprehensive moral responsibility; and in not a few cases Western governments ignore these guidelines to suit their individualistic self-aggrandizement.

On an international and global scale, the religions and churches are so anthropocentric in their moral teachings that environmental and ecological issues scarcely get a mention. We are still stuck in the anti-world polemic of being on the side of the sacred and, therefore, must not be contaminated by the affairs of the world. Such dualistic rationalization is untenable in the precarious world situation of the present time.

Specieism

Specieism is based on the conviction (rarely articulated) that we, the human species, have inalienable rights over the rest of creation and consequently can claim the right to manipulate and control universal life as *we* deem appropriate. We either ignore or deny the fact that Planet Earth herself—and the entire cosmos—is also endowed with life (of which we are an interdependent part). We also tend to ignore the fact that the cosmic evolutionary process predates our existence by billions of years and will outlive us by billions yet to come.

Specieism refers to the grossly exaggerated and highly destructive role we attribute to our human species. Implicit in this claim is the perception that we, *at this stage in our evolutionary unfolding,* comprise the highest possible form of creaturehood. In other words, we assume that *we* are the end of the evolutionary line, with

no possibility of a better or more enlightened being evolving in the future.

This sin often manifests itself as *anthropomorphism:* the tendency to understand, interpret, and absolutize various aspects of life (e.g., our images of God) according to *our* limited understanding of the human condition (see Guthrie, 1993). A great deal of scientific modeling—which considers the human mind to be infallible and insurmountable in terms of future evolution—is affected by this immoral disorder. Even some theologians succumb to the anthropomorphic flaw, as indicated in the following quote from a contemporary, reputable theologian (Cupitt, 1988, 24, 26):

> The old objective theological drama of creation, judgement and redemption is now hominized. It has become the drama of our own responsibility for creating our own future. Our life and our death are in our own hands....Salvation is full personal integration.

Dualisms

Dualisms are human fabrications of reality, designed to reinforce our human, addictive compulsion to conquer and control. Dualisms undermine the wholism and mystery of life; they present a false, divisive, and misleading picture. They encourage thwarted growth and development, always tending to project the "negative" on to an external scapegoat, and thus discouraging the integration of our personal, social, and cultural shadows.

Insularism

The sin of insularism has several familiar forms:

- personal individualism: always putting "me" first;
- tribal exclusivity: acting out of a false superiority in terms of family or business status;
- nationalism: rating my (our) national needs above those of the planet (and cosmos), and acting aggressively to defend my national "rights";
- time restriction: examples being our tendency to define civilization as a "post-Christian" phenomenon in a world at least fifteen billion years old, or our tendency to teach history in a manner that begets sectarianism, nationalism, and specieism;

- sexism and racism: two of the most obnoxious manifestations of the insular mindset, whereby we categorize and label people in order to exert destructive pressure or power over them.

Idolatry

Anything to which we are deeply committed can become a "god." Money, power, possessions, pleasure, scientific certitude, religious dogma are among the leading gods of our age. Insofar as none of these can bring us ultimate happiness or fulfillment, they are false idols. We worship them not out of love, but out of an unconscious need for power.

Many of the gods of formal religion are also false, in the sense that they are caricatures of our own perceptions. Even in the revealed religions (Judaism, Christianity, and Islam) we use *human* language and ideas to describe the Godhead, and then turn our humanized image into a divine caricature in the name of which we often carry out outrageously immoral acts of control and domination. The fact that two mainstream religions, Christianity and Islam, morally justify war (the just war and jihad theories), is evidence of a perverted religious ideology.

A recent Christian document, signed by Christians from various parts of the Third World, describes idolatry as the denial of all hope for the future. We become so locked into the religious/political/scientific ideologies of the past, that we prevent ourselves and others from addressing the pressing needs of the present and future. We become blind to the real world. In fact, we become "gods" unto ourselves.

Our world today is rampant with idolatry, specieism being one of the most pervasive manifestations. All forms of idol worship tend to be self-validating and self-perpetuating, resistant to change, and consequently deaf to the call to conversion.

Militarism

Modern warfare is largely a byproduct of the Agricultural Revolution, commencing about 8000 B.C.E. Armies and the general infrastructure of warfare claim to be the guardians of freedom and democracy. In effect, they serve now in subtle and devious ways what they set out to achieve at the dawn of the Agricultural Revolution: to conquer and divide the planet, at the whim of male, insatiable craving for power and domination.

Currently, the production, distribution, and use of arms absorb more time, money, and energy than any other activity of the human species. As a species, we are engrossed — to an irrational degree — in lethal war games. Unconsciously, we are bent on self-destruction.

Today there is no justification whatsoever for warfare. It is an inheritance from bygone days that may have been appropriate then (that, too, is disputable), but in our wholistic era, it has neither sense nor meaning. Nor can we any longer ignore the grave moral and ecological side effects of modern weapons of destruction.

To reverse, or even diminish, our addiction to warfare is a huge moral challenge for the twenty-first century. It will take something of a miracle, probably a catastrophe, to bring about such a deep change of heart.

(Man)Power

The issue of power is closely related to warfare. Here I am referring to the use of power in a masculine, rational, competitive, and compulsive manner, leading to the subjugation of some people by others, and the notion that the earth (and cosmos) exists to be conquered and controlled according to human whim and fancy. In other words, human beings try to play God, assuming that in God's name, they will do what is best for all, thus failing to recognize that there is also a shadow side to the God-power, which often manifests itself in barbarity, crime, destruction, and warfare.

Injustice

The fact that our world is so blatantly divided between "haves" and "have-nots," the fact that the daily expenditure on armaments would feed the world's population for a whole year, that most Western nations give less than 1 percent of their GNP to developing countries are just a few of the flagrant structural sins of our time. Our world is riddled with injustices, and most of these are political and structural in nature, often initiated and sustained by greedy, insatiable Western multinationals.

The Christian churches, often caught in a collusive web with Western political oppressors, champion the cause of love, but rarely preach justice with comparable or compelling conviction. Love without justice, which is often the ambivalent message from the churches, is a charade which often leaves millions with neither love nor justice, care nor compassion, in their daily lives.

There is also an "eco-justice," or what Conlon (1990) calls "geo-justice," claiming our attention today: the painful reminder that we humans cannot live in dignity and freedom while we exploit and pollute our planetary home (see also Kroh, 1991). In the oft-quoted phrase of Theodore Roszak, we need to recall, again and again, that "the needs of the planet are the needs of the person and the rights of the person are the rights of the planet."

Blasphemy

Traditionally associated with taking God's name in vain, blasphemy today is evident in convoluted, pernicious activities, such as clergy blessing nuclear weapons before they are disseminated to bunkers around the world, or religious leaders, committed to simplicity and frugality of life, living in luxurious palaces. To invoke God's name to justify oppressive regimes is another example of this moral outrage.

Even in our largely nonreligious Western culture, we continue to invoke God's name (and blessing) on all sorts of politically and religiously deviant systems. It gives a veneer of respectability to what are fundamentally immoral or, at best, morally ambivalent consumerist and oppressive regimes.

These structural sins of our time create an immoral enigma of huge proportion, yet millions take them for granted and assume them to be inevitable consequences of "the way things are." While the major religions preach and admonish ethical and responsible behavior at a personal and interpersonal level, they largely ignore the massive structural and systemic caricature of gross immorality. How can people be expected to act and behave morally in a world so riddled with immoral incongruity? How can any of us hope to create a more just society when many of our major institutions (including religious ones) are riddled with injustice?

For quantum theology, morality is one of the most critical and engaging issues. Our value-free culture has largely become a value-less culture, or rather the values of insatiable power, manipulation, and hedonism prevail in ways that have become culturally acceptable (and often politically and religiously validated) but, nonetheless, potentially lethal for the future of life on earth. We pride ourselves in having drawn up an international charter for human rights, and in many parts of our world we have courts defending people's rights. Rarely do we emphasize the complementary value of *duty*. And without this complementary emphasis, our rights often become instruments for manipulation, to enhance our insular, anthropocentric concerns.

There is great urgency in drawing up a new international, global moral code, one that will strive to safeguard the interdependent nature of all life forces at the service of our evolving cosmos. It's not merely people who need moral values and guidelines. The planet also needs them and so does every institution and sociopolitical system that we humans invent. Without such guidelines, the shadow side of life (the tendency toward the irrational) is either ignored, i.e., denied, or reaps uncontrolled havoc, as is currently happening. In quantum terms, the purpose of morality is the integration of the shadow in all its various expressions, ranging from the personal to the global. Traditional morality often seemed to be unaware of the power of the shadow and alienated the darkness even further by labelling it as "evil."

Quantum theology believes that:

- the shadow is a real and powerful dimension of *all* life;
- we cannot eradicate or eliminate the shadow, and the more we try, the more power we give it over us;
- the shadow becomes a potential source for creativity precisely when we engage with it in a spirit of receptivity and dialogue, as we strive to integrate it into the rhythm and flow of life.

Consequently, quantum theology adopts as a key principle: *Structural and systemic sin abounds in our world, often provoking people to behave immorally. To integrate the global shadow, we need fresh moral and ethical guidelines to address the structural and systemic sinfulness of our time. The formulation of these guidelines is as much a political as a religious obligation.*

The morality called for in this chapter seeks to outgrow the dualistic distinction between church and state. All people and all institutions are coresponsible for a world order that enables and empowers people to live in a creative and responsible way with each other, with the planet, and with the cosmos. Morality is not the sole, nor even the primary concern of churches or religions. It is everybody's responsibility, mediated through all structures and systems that impinge upon our daily lives. Only cumulative good will on the part of all is likely to address adequately the moral vacuum that poses such a threat to our world today.

Our moral sensitivity is heightened and our moral consciousness is sharpened when we acknowledge our mutual sinfulness, when we

learn to befriend the darkness that we all inhabit. In one degree or another, we are all tainted; in Christian language, we all have sinned. A precondition, therefore, for a more responsible and compassionate world is that we learn to *forgive,* beginning with ourselves and extending our forgiveness toward the many others we have hurt or used.

Many people today are disillusioned, some embittered, others apathetic, when they confront the plight of our world. We cannot undo or change the past; recrimination or bitterness is futile. Forgiveness is the only disposition whereby we can let the past be the past — in the deep, and often painful, awareness that it cannot be changed — and redirect our creative energy to a fresh future. Forgiveness is a liberating mode that promises hope and new life. We learn to trust once again and give of ourselves more fully to each other and to the universe.

Forgiveness opens up fresh possibilities. We begin to let go of old animosities. We acknowledge more readily our own limitations and those of others. We tolerate inconsistencies without becoming complacent or indifferent. And we are disposed to grow into that liberating and healing wisdom that respects the shadow side of life for what it really is: an essential incompleteness forever awaiting fulfillment, a fertile emptiness (a nothingness) out of which creativity yearns to explode. Such is the paradoxical nature of the great shadow, the ecstasy and pain of life which we are ever invited to embrace anew.

Part Six

The Light

What immortal hand or eye
dare frame thy fearful symmetry?
—WILLIAM BLAKE (referring to the tiger)

becomes holigraphically decoded, and the individual experiences a state of unitive consciousness with the entire universe.

The potential to be more enlightened people and relate to life in a more enlightened way seems to be largely unrealized. At this moment of our human, evolutionary unfolding, our capacity and need to become more enlightened people is evoking new ways of connecting us to the sources of universal wisdom. Meditation, of course, is an ancient wellspring of wisdom, but its popularity today among people of such diverse cultural and spiritual backgrounds seems to suggest that it is mediating something of immense significance for our times.

There are several methods or techniques of meditation. Following the great mystical traditions of our world, we could say that it is not we who meditate; rather, the divine life force meditates within us. Meditation is very much a matter of letting go, releasing the props, the attachments, the will to power and control, which has so dominated our Western mind and psyche.

The mystical mode of meditation is that of disposing oneself, in quietness and solitude, to the vibrations of inner power, especially the inner resourcefulness we Christians call "grace." In the East and West alike, there is a well-established tradition of *Centering Prayer*, sometimes called mantric meditation; the Jesus Prayer of the West and Transcendental Meditation from the East are among the better known versions. In this approach, the emphasis is on gathering together our scattered energies so that we may use them in a more creative and wholistic way. In the Buddhist tradition, there is a strong emphasis on *concentration* (especially of the breath) in order to bring the mind to the still point, whence enlightenment begins.

Matthew Fox (1983, 188–200) devotes considerable attention to the notion of meditation through *art*, a creative medium that unleashes repressed and unintegrated energies for novel use in more integrated living. In Fox's outline, art may be that of music, sculpture, poetry, or movement (dance). Modern psychotherapy often employs these approaches to help the client become more centered, focused, and integrated in behavior.

Finally, we need to emphasize that meditation is a *natural birthright*, a potency awaiting realization within every human being. There is a danger today that we perceive meditation as a highly specialized skill (especially for religious freaks) that we can buy with money or learn from a textbook. We are in danger of trivializing this precious commodity which, although innate to the human psyche, needs tender and careful nurturing by experienced meditators, whether spiritual gurus, creative artists, mystics, or spiritual directors.

As a means of enlightenment, meditation breaks open new horizons of light, hope, beauty, and truth. It reconnects us to the fundamental goodness upon which life relishes and thrives. It challenges us to inflame the true Light which ignites, enlivens, purifies, and sanctifies. It helps us to make that quantum leap of mind and spirit that compels belief in, and commitment to, an unfolding evolutionary process that is benign in its fundamental orientation.

In all the great mystical and religious traditions, light is an enduring and predominant symbol. In the major religions it is the most frequently used word to describe the essence of God (*Noor* in Islam, *Jote* in Sikhism). It denotes ultimate yearning and fulfillment (as in the phrase: "may light perpetual shine upon them"), the resolution of pain and suffering ("light in our darkness"), the presence of the divine in our midst ("the light has come into the world"), the sure pathway to truth and ultimate happiness ("follow the light"). (For further examples, see Eliade, 1965.)

In orthodox theology, light is not a topic of serious consideration like salvation, sacrament, God, or sin. Theologians seem to allocate it to the realms of the spiritual life or the mystical journey, thus underestimating its more universal and generic significance. It is often contrasted with sin, evil, and the powers of darkness in a classical dualism whereby light denotes all that is good and dark all that is evil. As indicated in previous chapters, this simplistic dichotomy belies the rich complementary value of both concepts.

The Sacrament of Light

Why are people so fascinated by light? What is its deep, archetypal significance for our personal lives and for our universal culture? Might it point to some ultimate state of completion to which all life yearns for fulfillment? Perhaps the Omega point is a fulness of light!

Eastern mystics tend to identify *sound* as the primal energy of life. Sound is considered to be the original life force out of which all else unfolds. Hence the Christian and Jewish idea: in the beginning was the Word (*dabhar*), the energy of sound. Many Eastern meditation techniques use mantras, not for their theological or religious meaning, but for the sound quality of the words. They believe that the regular use of the mantra realigns the meditator with the original

Chapter 13

Reaching toward Infinity

We are, as the aborigines say, just learning how to survive in infinity.

—MICHAEL TALBOT

Where the telescope ends, the microscope begins. Which of the two has the grander view?

—VICTOR HUGO

There are moments where time suddenly stands still and leaves space for eternity.

—FYODOR DOSTOYEVSKY

In Christian theology, "demythologization" became a central concept for much of the nineteenth and twentieth centuries. It was an attempt to strip away the mythic elements in the scholarly pursuit of pure, *factual* truth. Applied to the Bible and other sacred texts, it involved the recovery of historical facts over against the literary or cultural trappings that created an impressive story but not necessarily true-to-life history. Events in the Gospels, such as the birth of Jesus, the miracles, and the resurrection, came under intense scrutiny, and in the absence of hard historical data were often considered to be theological fabrications of no real factual significance and, therefore, not deserving of serious theological reflection.

This trend, more fashionable in Protestant than in Catholic theology, emulated the rational, scientific consciousness of the time. Pure truth was based on observation and measurement, carved out by the human mind, whose basic level of intelligence was assumed to be the ultimate barometer of verification and veracity. In this context, myth was considered to be the product of a fanciful imagination which added color, and perhaps excitement, to the facts, but deviated from the true nature of reality. Myth was deemed to be a primitive, infantile instinct which, in a mature, rational, developed culture should be outgrown and discarded.

Meanwhile, scholars of a different intellectual pursuit — especially anthropologists, psychologists, and social scientists — were proposing quite a different way of viewing reality. Facts were deemed to be superficial impressions; the real meaning resided much deeper, in the subtle and often undetectable realms of consciousness. Of particular interest to anthropologists were the great universal stories of beginnings and endings, which occur time and again across human cultures. There were universal and deeper truths which could be accessed only through a quality of story called "myth." Myth contained a depth and intensity of truth that no amount of scientific verification or rational thought could ever hope to explore.

All sacred texts — including the Christian Bible, the Muslim Koran, the Sikh Guru Granth, and the Indian Bhagavagita — are predominantly mythic in nature. This is what authenticates them as sacred texts. The historical facts are relatively unimportant; in themselves, they are incapable of eliciting or confirming genuine faith (belief). *It is the myth that awakens the sense of numinosity,* that evokes the spiritual energy, that empowers the person to respond to the divine urge (whether we consider that to come from within or from without).

Resurrection from the Dead

Among the better known mythic tales is that of resurrection from the dead. It occurs in many of the major religions in one form or another, and several examples occur in prehistoric belief systems. In the Christian Scripture, it provides the grand finale to the life and ministry of Jesus. "Finale" may be the wrong word, because, in fact, resurrection leaves everything open to fresh possibility, and the story of the Ascension in Luke's Gospel (Luke 24:50–53), which is intended to get Jesus back to heaven after the resurrection, is yet another mythic tale with the motif of *closure* or *completion* as its obvious goal.

The historical facts of the Christian resurrection narrative are a subject of intense debate among biblical scholars and theologians. Basically, we do not know when, where, or how Jesus was buried, nor have we any concrete, historical facts or artifacts to verify his miraculous rising from the dead. What we do have is the life-witness of a group of disenchanted followers, so transformed by the *experience* (whatever that was) that they give their very lives for their Christian convictions and, second, a Christian culture of two thousand years numbering today 1.5 billion people spread throughout the

earth. It is hard to imagine that the totality of Christian culture, as we have known it to date, is based on a grand delusion.

The facts of the resurrection story are relatively unimportant. Even if some researcher of impeccable quality could prove that he or she had discovered the actual earthly remains of Jesus (thus negating the *fact* of resurrection), it would not undermine Christian faith in any serious way. What happens in the experience of the resurrection is that the close followers of Jesus begin to rediscover their Savior's presence with them, and they experience this presence with an intensity and reassurance that transcends the quality of his earthly/human presence among them. To make sense of this new experience, the frightened and excited disciples start telling a story: "It was as if...." The story helps to contain the vision, the dream, the myth. The mystery is made tangible and its challenge accessible. And the story spreads like wildfire, all the time gathering coherence and clarity. But the more the storytellers focus on the *meaning* of the story, the more the story loses its essential meaning. In time, logic threatens the myth, and historical fact distracts from the challenge of the mystery.

What is most gripping in the resurrection myth is its power to transform. At a personal level, it depicts the frayed, bruised, humiliated Jesus exonerated in his essential, human dignity. At a structural, systemic level, it signifies that the political, cultural forces of injustice and oppression do not win out in the end. And at the global (wholistic) level, it projects a world of unrealized possibilities, opening up into an eternal future. Resurrection elevates human yearning into infinite proportions and invites us to understand creation (the entire cosmos) as endowed with an eternal destiny. The myth of resurrection opens up global horizons for person and universe alike.

The great Eastern religions speak of reincarnation rather than resurrection. The Eastern spiritual vision comprises a cycle of eternal birth and rebirth. The underlying myth is not fundamentally different from that of Christian resurrection. The cultural expression is different, but not the fundamental mystery which the human heart seeks to comprehend. Whether we embrace resurrection (in the Christian sense) or reincarnation (in the Eastern sense), the important thing is that we do *not* dogmatize either. Once a myth becomes a dogma, it loses much of its capacity to inspire and to enlighten. If the dogma prevails it will eventually become an idolatrous ideology in which truth and meaning become largely, if not totally, subverted. At the end of the day, both resurrection and reincarnation are *human* namings, attempts to make human and earthly sense out of divine,

eternal realities. A humble acknowledgment of this fact provides a far stronger guarantee of truth and doctrinal integrity than the many religious dogmas that have surfaced over the centuries.

The Universal Will to Life

Contemporary science has its own version of resurrection and reincarnation, known as "autopoiesis" (see Jantsch, 1980, especially 10ff., 90ff., 187–91). The concept was introduced by the Chilean biologist Humberto Maturana in the early 1970s. Autopoiesis refers to the ability of living systems to renew themselves continuously and to regulate this process in such a way that the integrity of their structure is maintained and continuously enhanced.

Already in 1926, the South African statesman Jan Smuts was exploring the wholistic nature of evolution. It took a good fifty years for mainstream science to acknowledge his contribution; it will take at least another twenty before these creative insights are integrated in a coherent way. Meanwhile an all embracing concept such as autopoiesis projects the scientific pursuit toward new horizons whereby it becomes a key concept in one of the most promising and provocative interdisciplinary explorations of all time.

Autopoiesis incorporates a range of ideas which taken together gives the quantum vision substance and conviction:

a. It considers everything to be a living system. Dead, inert matter is a perception of the mechanistic worldview of classical science. From a quantum (wholistic) viewpoint, a stone is a crystallization (compaction) of energy, not a lifeless object. The universe itself is not a machine-like entity, but an organism endowed with a highly developed, self-organizing life system, outlined in the Gaia hypothesis (Lovelock, 1979, 1988). Living systems are essentially dynamic (as distinct from static). They grow, change, and adapt. They possess a will-to-live, an amazing and intriguing capacity to regenerate, usually through the cycle of birth-death-rebirth.

b. It holds that every living system has an inherent capacity for self-organization. Contrary to the long-established second law of thermodynamics, which postulates the gradual decline and ultimate extinction of all life forms, scientists are now beginning to acknowledge the capacity for self-regeneration as a more fundamental aspect of nature. In 1947, Conrad Waddington introduced the notion of the "epigenetic process," the selective and synchronized use of structurally coded genetic information (as in DNA and RNA) by

the processes of life in interdependence with their relations to the environment. In the 1970s, Ilya Prigogine (1980, 1984), with his collaborators in Brussels and in Austin, Texas, introduced the notion of "autocatalysis": order through (chaotic) fluctuation, the inherent tendency of living systems to move beyond equilibrium, through instability, to adopt a totally new, life-enhancing structure. And at a cosmic level, Swimme and Berry (1992) postulate a similar self-regeneration process, which they call the "cosmogenetic principle," according to which the evolution of the universe is characterized by *differentiation, autopoiesis,* and *communion,* throughout time and space and at every level of reality.

c. Living systems are rarely static, and if they are, they are likely to atrophy and die from stagnation. Living organisms do not thrive in a state of balanced equilibrium, but usually in a fluctuating restlessness often described as being "far from equilibrium." Living systems, therefore, are essentially *dissipative structures,* a concept introduced by Prigogine in the 1960s for which he won the Nobel prize in 1977.

These are structures with an innate capacity to dissipate anything that comes in to disturb the system. The term "dissipate" is somewhat unfortunate, because what really occurs is *integration* and not *dissipation.* The system is shaken up — usually by an outside influence; a chaotic dysfunctional phase may ensue. The urge toward self-organization or regeneration is invoked (at a subtle, subconscious level, which nobody really understands) and the system evolves into a new and more creative way of being. At the human level, we see this process happen in the case of recovery from illness, trauma, or addiction. We also recognize that recovery may never happen, and death may ensue. But in quantum terms, death is not a meaningless termination; it is a transformation into a more wholistic way of being.

d. Autopoiesis is essentially a learning process. According to Jantsch (1980, 8), evolution is open not only with respect to its products, but also with regard to the process within which it unfolds. Once the human body has developed an immunity to one or other illness, it retains that resource for a whole lifetime and uses it to recognize and ward off the intruding antigen. Proponents of the Gaia hypothesis claim that the same happens at the planetary and cosmic levels on a grand evolutionary scale. Chance and necessity are complementary principles (and not just a biological urge to survive) in what increasingly resembles a mystical, spiritual will-to-life.

e. In quantum terms, the autopoietic process makes the notion of

an alive universe (Gaia) a great deal more meaningful and attractive than the more mechanistic concept of an external agent (God or otherwise) empowering the unfolding process from without. This in itself is not, nor is it intended to be, an argument against an external agent. Rather it is an invitation to take the focus off the *without*, where so much energy and creativity is projected and dissipated, and refocus on the *within* (of all things) where such a reservoir of life and meaning awaits discovery. Once we begin to understand and internalize the sacredness of life from within — ourselves, our planet, and our universe — then the classical academic search for an external agent may become quite irrelevant. Once we genuinely make the connection, the deep realization of the interdependence of all things, we readily endorse the quantum conviction that the *within* and the *without* are, in fact, one and the same reality.

f. Finally, there are the quantum dimensions of autopoiesis itself, a tendency that knows no boundaries, no before or after, a will-to-life that stretches into infinity. The innate driving force of the autopoietic process is something that science, by itself, can never hope to comprehend fully, no more than theologians can ever fathom fully what we understand by resurrection or reincarnation. These concepts, at the different, but complementary, levels of science and theology, are attempts to contextualize within our daily, earthly lives, the pull (urge, desire) toward infinite horizons. St. Augustine seems to have had a profound insight into our infinite yearnings when he wrote: "You have made us for yourself, O Lord, and our hearts are restless until they rest in you."

Whither Afterlife?

St. Augustine's cosmology had a simplicity to it that proved attractive over subsequent centuries. It was a dualistic view of *this* world and the *next* world. This domain of existence was considered transitory, fragmentary, illusory, sinful, a place of pilgrimage to be endured until, in death, we escaped to the real life beyond. The *next* world was deemed to be eternal, real, and complete in every sense. It, too, had its dualistic poles of heaven (absolute happiness) and hell, (eternal pain and suffering). In Catholic theology we added purgatory, as an interim "place" of purification in preparation for heaven.

In Augustine's worldview, heaven, hell, and purgatory were real physical places. Heaven was considered to be above the sky, hell beneath the earth, and purgatory in some unknown location. Although

we even begin, if we wish to set things right? What's the point in beginning if — as many think — it is already too late?

From a quantum perspective, the impact of impending global disaster needs to be treated with profound theological seriousness. Central to the Christian faith is the Calvary experience, which we tend to explain in terms of personal (or interpersonal) redemption and salvation. But the Calvary experience — and its equivalents in other religious systems — has a symbolic meaning of planetary and global proportion, a dimension largely ignored by orthodox religion and theology.

Liberal theologians of the nineteenth century tended to distinguish between the particular (historical) Jesus and the Christ of faith. In other words, the actual, historical person of Jesus preached and embodied a vision for a new world that had an immediate application to the people of his time (and to those who, subsequently, aligned themselves with Christianity). That same Jesus, besides his specific, personal identity, has a cosmic significance for all people and for the whole of creation. Christian theologians tend to argue that the Cosmic Christ makes no sense apart from the particular, historical Jesus. Without the concrete person, we cannot imagine nor create the universal ideal.

This is where quantum theology differs radically. It considers the Cosmic Christ, the God of universal life and love, whose revelation unfolds over fifteen billion years of (known) evolution, to be the originating mystery from which we devise all our divine personages and images. All the god-figures of the different religions, including Christianity, emanate from this cosmic originating source.

Consequently, all the events narrated in the Christian Gospels, particularly those that impact upon universal human and planetary yearnings — beginnings (e.g., the Infancy Narratives) and endings (e.g., Calvary, resurrection), miracles, parables — are particularizations of a more universal narrative of faith and meaning. They point to something greater than their immediate terms of reference. They offer a universal symbolic significance as well as having an immediate, practical application.

Our Calvary Moment

Taken in its universal sense, the Calvary experience is a symbolic encapsulation of the breakdown and disintegration which is endemic to evolutionary unfolding and a prerequisite for a new

evolutionary threshold from which higher forms of life emerge. In the great Eastern religions, this process is described as the cycle of birth-death-rebirth.

Our world today is in the throes of a Calvary disintegration. Death, destruction, and despair dominate our world scene. Exploitation, violence, and desecration are all around us. Our Western world has adopted a stance of outright denial: we don't want to know the real truth, and we'll do all in our power to subvert it by accommodating a range of addictive behaviors. Thus we trip headlong into chaos, destruction, and eventual annihilation.

It sounds too pessimistic to be taken seriously; so we resort to denial and rationalization. We choose to forget the thousands of species — animal, bird, and plant — that human interference has condemned to extinction. We fail to internalize the horror and disgust of tropical forests being eroded at the rate of one hundred hectares per week. We numb our intelligence to the realization that we have created enough bombs and nuclear arsenals to destroy the world, not once, but several times over. We are immersed in a cultural death-wish of the gravest proportion, one from which we can only hope to escape by some divine miracle.

From a quantum perspective, the miracle has already happened! The Christ-event, with its climax of death and resurrection, with a specific faith content for Christians, has a global symbolic significance of divine rescue. This can be understood as a once-and-for-all event (or experience) in the traditional Christian sense, or as an enduring quality of universal life, manifested in many spiritual trends and scientific discoveries of the recent past. The onus is not on some divine, external agent who can reverse, with sleight of hand, the cumulative destruction we humans have caused. The burden is ours to own and to bear. We are the stewards of creation and the time is at hand to render an account of our stewardship.

It is unlikely that we humans will survive the impending global crisis. Whether it be a nuclear holocaust (possible but unlikely), chronic oxygen-depletion due to pollution of air and water (quite possible), or mass extinctions due to global warming (likely), our species faces virtual extinction, possibly within the next *fifty* to *one hundred* years.

Rather than contemplate the enormity of the disaster, we continue to evoke human good will and some unexpected reprieve — from nature or from God. We need to recall that there have been, not one, but several mass extinctions in the history of our world, and climatic factors usually play a key role. We record destructive

impacts like the extinction of the dinosaurs at the end of the Cretaceous Era (some sixty-six million years ago), but we fail to appreciate the larger more wholistic, interpretation that this is one of nature's strange and ingenious ways of withholding her creative energy for a new outburst of evolutionary life (Swimme and Berry, 1992, 50–60, 94–95, 118ff. are profoundly informative on this topic). Species emerge and become extinct, land masses surface and become submerged, cultures unfold and decline again, but the evolutionary story of creation moves unceasingly on its infinite trajectory.

We are a dimension of the evolutionary story, *co-creators* but not *masters*. As highlighted so often in this book, our lives make no sense apart from the planet and cosmos we inhabit. We take meaning from the larger reality to which we desperately try to give meaning. In our battle with the so-called "alien forces" of nature, we have now reached a nadir point where we could destroy the whole enterprise, ourselves included (as in a nuclear holocaust). In this grim scenario, we need to remember that the real loser would be our own species. Temporarily, but not permanently, we would have destroyed the processes of nature. However, we would not have destroyed the will-to-life which rapidly would reinvoke its self-organizing, autopoietic potential and begin the co-creative process all over again.

Within a short period of time, possibly within *one hundred* years (a mere millisecond on the evolutionary time scale), the cycle of life would recommence, regenerating human life, possibly within *one millennium*. What previously took billions of years would now happen in a few minutes of evolutionary time. And from the Calvary of Homo sapiens would emerge (in all probability) a new quality of human being, equipped emotionally, intellectually, psychically, and spiritually to become more attuned to the new evolutionary age. Not for the first time in the universe's story would death have given way to resurrection!

The quantum theologian needs to take extinction seriously. Without it the dance of life is fundamentally incomplete. The precise details are unimportant; scientific evidence, compulsively bent on controlling nature, is incapable of engaging with this dimension of our evolutionary story. Our patriarchal consciousness cannot confront the shadow, that dark pain and chaos that serves as a prerequisite for fresh possibilities. The insatiable desire to manipulate and control is the deadly addiction of our age, destined to reap havoc on planetary life. The crisis seems unavoidable; we may not be able to prevent it, but we can anticipate it, enter its painful and paradoxical life-giving energy, and in this way possibly survive it.

We cannot address the future in a serious or comprehensive way without embracing the dark and perilous threat that hangs over us as a human and planetary species. And in quantum terms, we are compelled to assert what seems initially to be an outrageous claim: a radically new future demands the destruction and death of the old reality. It is from the dying seeds that new life sprouts forth. Destruction becomes a precondition for reconstruction; disintegration undergirds reintegration; Calvary is a prerequisite for resurrection.

Quantum Yearnings: Within and Without

Our future, therefore, is about peril and promise, annihilation and fresh possibility. All fields of human learning offer dreams for a new future, and science has engendered some fascinating possibilities. These can be explored in terms of an *inward* and *outward* path, offering complementary rather than opposing strands of development. We have reviewed the imminent prospect of a universal Calvary, with the demise and likelihood of extinction for Homo sapiens. I suggest it will take nothing short of a universal resurrection if we humans are to retain some sense of sanity and hope in the future. Signs of this possible resurrection are already abundant for those who can see with the eyes of quantum vision.

In terms of the inward journey, scientific exploration has moved into the invisible realm of the subatomic world, a hybrid of intense and awesome activity which we can intuit in the heart long before we can, in any sense, apprehend with our human senses. We have shifted the quest for the origin of the universe from what happened in the first minute of time, to the first second, milli-second, and now we talk of the first billionth of a second, a concept which the human mind (at this stage of its evolution) cannot even remotely grasp. Biologically, we have probed the genetic code to a depth that is verging on mystery itself. The word "micro" is one of the most frequently used in modern technology.

Spiritually, the path of the inner journey is frequently traveled today. Religious adherents tend to judge prematurely and harshly the perceived secularism of our contemporary Western culture; this perception often betrays a myopic view that negates the spiritual search of our time in the nonreligious realm. As increasing numbers lose faith in the institutions of state and church alike, people often find themselves adrift in a spiritual wasteland. This is the mythic desert space, which, contrary to popular opinion, does not alien-

Charles Hartshorne, John Cobb, and David Griffin. Central to process theology is the conviction that God is responsible for ordering the world, not through direct action, but by providing the various potentialities which the physical universe is then free to actualize. Thus, God becomes a participator in the creative process rather than an omnipotent creator and ruler from without. In the very *becoming* of the universe God also becomes. God's creativity is manifested or revealed primarily in the process of creation itself.

Process theologians offer us the model of a *dipolar* God. The two poles are described by Whitehead as *primordial* and *consequent,* the former relating to the abstract essence of God: free, complete, eternal, immutable, and unconscious; and the latter, referring to God's concrete actuality: determined, dependent, incomplete, vulnerable, and conscious. Both aspects are necessary to comprehend God's activity at any moment in time.

Jantzen (1984) adopts a somewhat similar approach in proposing that we consider the world to be God's body, wherein God risks the embodiment of divine creativity, eliciting a perception of the divine as visible and present to all creation in a palpable way. McFague (1987, 1993) develops this idea at great length, describing such embodiment as a type of sacramentality, celebrating simultaneously something of the world's vulnerability and precariousness but also its uniqueness, beauty, and prodigious creativity.

The dipolar description, and its underlying sense of divine embodiment, is reminiscent of the Christian struggle to reconcile the divine and human aspects of Jesus. Our dualistic tendency is to oppose these two characteristics into conflicting positions which often become irreconcilable. The heart, mystery, and challenge of the Christian faith is that they are totally reconcilable, a conviction often articulated in mystical statements such as: "The glory of God is people fully alive" (St. Irenaeus) or, "God is what happens to people on the way to becoming human" (Gregory Baum).

Nonetheless, the concept of a dipolar God does disturb our desire for intellectual neatness and perceptual simplicity, but as Davies (1992, 183–84) remarks, this is an eminently appropriate model for our quantum age. In the domain of particle physics, we can no longer describe or perceive the electron as a simple object. It will manifest itself as a particle if we are observing its position and as a wavicle if we are observing its movement. At all times, it is a wave-particle duality, manifested only in one or other expression. Perhaps we have here a illustration of what *all* life is about, including God. We humans can grasp and comprehend only in a partial and fleeting way.

The "whole" is greater, more open-ended, and more creative than we can ever hope to observe or decipher. And it is precisely this greater whole that enlivens and energizes us toward a different and more creative future.

In this chapter, we have set out to achieve something verging on the impossible: to build a bridge between two possible futures for our planet and cosmos — *extinction* (at least of the human species) and *transformation* (by the co-creative forces of evolution itself). Paradoxically, with all the arguments in the melting pot, the challenge to perceive and understand our universe on the grand scale may yet prove to be the most rewarding pathway to the light of truth and to a real sense of hope for the future. At this juncture, there is increasing evidence to suggest that, for scientist and theologian alike, the breakthroughs of the future are more likely to be in the realms of global contemplation rather than in laboratory experimentation. In fact, the evidence is overwhelming, veering in the direction of that truth which asserts that the whole is greater than the sum of the parts.

What must be unmistakably clear at this juncture is that we humans have scarcely begun groping into the dark and mysterious power of universal life: that the arrogant intrusiveness with which we play God has made our very existence precarious and verging on meaninglessness; that we humans in the next few decades are in for a rude (and possibly highly destructive) awakening; that our only real hope for "salvation" and new life is to humbly acknowledge how little we are in it all, let go of our masculine will-to-power, and allow ourselves to become the co-creative beneficiaries of an evolutionary process that far outstretches anything we ever dreamed of. In that sublime and poignant moment of letting go, and letting "God," we'll rediscover who we really are.

The considerations of this chapter leave us with what may well be the most paradoxical of the twelve principles that underpin quantum theology: *Extinction and transformation, the evolutionary equivalents of Calvary and resurrection, are central coordinates of cosmic and planetary evolution. Their interplay at this historical moment — our "kairos" — provides the primary locus for the praxis of the quantum theologian.*

Chapter 15

No Greater Love . . .

The day will come when after we have mastered the winds, the waves, the tides and gravity, we shall harness for God the energies of love. Then for the second time in the history of the world, man[kind] will have discovered fire.

–Pierre Teilhard de Chardin

In a time such as ours when the intrinsic value of our world must be stressed, eros as the love of the valuable is a necessary aspect of both divine and human love.

–Sallie McFague

Human society, including its relationship to Planet Earth, will begin to transform only in relationship to the evolution of a new sexuality.

–Robert Lawlor

People first began to use fire about six hundred thousand years ago. For our ancient ancestors, it became one of the greatest stories ever told. Not only did it provide new ways of cooking food and warding off the harsh winds of wintertime, but it became a life force that animated and united. The hearth became a new focal point for camaraderie, bonding, communicating, celebrating, and "praying." Around the bonfire, our ancestors came to know something of the meaning inherent in all things. And for possibly the first time in their existence, they consciously acknowledged the power of love. The warmth of fire awoke the inner flame that draws hearts closer together and unites people in true mutuality.

Love is a central concept in all the great religions. But it always tends to be personalized, attributed to God(s) and people, but rarely to other species, and scarcely ever to the forces of universal life itself. Consequently, we have inherited in Christianity a focus on the inner

forces of love and the outer forces of cold and darkness, another classic dualism that subverts deeper meaning.

With the discovery of the quarks (from the mid-1960s to the mid-1990s), we detect within nature itself tendencies toward mutuality. Because quarks are discernible only in relationships of diads or triads, we are confronted with what seems to be a fundamental truth about all life: connectedness and interrelatedness are interwoven throughout the entire fabric of creation. This imprint is not a cold inanimate force, but a vital, life-giving energy, perpetually destined toward co-creation. There are no limits to the energy of love which begets higher and more complex life forms, and in that very begetting we realize an essential benign quality with which all reality is endowed, in the face of which the "perpetuation of the species" and the "survival of the fittest" become motivating forces of secondary significance.

Power of Love or Love of Power?

At some moment in every human life, we each grasp something of love's own depth and beauty. Unfortunately, we are rarely sensitive enough to imbibe the experience for the future benefit of ourselves and others. Life forces us back to basics: the struggle to survive (for most in the Southern hemisphere) or the struggle to compete (for many in the West), or one or other of the destructive variants that lie in between. Our current travesty, as a human species, is that we have largely lost the capacity to love and to be lovely. We have succumbed to the crude and cruel functionalism of our mechanized culture. We are largely a people whose hearts are numb. We are children of an unloved and unlovable "God," which, in the West, we label "civilization."

In our civilized, mechanized culture, competition rather than cooperation is the dominant mode of action. From the internal bosom of the family to the geopolitical arena of nationalistic rivalry, there is an incessant drive of people seeking to outwit one another. Our culture is absorbed by a compulsive addiction where one has to be a winner or a loser. We are crazy for power, and to the same degree starved of love. And the more we seek to satisfy the power-drive, the more alienated we become in codependent systems that increasingly alienate us from other people, from nature, from the divine life force, and ultimately from our own selves.

In the power game, everything and everybody is an *object* to be

manipulated and controlled, not a subject to be connected with or related to. Western imperialism — politically, scientifically, and religiously — always seeks to undermine subjectivity. Although many religions acknowledge and advocate "a personal relationship with God," they distrust human feeling and emotion. Love for most of the religions is a rather cerebral concept, often disembodied from real people in a real world. "God" is the object to be worshiped and obeyed, as prescribed in religious dogma, law, and ritual, rather than a life force (personal or otherwise) whose very essence is invitation into relationship (hence the notion of God as Trinity, the Old Testament idea of Covenant, or the Christian conviction that love is the first and greatest commandment).

Love is the life energy that animates everything that exists. Physiologically and psychologically, we can explain the urge to love in terms of various biochemical processes, such as phenylethylamine (PEA) and Oxytocin. These, I suggest, are *manifestations* rather than *causes* of loving, altruistic behavior. The love-energy is too complex, amorphous, and profound to be embodied in any one set of scientific explanations. It is probably more accurate — as Teilhard de Chardin observed — to compare it to fire, with the paradoxical combination of warmth, tenderness, care, and closeness, on the one hand, and an enormous power for destructibility, on the other.

Love sets the world on fire through the intimacy of sex and the compassion of justice. Only in recent times are we rediscovering that sexuality is the creative core of spirituality and theology (Eisler, 1995; Evola, 1983; Keen, 1985; Lawlor, 1989; Singer, 1990; Mollenkott, 1992). In prepatriarchal times, especially in the culture of the great Ice Age, 40,000–10,000 B.C.E., sexual union was frequently used as a symbolic expression of the divine-human relationship. Hinduism retains many features of this ancient wholism, where the beauty and sacredness of the body (human and earthly) are concomitant with the elegance and ecstasy of the divine energy. In the passion of human loving, the passionate God manifests the divine eros — in stark contrast to the *detached* God of later theistic religion.

The Embodiment of Love

McFague (1987, 1993) offers a contemporary theology of love that incorporates many of these insights. She suggests we adopt new metaphors to explore the meaning of God in the context of the emerging wholism which characterizes our age. She proposes that we image

the world as God's body (see also Fox, 1991, 61ff.). The being and action of God are not limited to God's embodiment in the visible creation. Rather God "gives birth" to the world (universe) through divine self-expression and in doing so shapes an embodiment and generates the presence of, and relation to, all other embodiments which constitute God's body. Consequently, we are invited to see our own bodies as a dimension of a larger earthly and cosmic body which itself is divinely endowed and cherished as God's special mode of embodiment.

The model suggests — quite unambiguously — that God loves bodies, that bodies are worth loving, sexually and otherwise, that passionate love as well as attention to the needs of bodily existence are a part of divine fulfillment. It is to say further that the basic necessities of bodily existence, such as adequate food and shelter, are central aspects of God's love for all bodily creatures, and therefore should be central concerns of us, God's co-creators.

Beginning with the notion of the world as God's body, McFague suggests that we reimage the Trinity in terms of an embodiment that is characterized by love and nurturance. Instead of the traditional namings (metaphors) of Father, Son, and Spirit, she suggests Mother (parent), Lover, and Friend. The Mother-Creator image is offered as being more inclusive and wholistic than the patriarchal father metaphor, which has often been associated with subservience, royalty, power, and exclusion. God as Mother implies a cosmic generosity that gives life to all being with no thought of return and continues to *participate* in the unfolding dream of open possibility (hence the notion of the prodigious womb).

However, this is not a mother metaphor constructed on the traditional feminine stereotypes of softness, sentimentality, and pity. Instead, we are presented with a fiercely protective female, for whom passion and justice are paramount, a woman who rages with anger when her offspring (her very own body) are deprived of the basic essentials of love, care, and justice. Those who produce life have a stake in it and will judge, often with anger, what prevents its fulfillment.

In applying to Jesus the metaphor of *Lover,* McFague is touching base with one of the most profound and controversial movements of our time: the decadence of the *hero* and the upsurge of the *lover* as a dominant cultural metaphor (more on this topic in Keen, 1985). For McFague the love-energy of the lover is characterized particularly by *eros,* that quality of love that expresses personal affirmation of the worth and value of the beloved, the love that draws the beloved to

eventually surrender to the true love which alone is our life and salvation.

The other dimension of the table which may need an explanatory note for nonreligious readers is the root metaphor of "covenantal faithfulness," attributed to the befriending Spirit. "Covenant" is a Judaeo-Christian concept, denoting a love of God for the people that remains faithful forever, inviting a similar response from those to whom this covenantal love is offered. I'd like to draw attention to the global ambience of this love and fidelity, which is apparent in the diagram in the series of metaphors offered. *Organism* can be understood as being on its own, complete within itself. The metaphorical range then widens beyond the "individual" to *interpersonal relations,* and again is expanded to assume global dimensions in the *covenantal faithfulness.* What in mainstream religion can seem an exclusive and limiting category, becomes in the quantum vision a threshold for openness to new possibilities and expanded horizons.

Love knows neither barriers nor boundaries. Mystics and novelists, artists and comedians all have had a go at exploring its mysterious power. From the basic particles that hold matter together (the bosons), to the divine energies that sustain our meaningfulness, we encounter a life force that lures and attracts, that underpins the polarities of attraction and repulsion, on which all human relationships are based. Our search for meaning compels us to probe this mysterious force. Yet all our probing leaves us only partially satisfied, if indeed satisfied at all. Perhaps the great Eastern mystics are the ones with the ultimate wisdom, which claims that it is only in the silence of the mystery that we can see the light, and from the darkness of the shadow we begin to glimpse its infinite meaning.

Inspired by these reflections, the quantum theologian invokes what seems to be a very old, yet radically new principle: *Love is an interdependent life force, a spectrum of possibility, from its divine grandeur to its particularity in subatomic interaction. It is the origin and goal of our search for meaning.*

The Love That Liberates

For the quantum theologian, the real question seeking understanding is not about our love for God, but God's love for us. From the totality of otherness, from which we often feel distanced and alienated, comes our ultimate meaning. It's not our individuality that matters (less so our independence and autonomy), but our personhood, which is meaningless apart from the relationships that beget and sustain each one of us. Even the child born from a pregnancy caused by rape is the product of a relationship yearning for love, in this case, the deep pain of love, a love thwarted and distorted, often because of an intense deprivation of love. Our human longings, dreams, hopes, aspirations, are focused on love as a goal; our anger, hatred, fear, disillusionment are inverted desires for a love that has been refused, or that we were unable to receive. Whatever our conditions or circumstances, love is the focal energy that holds the key to meaning.

In the fragmented world of our time, we are deeply aware of the lack of love and the abundance of hatred that prevails. But hatred is not the opposite of love; *indifference* is, just as spiritual indifference rather than atheism is the enemy of authentic religion. In our indifference we abdicate our divine will-to-life; we opt to disengage from the dialogue of life. We become love-less, and in a sense hate-less; we lose heart and begin to atrophy. It is this lack of passion, often provoked by patriarchal institutions and values, that denudes us of our dignity, value, and worth as human beings and poses the greatest threat to the future of humanity and to the future of our planet. This apathy often assumes masked and distorted power in the compulsions and addictions which are so prevalent in modern society. Our abdication of personal power disempowers us (and others) to the point where we become engulfed by "powers" which alienate us from our true selves.

Practically every approach to the treatment of addictions invokes, in one form or another, the twelve steps of Alcoholics Anonymous (A.A.). Central to this vision is an acknowledgment that we, individually, are no longer in control, and that we are not ultimately responsible for what we are or do. We learn, often slowly and painfully, to accept a "power" higher than ourselves, within whose love and energy we are not absorbed or consumed, but rediscover anew our true selves, as people born with the capacity to love and to be loved. It is in this rediscovery of love that we recapture something of our true nature. We come home to ourselves.

At this moment of homecoming, of reconnecting with the inner core of meaning, we don't become hermits cut off from the world, nor incestuous navel-gazers preoccupied with our own survival. No, it's precisely then, and only then, that we can embrace our world from that center of strength wherein we know we are loving and lovable. From that center point all things are possible. It is the greatest quantum leap we can ever hope to take.

Appendix One

Principles of Quantum Theology

Principle 1

Life is sustained by a creative energy, fundamentally benign in nature, with a tendency to manifest and express itself in movement, rhythm, and pattern. Creation is sustained by a superhuman, pulsating restlessness, a type of resonance vibrating throughout time and eternity.

NEW ELEMENTS:

a. God and the divine are described as a creative energy, which is perceived to include, but also supersede, everything traditional theology attributes to God.

b. The divine energy is not stable or unchanging, but works through movement, rhythm, pattern, and restlessness — within the evolving nature of life itself.

c. The divine co-creativity operates within the evolutionary process rather than as an external agent based on a cause and effect relationship.

d. Notions such as "God" and "divinity" are used sparingly, because these are human constructs (descriptions) that may limit rather than enhance our understanding of life's ultimate source and meaning.

Principle 2

Wholeness, which is largely unmanifest and dynamic (not static), is the wellspring of all possibility. In seeking to understand life, we begin with the whole which is always greater than the sum of the parts; paradoxically, the whole is contained in each part, yet no whole is complete in itself.

NEW ELEMENTS:

a. No one source of knowledge, theological or otherwise, can provide a complete description of reality; the mystery of life is fundamentally open-ended.

b. Theology is about opening up new horizons of possibility and ultimate meaning, and not about consigning truth to specific dogmas, creeds, or religions.

c. Since the whole is understood to be contained in, but not by, each part, the dilemma of pantheism is resolved.

Principle 3

Evolution is underpinned by a deep unfolding structure, characterized by design and purpose, necessitating an unceasing interplay of order and disorder, randomness and creativity.

NEW ELEMENTS:

a. Evolution is considered to be the primary context of divine-human creativity in the world.

b. Life, in its basic meaning, is blessed and not flawed (as in the original sin approach).

c. In the divine-human unfolding, light and shadow always intermingle; quantum theology, while acknowledging the paradox of polarity, seeks to outgrow all dualisms, especially that of good vs. evil.

Principle 4

The expanding horizon of divine belonging is the context in which revelation takes place; all creatures are invited to respond, to engage in the co-creative task of being and becoming. All life forms have unique roles in this process, the primary focus of which is creation itself rather than formal religion.

NEW ELEMENTS:

a. The primary context of divine revelation is the unfolding process of creation and not formal religion. Each religion is a particular crystallization of divine revelation. No one religion, not even all the religions together, could contain or explain the fulness of revelation.

b. All life forms, and not just humans, have a co-creative role in the divine plan for the world and in the responses it elicits and evokes.

c. Revelation is ongoing; it cannot be subsumed in any religion, creed, or cultural system.

Principle 5

Because the capacity to relate is itself the primary divine energy impregnating creation, we humans need authentic ecclesial and sacramental experiences to explore and articulate our innate vocation to be people in relationship.

NEW ELEMENTS:

a. The doctrine of the Trinity is a human attempt to describe God's fundamental relational nature.

b. The divine interaction within creation is that of subject to subject rather than subject to object.

c. The innate human desire and capacity for relationships is the experience in which we connect most authentically with the divine ambience of our existence.

d. Church and sacraments are key moments for exploring and articulating our relatedness, as a divine invitation to life and meaning, and not organizations and rituals commanding legal observance.

Principle 6

Ultimate meaning is embedded in story, not in facts. All particular religious stories belong to a larger story, which includes but also transcends the specific religious traditions of any one historical or cultural epoch. All sacred texts are attempts at articulating ultimate truth and archetypal values, approximations that require fresh interpretation in each new cultural epoch.

NEW ELEMENTS:

a. Sacred story is our primary channel for accessing the divine source and ultimate meaning of life.