

NATURE EXPOSED TO OUR METHOD OF QUESTIONING



***NATURE EXPOSED TO
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QUESTIONING***

Amy lone
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Preface

Although *Nature Exposed to Our Method of Questioning* was written over a decade ago, I am issuing a third edition because many of the ideas examined remain important and continue to cry out for more discussion. That said, sections of the book now seem of another mental space in my academic repository and give me pause today. Indeed, it is striking to read a book I authored in which art is so minimally included, particularly since I see art as my primary focus. Suffice it to say that although art scholarship is not a driving force in this volume, *Nature Exposed* does look closely at the creative process. Those who are interested in art per se are likely to find my later book *Innovation and Visualization: Trajectories, Strategies, and Myths* (Rodopi, 2005) of more value. The Rodopi volume examines art, science, technology and consciousness through a quite prismatic lens. As I noted in my preface to *Innovation and Visualization*, it served as a sequel to *Nature Exposed* and largely examined topics that were omitted from *Nature Exposed*.

I am also somewhat ambivalent about all of the spiritual trajectories in *Nature Exposed*. Looking back, the exercise that became *Nature Exposed* was founded on an effort to sort through some of the boilerplate information that informed art in relation to religion, philosophy, science and consciousness studies. Eventually, my research served as a useful tool for a cross-cultural analysis of various core ideas that span cultures, a means to dissect the error in using an East/West division as an overarching framework in theoretical discussions, and a mechanism for evaluating how spiritually grounded discussions were finding their way into popular science books.

Finally, it is important to note that I decided revising the content of *Nature Exposed* would weaken its overall character. Despite my current reservations about how I address specific topics, I decided that I would rather re-publish the work as I wrote it. It seems more important to retain the spirit [sic] of this book's creation than to adapt it to where my mind resides today.

Also, this third edition incorporates several corrections suggested by readers. Thanks to everyone who has commented and/or notified me of errors, etc., particularly Christopher W. Tyler.

Amy Ione
Berkeley, CA
2011

Preface to the Second Edition:

This second edition of *Nature Exposed to our Method of Questioning* includes minor textual revisions of the 1995 version of this publication. Reading through the earlier text with later research in mind, I concluded that the core ideas of the earlier edition remain as valid today as they were when initially presented. Given my sense of the relevance of these ideas, I have decided to re-publish the work in what is essentially its original form.

Amy Ione
Berkeley, CA
2002

Introduction:

Since There is Something Rather Than Nothing . . .

First thesis: We know a great deal. And we know not only many details of doubtful intellectual interest but also things which are of considerable practical significance and, what is even more important, which provide us with deep theoretical insight, and with a surprising understanding of the world.

Second thesis: Our ignorance is sobering and boundless. Indeed, it is precisely the staggering progress of the natural sciences (to which my first thesis alludes) which constantly opens our eyes anew to our ignorance, even in the field of the natural sciences themselves. This gives a new twist to the Socratic ideal of ignorance. With each step forward, with each new problem which we solve, we not only discover new and unsolved problems, but we also discover that where we believed that we were standing on firm ground, all things are, in truth, insecure and in a state of flux.

Karl R. Popper

Why is there something rather than nothing?

Leibniz

In 1936 Oxford University established a Chair for Eastern Religions and Ethics and invited Sarvepalli Radhakrishnan to become the first Indian to ever hold a professorship at this prestigious western school. In his opening lecture Radhakrishnan, who was both a philosopher of religion and a statesman, compared this meeting of the East and the West with changes throughout history. Stressing that cultures in the twentieth century were being challenged to reconsider how the destiny of each individual was intrinsically related to how we form our communities, he said,

While civilization is always on the move, certain periods stand out, clearly marked as periods of intense cultural change. The sixth century BCE., the transition from antiquity to the Middle Ages and the Middle Ages to modern times in Europe were such periods. None of these, however, is comparable to the present tension and anxiety which are world-wide in character and extend to every aspect of human life . . . For the first time in the history of our planet its inhabitants have become one whole, each and every part of which is affected by the fortunes of every other. Science and technology, without aiming at this result, have achieved the unity. Economic and political phenomena are increasingly imposing on us the obligation to treat the world as a unit. Currencies are linked, commerce is international, political fortunes are interdependent. And yet the sense that mankind must become a community is still a casual whim, a vague aspiration, not generally accepted as a conscious ideal or an urgent practical necessity moving us to feel the dignity of a common citizenship and the call of a common duty . . . The destiny of the human

race, as of the individual, depends on the direction of its life forces, the lights which guide it and the laws that mold it. (Radhakrishnan, 1939, pp. 2-3)

Radhakrishnan's words, of course, reflected the world of 1936. After World War II the nature of his concerns lived in another context. Fueled by the horror of the Holocaust, Nagasaki, and Hiroshima, it was even more evident that global connectedness did not imply harmony.

The difference between global exchange and genuine community remains evident still. Whether we look at the wars throughout the globe, or at an environmental climate that spans national boundaries, we find examples that indicate it has been easier to expand our capacity to globally connect than to build bridges that insure genuine concern for life and the relatedness of all cultures and the environment. As a result, many, in all walks of life, have been asking about who we are, what we believe, and how we best live together. This process of inquiry is not confined to "intellectuals." People, in general, are rethinking, debating, defining, and refining our ideas about truth, meaning, and life.¹

I am among those probing these questions. It is for this reason that this book explores how we create our cultural assumptions about individual identity, culture and nature. My concerns are four. First, how do premodern, modern, and postmodern perspectives differ and interpenetrate? Second, what does it mean to integrate questions, ideas, values, and beliefs as

¹In talking about ideas it is easy to assume the context is theoretical because presentations about ideas are often seen as intellectual and/or academic. This is to miss that human living provides the foundations for theories and philosophical studies. Cultural ideas live among us. They are evident in magazines, in movies, on television, and in books. Peter L. Berger and Thomas Luckmann offer some perspective on this in their book *The Social Construction of Reality*. In this book Berger and Luckmann show that knowledge of a living society is not about ideas, any more than a worldview is a fixed in-place model of what society is. "Theoretical thought, 'ideas,' *Weltanschauungen* are not *that* important in society. Although every society contains these phenomena, they are only part of the sum of what passes for 'knowledge.' Only a very limited group of people in any society engages in theorizing, in the business of 'ideas,' and the construction of *Weltanschauung*. But everyone in a society participates in its 'knowledge' in one way or another. Put differently, only a few are concerned with the theoretical interpretation of the world, but everybody lives in a world of some sort." (Berger & Luckmann, 1967, p. 15)

we create our world? Third, what are symbols and metaphors and how do they contribute to the human dialogue? Finally, how do purpose, intention, and consciousness foster creativity and influence our perceptions of human living?

This book sums up my research on these questions. Briefly, I have concluded that the religions and philosophies of earlier eras are not comprehensive enough to speak about the nature of our postmodern environment. I have also concluded that we benefit in defining open models rather than models that attempt to be universal in an all-inclusive fashion. This book clarifies how open models aid us in (1) clarifying our definitions (2) the nature of our shared reality, and (3) cultural challenges that change from era to era, from culture to culture.

My focus here is on learning, perception, communication, and human creativity in action. I see these as multi-dimensional qualities. Creativity, for example, is the vital, organic, and dynamic quality life *is* as it naturally maintains, repairs, and reproduces itself. Yet, this organic quality differs from how human consciousness uses and evolves its creative capacities. This is not to infer that humans do not embody organic creativity for, of course, we do. Rather I am suggesting that our creativity operates on many levels. When creativity is coupled with human consciousness, which I am defining as our capacity to be aware of our actions and intentions, creativity is present in our learning and communication processes. Therefore, creativity in relation to human consciousness includes the capacity to refine our relationship to the organic quality of life itself. Conscious creativity allows us to “work with” our creativity as we integrate our creative capacities with our overall living processes.

In this context, whether we look at the historical process or our contemporary world, human creativity includes the ongoing exchange between individuals, the learning process of each individual, the intergenerational learning process within each culture, and how all cultures integrate ideas outside of their cultural experience. It is also at the heart of the contextual

collage of the twenty-first century, a time in which cultures of premodern, modern, and postmodern origins are in dialogue with one another. The issues contained within this dialogue underscore that human creativity is not static. Moreover, in a world in which ancient wisdom is often cherished as if its age gives it more credibility, it is important to acknowledge that the creative nature of life has changed our world naturally and culturally. We do not actually know “ancient wisdom.” We know of it only through our studies. Our experience of older cultures, obviously, differs from those who lived within them.

The varied perspectives presented below demonstrate these contextual differences cannot be brushed aside if we are to adequately address diverse institutions, mores, and beliefs. The text also illustrates that the creative complexification of life is a part of both the cultural and the natural world. Complexification is evident in the vast organizational process of differentiation that has taken place incessantly in the biological world. It is also recorded in our social history, as it is evident in how older cultures *began* a process of differentiation (and complexification) that continues to this day. It is evident when we look at individuals alone, when we look at individuals within groups, and when we look at groups within groups. While the pace varies, and sometimes it seems to slow down or reverse, this process of complexification has never reversed more than locally, and never for long.¹

The earliest known cultures, for example, were essentially religious.² In their lives ritual and myth were used to

¹ Ervin Laszlo discussion of living systems and evolution is useful here in characterizing some of the issues of importance in this area (*e. g.*, see Laszlo, 1972; Laszlo, 1987).

²Religion is not easily defined. In this context I am assuming that in those historical cultures we now characterize as primitive cultures, religion had not yet become an “approach” used in addressing our living concerns. Rather, religion was the central focus of human life. In other words, the basic questions that created and have sustained formal religion were at the heart of all-embracing cultural vision. Belief, in these cultures, defined the totality of human experience in an unquestioned form. It was only when people began to actively ask who they were, what the external world was, and how all could live better that formalized religion was able to begin to develop the means to formally enter the human communication process.

bind the individual with the community and the mundane with the inexplicable. It is generally agreed that through this alignment with cosmic forces individuals, as a community, experienced a sense of cosmic wholeness.

When archaic cultures took form they tended to have more complex social structures than the early religious cultures did. The archaic cultures developed priest castes and gods that were never beyond the world but always within and a part of the world. In the next stage, often termed the historic stage, the emergence of religions like Judaism and Hinduism complexified the human mythology to a greater degree. These cultures were literate. They had written systems, and developed the idea that there is something beyond the world humans inhabit. All of these changes were instrumental in creating the idea of another worldly reality.

Modernism defined the next major change. With the Renaissance and Reformation, many in the West began to actively explore options that broadened the traditional religious foundations found throughout the globe. One outcome of this was that a global asymmetry emerged. Only in the West did the emphasis explicitly turn toward science and secularism.¹ Another outcome was an increased focus in the West on developing the human capacity to methodically, experientially, experimentally, and secularly probe into the secrets of nature and the physical reality. In addition, in the West we find a developing focus on the value of personal choices that, in turn, led to an increased inquiry into human rights. No longer were the transcendent dimension, the promise of the Kingdom of Heaven, and the building of a correct relationship with God, the key concerns within a good life. Instead, people were encouraged to live with more autonomy. Thus people began to see themselves as individual agents *in* this world. The changes of Modernism intensified the

¹It should be noted that I am not suggesting that non-Western culture did not have “Western” tools like science and technology. In China, for example, scientific research has a long history. Unfortunately, little attempt was made to document this prior to the twentieth century (Needham, 1953; Ronan, 1993).

belief that metaphors often had a mythical quality, a quality that did not easily and directly correlate with actual experience. One result of this realization was that people began to see that even religious metaphors could be questioned and reinterpreted.

Cultural ideas continue to be reinterpreted even today. At this point no one knows what the legacy of current reinterpretations will be. Reviewing the situation, a few variables stand out. First, as Radhakrishnan pointed out in 1936, cultures have radically transformed their assumptions in the past. In addition, what sets our culture apart from the earlier cultures is that we are now a global community in ways unthinkable in earlier epochs. The most obvious indication of this is the way exchange among cultures is easier than it was historically. However, the challenge today, as Radhakrishnan indicated over fifty years ago, is that the idea of a global community remains as much a reality as a vague aspiration. We continue to show through our actions that having the context of a global community does not necessarily mean a community living with a single vision or a community living in a seamless harmony.

Some have visions of Truth as something absolute and unchanging. They live side-by-side with those who see truth as something that cannot be fixed and defined in a final form.¹ Holding these perspectives together is the historical story that shows that human life has never been a smoothly defined evolutionary process and that our technologies have always been conceptual and imaginative.

¹In *Time of Need: Forms of Imagination in the Twentieth Century* William Barrett points out that the Western Indo-European languages has traditionally held two separate, but not necessarily unrelated, aspects of the idea of truth. "One is contained in our English word "true": to be true to something is to hold fast to that thing and to persevere with it in patience . . . The second aspect of truth that the ancient languages have preserved in themselves comes to us from the Greek *aletheia* usually translated as truth but which literally means "unhiddenness." Truth happens when a thing comes forth from the hidden into the open, from the darkness into the light, and is revealed as what it is. And we are capable of truth to the degree that we can let the thing be what it is so that it can shine before us as it is, while the veil of abstractions — woven either by our routines or by other people's empty phrases — falls away." (Barrett, 1973, p. 74)

Chapter One

Is Creative Paradigm Change an Oxymoron?

. . . we have to remember that what we observe
is not nature in itself but nature exposed to our
method of questioning.

Werner Heisenberg
Physics and Philosophy

The theoretical physicist tells us his concept of space cannot be conveyed linguistically just as the artist does with regard to the meaning of his creations and the mystic with regard to his encounters with the divine. Yet, all of these — dreamer, physicist, artist, and mystic — *also* live in the reality of everyday life. Indeed, one of their important problems is to interpret the co-existence of this reality with the reality enclaves into which they have ventured.

Peter L. Berger and Thomas Luckmann
The Social Construction of Reality

Today the idea of paradigms¹ invariably surfaces whenever we consider how the overall communal environment evolves over time. This idea is generally traced to Thomas E. Kuhn's *The Structure of Scientific Revolution*, where Kuhn spoke about patterns of development in science. According to Kuhn, periods of normal science can be defined in terms of scientific communities that go under the rubrics of 'Ptolemaic astronomy' (or 'Copernican'), 'Aristotelian dynamics' (or 'Newtonian') and 'corpuscular optics' (or 'wave optics'), and so on (Kuhn, 1970).² In each of these periods the scientific community had specific rules and standards. Each period of normal science was followed by an in-between period that was then, in turn, followed by a newly defined paradigm, with a radically different orientation from the one found in the paradigm that preceded it. Reviewing this picture Kuhn concluded this historical pattern operates because periods of normal science give a community a particular

¹The third edition of the American Heritage dictionary of the English language defines paradigm as "an example that serves as a pattern or a model." (1992, p. 1311)

²Not all agree with Kuhn's analysis of what a scientific worldview is and how it develops. The views range from Karl Popper's assertion that paradigm change is ongoing not revolutionary (Popper, 1992) to Paul K. Feyerabend's view that there is no privileged method of scientific knowledge and that progress in science occurs when scientists think "counterintuitively." The dialogue surrounding the idea of paradigm change has been especially intense in science (see Horwich, 1993; Lakatos & Musgrave, 1970; Suppe, 1977).

and communal approach to law, theory, application, and instrumentation. In his opinion, the value of the paradigm derived from the way each offered the scientific community a ground for exploring certain areas in great detail.

Three points emerge from Kuhn's model that are critical in discussing human creativity in relation to a paradigmatic model. First, Kuhn asserts that each defined paradigm has a predominant approach that is shared by the scientific community and defines normal science. Second, Kuhn asserts that defined paradigms sustain their point of view until overturned by revolutionary ideas. Third, it is almost uncanny how the idea of paradigms has captured the cultural imagination despite the fact that it was Kuhn's intention to apply his ideas only to science.¹ This final point is perhaps the most critical when we analyze how the idea of paradigms has taken hold today. Indeed, we must recognize that the cultural use of this term is an adaptation that was adopted *despite* Kuhn's premise that the word paradigm

¹Kuhn added a postscript to the second edition of *The Structure of Scientific Revolutions* to emphasize that his intention was to apply the paradigmatic model only to science. He explained here that it was not that he was rejecting the evidence of periodic changes in other fields so much as intent on considering how scientific knowledge, like the languages of other fields, is intrinsically the common property of a group. His thesis is that when scientists use their language they are operating as a community with communal assumptions. Therefore, according to Kuhn, while developments in science resemble those in other fields much more than is usually acknowledged; he was speaking only of science. His view was that if we want to understand science we need to know the special characteristics of the groups that create and use it (Kuhn, 1970). In summary, "a paradigm is what the members of a scientific community share, and conversely, a scientific community consists of men who share a paradigm." (Kuhn, 1970, p. 176)

This clarification did not solve what Kuhn saw as a misapplication of his ideas about paradigms. Eventually, the tremendous response to the idea of scientific paradigms led Kuhn to marvel at how varied the interpretations of his paradigm theory were. Hoping once more to clarify his position, Kuhn wrote in "Second Thoughts on Paradigms" "I have sometimes found it hard to believe that all parties to the discussion have been engaged with the same volume [i.e., *The Structure of Scientific Revolutions*]. Part of the reason for its success is, I regrettably conclude, that it can be too nearly all things to all people . . . In the book the term "paradigm" enters in close proximity, both physical and logical, to the phrase "scientific community." (pp. 10-11). A paradigm is what the members of a scientific community, and they alone, share. Conversely, it is their possession of a common paradigm that constitutes a scientific community of otherwise disparate men [sic]. As empirical generalizations both those statements can be defended. But in the book they function at least partly as definitions, and the result is a circularity with at least a few vicious consequences. If the term "paradigm" is to be successfully explicated, scientific communities must first be recognized as having an independent existence." (Kuhn, 1977, pp. 293-295)

“enters in close proximity . . . to the phrase “scientific community” (Kuhn, 1977, pp. 293).

At the end of the twentieth century many spoke of paradigms in terms of a retooling period, and offered views on how the next paradigm would take form. Frequently views discussing the so-called new paradigm were presented in terms that cited Kuhn’s model. To be sure, it is easy to infer from Kuhn’s presentation that a retooling period exists between paradigms and that the legitimate *goal* of it is to define the new or the next paradigm. Yet, even putting aside Kuhn’s reservations about applying his model to cultural change, I would propose the cultural interpretations are quite problematic. A number of the problems within the model, moreover, have little to do with whether or not there is a measure of validity to Kuhn’s assertion that the paradigmatic model he presents only applies to scientific communities with an independent existence. In fact, to support or refute the paradigmatic model on the basis of Kuhn’s scientific preference alone obscures the issues. When the context he presents is used in cultural discussions the discussants generally fail to probe precisely what it means to assume that there are retooling periods between paradigms and why the lack of focus is eventually brought together with the creation of a new paradigm. Instead, this approach relies on why it is appealing to apply the paradigmatic model to cultural adjustment: the claim that within the environment of a normal paradigm we find community agreements. Consensual agreements are less prominent during the “in-between periods.”

Historically, cultural periods, like scientific communities, have shown periods of relative stability. Here, too, the “normal” mode has more appeal. Essentially, during the “in-between” periods there is less stability. What is lost is that whether we review the history of science or culture we find that it is difficult to separate a cultural belief system from its educational process in either the normal period or in-between stages. Thus, what can appear to be a retooling period that eventually produces a *new* paradigm can also be explained in

terms of how people are educated. Karl Popper, who is a philosopher of science, examined this. As he explains,

Scientists are fitted by their whole education into research programmes (so far one might say Kuhn is right) . . . Usually, we become conscious of our research programme only when it dawns on us that it may be based on a *false* metaphysics. To *realize* that we are working within a certain metaphysical research programme is, essentially, to realize that alternatives are possible; and this very realization means that we give up our metaphysical research programme as *the* heuristics, and consider alternatives as possibly more fruitful (*emphasis* Popper's) (Popper, 1992, p. 33).

Popper's point that scientists are educated within the cultural milieu is an important one. Equally important are the ways those within disciplines react to their education. Clearly, those who choose to focus on seemingly irresolvable problems differ from those who are drawn to pursue more consensual approaches. Moreover, the urge to frame paradigmatic discussions in Kuhnian terms accommodates the work of technicians without carving out a space for the extraordinary insights offered by highly creative people. In addition, many, Kuhn included, do not allow for the way the allegiance to the idea of *one* overriding Truth influenced each paradigm Kuhn identifies. Each "corrected" model, as a result, included the rationale that scientists were now more effectively defining the *right* picture. Included within this rationale is the idea that the *new* standard model is *now* complete and correct.

Kuhn's theory, strange as it seems, was perhaps difficult to interpret because it presented an unorthodox position using the framework of a traditional approach. He aimed to conceptualize a "complete" argument and still wanted to unify disparate historical views. It is this tension between the unity and the variations that exist in the story that undermine the thrust of the argument. Perhaps this explains why many, particularly

scientists, historians of science, and philosophers, suggest Kuhn's model is relativistic (Lakatos & Musgrave, 1970; Suppe, 1977). Again, this was not his intention (Kuhn, 1977; Lakatos & Musgrave, 1970; Suppe, 1977). I would suggest that the relativistic perception of paradigmatic relativity comes from Kuhn's failure to convey the subtle unfolding of living ideas in his model. Instead, as I have noted, Kuhn offers a construct.

Reviewing the historical literature adds some perspective to contemporary debates. This is the approach used in later chapters. I've introduced the overall picture here to note some of its limitations. Equally of note is the evidence that even before Kuhn's work led the public to re-think basic assumptions about cultural evolution, thinking people questioned the value of trying to use all-inclusive models. For example, William James (1842-1910) wrote in *The Pluralistic Universe*:

The particular intellectualistic difficulty that had held my own thought so long in a vise was . . . the impossibility of understanding how 'your' experience and 'mine,' which 'as such' are defined as not conscious of each other, can nevertheless at the same time be members of a world experience defined expressly as having all its parts co-conscious, or known together. The definitions are contradictory, so the things defined can in no way be united . . . Things are 'with' one another in many ways, but nothing includes everything, or dominates over everything. The word 'and' trails along after every sentence. Something always escapes. 'Ever not quite' has to be said of the best attempts made anywhere in the universe at attaining all-inclusiveness. . . . However much may be collected, however much may report itself as present at any effective centre of consciousness or action, something else is self-governed and absent and unreduced to unity. (James, 1987, p. 729, 777)

• • • • •

Earlier I noted that a number of cultural interpretations of the paradigmatic model are drawn to the focus on consensus during “normal” periods of a paradigm. Not all are, however. Other interpreters have spoken of the kind of consensual blindness that has traditionally resulted from communal worldviews. The difference between consensus and consensual blindness was a significant part of the cultural dialogue in the 1960s when many,¹ like Kuhn,² began to look at how specific communities, like the scientific community, periodically change their “belief systems.” Indeed, the paradigmatic model easily fit with the cultural mood. Many, in all walks of life, were asking how we form the nature of our reality, learn to see our world, learn to share assumptions, and how we embrace our creative potentials. Critics at this time also spoke of the way both individuals and the community as a whole were inscribed in a system that educated all to accept certain assumptions.³

For some, the realization that we are *taught our beliefs* included the realization that we may not be given adequate tools to question or challenge what we are taught. It was not just that

¹Walter Truitt Anderson, writing about the cultural probing of identity and society, explained that due to the increase in cultural questioning *Reality Isn't What It Used to Be*. "It is very hard in a world with many realities to maintain the position that satisfactory adjustment to one reality is equivalent to mental health and that unsatisfactory adjustment is a form of illness . . . Instead of calling schizophrenia a failure of human adaptation [theorists like R. D. Laing] said we can call it a 'successful attempt not to adapt to pseudo-social realities. . . . Running through all the movements [that grew out of the sixties] was an idea of reality, of worldviews, of something in the realm of *thought* that could be changed . . . [but the theorists] underestimated the complexity of the very thing they professed to comprehend better than the rest of us — human consciousness. They did not guess at the multidimensional nature of our personalities, our ability to drop beliefs and yet appear (even to ourselves) to retain them. They challenged the entire modern worldview, and . . . they never made it too clear what you dropped into when you dropped out." (Anderson, 1990, pp. 46-48)

²*The Structure of Scientific Revolutions* was first published in 1962.

³In saying that many now believe we are often educated to live our lives in terms of socially constructed assumptions it is not my intention to overlook that some Westerners, for example Karl Marx, introduced the idea of nature as a human product long before the twentieth century warmed to this view. In considering this, or postmodern thinking in relation to older ideas like Marxist thought, we find a means to see that a vision of a socially constructed reality need not infer an open vision or an open system. Marxism, a product of the nineteenth century, for example, assumes the “one” truth of traditional Western models. As with Kuhnian ideas about paradigms, in Marxism a society can reach a point where revolutions can bring about a new communal paradigm. The model defines the progression in a way that is to lead to a final goal. Thus, it is very much rooted in the Modern era and its vision is of a linear historical progression. Marxism, however, is far beyond the scope of this book.

we are socialized to perceive the world from a particular vantage point. The question was: are we also encouraged to accept the limitations within the communal vision without internally understanding why we accepted these limitations or ideas? The concern was that if this is the case, the socialization process did not encourage a *genuine* engagement with life so much as the unquestioned acceptance of a particular point of view. Realizing the difference, some of the concerned parties asked if education was a euphemism for social engineering. Others questioned what the intention of the educational process was and should be. Coupled with this intense discussion was the belief that if each of us genuinely “believed” in how we lived we could make our world a better place.

Events, to be sure, continue to teach us that personal belief, however defined, cannot be separated from our educational processes or the community any more than either can be isolated from the human environment. We also find that community agreements may facilitate our living together, just as communities may conflict with one another. Indeed, at this point, how the individual and diverse communities best live in tandem remains an open question.

Thus, again, some suggest we are creating a *new* paradigm and are now defining its nature. Others urge a return to old values. A third group encourages creative questioning. All of these perspectives have value. Yet, advocating any one perspective does not *insure* anyone is actually learning through a personal process of engagement with the issues. This adds yet another nuance to the equation. To be sure, we can educate our children — or re-educate our peers. We can urge them to affirm self-actualization and cultural definitions of what nurturing environments are. We can encourage them to develop and affirm our metaphysic of choice. Still, all of this is, in effect, for them a *taught*, rather than an internally developed, belief system. It does not matter whether we say it is one that affirms co-creation, group-participation, individualism, autonomy, or creativity. If they have not actually discovered what they believe — in their

hearts — they are adopting ideas that have no real substance to them personally. Despite its value communally, affirming a shared cultural philosophy — whether we call it holism, reductionism, animism, or nihilism — does not actually address the question of how we can live with sensitivity as we explore personal and cultural parameters.

When we affirm a belief system in relation to our selves and others, what do we affirm? Do we affirm our failures and resolve our conflicts so that we can see them and own them as we continue to live in much the same way? Do we affirm who we are so that we can create a ground for establishing a firmer and a deeper relationship with life? What does it mean to develop ideas, including ideas about mysteries, the invisible, the apparently inexplicable, so that we can represent them, communicate about them, and expand our understandings. What does it mean to question assumptions? What does it mean to accept the limitations of known systems?

These far-reaching questions emphasize the subtlety of the issues in a world where our different needs and perceptions align with the need to live with community agreements. The complexity of the variables is not trivial. It is not just that the orientation of a child differs and interpenetrates with the orientation of the adult population. It is also, as creative people have often shown, that how we see the world as children is not the same as embracing a sense of discovery as an adult.

The difference between a child's view and that of an adult is most evident when long accepted *adult* theories are challenged. Moreover, revisions to *adult* theories are at the heart of the paradigmatic model. For example, Isaac Newton, who compared himself to a boy playing on the seashore, created the cosmological foundation for the Modern worldview. The new view was very much the product of an adult mind.¹ Albert

¹The following quote is often attributed to Newton. "I do not know what I may appear to the world; but to myself I seem to have been only like a boy playing on the seashore and diverting himself and then finding a smoother pebble or a prettier shell than ordinary, while the greater ocean of truth lay all undiscovered before me." Peter Coveney and Roger

Einstein, who radically revised Newton's view of time and space, like Newton, retained a fascination with the world's mysteries throughout his entire life.¹ Submerging himself in what he saw as the marvels of nature Einstein, too, showed that discovery has the capacity to extend beyond a child-like insight. Newton and Einstein are among the innovators whose work illustrates that the living dynamics of creativity are neither limited to the capacities attributed to a child's mind nor confined to a specific paradigmatic model.² Both men similarly demonstrate that people who envision new possibilities can open new potentials. Often these potentials, in turn, offer innovative ways of speaking about physical and non-material dynamics.

More important in terms of the paradigm attributed to each of these men, what a later period may characterize as a "paradigm" is best characterized retrospectively. The construct comes to life once the bracketed period is defined at a later date. While the characterization is convenient, it rarely captures precisely how the cultural dialogue took place. What eventually congeals as a result of what is called a *defining* insight in effect

Highfield point out in *The Arrow of Time* (1990) that it is unlikely that Newton ever actually visited a seashore.

¹Einstein, for example, was not nearly as revolutionary as often suggested. His work adopted a consensual view in a number of ways. Indeed his life underlines the complexity of living dynamics in relation to ideas about paradigms as well as creativity. For example, many people have marveled at how Einstein seemed to hold fast to a nineteenth century view of causality. Albert Pais speaks of this in *Subtle is the Lord* "It must have been around 1950. I was accompanying Einstein on a walk . . . when he suddenly stopped, turned to me, and asked me if I really believed that the moon exists only if I look at it. The nature of our conversation was not particularly metaphysical. Rather, we were discussing the quantum theory, in particular what is doable and knowable in the sense of physical observation. The twentieth century physicist does not, of course, claim to have the definitive answer to this question. He does know, however, that the answer given by his nineteenth century ancestors will no longer do . . . We walked on and continued talking about the moon and the meaning of the expression *to exist* as it refers to inanimate objects . . . as I walked back I wondered . . . why does this man, who contributed so incomparably much to the creation of modern physics, remained so attached to the nineteenth century view of causality?"

²Anthony Storr's summation is insightful in regard to who Einstein was. "At twenty-three he was already the man whom the world later wished, and failed, to understand. He had absolute faith in his own insight. He was set on submerging his personality, for good and all, in the marvels of the natural world . . . As he wrote himself: "A theory can be proved by experiment, but no path leads from experiment to the birth of a theory. "' (Storr, 1992 p. 90, 93)

serves to crystallize what was in effect a part of a fluid, dynamic environment.

Newton, for example, inferred this when he said he stood on the shoulders of giants. He did. The ideas of people like Johannes Kepler and Copernicus were, of course, instrumental in creating a foundation for the Newtonian model. Einstein, too, built on the work of scientists who preceded him.¹ Moreover, Newton's ideas, like Einstein's ideas, did not emerge full-grown and to open arms.² The ideas emerged in combination with the ongoing re-examination of their peers. Even retrospectively we cannot pinpoint the specific point when new views congealed, for the process of acceptance is an organic, not a categorical one.

Finally, logical ideas like paradigms, in-between periods, and normal science are easily applied theoretically. The theories are more difficult to apply to living dynamics, however. The difficulties are especially evident when we turn to science. It is easy to suggest science is — or should be — “objective.” Yet, those who present extraordinary scientific ideas draw on

¹Einstein, for example, stood on the shoulders of Newton. This point was made in 1987, three hundred years following the 1689 publication of Newton's *Principia*. Dr. Subrahmanyan Chandrasekhar of the University of Chicago, whose own discoveries include a mathematical description of space-time around black holes and the discovery of a law describing the limits of the masses of dwarf stars, said it is important for all of us to look again at the works of Newton. He suggests we tend to overlook Newton's genius today because it is fashionable to think of Einstein as the epitome of scientific genius, at least as compared to ordinary mortals. Chandrasekhar's point is that Einstein was indeed a giant. Still, when compared with Newton, Einstein runs a very distant second to Newton. Newton created the science of dynamics at a single stroke in the *Principia*, a book that underlies nearly every aspect of modern science. "In the *Principia*, Newton introduced the notion of gravity as a universal force and showed how to use this idea in calculating the motions of planets, satellites, and comets . . . Newton's theory of universal gravitation, powerful though it was . . . has not survived unscathed. Einstein's general theory of relativity showed that gravity is a consequence of the curvature that space undergoes around a massive object and that Newton was only approximately correct. But remember," Dr. Chandrasekhar said, "Newton himself tried to correct the impression he had explained gravity. He made it clear that he was only attempting to calculate what gravity does — not to explain the underlying nature of gravity. That question remains a profound puzzle even today." (in Falste, 1991, pp. 15-16)

²Peter Coveney and Roger Highfield point out in *The Arrow of Time* (1990). Many scientists and philosophers, including such people as Newton's contemporaries Bishop Berkeley and Leibniz took issue with Newton's ideas, most significantly his theory of an absolute time independent from an absolute space. (Coveney & Highfield, 1990). In the early 1900s Max Planck, one founder of quantum mechanics put the eventual supremacy of the Newtonian view into perspective when he said, "a new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it." (Kline, 1982, p. 88)

something hard to ‘objectify’ when they do so: creative insight. We know that the unknown quality termed creative insight radically alters the scientific framework. What we do not know is precisely what scientific insight is.

I titled this chapter “Is creative paradigm change an oxymoron?” to highlight qualities that are difficult to model, particularly within the paradigmatic view.¹ Thus I must conclude that creative paradigm change *is* an oxymoron.² Moreover, using philosophical constructs like “paradigms” is to overlook how hard it is to contain unknown future possibilities within a contemporary model.

Scientific heroes, like Albert Einstein, show this exceptionally well due to the parameters of scientific work. In fact, the mythic quality of Einstein’s legend helps to bring three points into focus. Each is intrinsically related to what it means to creatively engage with our living questions. First, Einstein saw nothing extraordinary about his person or his science.³ In his

¹Long before the idea of paradigms captured the cultural imagination, the American philosopher William James concluded, “we have so many businesses with nature that no one of them yields us an all-embracing clasp. The philosophic attempt to define nature so that no one is left out, so that no one lies outside the door saying, ‘Where do I come in?’ is sure to fail in advance.” (James, 1987, p. 644) In addition, James believed “there is no possible point of view from which the world can appear an absolutely single fact.” (James, 1956, p. ix)

James defined our situation well when he spoke of why he defined himself as a radical empiricist. In his view, as an empiricist he “is contented to regard . . . most assumed conclusions concerning matters of fact as hypotheses liable to modification in the course of future experience.” (James, 1956, p. vii) As a radical he “treats the doctrine of monism itself as a hypothesis, and . . . [sees] the difference between monism and pluralism; as we find it, the most pregnant of all difference in philosophy. *Primâ facie* the world is a pluralism; as we find it, its unity seems to be that of any collection; and our higher thinking consists chiefly of an effort to redeem it from that crude form. Postulating more unity than the first experiences yield, we also discover more. But absolute unity, in spite of brilliant dashes in its direction, still remains undiscovered, still remains a *Grenzebegriff*.” (James, 1956, p. viii)

²Ian G. Barbour adds some insight here. He points out that, broadly speaking, a model is a symbolic representation. It shows selected aspects of the behavior of a complex system and is used for particular purposes. In addition, a model is an imaginative tool for ordering experience, rather than a description of the world. Therefore, theoretical models in science can be viewed as mental constructs devised to account for observed phenomena in the natural world. Their aim is a consistency, simplicity, and a coherence that can be tested against observation (Barbour, 1974). When ideas about paradigms are presented as models — as if they fulfill the scientific criteria — it is as if to infer that the paradigms actually frame our experience. As such, our experience is presented as if it is complete and can be separated from our living. Thus, the model does not address why the construct cannot include the potentials not yet known to us. The model, therefore, excludes the potentials we can develop through an imaginative, creative, and open engagement with our lives as our lives take form.

³In his view, “To be sure, nature distributes her gifts unevenly among her

eyes people had turned his story into a myth to speak of ways of living that seemed to be outside of the accepted “norms.”¹ Second, Einstein is remembered as the kind of scientist who — like an artist, a poet, or a religious leader — was able to open new levels of awareness in others. Using thought experiments and novel techniques to model and present his ideas; Einstein showed that science has a capacity to move minds beyond hard and fast conclusions that have been sustained over centuries (Einstein, 1973). In part recognition of his achievement stemmed from his ability to translate his insights into forms that were accessible/acceptable to others. Third, in reading about Einstein’s life and in reading his writings one gets the impression that Einstein’s creative involvement in scientific research was a focused passion,² not the kind of creativity often romanticized.³

children. But there are plenty of the well-endowed, thank God, and I am firmly convinced that most of them live quiet, unobtrusive lives. It strikes me as unfair, and even in bad taste, to select a few of them for boundless admiration, attributing superhuman powers of mind and character to them. This has been my fate, and the contrast between the popular estimate of my powers and achievements is simply grotesque. The awareness of this strange state of affairs would be unbearable but for one pleasing consolation: it is a welcome symptom in an age which is commonly denounced as materialistic, that it makes heroes of men whose goals lie wholly in the intellectual and moral sphere.” (Einstein, 1973, p. 4)

¹While it is probably unnecessary to offer evidence to support this, I do so because it shows how this quality that Einstein seemed to personify has been seen as exceptional. For example, Lincoln Barnett, in his book *The Universe and Dr. Einstein* (Barnett, 1974/1949), relates Einstein’s impact on people in a story about the planning of the walls of the Riverside Church in New York. At that time, Dr. Harry Emerson Fosdick wrote letters to a group of the nation’s leading scientists asking them to submit lists of the fourteen greatest names in scientific history. “Their ballots varied. Most of them included Archimedes, Euclid, Galileo, and Newton. But on every list appeared the name of Albert Einstein,” (Barnett, 1974/1949, p. 11). Cornelius Lanczos offered another good example saying: “If somebody asked ‘Who is the greatest modern physicist after Einstein?’ the answer would be: Einstein again . . . [For] had somebody else discovered relativity, his other discoveries would still make him the second greatest physicist of his time.” (Popper, 1992, p. 35)

²In 1905 alone, for example, Albert Einstein published papers on the photoelectric effect, Brownian motion, and the special theory. These papers will be discussed below.

³This Romantic idea of creativity is now largely defined in terms we connect with Romantic Movement of the eighteenth and nineteenth centuries. As Jose A. Argüelles writes in *The Transformative Vision*, “The Romantic had to take the plunge alone; thus his response to life was often tortured and anguished. Yet in the faith of those who took the plunge there kindled the flame of the transformative vision, born of Socrates’ immortal injunction: *know thyself!* Those who could still hear these words and bear up to the truth they signify were able to begin a new quest, the quest of self through which all riddles might be solved. For this quest is none other than the Will to Harmony.” (Argüelles, 1975, p. 70) Einstein’s creativity, however, was not that of an isolated Romantic. It was, instead, both personal and relational. Rather than taking the leap alone, he translated many of his insights into forms the scientific community, as well as those outside of science, could engage with, disagree with, learn to

Adapting an attentive approach, Einstein worked diligently to formally define his contributions. He saw no conflict between science, philosophy, art, and religion, because to him, science was religion, art, and philosophy (Einstein, 1973).

The kind of creativity a person like Einstein embodies shows the need to look beyond models like the paradigmatic view. Alternatives can more effectively demonstrate how human inventions are both conceptual and imaginative. Einstein's myth also highlights the question: why have we designated some people as "creators"? Generally we see their capacity to change our perceptions of the world as valuable. These "creators" bring new insights and information into the communal environment. One could say their insights are often at the core of what we are now trying to encapsulate when we wrestle with the viability of the paradigmatic model. In summary, two points need more attention. First, as these creators have long maintained, their contributions are not born in isolation. Second, it is also clear that it is hard to teach this kind of creativity." Can you teach someone how always to tumble over the rules without yourself making rules which would have to be tumbled over? As Aristotle said of metaphor, it is the one thing that cannot be learned." (Briggs, 1987, p. 432)

understand intrinsically, and continue to explore.

Chapter Two

Evolutionary Worldviews

The progression from Paleolithic to modern times is highly uneven, with countless leaps forward and sudden regressions, yet it exhibits an overall direction . . . its engine is technology . . . the instrumentality that imbues all human activities and extends human powers to act on nature and interact with others. A technological innovation is not just the invention of a tool, but the stretching of the imagination and the transformation of common sense. A major technological breakthrough makes the supernatural natural — as for example, with the mastery of fire and then of flight — and renders the abnormal and the unthinkable normal and even commonplace — as with a nuclear reactor or the instantaneous transmission of image and sound . . . Stone Age societies were enduring but extremely rigid . . . They maintained themselves by a fixed systems of rites, rituals, and taboos, and corresponding myths and belief systems.

Ervin Laszlo

Evolution: the Grand Synthesis

It is time to overcome the geocentric regarding our person and way of life as we have overcome it in regard to the cosmic centrality and importance of our planet.

Ellen Dissanayake
What is Art For?

How the creative capacity of someone like Einstein differs from that of other people was of great interest at the end of the twentieth century. The horror of the two World Wars of that century encouraged people to ask what human creativity is and how we evolve our lives. Moreover, the hope behind these questions was that we could facilitate more effective interaction, enhance our ability to access subjective processes, and help actualize human potentials. This hope that we could expand our creative possibilities was — and is — present in the sciences, art, and the humanities (e. g., see Ghiselin, 1952; Heisenberg, 1958; Maslow, 1954; May, 1975; Rogers, 1954; Schrödinger, 1954).

In science, for example, the pursuit of “truth,” had long been seen as primary. Yet the graphic reality of two World Wars made scientists keenly aware of how instrumental the “tools of science” were in the *deliberate* destruction of human life and the environment. Even more unnerving was the evidence that if we continued along the same path we would eventually destroy ourselves as well as the world we know. Werner Heisenberg, a Nobel Prize winner in physics, asserted, “every tool carries with it the spirit by which it has been created” (Heisenberg, 1958 p. 27). Erwin Schrödinger, another Nobel Prize winning physicist placed his concern and his hope for our future in a historical and cultural context. Schrödinger asked if we had, in effect, created a wall between who we are and how we experience our world when we separated the path of the heart from that of reason.¹

¹In 1954 Schrödinger wrote, “We look back along the wall: could we not pull it

The probing for solutions focused on traditional questions; asking who we are, what reality is, and how we best live together. These questions, in turn, helped birth the postmodern world. The answers of the “postmodern world,” I believe, are intertwined with some important reflections on specific answers to these questions in earlier epochs. It is important to see this contextually.

Postmodernism is a category that is by definition more *Western* than global. The term itself acknowledges this. As the term post-modern suggests, the perspective developed out of Modernism. Modernism was primarily a Western solution to the religious and secular concerns of life. It is this interface with the Modern orientation that makes it *post* Modern, or after the Modern. Moreover, people approach postmodernism from many perspectives. Throughout this book I use the term broadly. It is applied to represent a cultural shift.¹ From this generic perspective, postmodernism reflects the way Westerners are exploring what it means to acknowledge that Modernism is *one of many* perspectives in a world comprised of premodern, non-Western, and Modern stories. Thus postmodernism, as I use it here, is not a philosophical ideology. Rather it is a way of conceptualizing that much of what our world is today was unknown in the world that developed Modern ideas.

down, has it always been there? As we scan its windings over the hills and the vales back in history we behold a land, far, far away at a space over two thousand years back, where the wall flattens and disappears and the path was not yet split, but was only *one*. Some of us deem it worth while to walk back and see what can be learnt from the alluring primeval unity." (Schrödinger, 1954, pp. 10-11) This can be compared with the ideas the creativity scholar Brewster Ghiselin expressed in 1952 when he wrote: "... the self-interest of mankind calls for a more general effort to foster the invention of life. And that effort can be guided intelligently only by insight into the nature of the creative process ... Knowledge of the creative process drives us to conclude, although a problem which stubbornly resists solution by traditional means may perhaps be insoluble, the probability is rather that those means are themselves inadequate; the concepts, attitudes, and procedures employed are probably at fault and in need of being transcended in a fresh approach." (Ghiselin, 1952, p. 12)

¹It is important to recognize that postmodern, as I use the word here, is not a deconstructive philosophy. It is also not New Age thinking. The context I adopt in this book in fact assumes that what is postmodern differs significantly from the pre-modern. Likewise, characterizations used to refer to a holistic paradigm, a new paradigm, and an ecological perspective do not define the postmodern world. Rather, in this book the assumption is that all of these views are a part of a postmodern dialogue.

In essence, as the discussion below demonstrates contextually, postmodernism is philosophically Western and experientially global. It is not by definition integral to traditions that never adopted the Modern vision, largely because non-Western traditions were not culturally directed and educated to see through the lens of Western Modernism in the way those raised in the Western world were. It also means that many Westerners are aware that our world today is globally connected in a way that makes it differ from the Modern world inscribed in our history. This distinguishes our time from previous eras. None of the above is intended to infer that older cultures were totally unaware that there were other cultural environments and ideas. Rather, the distinctions noted here serve to emphasize that the way all cultures now relate to one another has changed.

In our world today people are mobile. Perceptions are challenged at an accelerated rate. Awareness of our world's complexity is evident in even the simplest cultures. Outsiders increasingly access so-called isolated cultures, photograph them, deposit information and goods within them, and influence them. Outsiders are influenced by largely isolated cultures as well. There is nothing extraordinary about any of this in our day, just as there is nothing extraordinary about one of us talking on the phone to someone in China, knowing it is Tuesday in China and still Monday in San Francisco. There is also nothing extraordinary about any one of us being face-to-face today with someone who leaves tomorrow for a week to travel to the other side of the world, only to return and resume living in a framework where circumstances have (usually) not radically changed. Because most of the details that define our lives and consciousness accommodate us to this faster pace and somewhat nonlinear relatedness, we easily navigate through these events. We do so assuming some kind of linear progression even though our relationship to the sequential events is formed as each one of us is continually encountering a different and discontinuous assortment of stimuli, people, situations, and cultural ideas that

we, in turn, mold together to form a unique relationship to the environment.

Let me emphasize this by adding a framework generalizing ways in which our world today is radically different from the world older civilizations knew. The further back one goes in history the more evident it is that cultures of previous eras had different concerns and a different perspective on the nature of reality. Older cultures, for example, were more likely to be inhabited regions that were relatively closed systems. The people were essentially confined to their own regions. Each group evolved without the external influences we take for granted in the twenty-first century. In early tribal societies, for example, we find self-sufficient entities. It was because they were relatively isolated even from their own neighbors that interactions with their neighbors were mainly in the form of competition or occasional aggression. They had neither the wish nor the means to travel long distances and had very limited technologies for communication over distances (with limited exceptions, such as the smoke signals of the American Indians).

Over time, with the further advance of civilization, and as communication capabilities between people improved, techniques for better communication developed. Concurrently, imaginative and scientific technologies were refined. Eventually, the physical transfer of persons on land, over sea, and through the air reached the level we know today. Clearly we live in a connected sphere, one with abundant social intercommunication. For an increasing number, the availability of information is all embracing. This is the environment that molds lives globally. It is the soil nurturing postmodernism. It is the ground in which we find the contemporary perspectives on questions humans engage with today; questions humans have engaged with throughout time.

Indeed, and this is key, while many of the larger questions of previous eras correlate with our own, circumstances differ significantly. Nonetheless, as in earlier eras, many today are compelled to integrate paradoxical ideas. The difference, to

state the obvious, is that older cultures formed their worldviews using information that differs significantly from that available today. Most noteworthy is that the availability of information has elevated contemporary awareness of the answers of older cultures and other cultures as well. We are also aware of the variations within traditions to a great degree. At the same time, we are aware that cultural “answers” live in wide-ranging environments. An expanded awareness of the diversity throughout the globe has led many to realize that unquestioned ideas are frequently implicit assumptions. Not only are a number of implicit assumptions becoming explicit, as we define these assumptions we are able to open them to questioning. Cultural answers of others as well as assumptions of earlier eras are also undergoing re-examination.

Within this scenario what is clear is that people have created many perspectives on reality. We, today, cannot say that this perspective or that question *defines* human explorations or the questions of our postmodernism world.¹ The crux of this is that humanity, as a whole, affirms many ideas, asserts many prejudices, and lives with the evidence that the complexity of all of this is hard to simplify interpersonally.² As we air our opinions we actively accentuate that all are more aware of the variations within worldviews. Again, it is clear that we cannot as easily overlook that there are many, often incompatible, versions of reality among us.³ Our diversity has highlighted the pros and

¹Let me underline that there are many who do not have questions. They know what they believe in regard to values and beliefs and have prescriptions or “solutions” that span orientations. Those who have “solutions” span traditions. We see them among New Age thinkers who advance the idea of The New Paradigm and we see them among fundamentalist Christian thinkers. Knowing *the* right solution to social concerns is also evident among those who believe that science and technology offer *the only real* answer to living challenges.

²For example, some see the question we must address as why did the Modern worldview replace the Christian ideas about Truth with a quest for Truth that came to be defined through science. Others believe the critical question is whether belief is possible in a world where many models of reality co-exist.

³In 1987 Donald Michael and W. T. Anderson identified six stories competing for attention and credibility at the close of the twentieth century. “The six stories are (1) the Western myth of progress, with its enthusiasm for technological change and economic development and its overriding image of a world in which the conditions of life keep getting better for everybody; (2) the Marxist story of revolution and international socialism; (3) the

cons contained within the paradigmatic model. The question of whether “one” vision has the capacity to address the complexity of diverse populations is an ongoing part of this dialogue. Indeed, the very ideas we use to communicate about the variables bring all of this into sharper focus.

The Modern prejudice was toward scientific learning and incorporated a particular bias toward reason and rationality. As I show in detail below, this orientation took root because scientific knowledge and the mind seemed to model an evolutionary progression, and to do so with an element of precision due to its method. In addition, when this perception took hold, the evidence seemed to suggest that Modern science added two qualities to the older religious models. First, science¹ appeared to provide a method that could be used to actively engage with nature. Second, the scientific approach not only appeared to be able to use an “objective” language, it also appeared to have a capacity to articulate an evolutionary process in a way other approaches to life did not seem to offer. Sources often describe the scientific difference, even when looking outside of the Modern world of the West.

It is a commonplace of thought that some forms of human experience seem to have progressed in a more obvious and palpable way

Christian fundamentalist story about a return to a society governed on the basis of Christian values and biblical belief; (4) the Islamic fundamentalist story about a return to a society governed on the basis of Islamic values and koranic belief; (5) the Green story about rejecting the myth of progress and governing societies according to ecological values; and (6) the “new paradigm” story about a sudden leap forward to a new way of being and a new way of understanding the world.” (Anderson, 1990, pp. 243-244)

Michael and Anderson note that their inventory is incomplete. I would agree. For example, they show a Western bias and exclude many stories that are important today. One story Michael and Anderson exclude is China where events like Tiananmen Square and issues concerning human rights are struggling with China’s Neo-Confucianism tradition, Communist governance, the appeal of ideas like democracy, and the rapidly emerging capitalism. In India, too, we find the evidence of cultural questioning. Some prefer to retain the historical caste system and others to redefine the social inequality it creates (Moore, 1994). Stories that span traditions are also evident as we see when considering that Buddhism is becoming the fastest growing religion in the United States (Lattin, 1992).

¹Again, the issue is not that cultures outside of the West did not have science and technology. My point is that religious traditions integrated their scientific ideas with their religious models in ways distinctly unlike those found in the West. This is one reason, in my opinion, tools like science and technology are not the issue here.

than others. It might be difficult to say how Michael Angelo [sic] could be considered an improvement on Pheidias or Dante on Homer but it can hardly be questioned that Newton and Pasteur and Einstein did really know a great deal more about the natural universe than Aristotle or Chang Hêng. This must tell us something about the difference between art and religion on one side and science on the other, though no one seems able to explain what, but in any case within the field of natural knowledge we cannot but recognize an evolutionary development, a real progress, over the ages. The cultures might be many, the languages diverse, but they all partook of the same quest. (Needham, 1953, p. xxi)

This precision of science had (and has) an intriguing quality that has, itself, commanded global respect (Needham, 1953; Ronan, 1993; Sarton, 1960). In addition, scientific prediction has shown science has a capacity for a kind of self-correction that allows for more apparent revision than other disciplines. Therefore, even those who denigrate its conceptual focus tend to respect it to some degree. What this reliability signifies has taken on a new meaning with the renewed interest in looking closely at our world and our models of reality. Many, through exposure to ideas like relativity and paradigmatic models, believe that scientific experiments are not “objective.” Others, influenced by quantum theory and other traditions, assert that objective models fail to accommodate the scientist’s participation in the design and interpretation of scientific research.¹ Others,

¹“Nothing is more important about the quantum principle than this, that it destroys the concept of the world as “sitting out there,” with the observer safely separated from it by a 20-centimeter slab of plate glass. Even to observe so minuscule an object as an electron, he must shatter the glass. He must reach in. He must install his chosen measuring equipment. It is up to him to decide whether he shall measure position or momentum. To install the equipment to measure the one prevents and excludes his installing the equipment to measure the other. Moreover, the measurement changes the state of the electron. The universe will never afterward be the same. To describe what has happened, one has to cross out that old word “observer” and put in its place the new word “participator.” In some strange sense, the universe is a participatory universe.” (in Capra, 1984, p. 127; Wheeler, 1979)

reflecting on the diversity surrounding us, assert science does not offer the key to Truth. In sum, perceptions of a world in which we can define an objective and unchanging truth independent of humans are now regularly challenged.

Since each major revision to cultural consciousness has complexified human consciousness I would suggest perceptions that stretch our parameters, enlarge our capacities, and enhance our dialogue speak of complexification. Similarly, I would propose that this complexification points to critical limitations within the ideas of scholars, like Mircea Eliade, who elevate the primitive. Eliade is among those who suggest primitive humans were *more* religious than humans at other stages of existence — as if to infer we have lost or forgotten something because of our conceptual focus.¹ Yet, as Eliade himself points out, conceptual thinking was not unknown to those he characterizes in terms of the primitive mind, despite the tendency of many to assume otherwise.

‘Truths’ are held to be hierophanies by primitive people — not only because they reveal modalities of the sacred, but because these ‘truths’ help man to protect himself against the meaningless, nothingness; to escape, in fact, from the profane sphere . . . [i]t is often forgotten that the workings of primitive thought were not expressed only in concepts or conceptual elements, but also and primarily, in symbols. . . .

It follows from this that the apparent conceptual poverty of the primitive cultures does not imply an inability to construct theory, but implies rather that they belong to a style of thinking totally different from our modern style, with its roots in the speculation of the

¹Robert Bellah is one who adopts the point of view I use here. Like Bellah I believe that primitive humans were *as* religious as humans at any stage of history — not *more* religious. Bellah’s ideas are well stated in his essay “Religious Evolution.” (Bellah, 1991)

Greeks . . . we can identify, even among the [primitive] groups least developed ethnologically, a collection of truths fitting coherently into a system or theory (among, for instance, the Australians, Pygmies and Fuegians). That collection of truths does not simply constitute a *Weltanschauung*, but a pragmatic ontology (I would even say soteriology) in the sense that with the help of these 'truths' man is trying to gain salvation by uniting himself with reality. (Eliade, 1958, p. 33)

Thus neither simplicity nor complexity is, by definition, a ground for creative expression *or* a ground for fragmentation. Similarly, religion must be explored contextually. The simplicity within what are often called primitive cultures does not infer we should highlight, romanticize, ignore or undervalue this so-called primitive worldview. It does suggest we do better in considering how complex systems are a part of our own world. Looking at how the historical story took form, evolved, and complexified offers an excellent counterpoint for re-evaluating life today.

Chapter Three

The Axial Age

I think that if we are to feel at home in the world . . . we shall have to admit Asia to equality in our thoughts, not only politically but culturally. What changes this will bring about I do not know, but I am convinced that they will be profound and of the greatest importance.

Bernard Russell
History of Western Philosophy

In any attempt to bridge the domains of experience belonging to the spiritual and physical sides of our nature, time occupies the key position.

Arthur Eddington
The Nature of the Physical World

While some, like Karen Armstrong, would date the Axial Age more broadly, I concur with those who limit it to the period around 6-5th century BCE. At this time the major religions and philosophical ideas of today began to take form.¹ What is perhaps most intriguing about this period is that, for reasons we do not understand, and despite spatial distance, all of the major civilizations of today developed along parallel lines globally at this time. While there is some concrete evidence of cross-fertilization, it is scant. Most of the evidence suggests there was little exchange and yet, nonetheless, a certain evident symmetry in how the cultures developed.

Two noteworthy changes were most apparent. First, human consciousness changed as human perceptions of nature, the sacred, and the individual began to show a deeper comprehension of unity (nonduality) and duality. Second, the cultural context of each culture was significantly altered as new perspectives took form. In sum, during the Axial Age, social and human developments revised basic assumptions. Cultural truths were similarly re-defined. Armstrong splendidly sums up the Axial Age, writing,

The period 800-200 BCE has been termed the Axial Age. . . . There was a new prosperity that led to the rise of a merchant class. Power was

¹Many formative historical figures lived during the Axial Age. Among the most notable were Siddhartha Gautama (the Buddha/ca 560-480 BCE), Lao Tzu (sixth century BCE) Confucius (551-479 BCE), the Hebrew prophets Ezekial, Jeremiah and the second Isiah; Heraclitus (ca 500 BCE); Parmenides (b. 515 BCE), and Pythagoras (ca 530 BCE).

shifting from king and priest, temple and palace, to the marketplace. The new wealth led to intellectual and cultural florescence and also the development of the individual conscience. Inequality and exploitation became more apparent as the pace of change accelerated in the cities and people began to realize that their own behavior could affect the fate of future generations. Each region developed a distinctive ideology to address these problems and concerns: Taoism and Confucianism in China, Hinduism and Buddhism in India and philosophical rationalism in Europe. The Middle East did not produce a uniform solution, but in Iran and Israel, Zoroaster and the Hebrew prophets respectively evolved different versions of monotheism. (Armstrong, 1994, p. 27)

Five factors, all of which are detailed in later chapters, stand out in this picture. First, research has only begun to extensively explore how humans developed and created new *perceptions* of reality in various historical periods and geographic areas. Second, in both the East and the West various and often contradictory belief systems and philosophies were defined. They were usually defined using a dual/nondual perspective — even when duality (nonduality) was not the focus, as was the case with the relational Chinese philosophies. Third, the Axial Age changed a number of cultures throughout the globe. Fourth, all of the revised responses were born of an urgency to more effectively define human living in relation to the environment. Fifth, various answers were formulated and these engendered new cultural/religious/ philosophical theories. Several of these theories became the foundation of the major religious traditions even into the twenty-first century.

My concern here is with why the quality of engagement that originated the quest to know differed in each culture and differed as each culture integrated their insights into what became foundational to the cultural belief system. In exploring this concern I must emphasize that it was not only in the West

that cultural Truths defined human perceptions. Generally a culture's assumptions of particular Truths was so effectively integrated within each Axial Age region that these Truths are often assumed to have “always been there.” This is one reason the Axial Age traditions offer a useful starting point for framing ancient traditions in terms of postmodern perceptions about how we integrate deeply felt beliefs and values within our cultural multiplicity.

The diversity of the Axial Age traditions also aids in demonstrating that cultural traditions include assumptions that are incompatible with the beliefs of other traditions. Looking at these traditions as a whole we find theories about beliefs converge and diverge. This book has turned to Chinese and Indian traditions primarily, only because these cultures are more frequently integrated into discussions in the West. As will be shown, the premises of each of the Eastern cultures analyzed below differ and each also assumes an overall vision that differs from assumptions found in the West. Of course, we can also find similarities among all of these traditions. Many will be developed as the book unfolds.

The Indian tradition, for example, placed more emphasis on transcendence than maintenance or self-organization. This focus on transcendence is evident in Hinduism, Buddhism, and other Indian religious philosophies. The assumptions adopted by many within this geographic region led the traditions that emerged to probe metaphysical issues and intentions, especially in regard to how we can transcend the limitations within our lives. Even still, conclusions differed among the schools. As a whole the views they offered contain conflicting interpretations when defining cultural truth(s).

The substance view of reality in Hinduism, for example, held a belief in permanence, universality, identity, and unity as the basic characteristic of all that exists (Koller, 1985). In contrast, the non-substantive view in Buddhism stresses the non-substantive person and that only *dharma*s are real (and some would say they may not be real in Mahayana Buddhism).

Identity and permanence, which are essential to a substance view of reality, are imposed on the data of experience as an interpretative framework. It is this framework that the Buddhist wishes to reject for it is not given in the experience itself. The doctrine of *anicca*, or impermanence, is essentially a denial of the substance view of reality. But to deny the reality of substance in the world is not to deny the reality of the world. It is only a denial of the reality of the world *as substance*, and it leaves every other alternative open. Buddhists claim that reality consists of processes, not substances.” (Koller, 1985, p. 179)

Indian perspectives offer a sharp contrast to those of the Chinese traditions. Unlike India, Chinese philosophy, being a philosophy of interpenetration, did not adopt a metaphysical system and a focus on transcending life. Instead, the Chinese developed a cultural metaphysic that stressed the Chinese ideal of cooperation. This allowed the Chinese to focus on affirming the harmony and the unity of Nature, the human condition, and balance. Eventually, to speak broadly, Neo-Confucianism synthesized the two Axial Age traditions of Confucianism and Taoism. This synthesis offered a design that stabilized social and cultural interpenetration. The composite kept the culture and society intact — allowing Taoists to essentially walk “outside of society” while allowing Confucians to walk within it (Ronan, 1993).

“Transcendent” and “relational” perspectives are evident in the Western story as well, despite the way the predominant assumptions of the West differed from those of Indian and Chinese cultures. Moreover, when we define the traditions as if the Western only focused on reason and the Eastern interest was of another quality, we overlook the richness within all cultures and the way many points of view form our cultural stories. With these preliminary thoughts in mind let me turn to India to begin to consider how one non-Western tradition took form.

Chapter Four

The Metaphysical Indian Religious Traditions

We must do what the gods did in the beginning.
Shatapatha Brahmana

None knoweth whence creation has arisen;
And whether he has or has not produced it:
He who surveys it in the highest heaven,
He only knows, or hapley he may know not.
Rig Veda, X.129

It is because Hinduism¹ can only be traced back to “primitive” and ritualistic traditions that Indian culture offers an excellent starting point for exploring ideas about learning and creativity. Having no original founding figure, and no defined origin or beginning in time, the Hindu religion is more of a tradition than a religion with a specific origin due to its organic roots. Moreover, the classical system, foundational to Hinduism as studied today, took form when the Upanishads were revealed² to the Hindu sages around the 6th century BCE. These scriptures, the last of the Vedic texts, see knowledge as the goal of life. Let me emphasize that in this context knowledge is neither a way of being nor a

¹ The term Hindu is first found in Arabic texts, where it was used to refer to the inhabitants of the Indian subcontinent. Al-Hind was a geographical identity and the Hindus were the people who lived on this land. Over time the term Hindu came to be used for those whose religion was neither Christian nor Islam. This all-inclusive designation was no doubt bewildering to those within the multiple sects and castes. All of these people, it seems, were inclined to see themselves as separate entities. More intriguing is the evidence that the Hindu religion itself was only definitively born (i.e., named) in the nineteenth century. This occurred when the colonial British began to use the word Hinduism to refer to a (supposed) religious system encompassing the beliefs and practices of Indian people not adhering to other named religions such as Islam, Christianity, or Jainism. The Indians, it seems, were happy to adopt the name at that time. This construct offered the people an identity that separated them from the seemingly monolithic Christianity of the British Empire.

As might be expected, the assortment of local cultures that became the Hindu religion gave the religion a very pluralistic foundation. The larger point is that combining these somewhat independent and eclectic local practices into what is now called ‘Hinduism’ resulted in a belief system that is quite contrary to the notions of a monolithic religion in a Western sense. The pluralistic practices do, however, speak directly to the respect Hindus have for what one has come to know through direct personal experience.

² *Sruti* means heard. It is the term applied to the body of Hindu scriptures: the early Hindus said the gods directly revealed these works “through” the ancient sages. Included in the *sruti* are the hymns of the Vedas, the Brahmanas and the Upanishads. The *sruti* literature is regarded as the highest possible authority in all matters. It exists in contradistinction to *Smṛti*, the name applied to later canonical literature of human authorship. Literally *smṛti* means remembered.

form of logic or intellect. It is the mystical insight that brings the ultimate goal of liberation (*moksha*). Knowledge is what sets a human free from the cycle of life and death.¹

This section probes the formation of the classical system, illustrating how this system came about through a revision of earlier assumptions. This under-investigated area is important in evaluating this tradition. If we only think of Hinduism as a spiritually based religion that encourages personal realization we can overlook the process that *developed* the classical belief system. The developmental process also illustrates how one culture changed its worldview through redefining its symbols, revising its metaphors, and developing *new* ideas. For example, the Upanishads articulate the ideas of *moksha* (liberation) and *karma* (a person's acts and the consequences of them). These ideas, however, are clearly undeveloped in the pre-Upanishadic tradition.

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What was to eventually become known as *karma* began to take form in the early Vedic texts, which appeared around the seventeenth century BCE, when the Aryans invaded India and imposed their ideas on the indigenous population. We first find intimations of *karma* in the *Rig Veda* and the *Brahmanas*, the earliest of the Vedic texts. These texts additionally show a cosmology is developing as the seers begin to consider how the idea of the real equates with the idea of an immutable or changeless reality.

In the *Rig Veda*, for example, we find tales that are attempting to explain the origins of life more than they are trying

¹Six predominant Hindu systems have since emerged out of the Upanishadic tradition. These systems vary widely in their positions. All agree there is a "great world rhythm" and vast periods of creation, maintenance, and dissolution. All also agree that spiritual perfection is the purpose of life in a universe that is law-abiding to the core (Radhakrishnan & Moore, 1971). As a whole, these traditions illustrate that Hinduism has maintained a synthetic, fluid and multiplistic orientation. The differences among the six systems show that Hinduism is a religion where reason has been added to faith to continually clarify religious assumptions without, at least according to the Hindus, changing the basic assumptions of the Hindu belief system.

to give answers to philosophical questions. Most notable is the way the *rishis*¹ are beginning to ask who they are in relation to reality (Tull, 1989). Using a multitude of gods and religious ideas, the narrative poems are a record of what it means to come to terms with the wonder and terror of existence. These poems also offer a record of the development of the idea that the experience of change in our lives needs to be reconciled with the changeless; what it is that does not change.

Two points stand out here. First, the Vedic sacrificial investigations were the experiential means used to explore this perceived need for reconciliation with reality as a whole (Tull, 1989). In other words, when Hinduism evolved from its early religious belief system rituals were used to bring a more reasoned understanding to ideas that had been only accepted on faith up until that point. Through the sacrificial experience, questions were articulated, and the sacrificial activity unfolded in response to human questions about life. Human questions evolved as the questions were being developed. This active process of developing questions through formulating them eventually fostered changes in how the Hindus perceived their relationship to reality. Second, aligning a creation myth with a sacrificial ritual was not uncommon in those societies now termed primitive. These cultures often juxtaposed ritualistic sacrifice with myths about creation in order to bring a sacred dimension to human living. The evidence showing how these kinds of ideas and the ceremonies surrounding them evolved throughout the world offers us a record of how science, religion, art, and philosophy took form.

It was through using the sacrificial notion (*Iarapura*) that the early Hindu *rishis* were able to consider how an action (*kr*), could be connected with *Rit-am* (the natural order or cosmic ordering principle). Again, initially, the approach was strictly

¹A *rishi* was a seer. Literally it means one who has the knowledge or “sees.” The *rishis* are considered to have been the spiritual founders of Hinduism. It should be kept in mind that the beliefs the *rishis* communicated in the *Rig Veda* and the *Samhita* are now seen as the foundations of the Hindu faith that subsequently developed.

experiential. Modeled on how the cosmic man (*Prajapati*) was supposedly dismembered (or sacrificed) to create the cosmos from his own substance, the sacrifice was an experience enacted through the erection of an altar dedicated to Agni (the god of fire). The engagement with the experience was perceived as a means to microcosmically imitate and reenact the macrocosmic Creation. Each ritual performed was considered to be a creation of the cosmos and, if perfectly enacted, a means to link the sacrificer with the cosmic creation.

The ritual was also believed to legally constitute taking possession of a sacred territory (Eliade, 1959). Since it was believed that the performance of the action was linked with the nature of reality it was believed that one who performed the ritual successfully could be transformed and could embody the essence of the primordial unity of *Prajapati*. Of course, in this context, the sacrificer identifies with *Prajapati*, a signifier of time and space, creator and creation.

What is key here is that in the pre-Upanishadic period it was not what the rituals meant abstractly but how the rituals were actively performed that was of concern. The assumption was that if the ritual was performed correctly — emphasis on correctly — the ritual insured personal reintegration with the cosmos when actual death occurred. Since the consequence of a bad ritual was that successful reintegration into the cosmos would not be possible the preparation was critical.

In moving from the world of ritual to the larger cosmos the sacrificer becomes *saloka*, “one together with the world(s).” The ability to attain this state implies that the sacrificer’s own existence is in some sense correlative to that of the cosmos . . . to meet the demands of the ritual theory . . . required a complex ceremonial . . . the ritual event prepares the sacrificer for the afterlife, and . . . facilitates his transition into the larger cosmos on the event of his funeral. (Eliade, 1959, p. 3-5)

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Eventually, the need for exactitude led to the entry of ritual specialists. Specialists offered the hope of more precise re-creations of the primordial event. Their purpose was to insure rituals were performed with exactitude. Yet, rather than bringing peace of mind, the presence of specialists added new questions to the inquiry into the nature of reality that the sacrifice was intended to “solve.” The experience now included the question of whether the specialist, or someone other than the individual himself,¹ could effectively perform the sacrificial ritual in a way that would insure an individual’s proper reintegration. More specifically, did the specialist increase the possibility that the ceremony would be successful? Or, did the specialist interfere with the overall intention of the ceremony — since the individual was no longer as integrally involved with all aspects of the ceremony? To consider these possibilities the Hindus began to ask what the intention of the sacrifice was precisely. What constituted good and bad ritual acts?

Through this dialogue the idea of internalized sacrifice was developed. Adding this possibility to the nature of sacrifice allowed the Hindus to consider whether a person could properly reintegrate with the cosmos even if a specialist performed the ritual. They explored this idea through asking if *all* actions — not just those within the sacrificial performance — were connected with the larger cosmos. Internalized sacrifice was added to the scenario once they concluded that all actions an individual performed — as well as their consequences — were intrinsically tied in with the possibility of personal reintegration. In sum, they concluded that liberation was no longer specific to the sacrificial ceremony.

In time the notion that a person’s destiny is determined through *all* of his actions came to link the ideas of release, *karma*, rebirth, and reintegration. It is in the *Brihadaranyaka* and *Chandogya Upanishads* (ca. 600-500 BCE, see Tull, 1989) that

¹The sacrificial ritual was reserved for males.

the discussion of the individual's fate after death first appears. At this point it is hard to know to what extent it was an accepted doctrine. All that can be ascertained is that the idea is beginning to clarify because actions are spoken of as determinant in the conditions of human rebirth. (Reichenbach, 1990) For example, the *Brihadaranyaka Upanishad IV: 4:3* say:

Just as a leech (or caterpillar) when it has come to the end of a blade of grass, after having made another approach (to another blade) draws itself together towards it, so does this self, after having thrown away this body, and dispelled ignorance, after having another approach (to another body) draw itself together (for making the transition to another body). (Radhakrishnan, 1992)

The idea of rebirth is also evident in the *Chandogya Upanishads* (V: 10:7):

Those whose conduct here has been good will quickly attain a good birth (literally womb), the birth of a Brahman, the birth of a Khsatriya or the birth of a Vaissya. But those whose conduct here has been evil, will quickly attain an evil birth, the birth of a dog, the birth of a hog or the birth of a Candala [outcast]. (Radhakrishnan, 1992)

These passages show the Hindus were bringing new ideas into the religious belief system, without denying the traditional sacrificial format. This enlarged context also allowed the goal of an eventual release from living to remain a part of the living religious philosophy (Tull, 1989), because the *Prajapati* cosmological creative activity was assimilated. Thus, people were able to expand their inquiry into the nature of reality beyond the actions and intentions of the sacrificial activity while retaining the philosophical intention of the scientific. In sum, prior to the Upanishadic period the religious focus was on the sacrificial ritual per se. The Upanishads, however, extended the ideas initially contained within the ritualized actions beyond the ritual. As a result actions were coupled with ethics and ideas

about liberation. In addition, through promulgating ideas like “interiorized” sacrifice an ethical system was brought together with new ways of seeing their living activities. All of these variables allowed for a more comprehensive assessment of experiential possibilities.

The *Upanishadic* attempt to correlate two types of worship within the single paradigm of *Prajapati's* sacrifice led . . . to the promotion of the idea that even for those who follow the traditional sacrificial format — despite its sharply delimited nature — all actions, not just those associated with the ritual performance, affect the conditions of the afterlife. In other words, the conduct of those worshippers following the traditional ritual format was viewed in the same way as the conduct of those following the “interiorized” sacrifice, which was not limited to a specific arena or to a certain aspect of an individual’s life . . . The point that draws the Upanishadic *karma* doctrine out of the realm of activity is simultaneously the point that leads back to the model of the sacrifice. For, only when the activity of the sacrifice became equated with all activity — that is, with life itself — did the Upanishadic thinkers begin to envision a doctrine of the moral efficacy of actions that actually were disconnected to the sacrifice. (Tull, 1989, p. 40-41)

Key to understanding this change is conceptualizing that at one historical point the concepts of *karma* and *moksha* did not exist. Then the early Hindus developed these ideas and they became a part of the later Hindu framework. The framework was now a conceptually revised system, one that helped define an ethical framework.¹ Even with this revision free will remained a part of their belief system because the law of *karma* assumed

¹The ethical system, I might add, did not necessitate that one subscribe to the kind of obedience, or even feel the kind of guilt, often evident in Abrahamic religious traditions.

one's actions today are the key to one's future. *Karma* also was key to whether one is released from the cycle of life and rebirth.

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Moksha and *karma*, however, were only a part of the picture. The *Atman* Doctrine, which is still a major force in Indian life, was also developed in the Upanishads. While *karma* presupposed causation in the manner in which the moral law of the universe is implemented and *moksha* offered liberation, the *Atman* doctrine articulated the relationship between *moksha* and *karma* by saying that at the deepest level the subjective "I" is the ground of the objective universe. This means that whether active in the universe or released from the cycle of life and death, one is a part of the form and formlessness (*saguna* and *nirguna*). All, moreover, is bound together, in union, with the whole of existence.

The *Atman* Doctrine expressed this idea of connectedness through assuming the convergence of *Atman* (the ultimate internal reality) and *Brahman* (the ultimate external reality). This convergence identifies the individual soul (*atman*) with the ground of the universe (*Brahman*). Through integrating both *Atman* and *Brahman* with *karma* the worldview was able to offer a perspective on how humans were involved with the form their lives took (Chapple, 1986; O'Flaherty, 1980; Reichenbach, 1990; Tull, 1989).

Like *moksha* and *karma* the *Atman* Doctrine was elaborated on extensively in the *Chandogya Upanishad*. The text speaks of the recognition within the human soul of something immortal. This something participates in, is of the same nature, and is simultaneously identical with the immortal *Brahman* that sustains and ensouls the entire objective cosmos. At this point, with *Purusha*, *Brahman* and *Atman* came to mean either the essence of the human soul which, because it has its being outside time, is immortal, or the changeless ground of the universe which, at the same time is the source of all change (Zaehner, 1966). Thus, the formed and the indefinable unformed intertwined and were interdependent.

One should venerate Brahman as the True . . .
One should venerate the Self (*atman*) who consists of mind, whose body is breath, whose form is light, whose self is space, who changes his form at will, whose thought is swift, whose conception is true, whose resolve is true, in whom are all scents and tastes, who holds sway over all the points of the compass, who encompasses all this [world], who does not speak and has no care — like a grain of rice or a barley corn or a grain of millet or the kernel of a grain of millet is this Person (*purusha*) within the self, golden like a smokeless flame — greater than the sky, greater than space, greater than this earth, greater than all existing things. He is the self of breath (life), he is my own self. When I depart from hence I shall merge into that very self. (*Chandogya Upanishad* III.14)

The Upanishadic tradition concluded that to have true knowledge of the real; we must know the real. The real is not about objects that offer only ideas about the real. These assumptions, which contextually differentiate between knowledge, the knower, the known, the self and the whole, which is not the self, introduce a rational element as well as a perceptual duality into Indian philosophy. I cannot stress strongly enough that it was not the Indian intention to develop a rational dialogue and perceptions of duality. The intention was to articulate a vision of the universe that was governed by a unifying principle, similar to what the individual felt when properly performing the sacrificial ritual. Moreover, the Upanishads tried to encapsulate the deeper connectedness. This is done through utilizing modes that poetically and metaphorically illustrate this quality. One could say the presentations were meant to translate a vision of life as the amorphous flow as well as forms and qualities (*saguna*) of differentiation. The idea was that the qualities of *saguna* flow back into homogeneity only to emerge, re-form, and again return

to *nirguna*, which has no quality and is without form while not being without anything for it is, or is is-ness.

“As the bees, my dear, prepare honey by collecting the essences of different trees and reducing the essence to a unity, as they are not able to discriminate ‘I am the essence of this tree,’ ‘I am the essence of that tree’ — even so, indeed my dear, all creatures here, though they reach Being, know not ‘We have reached Being.’ (C. U. IX. 1-4)

“These rivers, my dear, flow, the Eastern toward the East, the Western toward the West. They go just from the ocean to the ocean. They become the ocean itself. As there they know not “I am this one,’ ‘I am that one’ — even so, indeed, my dear, all creatures here, though they have come forth from Being, know not “We have come forth from Being.’ Whatever they are in this world, whether tiger, or lion, or wolf, or boar, or worm, or fly, or gnat, or mosquito, that they become.

“That which is the finest essence — this whole world has that as its self. That is Reality. That is *Atman*. That art thou [*Tat tvam asi*].” (C. U. IX. X. 1–3)

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Both *karma* and the idea of liberation were brought into Buddhism, a later tradition. This means the depth of the cultural commitment to these ideas was greater than the philosophical differences we find in Hinduism and Buddhism. Hinduism provided a substantive view of reality, characterizing it as enduring, essential, permanent. In contrast, the non-substantive view of Buddhism stressed the non-substantive.¹ Since

¹As noted, John Koller offers an excellent clarification in regard to the difference between the Buddhist beliefs and the Hindu premises about the nature of the underlying reality. "Identity and permanence, which are essential to a substance view of reality, are imposed on the data of experience as an interpretative framework. It is this

Buddhism assumes reality is a process, a position that is quite unlike the Hindu position, Buddhist ideas about *karma*, realization, and liberation are re-defined in order to correspond with this tradition's philosophical intentions.

Philosophically, the Buddhist position is more difficult to encapsulate. What is clear is that it is even difficult to ascertain whether the Buddha, himself, believed in these ideas.¹ The questions were evident from the beginning. When Buddhist disciples brought the deeply engrained cultural ideas of *karma* and *moksha* into the religious framework they needed to account for how a non-substantive self could travel from life to life. In short, if the self is a changing, fluid construct created by the dynamics of the mind, how does one account for the movement of this construct from life to life for those not yet liberated from the cycle of re-birth? Can a changing, fluid construct created by dynamics be pinned down into a specific form/identity to make this transition?

Some Buddhist ideas, like a simultaneous mutual causality (*paticca samuppada*),² seem to account for the problem. Here the immediacy of a temporal relation allows that all phenomena interpenetrate. Yet ideas like *paticca samuppada* can only be related to the suffering we create and the traps we fabricate out of fear or greed. The concept offers a means to

framework that the Buddhist wishes to reject for it is not given in the experience itself. The doctrine of *anicca*, or impermanence, is essentially a denial of the substance view of reality. But to deny the reality of substance in the world is not to deny the reality of the world. It is only a denial of the reality of the world *as substance*, and it leaves every other alternative open. Buddhists claim that reality consists of processes, not substances." (Koller, 1985, p. 179)

¹Interpretations vary as to what the Buddha believed. Supposedly, the Buddha recalled all of his previous lives on the night of his enlightenment. It is often said that the Buddha did not consider it relevant or useful to reflect of the possibility or even the character of other existences (Macy, 1991).

²According to the idea of mutual causality, or *paticca samuppada*: "Every link can be combined with another . . . and, indeed in whatever succession one chooses . . . In this way we have neither a purely temporal, nor yet a purely logical causality, but a living organic relationship, a simultaneous correlation, juxtaposition and succession of all the links, in which each, so to say, represents the transverse summation of all the others, and bears in itself its whole past as well as all the possibilities of its future. And precisely on this account the entire chain at every moment and from every phase of it, is." (Anagorika Govinda in Macy, 1991, p. 58)

discuss how to liberate our process, our *Dharma*.¹ It does little to alleviate the question of how to allow for an equality of exchange in the process from life to life if the “agent” does not substantively exist.

In effect *karma*, in Buddhism, is a hard to bridge definitional paradox. Explaining movement from life to life posed a problem if the self is not substantive. In response, this non-metaphysical tradition derived a wide assortment of metaphysical explanations to describe how “effects” within a non-substantive process can somehow move from life to life and can affect future dispositions if one does not attain enlightenment. None actually “solve” the paradox. They are explanatory. One could also term them theological in the sense that they tried to explain a “known” spiritual truth.

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Buddhist and Hindu approaches illustrate that various interpretations emerge when people engage with meaningful questions. Basic cultural ideas are interpreted in a number of ways to offer valid explanations to what are essentially diverse traditions. The nuances differ, but the overriding allegiance to the larger idea seems to suggest people desire explanations and cherish some of the explanations that have worked in the past. *Karma*, as explained above, was born as people probed the possibilities and broadened their frame of reference. Initially, the insight was profound, and profoundly exciting. It was only when people began to use the idea to justify their lives that the law of *karma* was born. As a law the excitement of the initial discovery was lost. Adapting to the law of *karma*, as such, became problematic. People acted as if *karma* and fate are synonymous terms, despite the evidence that, at its root, *karma* is not a law of fate. It is not intended to negate one’s freedom in addressing experience.

¹*Dharma* is right action. When used by Buddhists the idea of *Dharma* refers to the idea that a “right” relationship with the way things are is the key to release from suffering.

The doctrine of karma is sometimes interpreted as implying a denial of human freedom, which is generally regarded as the basis of all ethical values. But when rightly viewed the law does not conflict with the reality of freedom. (Radhakrishnan, 1926, p. 52)

Nonetheless, once the law came to be used to justify the social structure and to defend actions people did not want to accept full responsibility for, *karma* provided a means to keep the status quo and the caste system in place. Losing touch with many of the life-affirming aspects inherent in its conception, *karma* led some elements of Indian culture to take on a world-denying posture.

One ramification of this is evident when we review the number of twentieth century Indian leaders who expressed concern about the impact of ideas like *karma* on Indian culture. One, Sarvepalli Radhakrishnan, discussed the Hindu view of life in his book of the same name. He described Hinduism as a religion that

. . . takes its stand on a life of spirit, and affirms that the theological expressions of religious experience are bound to be varied . . . In practical religion, Hinduism recognizes that there are those who wish to see God face-to-face, others who delight in the endeavor to know the truth of all. Some find peace in action, others in non-action . . . Hinduism is a movement, not a position; a process, not a result; a growing tradition, not a fixed revelation. (Radhakrishnan, 1926, pp. 88-91)

In this book Radhakrishnan also notes that the ideals of the religion cannot obscure the reality of how the religion took form in Indian life.

Unfortunately, the theory of *karma* became confused with fatality in India when man himself grew feeble and was disinclined to do his best . . . But such a philosophy of despair is

by no means the necessary outcome of the doctrine of *karma*. (Radhakrishnan, 1926, pp 54-55)

Sri Aurobindo, a twentieth century Indian mystic offered a similar condemnation in regard to how Hinduism had developed a philosophy which, in his opinion, led the Indian people to negate social concerns. Although Sri Aurobindo differed with Radhakrishnan on many particulars in regard to Hindu practice, In *The Life Divine* Aurobindo wrote,

In India the philosophy of world-negation has been given formulations of supreme power and value by two of the greatest of her thinkers, Buddha and Shankara.¹ . . . The spirit of these two remarkable spiritual philosophers — for Shankara in the historical process of India's philosophical mind takes up, completes and replaces Buddha — has weighed with a tremendous power on her thought, religion and general mentality; everywhere broods its mightily shadow, everywhere is the impress of the three great formulas, the chain of *karma*, escape from the wheel of rebirth, Maya. (Ghose, 1953, p. 374)

The words of both of these Indian leaders show that the Indian culture continues to re-evaluate its belief system in terms of the relationship between personal insights and practical living. Through this process Indians continue to ask who they are and to rediscover life. This re-evaluation is evident in Buddhism as well.

Even still, within both traditions, ideas like *karma* retain the assumptions long associated with them. They are not re-evaluated. Rather they are re-interpreted. Within this context their “truth” is, in effect, re-affirmed on a regular basis. This re-

¹Shankara (ca 788-820 CE) defined what came to be the philosophical base of Indian thought. His impact on the Hindu tradition is comparable to that of St. Augustine on Christianity. Both defined the philosophical foundation that came to define much of the religious framework in practice.

interpretation is not particular to Indian traditions. Re-interpretations that do not question the basic assumptions long held within the idea are evident in all traditions, and in attempts to bring Eastern and Western views together, as will be demonstrated.¹

In fact, this process of reevaluation becomes increasingly important as this discussion unfolds. Most problematic is how these arguments are used in relation to values and ethics. These kinds of affirmations of longstanding principles have proved to be problematic throughout history.² The problems arise for a number of reasons. For example, an idea like *karma* is a construct. It fails to address the circumstances within human experience. Historically, *karma's* failure to experientially address life often resulted in fatalistic interpretations. This is not only a limitation, it also emphasizes that all who use the *idea* of *karma* do not comprehend that the idea is rooted in the belief that humans have the capacity to transcend limitation.

Introducing the Indian metaphysical framework offers a means to contextualize how non-Western ideas shaped a culture that is dramatically different from what we find in the West. This tradition, often presented as if it is foundationally opposite to the materialistic orientation of the West, needs to be judged on its own terms. It was born when Indians posed questions similar to

¹For example, in *Choosing Reality: A Contemplative View of Physics and the Mind* (Wallace, 1989), B. Alan Wallace, a Buddhist physicist talks about a centrist approach to living today. In his opinion the Buddhist Middle Way, being a framework of process, is this kind of approach. In Wallace's view karma and reincarnation are foundational, presupposed, and the basis of building a system of ethics for our lives. "For each individual there exists a continuum of life, intermediate state, and rebirth . . . It is well known among Buddhist and other contemplatives that the rebirth process can carry over from human to nonhuman forms of life and vice versa . . . The quality of our present life profoundly influences the type of future births that we will take: some types of birth are favorable, both for one's well-being and in terms of one's future spiritual maturation. The type of behavior that yields such rebirth is deemed wholesome . . . On this basis a system of ethics is developed that is asserted to be grounded in natural relationships between actions and their results from life to life." (Wallace, 1989, p. 159-160)

²Plato offers a good counterpoint to Eastern idea about *karma* and reincarnation. In Plato's Myth of Er (in Book X of *The Republic*), Plato outlined his ideas about transmigration to create a justification for why the world we know appears as it does and to justify the validity of his system of ethics. Plato's views are discussed at great length in Chapters Five through Eight.

those that eventually defined Western tradition. In this respect, each culture shared a similar impulse to engage with the kinds of questions life raises on an ongoing basis. With this sense of similarity and difference in mind, let me now turn to consider how the early Greeks were led to draw different conclusions when they, too, began to ask what the underlying nature of reality is.

Chapter Five

The Greek Discovery of the Mind

European thinking begins with the Greeks. They have made it what it is: our only way of thinking; its authority, in the Western world, is undisputed. When we concern ourselves with the sciences and philosophy, we use this thought quite independently of its historical ties, to focus upon that which is constant and unconditional: upon truth: and with its help we hope to grasp the unchanging principles of life. On the other hand, this type of thinking was a historical growth . . . the rise of thinking among the Greeks was nothing less than a revolution. They did not, by means of mental equipment already at their disposal, merely map out new topics for discussion, such as the sciences and philosophy. They discovered the human mind,

Bruno Snell

*The Discovery of the Mind in
Greek Philosophy and Literature*

[I]t is my opinion that the philosophy of the ancient Greeks attracts us at this moment, because never before or since, anywhere in the world, has anything like their highly advanced and articulated system of knowledge and speculation been established *without* the fateful division [between the path of heart and that of pure reason] which has hampered us for centuries and has become unendurable in our days. There were, of course, widely divergent opinions . . . [b]ut there was no limitation as to the subjects on which a learned man would be allowed by other learned men to give his opinion. It was still agreed that the true subject was essentially one, and that important conclusions reached about any part of it could, and as a rule would, bear on almost every other part.

Erwin Schrödinger
Nature and the Greeks

The Upanishadic foundation of the Indian mind and the roots of the Western Greek tradition had similar roots and yet took different paths.¹ While the Indians used a rational approach to communicate about religious realization that transcended mundane existence, the Greeks believed that through developing rational philosophical systems they would be able to know more than their religious assumptions included.² The intriguing aspect

¹For example, the early Hindus and the Milesians of Greece asked similar questions about the nature of reality. On the one hand, the Milesians, who were foundational to Greek natural philosophy and the Western empirical approach, were seeking the one underlying and unifying principle — or substance — in the cosmos. On the other hand, the Hindus were asking whether there is a reality that remains identical and persists through change. "The Presocratic philosophers quest for the ultimate *physis*, or nature of things, reminds one of the quest of the Upanishadic seers for "the One" by knowing which all else is known. Here, as there, almost imperceptibly, the material shades off into the material; the penultimate — infinite space or energy — becomes a symbol for the ultimate, about which it is no longer possible to assert anything." (Torwesten, 1991, p. 206)

²John McLeish offers a good comparison using the Hindu fire sacrifice outlined in the previous chapter. " . . . The altars were made of tiles, exactly constructed to sacred measure . . . To calculate the correct dimensions, sound knowledge of geometry was needed . . . Detailed instructions of how to construct the altars were written down in the *Sulva* Sutras, expansions of scriptural texts in the Rg-Veda (the *Samhita*, *Taittiriya*, *Samhita*, and *Taittiriya Brahmana*) .

of this is that the Greeks were perhaps the first people to passionately engage in seeking to *rationally* answer the questions life posed. It was because they saw the world as a question to be answered that they sought to know and define the underlying principle of the *cosmos* and nature. Their approach to the “question” the world posed included their cultural ideal of human perfection. The Greek response to these questions created the foundations for Western conceptual maps that, by Plato’s time came to be considered as a combination of necessity and intelligence.

What stands out here is that the early Greeks were trying to explain *all things* by one of several principles — themselves being considered as *things*¹ (Gilson, 1941). In the process of trying to explain nature, they were able to discover their personal identities to a larger degree. This point cannot be emphasized strongly enough. It was not the intention of the Pre-Platonic Greeks to deify logic and objectivity. Nor was it their intention to lay the foundations for science and philosophy. Their hope was to form a ground for better living. The early Greeks

. . . The Sutras explain simple geometrical constructions and the theorems having to do with triangles, rectangles, and circles. They do not provide a formal, systematic treatment of geometry but are simply adjuncts to religion." (McLeish, 1991, p. 116) McLeish’s point, that the Greeks did not try to merely affirm their beliefs but also tried to build systems of consistency that resolved what appeared to be invariant, is especially evident in how the Greeks worked with numbers as compared to how the Hindus used numbers. "The theorem about the relationship of the squares on the sides of a right-angle triangle, wrongly nowadays credited to Pythagoras, was known and widely used in ancient India . . . [and] found in the *Sulva* Sutras . . . Unlike the Greeks, Hindu mathematicians were not at all disconcerted by the fact of incommensurability — that is, that certain numbers are never-ending and can never be exactly calculated. The existence of “irrational” and “absurd” numbers upset the Greeks . . ." (McLeish, 1991, p. 117), leading them to consider how they could resolve the apparent inconsistencies which could not be real — given the assumed cosmic unity.

Morris Kline explains this from another perspective. In Kline’s view, “the Greeks projected their dream into reality and became the first people with the audacity and genius to give reasoned explanation of natural phenomena . . . while they explored they made maps, such as Euclidean geometry so that others might find their way quickly to the frontiers . . . Preceding civilizations, notably the Babylonians and Egyptian, had obtained many useful formulas. But though they must have discovered some evidence of order in nature, they conceived no embracing theories; and they scarcely dreamed of design." (Kline, 1953, p. 75)

¹It seems imperative to differentiate here between the Greek perception of *being a thing* — at their point of consciousness development — and that of Descartes. For the Greeks the idea of being a “thing” does not correspond to the Cartesian idea of being spiritless matter. Rather the Greeks perception of each individual as a “thing” meant that each was a part of the larger, breathing, vital, organic whole. The key points being that they had not yet discovered a self-conscious identity and did not “objectify” nature.

saw reason as a form to explore, among other things, whether there was consistency within life, and how humans were — or could be — involved with what their lives contained.

Many have suggested the combination of vision and rationale was the unique quality that led the Greeks to the “discovery” of the mind as well as science and philosophy (Kline, 1953; Jaeger, 1945; Snell, 1982). Whether or not this is the case the Greek discovery of a new method for approaching questions about life and the nature of the world radically changed their community. Key within this is that their method *was* a creative process. It was not limited to *an* individual’s perception of the world but, rather, moved into individual consciousness while, *simultaneously*, becoming a part of how a people, communally, re-defined their perspective on living.

Also key is that their discovery of this new way of seeing the world was born through a process of dialogue. This didactic process not only defined Greek philosophy, it also created the foundations of Western culture. As Jaeger has said, if the continuity of the ancient Greek tradition was never broken in the West, it was because the Greek dialogue — which developed Greek philosophy, or natural philosophy — served as the foundation for the supernatural theology of Christianity (1967). It is also at the heart of the methods we find in modern thought.

• • • • •

Such is the way the gods spun life for unfortunate mortals, that we live in unhappiness, but the gods themselves have no sorrows. There are two urns that stand on the door-sill of Zeus. They are unlike for the gifts they bestow: an urn of evils, an urn of blessings. If Zeus who delights in thunder mingles these and bestows them on man, he shifts, and moves now in evil, again in good fortune. But when Zeus bestows from the urn of sorrows, he makes a failure of man, and the evil hunger drives him over the shining earth, and he wanders respected neither of gods nor mortals.

Iliad, Book XIV.525-533

The organic and finite worldview of the Homeric religion seeded the Greek dialogue and the discovery of the mind. The Homeric culture emerged around the eighth century BCE and preceded the Platonic ideas of classical Greece. Homeric culture is aptly described as one that moved the Greek culture out of a Dark Age into a vision of life in the sun. This vision was tragic but optimistic. Its basic premise was that life in the sun was beautiful, although painful, but, nonetheless, always moving as it should. Homer's epics provided the religious foundation for this Olympian belief system.

Gilbert Murray (1955) notes that the Homeric religion was a step in the self-regulation of Greece. In Murray's opinion, as a religion it attempted, and failed, to bring order into chaos, moralize the cruel and socially offensive aspects of the old rites and rituals, and to create a social organization for the community. The Olympian religion did, however, succeed in generally permitting progress by not only encouraging obedience to virtues but also *urging* humans *to use* their power of thought, daring, and endurance. These attributes were thus engaged — and focused — on giving form to a perception of the organic order. The process represented an effort to try to define proper living and to purge the more humanly degrading aspects of the old religions. The effort, however, had two problematic aspects; each became more problematic over time. One was the adaptation of an oral tradition to a visual, or a differently conceptualized, framework.

The other was that the formal design of the aristocratic Homeric worldview overlooked many of the treasured, redeeming, and nurturing qualities of the former modes. This conflicted with the sense of security — and identity — provided by the old, and known, religious tradition.¹

Many (e.g., Havelock, 1963; Jaynes, 1976) have noted that the quality of Homeric epic consciousness was almost like being hypnotized or in a dream state. Yet the Homeric vision, albeit despite the Homeric negation of the possibility, was seeding the development of the self-aware mind. In creating a more effective means for education and a code for social order the religion was also planting the seeds that would broaden discussion about autonomous identity, social place, and social function. This came about due to the way the Homeric tradition began to codify the oral tradition, or to define what was “known” and what was “believed.” The key point here is that while moving into a proactive framework the Olympian religion both moved beyond the “darkness” of the early religions and, simultaneously was representative of them." To parody the words of Anaxagoras, “[i]n the early religions all things were together, till the Homeric system came and arranged them.” (Murray, 1955, p. 60)

The Homeric system also seeded the idea of personal autonomy by offering individuals a means to consider more possibilities in regard to how they lived. This process was a subtle one. Initially, as E. R. Dodds has pointed out, the Homeric concept of personal ego was virtually undeveloped. The Homeric human had no unified concept of what we would call “soul” or personality. Rather, in the Homer’s world, unsystematized, non-

¹E. R. Dodds suggests the Greek Enlightenment and the absence of universal education was instrumental in creating an environment that divorced the beliefs of the intellectuals from those of the people, to the detriment of both. In Dodds’ words, “The first signs of this regression appeared during the Peloponnesian War, and were doubtless in part due to the war . . . Cracks appeared in the fabric and disagreeably primitive things poked up here and there through the cracks . . . As the intellectuals withdrew further into a world of their own, the popular mind was left increasingly defenseless . . . a growing number relapsed with a sigh of relief into the pleasures and the comforts of the primitive.” (Dodds, 1951, pp 192-193)

rational impulses and the acts resulting from them tended to be excluded from the self and ascribed to an alien origin (Dodds, 1951).¹ Havelock (1963) confirms this view by pointing out that the Homeric vision did not develop self-consciousness. Rather, the Homeric epics encouraged a passivity of surrender that was accomplished through the use of the emotions and motor reflexes.

When confronted with an Achilles, we can say, here is a man of strong character, definite personality, great energy and forceful decision, but it would be equally true to say, here is a man to whom it has not occurred, and to whom it cannot occur, that he has a personality apart from the pattern of his acts. His acts are responses to his situation, and are governed by remembered examples of previous acts by previous strong men. The Greek tongue . . . [at this point] . . . cannot frame words to express the conviction that "I" am one thing and the tradition is another; that "I" can stand apart from the tradition and examine it; that "I" can and should break the spell of its hypnotic force. (Havelock, 1963, p. 199)

Yet, despite this, the Homeric stories offered reflections on the questions of identity and being. It was precisely because the Homeric stories brought ideas outside of the cultural assumptions into the cultural environment that the stories acted as metaphors. They helped the people learn to see something outside of their experience through their experience. This happened as a result of their capacity to point the Greeks to ideas that were not intrinsically a part of their worldview. Developing the ability to consider these two frames of reference simultaneously is best explained through looking at the *Iliad*.

¹ The Greeks had a word for these non-rational impulses that were supposedly alien in origin, "ate", which is a temporary state that sometimes clouds or bewilders and moves an individual of the group away from a clear or a normal vision, state of being, or perception. The Homeric worldview said, "*Delusion [Até] is the eldest daughter of Zeus, the accursed who deludes all; her feet are delicate and they step not on the firm earth, but she walks the air above men's heads and leads them astray.*" (*Iliad* 19:91-94, Homer, 1961)

In the *Iliad* we find Achilles wrestling with an unsolvable contradiction. On the one hand, he wants to do his duty and fight with his companions. On the other hand, he is not permitted to join them. Achilles reflects on his predicament, and his ruminations offered the Greek people an example of what it means to reflect on the nature of one's place and function as a member of the group.

Achilleus weeping went and sat in sorrow apart
from his companions beside the beach of the
grey sea looking out on the infinite water . . .
Never now would he go to assemblies where
men win glory, never more into battle, but
continued to waste his heart out sitting there,
though he longed always for the clamour and
fighting. *The Iliad*, I:349,490. (Homer, 1961, p.
68, 72)

This reflection was believable in the context of the poem because Achilles was part God by birth. According to Greek mythology only a God could actually *consider* place and function in the immobile Homeric culture where roles were defined by birth. Thus, Achilles had legitimacy in his role. Through the believability this legitimacy provided, the questions his situation raised allowed the people to conceptualize the possibility that "I" am one thing and the "tradition" is another.¹ In sum, through pondering whether Achilles' conflict was a part of a cosmic justice — or more aptly seen as injustice — people engaged in a process of differentiating possibilities. They had a means to ask what group acceptance means in the scheme of things. They also learned to how to reflect on their actions and activities in relation to the community and the *cosmos*.

Over time the larger Greek dialogue opened the cultural frame of reference. It also changed individual perceptions of

¹ . . . the strongest moral force which Homeric man knows is not the fear of god, but respect for public opinion, *aidos*: . . . In such a society, anything which exposes a man to the contempt or ridicule of his fellows, which causes him to "lose face," is felt as unbearable." (Dodds, 1951, p. 18)

personal and group identity. Eventually the new answers this inquiry provided added a level of individualized awareness not previously apparent in the Western psyche. Havelock summed it up well, writing,

. . . some time towards the end of the fifth century before Christ, it became possible for a few Greeks to talk about their 'souls' as if they had selves or personalities which were autonomous and not fragments of the atmosphere nor of a cosmic life force, but what we might call entities of real substances . . . as late as the last quarter of the fifth century, in the minds of the majority of men, the notion was not understood, and . . . in their ears the terms in which it was expressed sounded bizarre. Before the end of the fourth century the conception was becoming part of the Greek language and one of the common assumptions of Greek culture. (1963, p. 197).

The exceptional aspect of this exercise is two-fold. First, the method the Greeks used resulted from a group process that was also particularized in the experience of many individuals. Second, there was no pre-defined model in the Greek experience that offered assistance in conceptualizing the idea of autonomous personhood. It was precisely because there was no existing model for their "model" that they created a *new* way of perceiving the world. In the process of creating this new way of seeing the world, they allowed it to come into existence.

The process differed from the kinds of revelations we find in religious thought due to the Greek emphasis on dialogue. Briefly, dialogue led the Greeks to define the concepts they used as they invented them relationally. Therefore, the process was a fluid process not a linear method. It was a process that allowed them to help one another reveal larger patterns through their active probing of one another's insights as they emerged. This dynamic included some probing of alternative possibilities. Although the Greeks often credited their insights to divine origin and rational thinking, their process was more dynamic and more

relational than direct revelation and the linearity of rational argument. Also, their exchanges did not *confirm* revealed insights. They acknowledge that their ideas helped them to develop new ways of seeing their relationship to the world. New concepts emerged as they abbreviated key insights. These concepts, in turn, enhanced their interpersonal communication. Providing a framework, the concepts offered “shorthand” that enabled the Greeks to cover more territory. Again, these concepts were not objectively discovered nor objectively invented — for there were no aims involved. The new way was effected in the process of revealing itself.

Ironically, the Greeks perceived a “method” rather the *relational process* behind it. Overlooking the process that had enhanced their ability to communicate insights interpersonally, they concluded they had discovered this method and that it was one that could lead them to the truth about the underlying harmony of the *cosmos*.

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This early Greek process of dialogue and the development of the conceptual approach remain foundational to Western living. Both were born within a culture that held what we would today call a living systems view of reality. This organic, systems view of reality is not in and of itself either methodical or spiritual. This is why ideas about rational method and religious revelation do not logically relate to Greek conclusions. In other words, when the Greeks developed their method they were not questioning the Gods or religious stories *per se*. They wanted to expand on what their religious myths said. (Jaeger, 1967) To the early Greek thinkers the gods lived *in* the world. Humans were perceived to differ from gods only because they were mortal (Guthrie, 1950; Tarnas, 1991). Moreover, the Greek gods loved and hated, helped humans, harmed humans, and appeared among them as they did so.¹ The

¹This is evident in their language where their word *theos*, for example, which is

Greeks assumed that these gods had created neither matter nor humans. Humans and matter, like the gods, were infused with spirit and divinity. It was *assumed* that all was by nature divine.¹ To them it would have been nonsensical to think that it could be otherwise. Thus their conceptual language, like their polytheistic culture, included both the intuitive and the spiritual in its essence.²

In this mode, as noted, the *cosmos* was seen as a living system. More specific indication of this is encapsulated in the early Greek principle of cosmic regulation, *Moirai*.³ Homeric *Moirai* was seen as an organic, just, dynamic, self-organizing, self-correcting principle. As a dynamic *Moirai* is much like the Indian idea of *Ritam*, the Chinese *Tao*, and other ancient principles of the cosmos which refer to a finite, dynamic whole and attempt to define how one point is also all points. In all cases the term used was intended to define a dynamic quality of organic self-organization. Conceptually the use of the term allowed the people to easily hold a two-in-one quality as they looked at parts they perceived as functionally related to the dynamic whole.

Moirai, itself, is a concept that includes the whole and the parts that comprise the whole. The concept is intended to suggest a self-organizing process is the nature of everything that exists. Including the whole, the parts, and the dynamic changing

usually translated as god is a predicative. *Theos* was a quality to the Greeks (i.e., God is not love, but love is a God) and the gods of the Greeks were of the earth.

¹ Until the time of Xenophanes (c. 570-475 BCE) it was assumed that anthropomorphic gods existed. The gods, moreover, co-existed with metaphysical ideas like the *apeiron* of Anaximander, which suggested an unlimited ground for the *cosmos*. Xenophanes formulated the religious universalism that in later antiquity and Christianity became an essential feature of God in any "true" religion (Jaeger, 1967).

²As I show later in this discussion the Platonic views prevailed precisely because what we would today call a living systems perspective proved unable to address that an individual, like Achilles, can feel at odds with the groups' intentions, even when holding firm to the belief that one should honor the groups' intention.

³Not to be confused with the three fates or *Moirai*, who were a later development. The three Fates of the later time were Lachesis, who guarded what had been; Clotho, who guarded what is; and Atropos, who oversaw what is yet to come. Although Aristotle saw time as cyclic, his logic was instrumental in transforming these Fates into the past, present, and future; so foundational to the concept of linear time.

functions of both, *Moirai* represents the life principle which governs the *cosmos*, keeps order, assigns limits, and designs each fate (*moira*) in the sense that all have a proper place and a proper function within the organic self-regulating principle of *Moirai*. This means that *Moirai's* microcosmic counterpart, *moira*, comprises all particulars in relation to this self-organization — be they human life, cities, rivers, horses, etc. Every particular *thing* has its *moira*. In assuming *Moirai* and *moira* are complementary aspects of the whole a form emerged that was capable of postulating a multi-dimensional *and* a one-dimensional reality. The ideas embedded within the definition define a point where the microcosm *is* the macrocosm and does—or does not—know it. What the nature of that whole is, was the question that the Greeks were trying to explain. Their answers show that ideas like duality and personal identity are beginning to take another form as their approach, which initially easily held a “two-in-one” quality, ultimately differentiated an autonomous personal self.

Three points stand out here. First, many today question the overall viability of the reductionistic approach that resulted from this process of differentiation. We find this in many recent studies of premodern, non-Western, ancient, faith-oriented, and primitive traditions. This research, however, often overlooks limitations also evident in earlier times. One is that there was a great deal of violence, murder, and lack of civility in the rituals and practices of ancient cultures. In the West, for example, this kind of unsavory behavior was very much a part of why the premodern Hellenic religion, discussed above, was developed. The addition of some level of educational control in interpersonal living was seen by many as a positive addition, as were differentiation and logic.

The medieval plan of burning heretics alive had not yet been invented. But the history of uncivilized man, if it were written, would provide a vast list of victims, all of them innocent, who died or suffered to expiate some portent or *monstrum* . . . with which they had

nothing whatever to do, which was in no way altered by the suffering, which probably never really happened at all, and if it did was of no consequence. The sins of the modern world in dealing with heretics and witches have perhaps been more gigantic than those of primitive men, but one can hardly rise from the record of these ancient observances without . . . feeling within him that the lightening of this cloud, the taming of this blind dragon, must rank among the greatest services that Hellenism wrought for mankind.” (Murray, 1955, p. 36-37)

Second, the Presocratics only *appear* to take a non-theological position ontologically if we compare them with contemporary views. It cannot be stated strongly enough that their focus on nature did not negate the divinity of the world. Their world *is* divine and undifferentiated rationally. It is beginning to be put into a context that is facilitating them in gaining a deeper and a broader insight into nature. Factoring in that when the Greeks began enlarging their conceptual awareness they did not see themselves as independent personalities — but rather as functioning parts in relation to a whole — highlights that rationale modes and differentiation were useful in developing a sense of autonomous personhood. Again, the realization that each had different perception, one that differed from the group identity stimulated discussion. People began to probe how personal identity was distinguished from the larger *cosmos*. This cannot be over emphasized because many today are attracted to the idea that the world is a living system (e.g., Jantsch, 1980; Lovelock, 1979). Living systems, moreover, are often correlated with holistic ideas. Seeing the two as comparable has, in turn, attracted many to premodern cultures, despite the many limitations we find when we study how the living systems ideas worked within the cultures.

Third, as both Havelock (1988) and Dissanayake (1963) point out, in Homeric Greece, as in prehistoric societies generally, and in preliterate groups today, political and social institutions were necessarily transmitted and preserved in an oral

tradition, or a memorized “encyclopedia” of the information that was considered essential for the perpetuation of the group. In the Homeric tradition the identification with the oral performance was how the social code was kept in place. Learning was embodied through the rhythm of the poetry used to educate the populace. The poetry was rhythmic in a way that encouraged a state similar to hypnosis. The state encouraged a total involvement with the sounds, sensations, and emotions transmitted to human lives through their embodying of the poetic experience.¹

Both Havelock and Dissanayake also convincingly suggest that Plato may have been the first person to recognize the difference between a preliterate and a literate mentality when he saw poetry as a form used to work up members of a group to an irrational state of psychological surrender, one which made members of the group more susceptible to irrational actions and social indoctrination. The literate mentality of Plato grew out of his consideration of how this “irrational” state of mind fostered a total identification with a trance-like state of group unity. Seeing how irrational acts (e.g., murder) often resulted from group hypnosis, Plato wrote about how the “poetic” mind was disruptive, even dangerous, to the rational needs and conduct of the state (Plato, *Republic 607b*; Dissanayake, 1988). Throughout his work, Plato encouraged using the Socratic method of questioning to add a rational perspective and, ultimately, knowledge to life. This rational method was believed by Plato to be the one that could best address the problem of group hypnosis that was a part of the oral tradition (Havelock, 1963).

Plato also saw this group hypnosis as an obstacle to education (Havelock, 1963). In the context of the Greek world his point is well taken. Individuals were learning how *not* to

¹The Greek holistic involvement differed from that of the Hindu fire sacrifice. While the Homeric process of social organization was premised on and promoted a total personal involvement, as did the Hindu fire sacrifice, the Homeric tradition was an oral encyclopedia that impacted everyone. It was a commonplace experience. The fire sacrifice, however, was esoteric and by its nature extraordinary.

think because the hypnotic state encouraged building an unquestioned rapport with the group's impulse *regardless of what it was*. Because the impulse encouraged a total involvement with what Plato considered an emotive, sensory, or dreamlike state of mind, Plato concluded better living could *only* be brought about if the society encouraged developing more conscious awareness. In other words, Plato believed in the capacity to engage in a rational and logical process helped individuals discriminate between what was good and what turned one's mind away from the good.

The evolution of these ideas is easier to understand when we consider that the term "imagination" today seeks to combine the Homeric and the Platonic states of mind into a single synthesis, or to identify the subject in relation to that object which the subject knows (Havelock, 1963). The Homeric mind had not yet grown to the point where there was enough conscious awareness of categories and alternative possibilities to build a basis for differentiation between an experience that is concrete and one that is imagined. The limitation embedded within the Platonic mind, on the other hand, is that it discouraged a creative, mind by discouraging "wandering." It focused the mind's eye, intending to allow the mind to abstractly reason a *definitive* world beyond our world of moving images.

The element that stands out in looking at the imaginative in relation to the rational—or Homer in relation to Plato and both in relation to our worldview today—is that Plato was addressing how a cultural educational process can teach people specific behaviors which discourage aspirations to expand their perceptions. This teaching of a system that creates a cultural blindness correlates to the consensual orientation of a paradigm where the assumption of implicit views allows a form of cultural blindness to define how people see the world. Or, as I discussed earlier when describing the adaptation of Kuhn's views to paradigmatic models, people do not even see what lies outside of

the accepted communal focus.¹ The point that sets Plato interpretations apart from those more Kuhnian is that Plato asserted that there is one Truth and a method people can use to know this Truth. Plato then offered the system he believed would correct the flaws in the Homeric approach. His system eventually defined the foundation of Western culture. This design was instrumental in the configuration of the paradigmatic patterns Kuhn outlines, where each paradigm implicitly assumes there is (should be) one correct vision of Truth.

Kuhn, much later, shows that the path toward Truth in science had not provided a linear progression, ever more complete. Detailing the radical revisions, Kuhn in effect points out there are critical limitations within the Platonic approach. Among them are that the same kind of cultural blindness Plato deplored became a part of Western consciousness when the process Plato elevated took hold. Individuals were no longer taught to question assumptions. They were instead taught to adopt particular cultural approaches to information collection and evaluation. Included in this were implicit assumptions that encouraged evaluating knowledge in prescribed ways.

As I outline below, Plato's ideas and his vision that there is one correct Truth permeated religious, philosophical, scientific, and artistic approaches. The hierarchical Platonic model is the basis of many paradigmatic models. Although configured differently from discipline to discipline, Plato's approach is nonetheless evident in many lines of inquiry adopted by those within the Western culture. Among them are (1) the belief in one universal vision (2) the idea that we can educate people to use the right method to find the truth (3) that learning geometry gives us the knowledge of the eternal (4) that there is a changeless eternal domain outside of time, and that (5) the soul is

¹In Kuhn's theory it is only when the number of anomalies that fail to fit the defining assumptions of the paradigm can no longer be ignored that the cultural perspective changes. It is only when the evidence reveals that the accepted perception of truth is flawed that the idea of what truth is changes. Plato's point is that if you never look at your assumptions, you will never change them.

imprisoned in the body.¹ Plato's assumption that each one of us has the potential to realize the *god-like* within did not fare as well in the Western world. Instead, the idea of original sin, introduced later, was to prevail. An intriguing aspect of Plato's ideas often ignored in the West is the degree with which his conclusions relate to the Indian views discussed earlier. The duality of Platonic thinking includes the idea of transmigration and this aligns Plato's philosophy with Indian views discussed above. Also, ironically, Plato, like the Hindus, believed a soul who discovers wisdom could return to the unchanging realm of Being.²

¹Plato wrote, "... when [the soul] investigates by itself, it passes into the realm of the pure and everlasting and immortal and changeless, and being of a kindred nature, when it is once independent and free from interference, consorts with it always and strays no longer, but remains, in that realm of the absolute, constant and invariable, through contact with beings of a similar nature. And this condition of the soul we call wisdom," (*Phaedo* 79d) and in the *Timaeus* that, "... the supreme benefit for which sight is responsible is that not a word of all we have said about the universe could have been said if we had not seen stars and sun and heaven. As it is, the sight of day and night, the months and returning years, the equinoxes and solstices, has caused the invention of number, given us the notion of time, and made us inquire into the nature of the universe; then we have derived philosophy, the greatest gift the gods have given or give to mortals."

²This correlates with the Indian idea of *moksha* or liberation outlined in Chapter Four. Thus, rebirth was a part of both cultures because both included the idea of eventual liberation. In India the soul (*jiva*) returns to the unchangeable realm of Being. Plato offers a similar scenario when he provides the metaphysical foundations for his ideas in the story of Ur (the tenth book of *The Republic*. Here we find a good example of his view which adopt the Orphic ideas of the Pythagoras tradition. According to this view the soul is imprisoned in the body and must keep returning to this world until it no longer needs to return to the suffering of life in a body. Then it will be eternal, or free of the prison of the body.

Chapter Six

The Western Synthesis

Chance is the pseudonym of God when he did
not want to sign.

Anatole France

. . . the safest general characterization of European philosophical tradition is that it consists of a series of footnotes to Plato.

A. N. Whitehead
Process and Reality

Plato's philosophy was foundational to later Western ideas of creativity, duality, theology, philosophy, art, and science. While the early natural philosophers, the Greek Presocratics, had established a rational counterpoint to the Homeric story when they studied *physis*,¹ Plato brought reason (*logos*) and divinity (*theos*) together. He did so redefining the Presocratic method for fostering insights. Perhaps most noteworthy is that Plato's view of how one gained knowledge of the world rejected the organic foundations of earlier thinkers² (Jaeger, 1967). As Jaeger has pointed out,

Plato was the first who used the word 'theology,' and he evidently was the creator of the idea. He introduced it in his *Republic*, where he wanted to set up certain philosophical standards and criteria for poetry. In his ideal state the poets must avoid the errors of Homer, Hesoid, and the poetic tradition in general, and rise in their representation of the gods to the level of philosophical truth . . .

¹*Physis* meant nature to the early Greeks. Nature to them was not something objective and separate from spirit. It was the divine, living quality of reality.

²To reiterate the early Greeks accepted an underlying cosmic principle. This was the basis for their ideas about the dynamics of a divine justice that maintained the nature of the world. Plato, in his quest for rational Truth, increasingly assumed humans could create laws to maintain a well-functioning society and could be taught the right way to live. As his philosophy evolved the organic ideas of justice increasingly gave way to the idea that there was *one* right way and it should be the law of the community. According to this view those most capable (the philosopher-kings) should control and enforce this law in the society. One could say that Plato, in attempting to reconcile his faith in human reason with the problems he saw in human society, believed in the Truth of his vision and his belief was the foundation for why he believed that adopting laws which capably guided the community in the proper direction would be the most effective mechanism for educating humans and creating a good society. This elitist view also assumed the underlying nature of the world was just and self-organizing all.

Thereafter every system of Greek philosophy (save only the Sceptic) culminated in theology, and we can distinguish a Platonic, Aristotelian, Epicurean, Stoic, Neophythagorean, and Neoplatonic theology. (Jaeger, 1967, p. 4)

Plato is best known for the rational, philosophical system he developed to present his philosophical mythology. The earlier natural philosophers concentrated on confining assumptions based on facts ascertainable by the senses. This approach offered them a means to see the world without the lens provided by the assumptions of Greek mythology. Plato, however, distrusted the senses. He, instead, used myth and reason to offer his vision and philosophy. He also *created* myths, being essentially a poet, to present his philosophy. Using the Socratic method of questioning, he often criticized the poets for promoting emotional responses rather than encouraging the pursuit of true knowledge. His myths, presented within the dialogues, praised this pursuit of knowledge.¹

The impact and limitations of Plato's philosophy are important to see in the context in which they lived. They were grounded within the living systems Homeric worldview and thus had a cosmobiological foundation. At the same time, his philosophy was a *reaction* to the cosmobiological foundation Homeric philosophy accepted. This is why Plato's philosophy is especially relevant today as many explore ideas about living systems. As I noted earlier, Plato's reaction to the organic worldview included a written element. He offered a change from an oral to a literate tradition. Thus, embedded within the Platonic tradition are Plato's metaphysical assumptions² and his concern

¹Werner Jaeger writes, "The form of the Platonic dialogue was quite certainly created by a historical fact — that fact that Socrates taught by question and answer . . . And the aim [of Socrates'] life was to reach understanding with the people he talked to. Plato, a born dramatist, had written tragedies before he met Socrates. According to tradition, he burnt them after he felt the impact of the great questioner's personality." (Jaeger, 1945, vol. II, p. 19)

²Plato, unlike his mentor Socrates, committed himself to writing and moved the Greeks into the literate framework in doing so. Because his mythology was not an oral presentation, but a literate one, he formally defined his vision of Truth. Although he wrote in *The Phaedrus* and *The Seventh Letter* that writing never clearly states the vision within the

with how the oral tradition manipulated human consciousness and emotions. Most noteworthy is the perception that the dynamic could be rationally molded. This, however, made it difficult for the philosophy to deal with “organic” creativity. Instead Plato’s rational solutions to social problems encouraged manipulating human consciousness and emotions in order to turn people toward his system, which he saw as the Truth. Moreover, he believed his philosophy would turn people toward the Good, the Truth. Yet, as Sarton has said, if Greek thought was a triumph for rationalism this was even more the case when we factor in that the rationalistic assumptions of Plato were developed in the highly superstitious Greek culture (Sarton, 1959b).

. . . the Greeks were more inclined to poetic myths than to theology; they had no sacred writings and no dogmas, yet were intensely religious; most of them attended the festivals whenever they could, and many celebrated the mysterious with genuine fervor. A few men managed to combine rationalism with “enthusiasm” (and why not?); the great mass was abandoned to divination and superstitions of every kind. The final paradox is this: the ancients Greeks did not have any kind of systematic theology . . . but they were the founders of theology. (Sarton, 1959b, p. 198)

The degree to which the Greeks brought abstract reasoning into the Western story is more evident when we study Christianity. This religion synthesized the cultural assumptions of varied traditions. The influences of the Hebraic tradition and Hellenic, when viewed discretely, help clarify the complexity we bring to our ever-developing worldviews. These earlier views

mind, because what is important in philosophy cannot be put into written words, (Hamilton & Cairns, 1989), he wrote nonetheless and the artistry of his words conveys a vision of Truth as intoxicating as those of the poets he criticized. Even given that his words are rationally constructed, they have an emotional quality that has touched people even to the present era, especially those who also believe they have envisioned truth.

also offer an excellent means to introduce how cultural complexification takes form.¹

In this case both the Hebraic and Hellenic traditions included many tacit cultural assumptions and each had strikingly different foundations from the other.² In *Hebrew Thought Compared with Greek* Boman writes,

If Israelite thinking is to be characterized, it is obvious first to call it dynamic, vigorous, passionate, and sometimes quite explosive in kind; correspondingly Greek thinking is static, peaceful, moderate and harmonious in kind . . . but the concept of “static” is unfortunate because it represents only the underside of the dynamic: the rigid, inflexible, and lifeless. Only when dynamic thinking is considered the ideal does Greek thinking appear static; once it is recognized that Greek thinking is fully the peer of Israelite thinking . . . Greek mental activity appears harmonious, prudent, moderate, and peaceful . . . Hebrew thinking and its manner of expression appear

¹Of course, there were many influences as well on Western thought. Persian Zoroastrianism being an obvious one I have not included here. Since my concern is how we bring many perspectives or points of view together, clearly I must acknowledge I have simplified this picture significantly in presenting it.

²It should be noted that both were deductively premised in a philosophical sense. In other words, both the Hebrews and the Greeks used deductive approaches to define their ideas. In a deductive argument conclusions follow logically from stated premises. One starts with a general statement, then presents a particular instance, and finally draws the conclusion that affirms the initial assumptions. If the premises are true, the conclusion must be true because the conclusion is nothing but a statement of information already given in the premises. This can only be the case since the conclusion of a deductive argument is *certain* and follows logically from how the conclusion restates the information already stated. I might add that when people use Kuhnian ideas about paradigms as if he states a finished and complete theory, they give the theory a deductive formulation because they infer it is complete, rather than a theory which can be changed with new information.

In an inductive argument, on the other hand, new assumptions can be introduced. Therefore, an inductive argument is not premised on defining what has been concluded to be certain. This may not seem like a factor that makes the inductive argument significantly different from the deductive approach. It is, nonetheless, because the inductive argument allows for prediction. In allowing new information to become a part of the discussion, the premises can be used to extend the assumptions of the argument. This is because the premise is about the past and the conclusion is about the future. For example, to assume the sun will rise tomorrow because it rises every morning, is an inductive argument because there is no way of knowing for sure that the sun will rise tomorrow, but it is likely that this is the case. In commenting on what I see as the limitations within the Kuhnian theory I have addressed the theory as an inductive argument.

exaggerated, immoderate, discordant, and in bad taste . . . The antithesis . . . cannot, then, be simply stated as “dynamic-static,” but preferably it should be stated as *dynamic-harmonious* or *–resting*. (Boman, 1960, p. 27)

The dynamic Hebrew view was premised on the assumption that their God had created Nature (which included humans).¹ This idea of a God-created world led the Hebrews to see things in the world of substance or matter as a part of the dynamic reality. It was a reality where movement was a part of experience and experience was the primary instrument for hearing and perceiving sensually. In Hebrew culture this translated into the belief that each should engage with God’s underlying plan.

The Hebrews did not believe their purpose was to seek to see beyond or behind the apparent order. Rather, it was to gain knowledge through active involvement with it. They sought better living through better faith and believed truth was revealed in the heard or spoken word. This means the decisive reality for the Hebrews could only be the God-created world of experience. Consciousness was seen as being alive — being present to God. Their intellectual orientation was thus developed as a method used to consider how the engagement with experience best took form. This intellectual quest to understand how to best be present to God in turn gave the religion a psychological component.

Biblical man . . . had his knowledge, though it was not the kind of knowledge that man can have through reason alone, or perhaps not through reason at all; he has it rather through body and blood, bones and bowels, through trust and anger and confusion and love and fear; through his passionate adhesion in faith in the Being whom he can never intellectually

¹This is a simplification and I present it this way to underline that the earliest Hebrews acknowledged that other gods existed and asserted that *only one* God should be worshipped. Eventually, of course, the Hebrew view was that there was only *one* God, the God they worshipped.

know. This kind of knowledge a man has only through living, not reasoning, and perhaps in the end he cannot even say what it is he knows; yet it is knowledge all the same, and Hebraism at its source had this knowledge. (Barrett, 1973, p. 79)

The Hebrew reality, like the Hebrew quest, was unlike that of the more abstract, polytheistic world of Hellenic philosophy. In the Greek world there was not a Creator God and a world of nature. Rather, the Greeks believed all was equally divine. In addition, the Greeks believed that through the use of a logical method humans could define the nature of the one underlying truth. In short, the Greeks assumed there was a divine reality that could be logically explained and the Greeks derived a framework for this exploration. Their assumptions included the belief that logic had a meaning independent of the world and the world of experience.

Greek logic was not a relational, experimental logic. Their ideal of an underlying principle of unity precluded this. Instead, the Greeks used a relational dialogue to consider how to translate the underlying principle of unity into a rational design. This emphasis on rationale over relationship — despite their use of the relational method of dialogue — is one reason why even those Greeks who saw their ideas in relation to phenomena and sense reality, like Aristotle, often failed to correlate the world of experience and phenomena with the ideas they constructed *within their minds eye*.¹ Neil Postman offers some good examples of

¹Postman goes on to say that “We must not be too hasty in mocking Aristotle’s prejudices. We have enough of our own, as for example, the equation we moderns make of truth and quantification. In this prejudice, we come astonishingly close to the mystical beliefs of Pythagoras and his followers who attempted to submit all of life to the sovereignty of numbers. Many of our psychologists, sociologists, economists and other latter-day cabalists will have numbers to tell them the truth or they will have nothing . . . the truth in economics is believed to be best discovered and expressed in numbers.” (Postman, 1985, p. 23) But even these kinds of generalizations bear investigation because they show how circular the issues can become. For example, if we turn to economics and evaluate what actually creates success in the marketplace we find that some people, like the legendary money manager Peter Lynch, hold attitudes similar to Postman’s. In writing about successful investing in *One Up On Wall Street* Lynch says, “I was on the arts side of school, and along with the usual history, psychology, and political science, I also studied metaphysics, epistemology, logic, religion,

how Greek philosophy worked when he described how the Greeks of Aristotle's time saw scientific truth as best discovered and expressed by deducing the nature of things from a set of self-evident premises. As Postman points out, this accounts for Aristotle's believing that women have fewer teeth than men, and that babies are healthier if conceived when the wind is in the north. The key here, as Postman also notes, is that Aristotle was twice married but it obviously did not occur to him to ask either of his wives if he could count her teeth. (Postman, 1985)

The differences between the Hellenic and Hebraic views were crafted into a complementary form with the advent of Christianity. Born of Judaism and arising in a world that had become familiar with the Greek ideas of reason, Christianity lived with a paradoxical intensity. The new religion needed to define why one should firmly hold to faith despite the fact that one had the capacity to question it (Barrett, 1962). Four points stand out in looking at this.

First, the Christian mode was more Hebraic than Hellenic because, in combining both systems, Christianity saw faith as *superior* to reason. Second, the Christian was unlike the ancient Biblical Jew. The Biblical Jew knew only of faith and it was a faith born through personal experiences. The Biblical Jew, moreover, had lived in a world that was much older than the world of Christianity. This means that reasoned thinking was a part of the Christian world and in the world of ancient Judaism reasoned thinking had not yet found a fertile ground for its existence (Barrett, 1962). Third, Christianity assumed the deductive approaches used by both the Hebrews and the Hellenic

and the philosophy of the ancient Greeks. . . . Investing in stocks is an art, not a science, and people who've been trained to rigidly quantify everything have a big disadvantage. . . Logic is the subject that's helped me the most in picking stocks, if only because it taught me to identify the peculiar illogic of Wall Street. Actually Wall Street thinks just as the Greeks did. The early Greeks used to sit around for days and debate how many teeth a horse has. They thought they could figure it out by just sitting there, instead of checking the horse. . . In centuries past, people hearing the rooster crow as the sun came up decided that the crowing caused the sunrise. It sounds silly now, but every day the experts confuse cause and effect on Wall Street in offering some new explanation for why the market goes up . . . When I hear theories like these, I always remember the rooster." (Lynch, 1989, p. 32)

thinkers. In the Christian view this translated into a God-created Truth and the certainty this created was the foundation of all of the subsequent conclusions in regard to life and experience. Finally, because the ideas of the Greeks, the Hebrews, and others were (1) applied to the questions of human living and (2) assumed different relationships between faith and reason, they go to the core of postmodern questions. Particularly of note is the question: How do we live as a community when we bring so many differently based premises to our belief systems? How can we live as a community when we believe in so many ways?

These questions take on additional importance when we consider this earlier world. In this world there were differences between the cultural and religious worldviews. There were similarly deviations within each view. All of these elements were evident in how the Christian synthesis came together. They were also evident in the traditions brought into the Christian synthesis even before the Christian synthesis came about.

Indeed classical Greek philosophy helps illustrate how a culture unifies more than one point of view even within its own philosophy. Plato's philosophy, in large part, defined knowledge as knowledge of the eternal. He saw the eternal as a timeless domain, separate from the world of change that holds our lives. When developing his ideas, Plato encouraged looking at our world to visualize its harmonies and patterns (e.g., see *The Phaedo* and *The Timaeus*). Both of these Platonic views have been woven into Western culture. They are evident in the Western tendency to assume that we owe our visual orientation to the Greeks — because the Greeks glorified sight above all other senses. They are also evident in how the Greeks developed the logical basis for *the idea* that there is an eternal truth, *outside of the world of change* or the world *we see*.

To be sure Plato's system was not fixed, but one that continued to change as he continued to reflect on all he wanted to say philosophically. Within this, Plato, himself, was a visionary

who was metaphorically inclined.¹ Being primarily an idealist or an instrumentalist, he did not see physical theory as true or false so much as more or less useful in accounting for the observed phenomena and the truth within his mind's eye. His approach allowed him to refine his belief that the soul was separate from the body. It also led him to define a phenomenal world that had a lesser reality than the eternal world beyond time where nothing changed. Nevertheless, because Plato wanted to "save the appearances" — the world in which we live — his ideas needed to include the world of our experience. Thus, Plato acknowledges the "reality" of phenomena and human behavior in a context that combined a mythological approach with a logical mind. The idea is that there are possibilities we can glimpse that exist beyond the obvious.

The Platonic model, as such, is the kind of model that leans more toward mental insights than phenomenal perceptions. These mental visions are presumed to allow one to perceive what is beyond what is seen. This perception in turn offers the knowledge that the world we see may not tell the whole story. While highlighting that there can be harmonies and patterns beyond our perceptions and sensations, the model, to some degree, attempts to explain what we might envision within our minds. This can be used in many ways. One might reinterpret the seen. Another might negate the reality of the world of experience — because the underlying assumption is that what we see is not what "is."

The distance between the mind's eye and the phenomenal world might explain why some, like Aristotle, focused more intently on the world we see and our experience of

¹Plato expressed this view in *The Seventh Letter*, where he points out that there is no way of putting knowledge into words. "Acquaintance with it must come rather after a long period of attendance on instruction in the subject itself and of closer companionship, when, suddenly, like a blaze kindled by a leaping spark, it is generated in the soul and at once becomes self-sustaining . . . Furthermore . . . no intelligent man will ever be so bold as to put into language those things which his reason has contemplated, especially not into a form that is unalterable — which must be the case with what is expressed in written symbols (*The Seventh Letter* 341. d-343. c, Hamilton & Cairns, 1989, pp. 1589-90).

it.¹ Using the premise that the underlying truth could be stated by defining physical theories that correlated with physical reality, so as to more effectively state what is, Aristotle asked why phenomena do what they do and move as they move. He also attempted to categorize and account for phenomena. Unfortunately, he too modeled reality in a way that included the limitations within his vision. This was particularly evident when Aristotle assumed the Platonic cosmology,² and its tenet that different rules applied to celestial and terrestrial realms. His incorrect premise here is that we know the sun rotates around the earth. His “knowledge” of this is based on the visual evidence, which led him to conclude we can infer that different laws should be applied to the skies than to life on earth. Although his cosmological assumptions have since been updated, faith in the cosmological model as a construct remains. Kuhn's legacy underscores this, for he turned to the cosmological model and used it as his predominant example of how our paradigms change. As a result, it is an excellent mode when speaking about some of the limitations within our metaphoric and realistic interpretations of reality. It also provides a direct link to Greek cosmology, the first cosmological theory based on reason and geometry.

¹The hallmark of Aristotle is perhaps his refusal to believe that this world was anything but real. His thought is easily aligned with Plato's insofar as being governed by the idea of aspiration. Both views were also seeded in the philosophical discourse of ancient Greece and ironically, some of the differences between Plato and Aristotle were resolved when the Christian synthesis added a theistic God and the certainty this symbol provides. I would suggest God was often inadvertently used to clarify points within Greek philosophy and to show that the Greeks were defining the same truth as the Christians. For example, Aristotle's philosophy does not present a theistic God as creator, but it is as if he does because his logic leads him to believe that some kind of external “Unmoved Mover” must be responsible for the creation of the universe which he also assumes to be a complete whole in a way that is *ultimately* static and closed. It is also evident when Aristotle sees a goal toward which all things strive in a way that ultimately defines potentials in terms of final causes, not relational possibilities. This is because his deduced conclusions grow directly out of premises that do not easily support a relational logic. Nonetheless, the consistency of his syllogistic logic is admirable.

²The world of the philosophers was an orderly, predictable world in which things behaved according to their natures. The Greeks used the term *kosmos* to denote this ordered world. We draw our word cosmology from this idea. Cosmology today is best defined as the study of the universe as a totality.

Greek cosmological theory in general is now noted for bringing realistic and visionary views together. Using the circle as a symbol of harmony and perfection, the Greeks sought to design a model that “fit” their belief that any valid physical model of the cosmos could only be perfectly stated if it used circular celestial trajectories (or a combination of circles) (Sarton, 1959a). While there is reason to believe that the spherical theory of the universe was first advanced by Pythagoras, and that he may have been inspired by Babylonian, Egyptian, and Eastern philosophies, it is in Plato’s *Timaeus* that the first geometrical cosmology is given for the “music of the spheres.”¹ Plato’s pupil Euxodus mapped the first design for this spherical universe that, eventually, became the Ptolemaic cosmology.² The circularly based Ptolemaic cosmology was, in turn, used until the beginning of the seventeenth century when Kepler proved that planets move in oval, not circular, orbits. In his book *The Sleepwalkers* Arthur Koestler offers a powerfully well-stated summary of how these cultural prejudices came together.

Plato had merely thrown out, in semi-allegorical language, a suggestion . . . it was Aristotle who promoted the idea of circular motion to a dogma of astronomy . . . In Plato’s world the boundaries between the metaphorical

¹“The greatest success in the field of physical science proper was achieved in astronomy. Plato, though fully aware of the impressive number of astronomical observations made by the Babylonians and Egyptians, emphasized that they had no underlying or unifying theory and no explanation of the seemingly irregular motions of the planets. Euxodus, who was a student of the Academy . . . took up the problem of “saving the appearances.” His answer is the first reasonably complete astronomical theory known to history (Kline, 1982, p. 24).

²Ptolemy himself is quite explicit about why the idea of circular integrity must be foundational: “We believe that the object which the astronomer must strive to achieve is this: to demonstrate that all the phenomena in the sky are produced by uniform and circular motions” . . . Ptolemy also makes it clear why astronomy must renounce all attempts to explain the *physical* reality behind it: because the heavenly bodies, being of a divine nature, obey laws different from those to be found on earth.” (Koestler, 1959, pp. 76-77) This idea of circular integrity also aligned with another assumption that had begun to take form, around the time of Plato. This idea was that there can be one set of laws for the divine and another for human life. I talk about the evolution of this new picture of the cosmos in Chapters Seven and Eight.

and the factual are fluid; all such ambiguities disappear as Aristotle takes over . . . The God of Aristotle no longer rules the world from the inside, but from the outside . . . Aristotle's God, the Unmoved Mover . . . is the God of abstract theology . . . Beyond the sphere of the moon, the heavens are eternal and unalterable. This splitting-up of the universe into two regions, the one lowly, the other exalted, the one subject to change, the other not, was to become another basic doctrine of medieval philosophy and cosmology. It brought a serene, cosmic reassurance to a frightened world by asserting its essential stability and permanence, but without going so far as to pretend that all change was mere illusion, without denying the reality of growth and decline, generation and destruction. (Koestler, 1959, p. 60-61)

It was Newton's elliptically based heliocentric model that definitively revised the cosmological design of the circular model. Newton did this through showing that one set of laws could be used to define the celestial and terrestrial domains. His insight allowed the universe, which had been split into two regions — heaven and earth — to be viewed as a unity. Of course, Newton's model has also been significantly revised, as will be discussed below.

These ongoing revisions accentuate two points. First, cultures have bridged the differences between realistic and visionary approaches in a number of ways. In each case, symbols and metaphors aid in creating these bridges. Second, symbols and metaphors have long been used to both aid and change our perceptions. Returning to the historical story offers a means to provide more foundation to these generalizations. In addition, adding contextual analysis demonstrates areas in which we tend to close our eyes to new possibilities.

Chapter Seven

The Western Synthesis Complexifies

It would be an unsound fancy and self-contradictory to expect that things which have never yet been done can be done except by means which have never yet been tried.

Francis Bacon
Novuum Organum (1620), Aphorism VI

It is precisely among the heretics of every age that we find men who were filled with the highest kind of religious feeling and were, in many cases, regarded by their contemporaries as atheists, sometimes also as saints. Looked at in this light, men like Democritus, Francis of Assisi, and Spinoza are closely akin to one another . . . It is cosmic religious feeling that gives a man such strength.

Albert Einstein
Ideas and Opinions

The Hellenistic period followed on the heels of Plato and Aristotle. With the change to the Hellenistic period the foundationally optimistic and aspirational focus that germinated in the earlier Hellenic era turned toward synthesis. At that time, like today, many were asking how to feel stable, connected, and alive within the context of a changing world. Retrospectively what stands out is that the open society that evolved out of Hellenic classicism culminated with the universal vision of the Middle Ages. This, in turn, led the West to the Modern worldview and, with it, an evaluation of the assumptions that had long combined religious institutions with social and political structures. All of this is striking as we once again re-evaluate the nature of our world.

More important to this survey is the way the Hellenistic period and late antiquity now aid our understanding of paradigmatic thinking. Briefly, the Hellenistic period is conventionally defined as beginning with the death of Alexander the Great in 323 BCE, and ending in 31 BCE, at the time of the battle of Actium. Symbolically, however, it did not end until 529 CE when Julian closed the Academy in Athens. The Academy was closed because it was a center of resistance to the new Christian religion. With the closing of the Academy, the last of the Hellenistic schools was put to rest. (Sarton, 1959a)

Comparisons with the contemporary world are perhaps most striking in light of the international and cosmopolitan¹ nature of this earlier period. Indeed, the word “Hellenistic” is well chosen given the way it suggests that Hellenism is adding something to what it is. To be sure, both the word “Hellenistic” and the culture that formed confirm many elements were integrated with the Hellenic (Greek) view. Although Greek was the language of intellectual thought, Egyptian, Jewish, Persian, Syrian, Asian, and African influences were among those that contributed to the composite. This eclectic base is critical to understanding this period that stabilized the creative Greek experience, synthesized the Greek approach, and added many ideas from other cultures to the Greek legacy. Still, at its core, Hellenistic culture accepted the Greek ideas about reason. It did so, however, without encouraging the kind of critical analysis that would effectively expand on the basic assumptions of Greek philosophy. Instead the people were more inclined to apply the abstract Greek theories to their practical experience. Increased interest in practical application, as one would expect, created a fertile ground for technological development. In addition, this environment encouraged medicine to blossom. At this time we also find that the foundations of geometry, astronomy, anatomy, and grammar took form (Sarton, 1959c).

Scholars have offered diverse conclusions about this period. Some have stressed the relationship between reason and spirituality. Also of interest is how this complex period initially took form and eventually evolved as time passed. Gilbert Murray, (1955), for example, claims the West lost its vitality when the Hellenistic quest for *ataraxia* (or peace of mind)

¹The word cosmopolitan has its roots in Stoic philosophy, a predominant view of this period. The Stoics saw humans as citizens of the universe, extending the polis of the ancient Greeks beyond the concept of the city-state. According to Cicero, “They also hold that the cosmos is ruled by the will of the gods, that it is like a city or state shared by gods and men, and that each and every one of us is a part of this cosmos. From which it naturally follows that we put the common advantage ahead of our own. For just as the laws put the well-being of all ahead of the well-being of individuals, so too the good and wise man, who is obedient to the laws and not unaware of his civic duty, looks out for the advantage of all more than for that of any one person or his own.” (Inwood & Gerson, 1999, p. 152)

subdued the mood and the tone of the population. Murray notes that whereas originally he had been drawn to see the Hellenistic period as one defined by a rise of asceticism, mysticism, or religious passion, looking through the lens of history, he changed his mind. In his opinion the noteworthy variable is that the mood in the West was dramatically changed at this time. It is not easy to say whether the impetus was an unfulfilled promise of Hellenism or something that evolved with the Hellenistic period. In either case something difficult to define *became* an integral part of human assumptions on life. Reflecting on precisely how the culture came together at this time, Murray decided the Hellenistic era was not a rise, but rather a fall. He saw it as a failure of some sort. Ultimately he decided it was a Failure of Nerve.¹

Any one who turns from the great writers of classical Athens, say Sophocles or Aristotle, to those of the Christian era must be conscious of a great difference in tone. There is a change in the whole relation of the writer to the world around him. The new quality is not specifically Christian: it is just as marked in the Gnostics or Mithras — worshipers as in the Gospels and the Apocalypse, in Julian and Plotinus as in Gregory and Jerome. It is hard to describe. It is a rise of asceticism, of mysticism, in a sense, of pessimism; it is a loss of self-confidence, of hope in this life and of faith in normal human effort; a despair of patient inquiry, a cry for infallible revelation; an indifference to the welfare of the state, a conversion of the soul to God. It is an atmosphere in which the aim of the good man is not so much to live justly, to help the society to which he belongs and enjoy the esteem of his fellow creatures; but rather by means of a burning faith, by contempt for the world and its standards, by ecstasy, suffering

¹ Murray used this phrase as the title of his chapter on this period in *Five Stages of Greek Religion*.

and martyrdom, to be granted pardon for his unspeakable unworthiness, his immeasurable sins. There is an intensifying of certain spiritual emotions; an increase of sensitiveness, a failure of nerve. (Murray, 1955, p. 119)

Responding to this idea of a failure of nerve E. R. Dodds' (1951) suggested it was not so much a failure of nerve as a fear of freedom. Dodds says that it was this fear of freedom that stymied the original impulse that had birthed the Greek awareness of themselves as individuals who were not simply parts of a larger unity. Dodds sees the third century BCE as the nearest the world had ever come to an open society until modern times. His point is that in embracing reason as they did the Greeks failed to include an adequate instrument for *actually* understanding, much less controlling, the importance of that which was not reasonably understood, that which went on below the surface or below the threshold of consciousness. Therefore, for Dodds, the move into medieval Christianity underlines certain problematic aspects born of Greek rationalism. It also speaks to the times, as much as it does to the result.

Weighing these two viewpoints, Peter Brown attempts to balance the accuracy of contemporary points of view and the actual situation in antiquity. Brown asserts that both Murray and Dodds are imposing modern factors in their conclusions when they suggest there was anxiety and crisis due to urbanization, public disaster, and an intrusion of alien religious ideas in these ancient cultures. In Brown's opinion, before we talk of anxiety and disillusionment as pervasive and distinguishing features of the period we must ascertain whether we are using the standards of antiquity or our own. In his words, "Disillusionment assumes illusion, and ancient men kept themselves studiously free of illusions about what life could offer them . . ." (Brown, 1978, p. 5)

In Brown's view this tendency to sometimes overlook the basic differences between ancient culture and our own in human perception, size, pace, and informational exchange leads

to the tendency to compare the individualization, so predominant in the Hellenistic period and Late Antiquity to our own in a way which fails to acknowledge that ancient cultures lived in circumstances dramatically different from the world we know.¹ The glory of classical Greece would have been more primitive technologically and the people would have lived at a slower pace. They also would have seen spirit and substance as indivisible. In addition, their lives were more closely linked with natural phenomena. Therefore, the people would have held a less “cultured” awareness of potentials and would have held a different relationship to instincts. This does not mean that the Hellenistic period and later antiquity were not at all like our world so much as that the process of redefinition evident in both cultures in regards to both faith and reason needs to be seen in light of the culture to which it pertains.

All of these thinkers seem to agree that the Hellenistic world was exceedingly different from the one preceding it and that even by the second century CE the difference was not so much the rising influence of Christianity as it was the cultural mood in general. The turning point came in the second century when Constantine became a Christian and officially established Christianity as the state religion. Up until this point the philosophical climate was dominated by Stoicism and the political world was Roman. Then, when Christianity came together with the Roman world and their state laws, this marriage of the two created a need to define the creed of the state religion. The plurality of possibilities within Christianity at the time led Constantine to call the first Council of Nicea in 325 CE.

¹For example, when they looked at ideas that we might consider superstitious they had a different context. At that time the Platonic dualisms had not yet firmly taken root as the predominant human perception. Moreover, human ideas, as a whole, were more closely intertwined with what we would today call the pseudosciences or pre-sciences. Therefore, in this environment, humans who asked how one embodied a sense of peace of mind not only desired to live in a way that was coextensive with spirituality they were more psychologically oriented toward beliefs premised on rituals, superstitions, astrology, divination, numerology, etc. — because these perceptions were closer to their lives. My point is that reason, as we define it today, was only beginning to gain a hold on the human mind.

The development of Christian law gave people a new kind of certainty. Individuals had a sense of their place socially due to the way institutionalized beliefs offered a universal code for living. This universalism, being defined by the Church, not only bonded believers within a community it also offered techniques for spiritual fulfillment (Dodds, 1965). This helped believers leave the emptiness of the open society outside of the Church behind. People no longer had to face the problem of feeling “filled” and connected, which was then a major social problem. No longer did people echo Marcus Aurelius in asking “how long.”

Marcus Aurelius, whose days were spent in administering an empire could express at times the desolate sense of not belonging . . .”All the life of man’s body is a stream that flows, all the life of his mind, dream and delirium; his existence a warfare and a sojourn in a strange land; his after — fame, and oblivion.” He fought against the exclusive dominion of such thoughts with all the strength of his Stoic religion, reminding himself that his existence was part and parcel of the great Unity. But they were the thoughts of his time and he could not escape them: he could only ask, “How long.”(Dodds, 1965, p. 21)

Even someone like Marcus Aurelius (121-180 CE), a Stoic, a Roman Emperor, and a pagan did not hold a sense of belonging. This is astonishing when we think of his deep commitment to humanity and strong religious sense. His life, although governed by a sense of duty, did not hold the sense of bonding held by Church members who felt filled, nurtured and believed they belonged to a community they could turn to if necessary. The Church offered a community with a social and spiritual code, one that provided a matrix for living. It was all-inclusive, reaching out to suffering souls, healing many and perhaps holding them with the promise of salvation.

The community was *not* universal, however. Those who did not accept Christian ideas, as well as those who saw the

religion as restrictive in regard to the pursuit to know the natural world, had to be careful when they disagreed with Church values and authority. Christianity provided bonding; but it did so at a price. The unified worldview altered the open society and replaced it with one in which all were not accepted in a comparable way.

Yet, on balance, it is important to understand that the Christian social structure was not strictly a vision imposed on the people. The people at that time increasingly wanted a religious vision that would be coextensive with their lives. The quest for meaning had begun to cast a shadow over other activities prior to the establishment of the Christian social structure. With the establishment of the Christian worldview questions about meaning were more easily answered. Moreover, while Christianity eventually synthesized the overall worldview, many ideas Christian subscribed to were not isolated from the ideas found among non-Christians. It was a world in which many ideas spanned ideologies.

One understood by practitioners of all traditions was that spiritual insight was not particular to one belief system so much as it was evident that some pagans and some Christians “found” spiritual sustenance, while others merely *aspired* to this sense of spiritual wholeness. This led to the idea that some were elect. This view, held by Christians and pagans alike, is of great interest when reviewing this period.¹ This view also offers an

¹For example, the idea of incarnation was prevalent in late antiquity among Christians and pagans alike (Dodds, 1965) and a unifying factor in bringing the Christian and pagan views together, despite some significant differences between the pagan and Christian beliefs. On the one hand, pagan myths did not include human redemption through a God who shared Himself with humanity. On the other hand, for the pagans, the word *theos* did not carry the overtones of a remote and awesome God. It was more likely to refer to the likelihood of mortality, or that a God was exempt from death and a human was not (Dodds, 1965). This meant that the Christian incarnation of God was not absurd to pagans, but the pagans did not hold the belief that Jesus was the promised Messiah and that his death offered human redemption because he had shared himself with humanity — having lived in the flesh and in the world. In terms of a cross-cultural complexification of consciousness it is interesting to see that this idea of divine incarnation was also evident in the East and it was also an idea that had developed through the cultural experience. For example, Hinduism called those whom they believed were divine incarnations Avatars. This idea of avatars, like ideas like *karma* and *moksha*, was a cultural creation. The Avatar is not mentioned in the early Hindu texts, such as the Vedas or the Upanishads. It is, however, evident in the

excellent example of how, despite the evidence that initially neither pagan nor Christian thought formed a unified system, their shared cultural perceptions brought them closer together (Dodds, 1965).

Dodds offers four psychological conditions that grew out of this situation and favored Christian growth. First, the exclusiveness of Christianity was considered a strong point at this time. This was also true of its refusal to concede any value to alternative forms of worship. According to Christianity since there was one, irrevocable, choice, the road to salvation was clear. Second, Christianity was open to all. In principle, Christianity made no social distinctions. Third, in a period when life on earth was increasingly devalued and guilt-feelings were widely held, Christianity held out the promise of a better inheritance in another world. Finally, the benefits of becoming a Christian were not confined to the next world. A Christian community, as noted, brought its members together not through common rites but by offering a way of life (Dodds, 1965).

In terms of the larger picture the belief that some were elite stands out because it encouraged the hierarchical social structure and the idea that those who were elite were also elect and “closer” to the transcendent realm. The importance of this is particularly evident retrospectively. We now have some distance from which to reflect on how this view, which fit so well with the hierarchical Platonic cosmology, gradually stabilized.

According to this cosmology the earth was a globe suspended in space at the center of a system of concentric moving spheres. Initially the general perception was that the whole structure was the expression of a divine order, and this order was felt to be beautiful, worthy of worship, and alive (or informed by a living spirit). The whole *cosmos* was not only believed to be alive, it was also linked by *sympatheia*.¹ This

Bhagavad Gita (4. 1-8) where Krishna confides he has been born into the world again and again to revive the religious experience within the culture.

¹*Sympathia* was a Stoic idea used to explain how all is interdependent rather than additive or independent. In this view the physical state is an organization of dynamic

mutuality, however, did not comprehensively explain the relationship and value of the parts and the whole. This difficulty was eventually resolved through accepting the Platonic cosmology where the celestial and terrestrial realms were separate and operated under different laws. Eventually this perception led to the idea that the *locus* of “divine power” was supernatural and the idea that the higher celestial realm was the realm of the Divine order. This higher order was also believed to differ from the evident nature of human life (Dodds, 1965). Therefore, the supernatural was different from the natural — even when they were philosophically defined as a unity. In addition, this view placed the realm of science as within the physical world and the realm of religion in some metaphysical relationship to the physical world. These ideas were then translated into a culture that was progressively withdrawing divinity from the material world and, in effect, changing the human relationship to divinity (Brown, 1978).

. . . [in] the period between Marcus Aurelius and the death of Constantine . . . the *locus* of the supernatural had come to shift significantly . . . What changed in no uncertain manner, however, between the second and fifth centuries, were men’s views as to where exactly . . . “divine power” was to be found on earth and, consequently, on what terms access to it could be achieved. In this period “divine power” came to be defined with increasing clarity as the opposite of all other forms of power. The “locus of the supernatural,” where this unique power was operative, came to stand for a zone in human life where decisions, obligations, experiences, and information were deemed to come from outside of the human community. (Brown, 1978, pp. 8, 11)

character, each element mutually sharing in the dynamic nature of the whole. This dynamic co-existence, or sympathy, is assumed to be a living organism because it mirrors the united structure of the living body (Sambursky, 1973).

Again, I want to reiterate that this belief in levels of reality was neither specifically Christian nor specifically pagan. Nor was it specifically Western. We see this evolution in other religions, Hinduism being a good example of a religion that was also playing with the idea of a higher and a lower domain. What is key here is that when this cultural idea emerged in the West it created the consensual view that there was an antithesis between the celestial and terrestrial worlds. The terrestrial world was increasingly seen to be that of mortals (Dodds, 1965).

Two points stand out here. First, it became increasingly difficult to see the human spirit as equal to that of the divine. Instead it became easier to ask if matter was spirit and to see them as different. This view of a supernatural was easily tied into ideas of incarnation and divinity. It also fit well with ideas about bringing the spiritually elect into “power.” Second, the overall situation weighed in favor of Christianity becoming the preferred worldview. This was an outcome of the desire for a defining philosophy, and for one that aligned with what the Christian belief represented at that time.

In short, if any cultivated person of the second century had been asked to put in a few words the difference between the pagan view of life and the Christian, the reply would probably have noted that it was the difference between *logismos* and *pistis*, between reasoned conviction and faith. By the fourth century, the situation had changed. On the one hand, Christianity had, through theology, added rationale to its beliefs. The rational pagan focus, on the other hand, had added faith to compensate for a lost vitality (Dodds, 1965). Perhaps the key within this is that pagans felt spiritually drained. Their loss of vitality was a sharp contrast to the emotional commitment found among Christians. Christianity had become a religion that people were willing to die for, and did die for.¹ Thus Christianity was judged

¹This view is evident in how people like Lucian, Marcus Aurelius, Galen and Celsus were all, despite themselves, impressed by the courage of the Christians in face of death and torture. On the one hand, Christian courage must have been the starting point of many conversions (Justin's is one example), while under Christian rule there were few pagan

to be a religion worth living for in large part because it was seen to be worth dying for.

With the idea of a transcendent dimension translated into a religious concerns, how one lived — or the virtue of having the right relationship with God through the Church so as to insure salvation — was the goal. Since Church professionals had interpretative responsibility in regard to “right” belief, what had been a deeply felt religious experience for the original Christians was muted by religious answers that now defined mysteries. People were not encouraged to probe into the mysterious. Instead the supernatural theology was used to explain mysteries to them. Thus, critical issues were resolved and embedded into the cultural mythology through the religious learning process. These humanly created assumptions helped define a truth that proved difficult to dislodge.

The eventual change brings us to the birth of Modernism. Here, too, the cosmological model is useful. Moreover, the cosmological revisions offers a means to consider what symbols and metaphors are. It also helps clarify what they bring to our lives.

martyrs — not because Christianity was more tolerant, but because paganism was by then too poor a thing to be worth a life (Dodds, 1965).

Chapter Eight

Symbols and Metaphors

Those societies which cannot combine reverence to their symbols with freedom of revision, must ultimately decay either from anarchy, or from the slow atrophy of a life stifled by useless shadows.

A. N. Whitehead
Symbolism

• • • • •

Man is, perhaps uniquely, the symbolizing animal Somehow in the long temporal mystery of evolution there emerged the power and disposition to let something — whether a body, an image, a sound, or later a written world — stand as a surrogate for something else . . . when an image is employed as metaphor only once, in a unique flash of insight, it cannot be said to function symbolically. It acquires a symbolic nature when, with whatever modifications, it undergoes and is considered capable of undergoing recurrence.

Philip Wheelwright
Metaphor and reality

The history of symbolism shows that everything can assume symbolic significance: natural objects (like stones, plants, animals, men, mountains and valleys, sun and moon, wind, water, and fire), or man-made things (like houses, boats, or cars), or even abstract forms (like numbers, or the triangle, the square, and the circle). In fact, the whole cosmos is a potential symbol.

Aniela Jaffé
Symbolism in the Visual Arts

In the West the interplay between symbols and metaphors has been particularly evident in the ways the cosmological picture has changed. For example, while it is generally known that Newtonian mechanics defined the sun-centered (heliocentric) universe with great precision and replaced the earth-centered (geocentric) Ptolemaic design that had been used up to that point, it is often overlooked that the Ptolemaic model was first presented by Plato as a metaphor. Plato used the metaphor to suggest we can gain a sense of a harmony that extends beyond what is apparent to us by studying the patterns around us. Eventually the pattern of the cosmos came to symbolize harmony in the physical world and the circle, the symbol of perfection, was used to define the cosmic harmony.

These ideas were not themselves unique to the Platonic metaphor. Many have discussed the ways ancient scholars assumed that material objects were spiritual truths (Davis & Hersh, 1981; Kline, 1953). Pythagoras is most often mentioned as one who subscribed to this view. He believed that “all is number” and began the kind of geometrical inquiry that tried to offer a geometrical form to what we cannot conceptualize. While little is known directly, it is generally agreed that Pythagoras saw the form in terms of an all-encompassing harmony. His ideas, which we now characterize in religious and scientific terms, led to a geometry that was related to ancient rituals. The ideas were

also instrumental in the geometry and astronomy that eventually formed the Greek cosmological model. The Greek cosmological picture spoke of their belief in the perfection of the heavens. This perfection, they believed, was complemented by the belief that the universe must be finite and spherical. These assumptions, in turn, allowed them to conclude that all motions in the heavens must be represented by uniform motion of heavenly objects of spheres.

Perhaps the greatest challenge in modeling the heavens was the constraints imposed by the occasional *retrograde*, or backward, motion of planets. While, most of the time, a planet like Mars appears to move from east to west across the background of stars, every so often the planet's motion is retrograde: that is, for a few weeks it appears to slow, stop, and reverse direction with respect to what appears to be a fixed background. As is well known, Claudius Ptolemy, a Egyptian-born Greek astronomer and geographer who lived in Alexandria in the second century CE proposed the first plausible explanation for complex celestial motions. The Ptolemaic description of the universe, noted above, placed an unmoving Earth at the center. All of the stars and planets moved around it. Carefully crafted to take account of observations, it was a convincing approach. The planets were attached to small spheres rolling inside of larger spheres. This complex arrangement allowed the model to provide a rationale for their apparent, uneven retrograde motion across the sky.

The Ptolemaic system remained the best explanation of the universe for almost 1500 years. It successfully predicted planetary motions, eclipses, and a host of other heavenly phenomena. It was also one of the most enduring scientific theories ever derived. After the Platonic cosmos was accepted by the culture, the complex Ptolemaic description was easily fit into the prevailing views. It did not require that people revise their underlying symbolic assumptions. Instead, with each indication of an anomaly, the people relied on the metaphoric base for explanation. In practice this meant that any apparent lack of

consistency between the physical world and the human ability to precisely design the nature of the underlying harmony was resolved through the use of metaphor, and by adding another adjustment to the circular mechanism.

Two elements embedded within this approach are noteworthy. First, revising metaphors while sustaining the underlying symbolic thrust of the model means the overall approach is assuming the underlying axiomatic assumptions need not be questioned. Once these assumptions are considered as givens, and people fail to actively engage with them, only philosophical interpretations prevail. This serves to encourage an ongoing reinterpretation of the symbols already accepted and reinforces the assumed “axiomatic” beliefs. Secondly, Platonic metaphors had introduced a number of assumptions that were included in interpretations of the Ptolemaic design. Of greatest importance is that Platonic thought encouraged the perception that there were primary and unchanging symbols that differed from the secondary symbols (the shadows) of the physical world. The inference that what is “real” cannot be captured within the physical domain still lives among us. Thus it is useful to explore this inference in light of how the tension between symbols and metaphors translates into human life, particularly in light of how the view speaks about mysteries that cannot be definitively captured.

Sallie McFague’s *Metaphorical Theology* offers a good starting point for contextualizing the difference between symbols and metaphors. She writes,

One critical difference between symbolic and metaphorical statements is that the latter always contain the whisper, ‘*it is and it is not.*’ . . . a metaphor is seeing one thing *as* something else, pretending “this” is “that” because we do not know how to think or talk about “this,” so we use “that” as a way of saying something about it. Thinking metaphorically means spotting a thread of similarity between two dissimilar objects, events, or whatever, one of which is better

known than the other, and using the better-known one as a way of speaking about the lesser known . . . Metaphorical thinking constitutes the basis of human thought and language. From the time we are infants we construct our world through metaphor; this is just as young children learn the meaning of the color red by finding the thread of similarity through many dissimilar objects (red ball, red apple, red cheeks), so we constantly ask when we do not know how to think about something, “What is it like? ” . . . we always think by indirection . . . Symbolic statements, on the other hand, are not so much a way of knowing and speaking as they are a sedimentation and solidification of metaphor . . . The tension of metaphor is absorbed by the harmony of symbol. (McFague, 1982, pp. 13, 15-16)

McFague’s view, I would propose, ably articulates that learning includes accommodation, assimilation, and insight. Also evident is the way we can continually enlarge the relationships among our symbols and metaphors as well as our cognitive perceptions and growing sensitivities. This transformative process is frequently encountered in young children who are developmentally active in an apparent way. Often they demonstrate areas where we can identify precisely how the use of metaphorical qualities aids in developing potentials. This process more generally allows individuals to build an ever-broadening conceptual foundation by establishing a basis for integrating the individual psychological foundation with that of the community in a way that is dynamic, creative, and developmental.

Neither this dynamic exchange between symbols and metaphors within the community, nor the exchange between the community and the individual, is the only option. For example, C. G. Jung focuses on the psychological side of symbols, seeing symbols as a means for representing what we cannot define or fully comprehend. According to Jung,

What we call a symbol is a term, a name, or even a picture that may be familiar in daily life,

yet that possesses specific connotations in addition to its conventional and obvious meaning. It implies something vague, unknown, or hidden from us . . . Thus a word or an image is symbolic when it implies something more than its obvious and immediate meaning. It has a wider “unconscious” aspect that is never precisely defined or fully explained. Nor can one hope to define or explain it. As the mind explores the symbol, it is led to ideas that lie beyond the grasp of reason. (Jung, 1964, pp. 3-4)

In his work Jung largely attempts to grasp what he assumes lies outside of the realm of reason. What is striking is that, to a large degree, he adopts the Platonic assumption that there is an unchanging realm outside of our experience and beyond the grasp of reason. He does not, however, adopt the Platonic valuation of reason and rationality so much as he assumes that symbols represent something eternal that need not be assigned a rational identity. Jung also assumes we do not develop or invent symbols to enhance clarity and translate our perceptions with conscious awareness. Instead, he conjectures we access pre-existent symbols to discover and revitalize what is beyond the grasp of reason. This perspective, as I show below, encourages revising and reinterpreting symbols already defined among us more than it encourages creating new symbols. This comes about definitionally. Symbols are defined as if a larger truth exists in some kind of finite and universal realm that cannot be explained within the mundane context of conventional living.

Three points help illustrate the degree to which this approach encourages the kind of ongoing revisioning process that helped the Ptolemaic cosmology retain its position as the correct model for 1500 years. First, as mentioned above, the Greek cosmological design was originally a metaphor developed to convey the idea of something more than we recognize in the context of our personal experience. The metaphor served to place the real world outside of time and offered a geometrical construct specifically designed to save the appearances of the phenomenal

world. Second, the cosmological mappings came to be seen as a truth that was a qualified truth. This came about due to the foundational ideas the populace accepted as a symbolic representation of cosmic harmony.¹ Third, this theoretical foundation was constructed using the circle, the cultural symbol of harmony and perfection.² This symbol, moreover, sustained the earth-centered cosmology for 1500 years.³

It was the introduction of elliptical planetary motion that ultimately changed the cosmological model. This re-configuration deserves close examination in light of how both Plato and Pythagoras saw geometry as the keystone of their philosophies. Moreover, the new configuration offered a different kind of orientation. In effect, it changed the way the symbolic language of geometry merged the physical and metaphysical assumptions. The new picture suggested we can see symbols in ways not yet mentioned, and, as is frequently noted, this position, too, is compatible with the views of some thinkers.

The principle functions of a symbol in mathematics are to designate with precision and clarity and to abbreviate. The reward is that, as Alfred North Whitehead put it, "by

¹The geometrical design offered by Plato's pupil Euxodus to "save the appearances" "... was in fact part of the larger study of cosmology ... Plato, though fully aware of the impressive astronomical observations made by the Babylonians and Egyptians, emphasized that they had no underlying or unifying theory and no explanation of the seemingly irregular motions of the planets. Euxodus, who was a student at the Academy ... took up the problem of 'saving the appearances.' His answer is the first reasonably complete astronomical theory known to history." (Kline, 1982, p. 24)

²This notion of circular perfection was supported by how the circle included the whole and allowed the whole to include form and motion. In addition, the circle was complete, even in motion. Therefore, it was seen as even more complete than other symbols.

³Christopher Zeeman, a British mathematician speculated on how the model lasted for so long in an article where he considered how the Antikythera mechanism, a mechanism of thirty-two gear wheels found in 1900, may have been used by the early Greeks to compute the relationships between the sun and the stars. "First came the astronomers observing the motions of the heavenly bodies and collecting data. Secondly came the mathematicians inventing mathematical notation to describe the motions and fit the data. Thirdly came the technicians making mechanical models to simulate these mathematical constructions. Fourthly came generations of students who learned their astronomy from these machines. Fifthly came scientists whose imagination had been so blinkered by generations of such learning that they actually believed that this was how the heavens worked. Sixthly came the authorities who insisted upon the received dogma. And so the human race was fooled into accepting the Ptolemaic System for a thousand years." (in Stewart, 1989, p. 7)

relieving the brain of all unnecessary work, a good notation sets it free to concentrate on more advanced problems and, in effect, increases the mental power of the race.” (Davis & Hersh, 1981, pp. 123-124)

Historically, the mathematical approach that led to the medieval cosmological model was compelled to give way to the Modern perspective, which in effect re-defined the relationship between mathematics and the physical domain. Yet, nonetheless, the circle retained a sacred significance that continues to be a part of our postmodern worldview. Most noticeable is the way spiritually inclined people today continue to hold the belief that the circle is the most sacred symbol. As they are apt to explain, in spiritual philosophies the circle is believed to represent the original sign, being the so-called prime symbol of the nothing and the all, the symbol of heaven and the solar eye. Considered archetypal, the circle is seen as the sacred mandala or the all-encompassing form beyond and through which humans find and lose themselves. It is the origin-less Mandala, “irrefutably valuable because no race is without it, it comprises the All, and is its source and its ending” (Argüelles & Argüelles, 1972, p. 33). The circle, from this perspective, is easily correlated with Eastern mandala motifs and the center of the Hawaiian Cross of the Flower of the Sun, from which stream the eight solar deities. Further verification is found in the circle in creation stories, such as those in the Judeo-Christian tradition where, in *Proverbs*, God draws a circle on the face of the deep (8:27). Even the wisdom of Black Elk is said to speak of the sacred quality that the circle symbolizes:

Everything the Power of the World does is done in a circle. The sky is round, and I have heard that the earth is round like a ball, and so are all the stars. The wind, in its greatest power, whirls. Birds make their nests in circles, for theirs is the same religion as ours. The sun comes forth and goes down again in a circle. The moon does the same and both

are round. Even the seasons form a great circle in their changing, and always come back again to where they were. The life of a man is a circle from childhood to childhood, and so it is in everything where power moves. Our teepees were round like the nests of birds, and these were always set in a circle, the nation's hoop, a nest of many nests, where the Great Spirit meant for us to hatch our children. (in Argüelles & Argüelles, 1972, p. 60)

In time scientific evidence raised questions about assuming the ideal of a circle as a scientific exemplar. Although not a perfect circle, the elliptical design proved to be a better choice when representing the cosmos. Combining the “laws” of heaven and earth, the elliptical dynamic strikingly redefined the “music of the spheres.” It might be said that this new design enhanced the music-like quality of the two realms by virtue of the compelling qualities it contained. Equally compelling is the evidence that the heliocentric option was presented by some before the elliptical rotations were perceived. Indeed, a number of noteworthy ancient and medieval natural philosophers proposed this sun-centered possibility. They include the Ionian Anaximander (611-548 BCE), who postulated a heliocentric universe, as well as Aristarchus, a Pythagorean astronomer who was born in 310 BCE. Their ideas were rejected, however, for a number of reasons.

First, the circular cosmologies appeared to work — at least to some degree. Additionally, heliocentric theories did not seem to fit as well with reality as it was known and experienced. People lived in a world where the empirical evidence seemed to clearly indicate that the sun circled the earth. People saw the sun rise every day and set every evening. This visual demonstration was experiential and offered a convincing demonstration that seemed to confirm that the sun circled around the earth. Thus the visual evidence gave credibility to the circular premise. This

regularly seen occurrence discouraged any kind of underlying symbolic revision.

All of these factors emphasize how dramatic the Newtonian revolution was. The new understanding of the mechanics resolved many of the inefficiencies within the Ptolemaic model in regard to practical applications. To be sure, we could still use the Ptolemaic view today, complete with all of the inefficiencies. Yet, of course, it makes no sense to do so given there are alternatives that work better.¹ Let me underscore that the revision of the cosmological model was difficult, in part, due to the valuation of the circle as a symbol of perfection.

The story that has come down to us is that it took Kepler six to ten years to deduce the pattern that he used to create the elliptical formula. It was not “in the air” when he lived and worked.² Rather, it was quite the contrary. Kepler derived the elliptical formula after studying data about the physical world compiled by the astronomer Tycho de Brahe over twenty years of observing the movements of the planets. It is said that Kepler did not know the formula he derived was that of an ellipse. Although Koestler tends to romanticize this period to some degree, he does nonetheless capture the context of the event when he describes Kepler’s discovery.

After six years of incredible labour, he held the secret of the Martian orbit . . . *But he still did not realize that this formula specifically defined the orbit as an ellipse.* Nowadays, a student with a little knowledge of analytical

¹—Within reasonable limits of accuracy, the fact that the orbit is an ellipse is hardly in doubt, except within discredited or at least unfashionable paradigms such as that of the earth-centered universe. The explanation of an elliptical orbit, however, depends upon the paradigm adopted. Within Newtonian mechanics, it is deduced from the existence of an attractive force between the planet and the sun; the mental image is that of a ball being whirled around on the end of an elastic string. Within Einsteinian relativity, the almost elliptical orbit is a consequence of the curvature of space-time, and the mental picture is of a ball rolling inside a funnel. Different mental pictures lead us to pose different questions." (Cohen & Stewart, 1994, p. 362)

²Einstein used Kepler’s discovery of elliptical rotations to articulate how knowledge cannot advance from experience alone — for it builds on how the inventions of the intellect correlate with observed patterns (Einstein, 1973).

geometry would realize this at a glance; but analytical geometry came after Kepler. He had discovered his magic equation empirically, but he could no more identify it as the shorthand sign for an ellipse than the average reader of this book can; it was nearly as meaningless to him. He had reached his goal, but he did not realize he had reached it. (Koestler, 1959, p. 337)

Once Kepler perceived the elliptical formula he was able to simplify the model. The information at his disposal allowed him to define a model that was empirically based and efficiently defined a self-consistency in the cosmic pattern. What was most attractive about Kepler's work was that the now simplified pattern characterized details that had previously not fit together in any kind of logical way. Thus, Kepler was able to concisely correlate what had previously been only a massive amount of unrelated information. The exceptional aspect of this is that the elliptical model was a radical departure from the principle of uniform *circular* motion that had been considered *self-evident* and *inviolable* from the earliest times.

The precision Kepler's contributions brought to the picture cannot be emphasized enough.

The numerous observations made by Tycho Brahe, with a degree of accuracy never before attained, had in the skillful hands of Kepler revealed the unexpected fact that Mars describes an ellipse . . . the genius and the astounding patience of Kepler had proved that not only did this new theory satisfy the observations, but that no other hypothesis could be made to agree with the observations, as every proposed alternative left outstanding errors, such as it was impossible to ascribe to errors of observation. Kepler had, therefore, unlike all his predecessors, not merely put forward a new hypothesis which might do as well as another to enable a computer to construct tables of the planet's motion; he had

found the actual orbit in which the planet travels through space. (Dreyer, 1953, p. 392)

Once the implicit pattern that none had previously perceived became explicit, the elliptical idea was able to enter the cultural dialogue. What had not even existed in a metaphysical context now was presented in a form that spoke of known relationships within the physical world. In short, *once* the explicit description evolved, the cultural dialogue *expanded* to include ideas on orbits that were not circular. Kepler's contribution, although convincing, was not a slam-dunk. For example, David Fabricus, a clergyman and amateur astronomer who maintained a correspondence with Kepler from 1602 through 1609 (Dreyer, 1953) wrote Kepler:

With your ellipse you abolish the circularity and uniformity of the motions, which appears to me the more absurd the more profoundly I think about it . . . If you could only preserve the perfect circular orbit, and justify your elliptic orbit by another little epicycle, it would be much better. (in Koestler, 1959, p. 353)

In sum, Kepler's insight was not only a personal revelation offered through metaphor. It also included a symbolic representation. He was able to re-present his vision to others and to explain an alternative in greater detail — because others could now go through an exercise he had intuited and also see how the pattern fit the picture. This repeatability made it possible for the idea to be shared — despite the fact that it was a radical departure from all solutions being considered at that time in regard to the cosmological picture. Even still, and even given how precisely the ellipse allowed people to model planetary motion, the idea of elliptical orbits was not unilaterally accepted by his peers. As the Fabricus quote above indicated, many initially reacted to the evidence, rejecting the possibility of the elliptical approach and suggesting Kepler look for a theory that retained the circular model.

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Two points stand out here. First, the new model was not seen as an extension of the “sacred” geometry that preceded the scientific model. Instead, the elliptically based model came to symbolize a difference between scientific/secular and religious perceptions. Second, the new cosmological picture complemented the interest in experimentation that was also taking root at this time. Considering these two points retrospectively raises the question of why science and religion appear to diverge at this point when the religious roots of the Renaissance scientists were so powerfully a factor in creating the symbolic revision of the physical reality.

For example, when Kepler discovered the mathematics he needed to describe the three basic laws that bear his name, he joyfully credited God, saying,

I thank thee, Lord God our Creator, that thou allowed me to see the beauty in the work of creation; I exult in the works of thy hands. See, I have completed the work to which I felt called; I have earned interest from the talent thou hast given me. I have proclaimed the glory of thy works to the people who will read these demonstrations, to the extent that the limitations of my spirit would allow. (in Davis & Hersh, 1981, p. 111)

As Kepler’s words underline, Kepler’s laws, which were the first “natural laws” in the modern sense (Koestler, 1959), were derived in an effort to define the perfection of God’s creation. Moreover, Kepler’s commitment to God’s perfection was so strongly aligned with cultural prejudices that *he, too, ascribed to the circular ideal*. This was why when Kepler discovered that planetary orbits were *elliptical*, he had a hard time accepting this possibility. Yet, eventually, the simplicity and the clarity of the new design won him over.

Newton, who was also a deeply spiritual person, used Kepler’s innovative insight as the foundation for his theories. His cosmological design was much more revolutionary than Kepler’s insight for Newton’s Laws allowed much that had formerly been

defined as if it was of the supernatural to be defined in relation to the natural world. This is the beauty of the Newtonian model that redefines what had been seen as two realms, heaven and earth, each with its own pattern, as one. Through Newton's work the circular Platonic cosmology was re-defined into one pattern. The Newtonian pattern, moreover, treated the phenomena in both the celestial and terrestrial domains as a unity. No longer were there two patterns. No longer was the divine divided from the terrestrial framework.

Yet, again, Newton, who defined the framework that eventually took God out of the physical workings of phenomena, was a deeply spiritual man. He studied nature in order to more fully understand God's creation and God, the metaphor behind the model, was also a symbol to him. God was present in all and all was a symbol of God's presence. This was why God was able to absorb the tensions a model failed to harmonize. Let me stress that it was because God was both a symbol and a metaphor to Newton that Newton was able to see the model and the physical reality as alive. In his view God was immanent within the physical world. He did not live outside of it. Therefore, for Newton, the revised cosmological model could only be about God and the relationship he described using physical phenomena offered him a means to more effectively speak about God's presence and omniscience. The model harmonized God's design *and* pointed to God, the Creator he believed we could never know, despite the fact that Newton's knowledge of Him was so deeply felt that it resolved any inconsistencies the cosmology did not address.

The most important point here is that Newton clearly believed he was delineating *both* a religious *and* a scientific model (Burt, 1954; Koestler, 1959; Thayer, 1974). It was because Newton used God as the keystone for his theory of everything that his model was *both* a symbol and a metaphor. It also *retained* the spiritual dualism of Christianity for the dualism was a part of the overall unity. It was the metaphysical assumption that was needed to articulate that there is an objective

reality created by an unchanging, absolute — God. As Newton wrote:

God is the same God, always and everywhere. He is omnipresent not *virtually* only but also *substantially*; for virtue cannot subsist without substance. In him are all things contained and moved, yet neither affects the other; God suffers nothing from the motion of bodies, bodies find no resistance from the omnipresence of God. It is allowed by all that the Supreme God exists necessarily, and by the same necessity he exists *always* and *everywhere*. . . . As a blind man has no idea of colors, so have we no idea of the manner by which the all-wise God perceives and understands all things. . . . for all our notions of God are taken from the ways of mankind by a certain similitude, which, though not perfect, has some likeness, however. (Thayer, 1974, p. 43-44)

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The irony within this story is that it was in affirming God and God's perfection in the eternal language of mathematics that the godless mechanistic model we ascribe to Modernism became possible. The model *needed* God. God was the point of origin. God was the creator of the symbols used in the model to speak about God's creation and the eternal realm. He was also the symbol that had been created to designate a Creator. Therefore, His realm was assumed to be complete, and was assumed to be beyond human cognizance and the reality in which we conduct our lives.

The physical world, *res extensa*, may have authored God's demise but the mathematicians who are credited with bringing this about sought — and expected to find — broad, profound, immutable, and God-created rational principles either through intuition or immediate sense perception. The scientific

activity of Galileo¹ (1564-1642), Kepler (1571-1630), Descartes² (1596-1650), Huygens (1629-1695), and Newton (1642-1727) was based on the unquestioned assumption of a God-created world. In addition, while this Renaissance approach was developing a perspective that differed from Church assumptions it still reflected the educational base and the logical approach of medieval Scholastics.

The key point within this is that the Renaissance symbolologies retained the Greek principle of unity and the dualism of the theistic Judeo-Christian tradition. The difference between the Modern synthesis and the Christian synthesis was that the Modern redefinition of the Christian marriage of the Greek underlying picture of unity with the Judeo-Christian God added an experimental element. Therefore, the secular ideas redefined God's supremacy in Platonic terms assuming that "the knowledge at which geometry aims is the knowledge of the eternal" (in *The Republic*, VII. 527, Hamilton & Cairns, 1989) which was, of course, perfect. Being scientific and philosophical, the revised symbolic language was not applied to relationships among spirit, nature, and the individual — which still were defined as somewhat inferior to that which was purely divine. This meant that the Renaissance scientists were theologians, with nature instead of God as their subject.

¹While Galileo challenged all to look through his telescope to see that the moon was rough, to see that Jupiter has moons, and to see the spots on the sun; he still saw mathematics as the key to actually comprehending the relationships among these phenomena and their motions as they changed. "In 1623, the great Italian scientist Galileo wrote: 'That vast book which stands open before our eyes, the universe, cannot be read until we have learned the language and become familiar with the characters in which it is written. It is written in mathematical language, without which means it is humanly impossible to comprehend a single word.' " (Jacobs, 1982, p. xii)

²Descartes wrote, "We will not, therefore, perhaps reason illegitimately if we conclude from this that physics, astronomy, medicine, and all the other sciences that have for their end the consideration of composite objects, are indeed of a doubtful character; but that arithmetic, geometry, and the other sciences of the same class, which regard merely the simplest and most general objects, and scarcely inquire whether or not these are really existent, contain somewhat that is certain and indubitable; for whether I am awake or dreaming, it remains true that two and three make five, and that a square has but four sides; nor does it seem possible that truths so apparent can ever fall under a suspicion of falsity [or incertitude]." (Descartes, 1974, p. 115) Descartes also said of the mathematical method, "It is a more powerful instrument of knowledge than any other that has been bequeathed to us by human agency as being the source of others." (Kline, 1982)

Mathematics, the symbolic system of choice for Renaissance scientists, made this possible. The mathematical symbols rested upon their indubitability, being God-created. Therefore, despite the fact that many people credit the rise of modern science to the introduction of experimentation on a large scale, and believe the mathematics served only occasionally as a handy tool (Kline, 1953), the true situation was that the new vision was a mathematically redefined one. The transcendent domain remained in place because the mathematical symbols had been created there — not here on earth. Moreover, with the transcendent realm holding the unity together, the model could only be philosophically dualistic.

This dualism, however, was not the dualism of the medieval religion. The Cartesian duality supported two realms of Nature — one of spirit (which included mind) and one of matter. God's world, however, continued to transcend both. God remained poised above, still seen as the Creator of all. This philosophical foundation allowed "matter" and "spirit" — or science and religion — to coexist. Essentially, the Church retained "spirit". Science was freed to pursue the now spirit-less and value-less matter of the physical world. In this framework scientists could, of course, pursue science without having problems with the religious authorities.¹ Therefore, humans could look more deeply into the reality of "terrestrial" nature without the fear of execution or excommunication.

The problem was that the same God supported the scientific philosophy and the religious philosophy and the two did not align — especially in regard to how they promoted

¹Examples of people who had problems with religious authorities were plentiful at that time. Bruno, for example, was executed. The Church condemned Galileo. What was especially tragic was that Galileo, who was an old man, was also forced by the Church to deny his beliefs. Galileo said, "I, Galileo . . . kneeling before you, Most Eminent and Reverend Lord Cardinals Inquisitors—General . . . having before my eyes and touching with my hands the Holy Gospels, swear that I have always believed, do believe, and by God's help will in the future believe all that is held, preached, and taught by the Holy Catholic and Apostolic Church . . . I must altogether abandon the false notion that the Sun is the centre of the world and immovable and that the Earth is not the centre of the world and moves and that I must not hold, define, or teach in any way whatsoever, verbally or in writing, the said false doctrine . . . [which is] contrary to Holy Scripture . . ." (in Koestler, 1959, p. 610)

approaching *the* Truth in a world where it was believed there could only be *one* correct version of truth. To complicate the situation more the Modern scientific version of reality did not define two concrete domains of reality and, therefore, the philosophical dualism included an inexplicable element. Nonetheless, the Modern world was still God-created for God had set the mechanistic universe in motion. He, however, was reduced to a point of reference. He became *only* the metaphysical force behind the world. He retained His position of authority because He was defined as the origin. He was the first cause. He was the reason for the cosmos, The Author of Nature. Yet, all in all, He was a stillborn God¹ (Gilson, 1941). He had set the universe in motion and then became almost unnecessary to how the (mechanistic) universe functioned.

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I noted earlier that the new cosmology was also only a part of the story of how the symbolic ideas of the culture changed and a new way of ordering reality took form. The Black Plague offered a more direct challenge to religious faith. In the cultural climate the plague was as evident as the mathematical ideas and both were also supported by the ideas of people like Francis Bacon, who I might add was not a mathematician.

One of the most striking aspects of all Bacon's ideas is the new position he assigns to metaphysics . . . redefining metaphysics itself as the basic science of material physics . . . he described three levels of natural inquiry: the collection of scientific data; the investigation of particular natures and causes; the clarification of the fundamental forms of

¹-"Descartes has come after the Greeks with the naïve condition that he could solve, by the purely rational method of the Greeks, all the problems which had been raised in between by Christian natural theology. . . what he did, at least in metaphysics, was to restate the main conclusions of Christian natural theology as if Christian supernatural theology itself had never existed . . . the essence of the Cartesian God was largely determined by his philosophical function, which was to create and to preserve the mechanical world of science as Descartes himself conceived it . . . the God of Descartes was a stillborn God." (Gilson, 1941, pp. 83-88)

things. His other striking innovation is a sharp separation of human truth from the dogmas of revealed religion. He allows reason only a limited function in deriving practical consequences from the divine mysteries . . . [Bacon's] intention seems to have been to lay the basis for the study of individual differences, by pointing out the sources and the fact of variety in human thinking about the nature of reality. (McLeish, 1991, pp. 159-161)

The new tools this kind of approach generated — like the inductive method, observation, and experiment — helped foster a new vision of life and reality. This fit in well with the cultural experience because the people were feeling the impact of what it means when a process of organization cannot solve the most pressing and vital problems of the culture. They were also showing that when this is the case there is reorganization (Leshan & Margenau, 1982). In part this stems from a need to learn to see life in a new way in order to resolve problems *in the environment* — problems not resolved by previous solutions. The Black Plague was this kind of problem.

The plague exposed limitations within the accepted ideas about reality. After the disease killed more than one fourth of the population of Europe it was painfully clear that the medieval approach was completely ineffective in doing anything about it. Every technique and all of the symbols known to the medieval world were employed in the attempt to control the plagues — prayer, ecstatic mysticism, scapegoating, medicine based on sympathetic magic, and so forth. The continuation of the massive death, however, led people to ask why faith proved inoperative in dealing with the disease. The primary conclusion was that if the culture was to be able to address and survive catastrophes like the Black Plague in the future the people needed better methods for studying how to understand and control the outside environment. The result was another incentive to more fully explore Nature, *res extensa*.

The general population did not put faith and belief aside. For most, God continued to ‘exist’ and continued to be perceived as transcendent. What changed was that the focus in human experience moved to the domain in which we live. Essentially, the transcendental ideals of the Middle Ages were de-emphasized when humans began to look at their social condition and began asking how they could — through their active efforts — effect change. The architects of the Modern vision, like Descartes and Bacon, facilitated this by giving humans the freedom to more openly engage with both life and nature. By not contradicting the basic religious dogma, these visionaries straddled some of the religious restrictions of their day, allowing them to avoid the fates of other scientists who challenged religious truth. Their “compromises” in regard to the religious establishment seeded the story that unfolded.

Now, many see the Modern revisions as the point at which science and religion drew apart — another “fall” for humanity. For example, Carl Jung saw the Renaissance as a period that had moved people away from the felt meaning the Christian symbols had given them. Jung believed the Renaissance changed the human relationship to the spiritual significance of symbols and he expressed the view that when the Christian view was lost, secularization took meaning out of the human mythology.¹ Aniela Jaffé, one of Jung’s disciples, wrote about this in terms of the so-called schism between science and the Church.

In spite of the far-reaching changes in art, philosophy, and science brought about by the Renaissance . . . the center of religious man remained anchored on a higher, more spiritual

¹According to Aniela Jaffé, “Jung attached special importance to the symbolism of the Holy Ghost, because he saw in it a starting-point for the further development and reactivation of the Christian myth, which falls on increasingly deaf ears. ‘Christianity slumbers and has neglected to develop its myth further in the course of the centuries . . . Our myth has become mute, and gives no answers.’ This protest of Jung’s is scattered throughout his works, since he had found as a doctor how gravely the loss of the myth affects the psyche.” (Jaffé, 1971, p. 115)

plane than that of earthy man who had tuned his back to nature. Thus a rift arose between man's traditional Christianity and his rational or intellectual mind. Since that time, these two sides of modern man have never been brought together. In the course of the centuries with man's growing insight into nature and its laws, this division has grown wider; and it still splits the psyche of the Western Christian in the twentieth century. (Jaffé, 1964, p. 273)

This perception that people turned their backs to nature overlooks that people also turned toward nature.¹ This fails to adequately consider *why* people initially began seeking for ways to be more sensitive to their living situation and only later offered ideas of conquest and mastery. When coupled with (1) the perception that we need to re-spiritualize our lives in the postmodern world, and with (2) the idea that Cartesian dualism created a split between spirit and matter, we often overlook that the spirit of mathematics changed how the symbolic language was used when it redefined the cosmological picture. Even still, the mathematics was not seen as a human invention, but more akin to revelation.

Mathematics is more than a method, an art, and a language. It is a body of knowledge . . . but it contains no truths. The contrary belief, namely that mathematics is an unassailable collection of truths, that it is like a final revelation from God such as religionists believe the Bible to be, is a popular fallacy most difficult to dislodge. Up to the year 1850, even mathematicians

¹“A major positive doctrine of the Renaissance proclaimed the idea of “back to nature.” Every variety of scientist abandoned the endless rationalizing on the basis of dogmatic principles vague in meaning and unrelated to experience, and turned to nature herself as the source of knowledge . . . The back-to-nature movement had hardly been launched when a few scientists who were ardently engaged in it conceived an even more revolutionary idea. Whereas the Greeks and early Renaissance scientists sought knowledge of nature, Francis Bacon and René Descartes dared to suggest mastery and dreamed of man's conquest of the whole natural world. . . . The challenge thrown out by Bacon and Descartes was quickly taken up, and scientists plunged optimistically into the task of mastering nature.” (Kline, 1952, p. 104)

subscribed to this fallacy . . . [i]n its broadest aspect mathematics is a spirit, the spirit of rationality. . . . In fact, a person possessed of the knowledge Newton had at the height of his powers would not be considered a mathematician today for, contrary to popular belief, mathematics must now be said to begin with the calculus and not to end there. (Kline, 1953, pp. 9-11)

In sum, the culture changed when mathematical ideas were fueled by the impact of natural disasters like the Black Plague. Retrospectively we can see how the “solutions” weighed in favor of an eventual spiritual crisis because two symbolic languages were now defined to reconcile the overall spiritual, material, religious, and social requirements of our lives. These two symbologies, however, were not reconciled with one another in a way that addressed the cultural assumption that there could only be one correct version of truth. This critical oversight not only made it difficult to continue to consider what it means to bring new possibilities into our lives, it also, to my mind, stifled our understanding of what we bring to our lives when we continually revise our symbolic assumptions and continually integrate the new metaphoric needs that develop as we integrate each shared symbolic revision.

Chapter Nine

Art: The Province of Every Human Being

Art when really understood is the province of every human being. It is simply a question of doing things, anything, well. It is not an outside, extra thing. When the artist is alive in any person, whatever his kind of work may be, he becomes an inventive, searching, daring, self-expressive creature . . . Where those who are not artists are trying to close the book, he opens it, shows there are still more pages possible.

Robert Henri
The Art Spirit

Yes, and if oxen and horses or lions had hands,
and could paint with their hands, and produce
works of art as men do, horses would paint the
forms of the gods like horses, and oxen like
oxen, and make their bodies in the image of
their several kinds.

Xenophanes

Several difficulties embedded in the Renaissance solutions bring art to mind. In part this is because artists, like scientists, use symbols and metaphors to envision new possibilities. Moreover, artmaking, like science, religion, and philosophy has been a way to discover, share, order, and invent ways to explore our psychological and physical experiences. While the origin of art will no doubt forever remain shrouded in mystery, we do know that art was one of the first symbolic languages humans developed to probe and define the meaning, the value, and the suffering of life. The earliest art was used to propitiate powerful forces and to express the wonder and mystery within the human experience.¹ These religious roots of art remain with us. Artistic motivations have expanded as well.

Still, many continue to use art in relation to spiritual aspiration and use artistic language to speak about creativity, inspiration, and ritual. In doing so, perhaps because of art's religious foundations, we can overlook that art developed with religious intention, and, like our relationships to religious intention, how we define and use art has changed. This is one reason the history of art offers a chronology and a good symbolic

¹—"It was during the last stage of the Paleolithic, or Old Stone Age, 20,000 years ago, that we encounter the earliest works of art known to us. These, however, already show an assurance and refinement far removed from any humble beginnings. Unless we are to believe that they came into being in a single, sudden burst, as Athena is said to have sprung full-grown from the head of Zeus, we must assume that they were preceded by thousands of years of slow growth about which we know nothing at all. At that time the last Ice Age was drawing to a close in Europe . . ." (Janson, 1970, p. 18).

touchstone for speaking about the changing relationship between humans and the environment (Gablík, 1977).

Here I am defining art, be it static or dynamic,¹ as an experience that can include invention, innovation, and symbolic representation. This means art is a form of creativity that is not simply about making objects or performing rituals. It is a creative dynamic, one that includes the ability to make subtle discriminations — be they emotional and/or aesthetic (see Arnheim, 1974; Gablík, 1977; Langer, 1942; Winner, 1982). Therefore, an artistic approach includes a cognitive element, an ability to project consciousness, and a quality of attention. In addition, art takes form on many levels. It allows an artist to transform images, concepts, contents, and energies in ways that show “abstraction is an integral aspect of all art, insofar as it implies the simplification of perceived elements and the condensation of ideas and feelings into a formal pattern” (Argüelles, 1975, p. 189). This means art is not simply an emotional expression. Nor is art merely a form of leisure, play, or amusement (Winner, 1982). Artmaking is an experience that has the capacity to model how the rational and intuitive approaches interrelate.

Looking specifically at art in the West we find the development of art intertwined with our Greek foundations. This includes the early Greek perception that art was a gift from the gods and a ritualistic means of aligning with the gods. It also includes the classical Greek philosophical and scientific legacy where the emphasis was on beauty, order, harmony, proportion, and limit. In addition, the artistic impulse of Greek classicism complemented that of science and philosophy. It was not specifically focused on the religious or the political. This, in effect made Greek art the first “free” art. It also separated Greek art from art conceived primarily to align religious and social concerns.

¹Painting is a static art. It does not move. Dance is a dynamic art.

What is key here is that classical Greek art, like Greek science and philosophy, was charting a new path. Greek efforts produced a wide range of options in regard to the value of art, comparable to the many opinions about art in the postmodern world. One significant difference between the two cultures was that the Greeks had no separate term for fine art. Nor did they have a reverential conception of “fine art.” *Techné*, which was often associated with art, meant, more precisely, the orderly application of knowledge for the purpose of producing a specific, predetermined product¹ (Pollitt, 1972). This definitional distinction takes on new meaning when we consider how much exceptional art the Greeks produced and the ongoing conflict between poetry and philosophy Plato talks of in *The Republic*.²

Plato, of course, banned the artist from the Republic, believing that they mislead people and turned them away from a reasoned engagement with their experience.³ Since Platonic ideas developed out of the Homeric religious experience it is important to remember that artists were banned from the Republic because Plato was criticizing the way the poetry of the oral tradition discouraged developing a larger capacity for differentiated

¹In Greek, the word *téchne* covers art, craft, and skill. (See Murdoch, 1977 p. 1)

²“Let us, then, conclude our return to the topic of poetry . . . affirm that we really had good grounds then for dismissing [the Muse] from our city. . . . And let us further say to her, lest she condemn us for harshness and rusticity, that there is from of old a quarrel between philosophy and poetry”(Hamilton & Cairns, 1989), Book X of *Republic* 607b. p. 832). In all fairness it should be mentioned that Aristotle was more sympathetic to the arts in some ways. For Aristotle poetry and myth were more important than history because “the one describes what has happened, the other what might. Hence poetry is something more philosophic and serious than history; for poetry speaks of what is universal, history of what is particular.” (*Poetics* 1461 b, 3. in Bambrough, 1963)

³Plato writes, “Then the mimetic art is far removed from truth, and this, it seems is the reason why it can produce everything, because it touches or lays hold of only a small part of the object and that a phantom, as, for example, a painter, we say, will paint us a cobbler, a carpenter, and other craftsmen, though he himself has no expertness in any of these arts, but nevertheless if he were a good painter, by exhibiting at a distance his picture of a carpenter he would deceive children and foolish men, and make them believe it to be a real carpenter. . . . When anyone reports to us of someone, that he has met a man who knows all the crafts and everything else that men severally know, and that there is nothing that he does not know more exactly than anybody else, our tacit rejoinder must be that he is a simple fellow, who apparently has met some magician or sleigh-of-hand man and imitator and has been deceived by him into the belief that he is all-wise, because of his own inability to put to the proof and distinguish knowledge, ignorance, and imitation (Hamilton & Cairns, 1989, Book X of *The Republic*: 598c,d).

learning. Plato believed poetry encouraged the trance-like and hypnotic responses of an oral culture (Havelock, 1963).

The concept of “fine art” was a Renaissance development. Initially it was a critical term used to denote activity that was believed to underline the primary human impulse toward expression. The term was developed to acknowledge the human ability to intuit or perceive experience as a whole. From this perspective art — or I should say “fine art” — became the discipline that offered a marriage between psychic impulse and technical implementation (Argüelles, 1975). This critical definition stressed functions of logic, analysis, and mathematics. As such, the formal discipline of art was seen as the technique or method that physically actualized the impulses emanating from the psyche.

Definitionally, Renaissance art was often categorized as a specific quality of human behavior. “Fine artists” were keepers of vision and human expression. In time, as vision and expression were culturally devalued in favor of technique, fine art came to be downgraded in the cultural scheme of things. Art came to be seen as representative of human emotional expression — which was seen as secondary to methods that allowed technological focus. Society encouraged people to express themselves in certain (rational, logical) ways. Thus the process, sensitivity, and emotional engagement attributed to artists was seen as a limitation. The result was that it was not always easy to intertwine artmaking with the cultural emphasis on more practical ways of doing things.

The impact of this position crystallized at the beginning of the nineteenth century with the advent of ideas joining art with Romanticism. Romanticism was a reaction to and a fusion of the two definitions of classicism that had evolved. Historically classicism had come to mean “of or pertaining to Greek and Roman culture” (Pollitt, 1972, p. 2). In a qualitative sense classicism was the term used to express recognition of a standard of perfection within a particular genre. The Romantic sensibility fused these perceptions in a *stylistic* way. The result was that the

technical classicism in art began to be defined as if it were only technique, while the art preferred by the Romantics included an emotional quality. This separation of the emotional and the technical reversed the Platonic concern. While Plato had favored a logical rather than an emotional approach, the Romantics saw a conflict between emotion and reason, and valued the emotional.¹

With the qualitative difference fused into the historical one the stylistic model of the Renaissance emphasized that art was *not* science. This picture also *defined* the psychology of the “Great Artist.” In the Renaissance, Great Artists were seen as the equal of philosophers (who were masters of the word) and the polar opposite of scientists (Argüelles, 1975). Unlike the more anonymous medieval craftspeople, artists were now independent individuals. This perspective often emphasizes that artists were living expressions of the developing social devaluation of an emotional orientation within a rationally and technologically oriented culture,² and often obscures that at the time the Renaissance was emerging, artists, like other Westerners, were developing a capacity to understand the world in new ways. Human creativity was evident in all fields in the Renaissance world. Creative vision was a cross-disciplinary phenomena and the dialogue this engendered deepened cultural perceptions as it fostered a cultural climate where people were doing many kinds of things creatively.

Art, for example, contributed to the inventions of innovative techniques that yielded analytic and projective geometry and allowed new perspectives on spherical space to be

¹“In the world of Goethe and Byron it was recognized that the measured, restrained, balanced, and orderly nature of Greek and Roman poetry contrasted with the more openly enraptured effusive art of the Romantic era. “Classical” came to imply a style that was highly formal and ordered as opposed to one which was intensely “emotional.” (Pollitt, 1972, p. 2)

²“ . . . the transformative visionaries tend to stand out as being artistically inclined simply because of the analytical bias of the *téchne*-oriented European civilization. Indeed, one of the outstanding features of this civilization is the antagonism that develops between what comes to be called science and art. The former term literally means “knowledge”; the latter, “a way of doing things.” If wisdom is the union of these two, their separation implies a loss of meaning, a fall into absurdity”. (Argüelles, 1975, p. 16)

modeled in the sciences. In addition, art furthered mapmaking, biology, and physics (Steadman, 1969). In sum, if the Renaissance is narrowly defined in terms of method and expression, art was a part of the overall cultural development. If this narrow description is extended to include the qualities of innovation and invention that were also a part of the Renaissance environment, art remains a part of this picture.

[In the Renaissance much] of that which was later isolated as “natural science” came into being in artists’ studios. And, perhaps the most important point, the rise of those particular branches of natural science which may be called observational or descriptive — zoology, botany, paleontology, several aspects of physics and, first and foremost, anatomy — was . . . directly predicated upon the rise of representational techniques . . . In placing ‘perspective on a truly scientific basis’ — conceiving the painting ‘as a plane cross section through the pencil or rays connecting the eye of the painter . . . with the object or objects seen’ the artist laid the foundation of ‘both projective and analytical geometry.’ (Steadman, 1969, p. 210)

Yet, as specialization developed, so did the prejudice toward science and against art — which I must note is being re-evaluated across the board today. This grew out of the impression that artists move in the world of image, metaphor, emotion, and imagination, while physicists measure, quantify, analyze, and objectify the nature of life. The irony within this is that in the Renaissance world — as in the world of ancient Greece — doing things and developing one’s knowing creatively were intrinsically related. This was evident in how the models and ideas of these periods did not merely define and synthesize assumptions. They also broadened expression. People used their creativity to develop capacities that, in turn, expanded their expressions. What is even more important is that people

communicated about new insights in ways that allowed them to harmonize the patterns of life on a larger scale.

This is evident in the cosmological picture where information about the physical world — that had previously appeared to be unrelated — was re-stated in a way that allowed humans to develop useful applications in travel, medicine, and in other areas of life. My point is that just as we can ask why the heliocentric theories offered by earlier thinkers was so readily put aside until Newton created a precise rationale for it, in art we can ask why is it that Greek art, for example, appears to move closer and closer to a three-dimensional technical rendition of nature but never quite defines it with the clarity, complexity, and precision evident in Renaissance art. Why, too, did artists after the Renaissance use Renaissance techniques without challenging their underlying assumptions until the end of the nineteenth century? And where did the Renaissance techniques come from?

Why . . . were artists in the Renaissance able to construct an organized spatial system which artists before then had been unable to do, and which appears to us now so simple, so clear, so plausible, and even self-evident? Where did this ability, which was not there at the start, come from? Why was it not there at the start? (Gablík, 1977, p. 10)

These questions offer a means for conceptualizing that our symbols and metaphors can change. The key is allowing them to change. What is even more important is conceptualizing that as they change they can become more useful to us in the realm of our living experience. In other words, our verbal and non-verbal languages are not simply signs nor are they eternal unchanging forms. They are also living expressions that contain the life we give them. They can grow when we use them to foster growth. They have the capacity to represent our metaphors in ways that engender more informational exchange among us and to put us in a position to reach for new metaphors to define what our symbols do not express. In this sense symbolic evolution is

the human story in action and can be applied to ideas like paradigms, creativity, and learning.

The history of art is, of course, a part of this story for it is a part of the process. One of the more intriguing aspects of art history is that it underlines that symbols in art are often seen in a narrow sense, one which overlooks that artists not only use symbols, they also create symbols. Like mathematicians, when artists re-present harmonies and tensions they often invent new forms of expression to speak about things that have not previously had a context in the human environment. When the art is successful in capturing unique perceptions, personal metaphors are formalized. Thus, insights are “captured” and communicated to others. This interpersonal representation makes personal metaphors symbolic because they give an artist a means to *speak* about what it seems cannot be stated. It is stated because the artist is making something envisioned visible. The symbol is something we can look at repeatedly — and marvel at how the form can continue to “speak” to us. These symbols can be innovative creations.

Contextualizing this is important — especially when we suggest a schism developed with the onset of the Renaissance and when we see this schism in terms of a rejection of creativity, artmaking, and spirituality. Since this is often the conclusion used to validate premodern approaches to life it is especially important to first contextualize it and to then see its limitations. This is especially critical in regard to art for it is especially easy to radically misconstrue issues in regard to art and creativity in all eras.

The ease with which we confuse issues related to art is particularly evident when the Renaissance tradition is denigrated in favor of premodern and alternative approaches. These blanket comparisons ignore incongruities. For example, *how* and *why* the formal tradition in Western art has always *aligned* with the cultural dialogue in science, religion, and philosophy is largely ignored. Also downplayed are indications that the formal traditions in art, as we define them retrospectively, are not

representative of earlier traditions. In addition, particularly in later periods, we find that the artists who are best known today are not representative of what was esteemed in their time. Moreover, many of the artists now highly respected — like Vincent Van Gogh, Paul Gauguin, and Paul Cézanne¹ helped created the formal tradition in art and yet lived in a world in which it often seemed they had no place and no function that was recognized by the community.

The artist Richard Diebenkorn effectively pointed out the complexity of art interpretation, while making the point that it is easy to confuse perspectives in art. He did this when he refused to accept an invitation to include his work in a show on spiritual art.²

The overall impression I get from your *alternative* interpretation is that you give it all to the mystics and spiritualists in regard to the genesis and development of abstract and non-objective painting. For me, in large part, the prospectus shapes up as a kind of refutation of the traditional viewpoint rather than a much needed illumination of the total picture . . . abstract painting *was a formal invention* . . . What seems to get lost in your prospectus is that the formalist line from Cézanne through Cubism arrived at a point on the threshold of total abstraction wherein it was implicit, and for the most astute artists a clear option . . . From my view, in about 1910, advanced artists were presented, so to speak, with a vehicle, which in

¹Paul Gauguin was brought up in luxury, became a successful stockbroker, and gave it up to become a painter who insisted on going his own way. He wrote his wife, "I often go three days without food . . . but this iron body of mine refuses to die." Eventually he moved to Tahiti where he did die — a sick and discouraged artist (Hanson, 1955). The eccentricity of Paul Cézanne was not nearly as romantic. He was a hard worker who traveled little. Nonetheless, he was so strange and unacceptable to the people of Arles, where he lived, that small boys often threw stones at him (Rilke, 1952).

²Diebenkorn was attempting to outline why he was declining an invitation to participate in an 1985 exhibition, at the Los Angeles Museum of Art, highlighting the spiritual, mysticism and abstraction in art from 1890-1985. The purpose of the exhibition was to show the genesis of modern art through spiritual movements and the desire of spiritual artists to express spiritual, utopian, or metaphysical ideas that were, supposedly, not expressed in traditional pictorial terms.

the case of mystics and spiritualists was made to order for their expressive needs. (Tuchman, 1987, p. 17)

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This confusion of perspectives in art is complicated by many factors. One is that there are many perspectives in regard to what art and creativity are. For example, some suggest that creativity is about extraordinary insights (Ghiselin, 1952). Some point out that creativity is an extension of our normal mental capacity (Weisberg, 1993) and still others see creativity as a tool in therapy and an element we can turn to in order to facilitate integration (London, 1989).¹ In addition, “The very word “creativity” is a huge concept trap in the English language. It covers everything from just making something happen (like creating a mess) to artistic creativity, to mathematical insights, to finger painting by children” (de Bono, 1991, p. 105).

These various opinions underline that there are many approaches we can apply when we discuss the purpose and intention of artmaking. The historical scenario offers more options still. For example, as Claude Lévi-Strauss pointed out, a major difference between premodern and modern perspectives toward artmaking can be summed up by noting that primitive art forms served to carry out the traditions of the tribe; and as Howard Gardner responded after reflecting on this, “In some tribes an artist trying to make something new could get himself

¹ Albert Einstein, often considered one of the most creative people of all time, claimed he got his best ideas in the morning while he was shaving (May, 1975, p. 67). Einstein himself said in 1953: “I know quite certainly that I myself have no special talent. Curiosity, obsession, and dogged endurance, combined with self-criticism, have brought me to my ideas. Especially strong thinking powers (“brain muscles”) I do not have, or only to a modest degree. Many have far more of those than I without producing anything surprising.” (Briggs, 1990/1988 p. 21). I might add that I recently read that Einstein needed to keep his address pinned inside his coat so that if he got lost he could be directed home — although he both lived and worked on the Princeton campus. All of these examples lead me to believe that he didn’t see creativity as something other than the life he knew. Rather, his creativity was a way of living and it was a way that was tied into having a mind that had the ability to be in a way that allowed unusual ideas to emerge.

killed” (Briggs, 1990/1988, p. 123). More specifically, the primitive ritual served to align individuals and the group with the sacred dimension as the culture sought to come to terms with worlds that were seen as omnivalent, full of subtleties and hidden realities. This creative engagement was meant to be experienced in terms of religious rituals similar to the Hindu fire ritual discussed above. These rituals served the purpose of connecting one with what anthropologist Mircea Eliade called “sacred space” and “sacred time.”

This kind of ritualistic expression was the nature of the fire sacrifice. It discouraged individuals from a path of discovery because the focus was on exactitude, or “correctly” performing specific rituals. It *meant*, “doing something correctly.” In art an emphasis on “correctness” — even for the purpose of aligning the human experience with the cosmic dimension — is not an art motivated toward innovative discovery or symbolic invention. It is an art which encourages the kind of blindness found in Kuhnian paradigms because people are reaffirming the worldview of a group, an assumed “universal,” and aligning all into a social matrix predicated on this worldview and its very specialized tradition. It is the group hypnosis found in the poetry of the oral traditions that led Plato to favor logic and reason.

It should be noted that differences in approach are often framed in terms of science or religion. Yet, as the comparisons between Kuhn and Plato show this is not a complete picture; a pre-scientific tradition is apt to use religious techniques to align the social traditions, and the scientific dialogue is premised on a belief that one should question everything — even if the result often ends up confirming the ideas of a consensually accepted paradigm. There is a certain irony to this because Plato had one foot in each camp. On the one hand, he laid the foundation for science and natural philosophy. On the other hand, he used a religious approach in doing so. By this I mean that his technique and his assumptions stem from a vision of truth that is, in principle, not falsifiable. It is a revelation that has a certitude that is unquestionable. When mapped onto science it promotes

looking at the questions of science in ways that affirm assumptions (e. g., the circularly-based, geocentric Ptolemaic cosmology). At the same time, even given this, his presentation of his vision was creative. Writing philosophy that is akin to poetry, he offers metaphors to show the world he envisions. His artistry brought a literate rationality to poetry that also evolved art, poetry, and philosophy. Just as his certitude classifies his philosophy as one that uses a religious approach his ideas underline that art evolved in more than one way. While Plato disliked art because of how it was used to educate the community and mold emotions, he also was instrumental in the process that showed art was developing the capacity to envision other possibilities. For example, by the time of Plotinus (205-270 CE) people believed art could supply something that was lacking. This idea was an innovation. In the words of Plotinus, “[i]f one attempted to belittle the arts by saying that, in creating, they imitate nature, the answer should be that . . . the arts create many things by themselves. Where something is lacking, they supply it, because they own beauty” (Plotinus, 1991, V: 8. 1).

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These various scenarios raise various questions. For example, what do we mean when we speak about art? Why have people denounced and cherished art throughout time? Why have many artists shown that art is not about making things for which there is a market because they often bring things into the world simply because they cannot be stated in other ways? Why have artists shown that art probes the mysteries of life, while also showing that some artists have become so lost in mystery and fantasy that they create worlds that are more attractive to them than the world that includes others? By extension, why is it that when the world of art is the means through which one loses touch with the community, the problems of art and creativity come into focus from a perspective that may be difficult for both the individual and for the community?

This last question again brings Plato to mind because Plato, who had a creative mind and was in awe of artistic inspiration in the sense that he saw it as divinely inspired, had reservations about art — especially in relationship to the value he placed on a moral purpose. Plato believed artistic inspiration was often undependable, base, or imitative. He also felt artists produced secondary forms¹ and that when art was reduced to *mimesis* artists frequently became so lost in their expressions that their work evolved without a *relationship* to the needs of the community and without personal *grounding*. Plato's concern was that this sometimes led artists to become lost in the world of shadows — rather than moving them forward on a path that could lead to higher levels of awareness.²

Art and the artist are considered by Plato to exhibit the lowest and most irrational kind of awareness, *eikasia*, a state of vague image-ridden illusion; in terms of the Cave myth this is the condition of the prisoners who face the back wall and see only shadows cast by the fire. Plato does not actually say that the artist is in a state of *eikasia*, but he clearly implies it, and his whole criticism of art extends and illuminates the conception of the shadow bound consciousness. (Murdoch, 1977, p. 5)

Many continue to express these concerns. Carl Jung, for example, offered a more contemporary point of view. Having

¹"Suppose then there were a man so clever that he could take all kinds of shapes and imitate anything and everything and suppose he should come to our city with his poems to give a display, what then? We should prostrate ourselves before him as one sacred and wonderful and delightful, but we should say that we cannot admit such a man into our city; the law forbids, and there is no place for him. We should anoint his head and wreath about it a chaplet of wool, and let him go in peace to another city; but ourselves we should employ the more austere and less pleasing poet and storyteller, for our benefit." (Plato, *The Republic*, Book III (398B); Hamilton & Cairns, 1989)

²Plato's point was that by encouraging the audience to identify with the performance the actors encouraged people to believe in their performances, which were not reality. The actors also encouraged the people to become emotionally involved with the performance. This loss of objectivity, in Plato's view, was not a comment on the artist's creative power. It was a comment on the artist's power to make the audience sympathetically assume the roles of characters. In Plato's opinion this taking on of these identities was not only imitative, it also did not enhance their ability to genuinely know and rearrange their lives (Havelock, 1963).

used artistic symbols to go through his individuation process Jung believed creativity was instrumental to a process of healing and integration. This is one reason many who see creativity as an important experience to bring into all of our lives often turn to Jung's writings. Yet even Jung pointed out that artmaking was not a guarantee of transformation. In speaking about this in *The Undiscovered Self*, Jung writes about modern art and what we find in its symbology.

Modern art: though seeming to deal with aesthetic problems, . . . is really performing a work of psychological education on the public by breaking down and destroying their previous aesthetic views of what is beautiful in form and meaningful in content. The pleasingness of the artistic product is replaced by chill abstractions of the most subjective nature which brusquely slam the door on the naive and romantic delight in the senses and their obligatory love for the object. This tells us, in plain and universal language, that the prophetic spirit of art has turned away from the old object relationship and towards the — for the time being — dark chaos of subjectiveness. Certainly art, so far as we can judge of it, has not yet discovered in this darkness what it is that holds all men together and could give expression to their psychic wholeness. Since reflection seems to be needed for this purpose, it may be that such discoveries are reserved for other fields of endeavor. (Jung, 1958, p. 122)

Like Jung, Peter London, a painter, professor of Art Education, and an art therapist, suggests visual expression can be a medium of self-transformation. London talks about how art is a tool that facilitates people in speaking about the world as it is and in creating a world of their own choosing. From London's perspective art is an engagement with the creative process and the creative process itself is a means of personal and artistic transformation. This transformation brings about substantial changes not only in an individual's art, but also in the quality of

his or her life. London believes integrating this “evolved self” with familiar companions and settings requires delicate care, especially in a world where so many who believe they have found their original, creative self, has been covered over by secondhand ideas, borrowed beliefs, and conditioned behavior of a group consciousness (London, 1989). Therefore, London’s approach focuses on allowing people breadth to become *more* themselves. He does not simply attempt to achieve a discovery process of discovery. He also believes that this achievement is a part of a genuine expansion and complexification process. London’s laudable goal is to enhance a personal appreciation of one’s authentic experience.

Without an unflinching sense of self, the work will ring hollow and will remain unconvincing. Unless one wanders into territory that is perplexing, mysterious, overwhelming, the work will be pedestrian and predictable, and so will we . . . the creative encounter must be discovered and employed . . . In pursuing a vital confrontation with life and our own creativity, we are not interested in putting art and ourselves in the service of pretty things or novel things, or even in the mere exposure of ourselves. We want to reclaim the actual power of art. Through the creative encounter we seek to facilitate our private and communal evolution so that we may become who we prefer to be. (London, 1989, p. 4-5)

Others, like Ken Wilber, talk about the artistic enterprise in terms of spiritual enrichment. Wilber expresses disappointment in how history has spoken about art and its spiritual possibilities. His view is that the next great movement in Western art lies waiting to be born because the spiritual quest, to this point, has lacked precision, focus, and a contemplative method or technique. This handicap, in Wilber’s opinion, has led artists only to the threshold.

. . . the pioneering effort [in art] has just begun
. . . when it comes to the spiritual realm their

efforts strike me as heroic but very fledgling and even infantile. . . . The great thrust of modern art has been to move from body to mind, and there it has succeeded admirably. But as it attempts to move from mind to soul and spirit, its reach, for the time being, seems to have exceeded its grasp I think one of the reasons that modern (and postmodern) art has not yet fulfilled its spiritual aspirations is that it has yet to fully avail itself to the tools and techniques of contemplation, of genuine meditative discipline to the extent that an artwork can usher one into the nondual, to that extent it is spiritual or universal, whether it actually depicts bugs or Buddhas. I am not the only one, for example, who sees Van Gogh's landscapes as drenched in Spirit (Wilber, 1990, pp. 210-213)

The reference to Van Gogh's representation of Spirit brings the tragedy of Van Gogh's life to my mind. I see his story as critical to aligning some of the diverse opinions surrounding art — especially because Van Gogh fits the model of the Great Artist and the Romantic visionary. My concern is that Wilber's reverence for the spirituality in Van Gogh's work does not change the tragedy of Van Gogh's life.

To be sure, Van Gogh's work exudes spirit. And, to be sure, Van Gogh excelled in finding a sacred space through painting and creating. This, however, was not enough to sustain Van Gogh's life. Moreover, most of us would not choose his life. Van Gogh was not *only* a painter who could drench a canvas with Spirit, to use Wilber's expression, he was also a human who developed his craft through the tragedy and isolation of a life ultimately defined through art. His art spoke of a spiritual depth and a depth of compassion. His life spoke of how even his art could not actually hold his spirit transcendent all the time. When he was not painting, Van Gogh was keenly aware that all that he

loved and believed in was offered to others in paintings no one wanted.¹

This circularity cannot be overstated because, in his heart, Van Gogh was a human who desperately wanted to communicate with others. In painting, Van Gogh found that even in the cataclysm of his life the canvases retained their quietude (Van Gogh, 1963), as he wrote to his brother Theo. Still, although he emptied his living passion and spiritual beliefs into the more than 800 oil canvases he produced, this dialogue with his canvases was all he had outside of the friendship of his brother. Few, including most painters of his time, could read or feel what his work said. While today many of us experience an inner feeling of joy and wholeness when looking at his canvases, most of us, even his greatest admirers, would not want to emulate his life.

The real sorrow is that the more he tried to express his sense of connection with others in his community, the more he became an outcast. As an outcast he had to reach deeply within himself to affirm his sense of connectedness to the world and we see his insights represented in the relationship he established when, through paint, he merged with the physical reality. His work is not only spiritual it is also innovative. He does not use the symbols of other eras and cultures. He uses brilliant colors and unusual perspectives to create his *own* symbols. His paintings express things never before presented to the world in a comparable way.

Nonetheless, art created a poor substitute for community, and paintings a poor foundation for changing this. His writings speak of the intensity of a person with an internal passion and an inner vision who had no place in the social structure.²

¹Van Gogh received no recognition during his lifetime and only sold one painting while he was alive.

²It was only after being rejected from theological school and relieved of his position as a missionary among coal miners that Van Gogh became a solitary painter.

I would suggest that his art shows that artists, like scientists, can bring new symbols into our world. In Van Gogh's case the symbols are his paintings, the living symbols of his life. They are symbols because their living quality can continue to resonate within us when we visit with them. When we visit a work by his hand we often walk away feeling we have found something new. Moreover, when we look at his oeuvre we see a visual chronology delineating how Van Gogh's insights and perceptions evolved. The paintings represent to us how all that he could not resolve with others was resolved on the canvas. They present how, in effect, he fulfills a hope expressed in his writings.¹

These paintings, Van Gogh's symbols, also capture the tragedy of Van Gogh's life for he only *appeared* to be "worthless" in the social structure. On the one hand, when he died at the end of the nineteenth century, he was considered a crazy man, a man people scorned and ignored. On the other hand, his work now is esteemed and his message is seen as a contribution to the human dialogue. His belief *ultimately* was seen. Of course, he does not know this. He does not know that he spent his life trying to communicate all that he believed and we are now feeling what he was saying when we look at his paintings.

Whether or not Van Gogh had epilepsy or any of the other ailments that have been *used to justify* his apparent insanity

¹Van Gogh offered a comprehensive picture of how he saw his art in a letter to his brother. "In short, I want to reach so far that people will say of my work: he feels deeply, he feels tenderly — notwithstanding my so-called roughness, perhaps even because of this. . . . What am I in the eyes of most people? — a nobody, or an eccentric and disagreeable man — somebody who has no position in society and never will have, in short, the lowest of the low. Very well, even if that were true, then I should want to show by my work what there is in the heart of such an eccentric man, of such a nobody. This is my ambition, which is, notwithstanding everything, founded less on anger than on love, founded more on serenity than on passion. It is true that I am often in the greatest misery, but still there is within me a calm pure harmony and music" (Van Gogh, 1963, p. 156). He also wrote, "Feeling and love for nature sooner or later find a response from people who are interested in art. It is the painter's duty to be entirely absorbed by nature and to use all his intelligence to express sentiment in his work, so that it becomes intelligible to other people. To work for the market is in my opinion not exactly the right way . . . true painters have not done so, rather the sympathy they received sooner or later came because of their sincerity." (Van Gogh, 1963, p. 160)

does not negate the ongoing anguish he felt as a person who was also a painter. Antonin Artaud summed up the futility of this painter's position when he called Van Gogh the "artist suicided by society."¹ (Argüelles, 1975) In sum, Van Gogh's art is an example of how one man developed a language that symbolically recorded his search for a way to share his depth and compassion.

Van Gogh, aware that he had failed to communicate his inner vision through evangelism, struggled for an alternative means. He keenly understood the metamorphosis that would occur if he could find that means. "A man who has seemed good for nothing and incapable of any employment, any function, ends in finding one and becoming active and capable of acting," he wrote his brother Theo. He explained that at the moment he seemed idle, but that was only because he lacked a way to convey to others what was in him. He lacked a context. His first step in creating such context so that others could see what was in him (and so that he himself could truly see it) was to crystallize his energies toward a career as a painter. (Briggs, 1990/1988, p. 262-263)

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While it is as easy to explain away Van Gogh's misfortune or glorify the emotionality and spirituality evident in his work, this does not change his life or the lives of those who are never "seen" and suffer — not knowing how to convey all that is within them. Moreover, when we highlight Van Gogh's

¹The real tragedy abounds. Moreover, the evidence of how deeply he cared for others is evident in his suicide. Knowing that his brother Theo could not continue to support him he sacrificed his life in the hopes that his paintings could be sold to repay his brother for his kindness and support since it was easier to sell the work of "dead" painters. In his penultimate letter to Theo, found on Vincent's body after his suicide on July 27th, 1890, Vincent wrote, "Well, the truth is, we can only make our pictures speak. . . . and I repeat it once more with all earnestness that can be imparted by an effort of a mind diligently fixed on trying to do as well as one can . . . Well, my own work, I am risking my life for it and . . . I think, acting with true humanity, but what's the use?" (Van Gogh, 1963, p. 339-340)

spiritual passion and hold it up to others as a spiritual model, we too easily downplay that his was a suffering human life. Van Gogh would have preferred more comfort. For Van Gogh, adding a bit more comfort to his impoverished living situation would not have made his life excessive or materialistic. This raises the question of where the story of someone like Van Gogh “fits” within our theories about nature and life.

In other words, the essential sense of unity Van Gogh embodied when he painted is often celebrated in the mystic traditions and is often seen by those who see religious orientations as more essential than the Western focus on individual autonomy and personhood. I would suggest that Van Gogh’s life reiterates the problems with suggesting that one is right and the other wrong. More specifically, the tensions within Van Gogh’s story illustrate how the questions of being and identity raised by Achilles in the *Iliad* are involved with what communities offer an individual. As I noted, these questions became a foundational issue in forming the Western philosophical orientation. Van Gogh offers yet another example of why this was the case.

Like Achilles in the *Iliad*, Van Gogh wanted to be a part of the group and did not know how to resolve the issues that seemed to make this impossible. Van Gogh’s writings show he *felt* he was a part of the world but he could not communicate this feeling to others directly. His legend also shows that extreme deprivation, sorrow, and commitment can cause deep suffering and an anguish that can never be assuaged by an overwhelming acclaim and respect that he never knew in his life. Given the level of recognition his work now receives I find it hard to balance knowing that while he was painting he felt the serenity and the essential sense of unity the fire sacrifice tried to foster in early Hinduism — and that during his life as a painter this was not enough.

In art the question of integration has always been harder to understand and harder to fit into the idea that the superficiality of our mundane lives is to blame because usually the artists are

not motivated by the mundane. They are often following something genuinely felt. Therefore, the challenge of holding a complexified idea about freedom has included the need to balance something that is neither superficial nor mundane with the basic human needs — food, money, etc. — of life. Reflecting on how elusive the issues are and how easily art can be used to promote fantasy or a relationship with life that comes up short in the material realm, I am drawn to underline that if our balance is to be dynamic we must somehow conceptualize that the complexity of the issues within artmaking cannot be isolated from the issues of human living.¹

Our creativity, be we artists or bankers, is intertwined with our materialistic needs, our spiritual aspirations, our rational assumptions, and our emotions. Our very living is a creative experience. Artmaking is one way we harmonize our personal metaphors and it also offers a means to symbolize our tensions. It offers a means to represent who we are to others and ourselves. If we use the symbols of others our art speaks differently than if we create our own symbols. Either way, the representation process creates living symbols of human process.

Wayne Thiebaud, a contemporary artist, speaks of this.

I just think art is one of the few remaining
legitimate enterprises open to a human being.
Because the arts do something that I don't

¹For example, Jo Hanson wrote about the financial difficulty of being an artist after being audited by the Internal Revenue Service four times. The IRS considered her a "hobbyist" because she did not make a profit from her art. In her book, *Artists' Taxes, The Hands-on Guide—An Alternative to "Hobby" Tax Laws*, Hanson attempted to help artists address the inequity that results from not being able to write off the expenses accrued in making art by offering a detailed discussion of how artists should organize their financial affairs so that the IRS does not question their credibility. Her point is that the failure to show a "profit" does not mean they should not be considered professional people. If they are not characterized as professionals this additional limitation is added to their lives. The definition adopted by the agency also shows that the bureaucratic structures do not understand some unique aspects of the artistic life-style. Educating artists about the cultural context in a way that allows the artists to educate social bureaucrats to the realities of being an artist is also a form of social participation. "The tax situation of artists may differ from that of other people: The work of artists is extraordinarily demanding in time and application. The peculiarities of the art market tend to deprive artists of a living from their work so they also work a second job to support themselves and the cost of their art production. Financial success, if it comes, most probably comes late in the artist's life and career." (Hanson, 1987, p. i)

know if anything else quite does. That is, they combine the three worlds in a way that seems to be primal to our needs: the actual world we share, the consensus-world; and then the art world — of music, dance, whatever it is, and then the interior world, the apperceptive mass of every individual. If these three worlds get out of balance in art, incidentally, then the work usually falters. Too real or too personal or too art-oriented. (Baker, 1995, p. 26)

Chapter Ten

The Relational Philosophy of China

By nature, men are nearly alike; by practice they become different.

Confucius, *Analects*

The knowledge of the ancients was perfect. In what way was it perfect? There were those who believed that nothing existed. Such knowledge is indeed perfect and ultimate and cannot be improved. The next were those who believed there were things but there was no distinction between them. Still the next were those who believed there was distinction but there was neither right nor wrong. When the distinction between right and wrong became prominent, Tao was thereby reduced. Because Tao was reduced, individual bias was formed.

Chuang Tzu

China opens a door for exploring other possibilities in art, religion, science, and philosophy. In China we do not find the kind of ongoing conflicts between religion and science, or poetry and philosophy that became prominent in the West. We also do not find the transcendent domain discussed in regard to the Indian and the Western metaphysical approaches. Instead the Chinese cultural paradigm affirmed a world where all was seen to be self-organizing and organic. Art came to be intimately associated with philosophy. Artistic expression, in turn, was influenced by and influenced Chinese philosophy as well as Chinese religious and scientific development.

The Chinese view didn't align art with any particular philosophy. Instead art lent authority to philosophy as a whole — and often gave it focus (Willis, 1987). Therefore, while traditional Chinese art, like traditional Western art, is grounded in realism, for the Chinese this realism stresses that space undefined or void co-exists with space defined into forms and differences. This balance of form and formless philosophically prefigures the sense of an organic balance and harmonious cooperation which permeates Chinese philosophies, a composite easily compared to what we today call systems thinking.

[In the Chinese worldview the] harmonious cooperation of all beings arose, not from the orders of a superior authority external to themselves, but from the fact that they were all parts in a hierarchy of wholes forming a cosmic pattern, and what they obeyed were the internal dictates of their own natures. Modern science and the philosophy of organism, with its integrative levels, have come back to this wisdom, fortified by new understandings of cosmic biological and social evolution. (Needham, 1953, p. 583)

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Chinese civilization was already more than 2000 years old when European civilization began to take form. Taoism and Confucianism were developed in the sixth century BCE when China found itself in crisis. Social degeneration had brought society to a point where people were looking for alternative explanations. Confucianism and Taoism were among the many that emerged. Both Confucianism and Taoism talked of the Tao, the Way.

Confucianism saw the Way in humanistic terms. Based on the teachings of Confucius,¹ (ca. 551-479 BCE), a humanistic thinker, the religion sees humanity as the measure of all things. Confucius defined the way from the perspective that all were educable and that social mindfulness and a rational outlook were the keys to a better and more democratic society. His approach offered a path within human society.

Taoism, on the other hand, spoke of the Way in terms of how the universe worked, stressing the inner, intuitive, and “natural” way. Based on the *Tao te Ching* of Lao Tzu, a possible contemporary of Confucius, Taoism was more an experiential

¹Confucius is a Latinization of Kung-fu Tsu, which means “Great Master Kung.”

and intuitive religious philosophy and, as such, the emphasis of Taoism was *wu-wei* or the kind of action that only appears as non-action because the activity of the doing is totally aligned with the flow of nature.

During the Sung dynasty (960-1273 CE), Neo-Confucianism¹ as the Jesuits later named it brought the two together. Synthesized by the Chu Hsi (1130-1200), Neo-Confucianism provided a broad philosophical view of the universe and the individual's place in it.

Confucianism asserted standards of perfect, unselfish conduct, and since backsliders were as common in China as elsewhere, Confucianists periodically called for reform . . . Chu Hsi's cosmology asserted a dualism, that the great immutable principles of form (*li*) give shape to material stuff (*chi*) that, when shaped by *li*, creates existent reality. Behind this duality, however, is the *Tao*, the Way, the vast energizing force that pervades the universe and all things in it. Only through disciplined self-cultivation could a man get some understanding of the Way and in pursuit of it form his character . . . In effect Chu Hsi found a means of smuggling a needed element of Buddhist transcendentalism into Confucianism. This new philosophy, both eminently rational and humane. . . became the living faith of China's elite down to the twentieth century, one of the world's most widespread and influential systems of ethics. (Fairbank, 1992, p. 98)

In looking at this composite, three points stand out that are relevant to this discussion. First, in Neo-Confucianism the *yin/yang* symbol was used to describe the basic complementarity² that was synthesized by the Confucian and

¹Neo-Confucianism was the official religion until 1928.

²-If it were not unthinkable from the Chinese point of view, that the Yin and the Yang, the female and male principles, could ever be separated, it would be tempting to

Taoist ideas. Second, Neo-Confucianism provided a means to bring a quality of Buddhist metaphysics into the Chinese or Confucian culture. This allowed the culture to bring a sense that there was more than the apparent reality into the philosophical discussion without postulating other domains or transcendent realms of experience. Experientially this meant that the cultures did not add a belief in transmigration or reincarnation to the cultural assumptions. Third, in incorporating Taoism, Neo-Confucianism added an ingredient of needed compassion to the cultural metaphysic that, ironically, given it was from the trans-moral Taoism, helped stabilize the ethical worldview.

Chinese history illustrates how this composite translated into actual living. In summary, early Chinese society, like other primitive cultures, initially lived in terms of custom and in China this was intrinsically tied up with their cosmology of self-organization. As Chinese culture developed, and more complex ideas emerged, earlier beliefs became more formally defined. In China, where there is no creator-lawgiver, first cause, or even a Big Bang, their philosophy came to be defined as an ordered harmony of wills, without an ordainer (Fairbank, 1992). Thus, the Chinese assumed an intrinsic interplay between law, human living, and nature. When Neo-Confucianism redefined the idea of harmony it built on the idea of self-organization that was intrinsically a part of the Chinese tradition.

In doing so the idea of an underlying pattern was key. Having no Creator and no Controller in their mythology, the Chinese saw no need for an overall authority. This meant that the self-organization was not defined through laws as we define the term in the West but through *li*, a principle of organization that defined how the parts and the whole comprised the pattern of self-organization. In considering this contextually and in relation to evolutionary living, it is critical to see that in the early Chinese

describe Taoist thought as a Yin system and Confucian as a Yang one . . . [but] the indivisibility of the Yin-Yang principle prevents this — a point recognized by every Chinese philosophy." (Ronan, 1993 , p. 95)

culture, *li* was a pattern. With the later Neo-Confucianism synthesis, the pattern becomes more of a principle — a principle of self-organization.

In either case it was assumed that all grew directly out of the nature of the universe. Thus, the framework assumed the idea that all was a part of a cosmic pattern that *dictated its own nature* and defined how good customs, social responsibility, and the belief in the harmonious co-operation of all beings was intertwined. In sum, the Chinese never assumed there was a “law” in the Western sense so much as the Western idea that the laws of an ideal state should not be written on tablets, but on the hearts of the citizens.

The Confucian contribution to the composite stressed logical reasoning, social etiquette and moral standards. Self-organization per se was defined in Taoist terms for it was assumed that the nature of the community was internal to individual entities at all levels. This idea was comparable to the Taoist concept of *te*, the integrity we bring to our participation in Tao.¹ In Neo-Confucianism this idea is evident in the idea that when we align with experience we embody an openness to connections.

In practice the harmony between the two views was put in place and sustained by a design that carefully crafted people. Children were socialized according the Confucian respect for family, tradition, and humanity. Then, when the limitations of this outward orientation become clear, the Taoist orientation became an acceptable part of a life-style.

. . . [Confucianism] preoccupies itself with conventional knowledge and under its auspices children are brought up so that their originally wayward and whimsical natures are made to fit the Procrustean bed of the social order. The individual defines himself and his place in society in terms of the Confucian formulae.

¹Each creature, like each object, has a *te*, which is its own manifestation of the *Tao*. It represents our uniqueness in alignment with the hidden sympathy of all things.

Taoism, on the other hand, is generally a pursuit of older men, and especially of men who are retiring from active life in the community . . . Taoism concerns itself with understanding of life directly, instead of in the abstract, linear terms of representational thinking . . . The function of Taoism is to undo the inevitable damage of [Confucianism] discipline, and not only to restore but also to develop the original spontaneity, which is termed *tzu-jan* or self-so-ness.” (Watts, 1989, p. 10)

This scenario provided a mechanism for people to learn to conform to the tenets of the tradition. It also allowed that a time would come when the limitations of the society would become apparent. This inevitable questioning was molded into the social structure. By encouraging a model of socialization that accepted that people, at some point, might not feel as strongly inclined to contribute to the social dynamic, the model encouraged people to “mellow” later in life — but in a prescribed way that did not question the tradition. Thus, the model kept the tradition in place, socializing people so that all was according to the pattern — which was, in turn, patterning cultural assumptions — complete with cultural prejudices.

The inferior social status of women was merely one manifestation of the hierarchic nature of China’s entire social code and cosmology. Ancient China had viewed the world as the product of two interacting complementary elements, *yin* and *yang*. *Yin* was the attribute of all things female, dark, weak, and passive. *Yang* was the attribute of all things male, bright, strong, and active. While male and female were both necessary and complementary, one was by nature passive toward the other. Building on such ideological foundations, an endless succession of Chinese male moralists worked out the behavior pattern of obedience and passivity that was expected of women. These patterns subordinated girls to

boys from infancy and kept the wife subordinate to her husband and the mother to her grown son. Forceful women, whom China has never lacked, usually controlled their families by indirection, not by fiat. (Fairbank, 1992, p. 19)

This indicates that while the inference is that the culture was a balance — a living harmony of relationship — in practice the culture created a hierarchy based on “good faith” for the culture defined an autocratic system based on imperial authority. The Sinologist John King Fairbank has called it the most successful of all systems of conservatism because of the way in which it esteems age over youth, the past over the present, and established authority over innovation. In short, according to Fairbank, the conservatism of Confucianism has “provided one of the great historic answers to the problem of social stability” (Fairbank, 1992, p. 53).

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In reviewing Fairbank’s historical outline of China, what stands out is how easily one might compare it with the conservatism we see in Kuhn’s paradigms of science. In the Chinese story, as in the Kuhnian periods of normal science, we find revolutions “interfere” with the cultural continuity. As I discussed in Chapter One, Kuhn believed that “normal science” represented periods of scientific stability. During these periods scientists focused on specific kinds of problems which, according to Kuhn’s analysis, sustained their focus because the predominant vision was so pervasively accepted by people that they did not see the anomalies surrounding it until there were so many discrepancies between what they saw and what they believed that the disparities could no longer be put aside. Then the scientific paradigm was overturned and with this came a radical revisiting and revolutionary change.

Chinese culture effected a similar design. In China the smokescreen was not a progression toward Truth but a cultural

belief system highlighting harmony and self-organization. The actual historical record, however, shows that disruption, dissonance, and disharmony have always been a part of the picture.

Why have China scholars for 2,000 years gone along with the Confucian refusal to accept the military establishment as an occupational class . . . almost from the beginning the government of China has been a codominium . . . dynasties were militarist in origin, but once established, their bureaucracies were civilian . . . The central myth of the Confucian state was that the ruler's exemplary and benevolent conduct manifesting his personal virtue (*te*) drew the people to him and gave him the Mandate. This could be said as long as rebels could be suppressed, preferably by decapitation. The great weakness in this Confucian myth of the state was that the ruler, if he wanted to keep on ruling, could never dispense with his militaristic prerogative of decapitating whom he pleased *pour raison d'état*, to preserve the dynasty . . . all held power only at the whim of the emperor. (Fairbank, 1992, p. 111)

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Looking at this discrepancy between theory and cultural unfoldment indicates that while living may have been perceived to be an art in China, the art was a well-defined one. It also brings the Chinese view of law into focus because of how Chinese ideas about law differ from the other traditions I have considered thus far. Even still, the foundation of the self-organization provided its own set of limitations. In sum, the Chinese were more adept at describing relationships, especially in regard to how they ebb and flow, than in speaking about *evolving* in relation to the social reality and apparent patterns in the environment. Two points stand out here.

First, the synthesis of Confucian ethics and Taoist naturalism defined a social balance that included an internal component but did not encourage a person to want to transcend the underlying pattern so much as honor it. In the environment the belief system was not aligned with the idea of a universal truth (or a universal law), because the assumed cultural ideal of process, pattern, and change was not inclined to unchanging universals. Nonetheless, it had a universal and unchanging quality because of how difficult it was to redefine the parameters within the cultural model. This stabilized a worldview that encouraged synthesis and negotiation and did not encourage abstraction and aspiration. Thus, an evolutionary perspective was contrary to the Chinese view of self-organization. An individual did not evolve the ongoing self-organization so much as aligned with the underlying pattern of natural change and negotiated socially; a Tao characterized as perfectly organized. This effectively stabilized place, function, and immobility in the social order because, again, the focus was on the past and tradition. This was even more the case because mundane life was characterized as “manifested” cyclic ebb and flow, as in the *I Ching*.

Second, the circumstances that birthed Neo-Confucianism show some of the limitations of self-organization as a principle of life. The most significant one in terms of this discussion is that the systemic ideas proved incomplete without some kind of comprehensive foundation. This was provided by the synthesis of Confucianism and Taoism that gave the culture a theoretical model — complete with detailed prescriptions for living. The new philosophy attempted to remedy the failure of the indigenous Chinese philosophies and attempted to formulate a metaphysical explanation of an organic universe that was as comprehensive as the Buddhism one, but was Chinese (Koller, 1985). The result was Neo-Confucianism, and it *was* Chinese. The model retained the supremacy of individual persons and particular things and emphasized harmony in one’s living environment. The idea of suffering in Buddhism was replaced by

a philosophy of affirmation. This allowed the Chinese to reject the Buddhist idea of a transcendent realm and to retain the idea that the moral features of the universe were in this world. This also allowed the Chinese to keep ideas that encouraged the achievement of moral goodness among the people (Koller, 1985).

It also encouraged empirical thinking — but the empirical element within Chinese thinking differs from Western empiricism. In the West, the interest in origins had developed ideas about laws of nature that were connected with the recurrent patterns of nature. Eventually these perceptions began to include ideas like the Creator God, a transcendent realm, and a principle of unity. It was through developing ideas like natural law and Laws of nature that the aspiration toward something more than what could be known was encouraged. The result was that ideas about a celestial lawgiver allowed Westerners to develop more systematic ideas about law than in the East. To oversimplify, by the time of the Renaissance, the celestial lawgiver had given humans the Laws of Nature.¹

This underlines not only a major difference between Chinese and Western philosophies, it was also a difference evident in how they developed their sciences. The Neo-Confucian vision favored seeing the apparent world and believed in empirically engaging with nature and experience. This engagement included the Taoist mistrust of analytic methods. Therefore, the approach encouraged people to understand natural patterns — without encouraging a theoretical engagement with the pattern in a way that would bring logical models into their minds. It was the kind of empiricism that documented massive amounts of astronomical data but focused on the “facts,” not what could be behind the facts. Therefore, although the Chinese contribution to the development of astronomical science, for

¹ Ideas of a celestial lawgiver go back to ancient Babylonia, where the Sun-god Marduk is pictured as a celestial lawgiver, and natural law in the form of “necessity” can be traced to the Presocratics (Ronan, 1993). It should not be overlooked that the Indian view differs from the predominant views found in China and the West. In India the idea of *karma* established a moral law of causation.

example, was a very remarkable one, the most obvious absences are just those elements in which Western astronomy is the strongest.

In Chinese astronomy, for example, the component organisms in the universal organism followed their Tao, each according to its own nature. Thus, their motions were dealt with in an essentially “non-representational” form of algebra. This freed the Chinese from those unexpectedly unyielding materializations of the Greek spirit of geometry such as the obsession of the early Europeans astronomers for the circle as the most perfect figure and the medieval prison of the crystalline spheres (Ronan, 1992, 221).

In practice this meant that regardless of whether the pattern of self-organization was seen as a process or a principle, the Chinese culture was able to accept ideas that suggested there was action-at-a-distance. These are the kinds of ideas we find in Newtonian science, where the model speaks of processes we do not see in direct relationship to one another, although we accept they are in relationship to one another. Nonetheless, because each had a different impulse, the perception of action-at-a distance did not lead the Chinese to derive ideas like a sun-centered solar system. This was because they did not feel the need for natural laws that provided mechanical and theoretical explanations.

The Taoist thinkers, profound and inspired though they were, never developed any idea of laws of Nature. This may have been because of their immense distrust of the powers of reason and logic. They had, it is true, an appreciation of the relative nature of all things, and the subtlety and immensity of the universe, but while they were groping for what we may call a world picture of the kind Einstein was later to draw in the West, they did so without laying the right foundations for a Newtonian one. By that path science could not develop. It was not that the Tao, the cosmic order of things, did not work according to system and rule, but that the

tendency of the Taoists was to regard it as inscrutable . . . their social ideas had less use for positive law than those of any other school. Seeking to go back to primitive tribal collectivism, they had no interest at all in the abstract laws of any language. (Ronan, 1993, p. 291-292)

In sum, despite their empiricism, the Chinese did not construct scientific theories comparable to those of the West. Instead, they focused on developing practical technologies and observing nature. This was to discern the characteristics of the Tao and *te* — our participation in the Tao.

To obtain true knowledge the Taoist “emptied his mind” of all “false” Confucian-style knowledge, neglecting distorting memories, prejudices, and preconceived ideas. He encouraged empiricism, and respected the technology of craftsmen, an attitude that was to have profound practical effects since it encouraged the great inventors of ancient China. All this was, of course, the very antithesis of the Confucian outlook, rooted in totally different political and ethical connections. (Ronan, 1993, p, 103)

Chapter Eleven

Chinese Philosophy and Western Science

The shortest distance from one point to another is a geodetic line, but such a line can only be followed if one knows one's destination, in which case there would be no discovery. The ways of discovery must necessarily be very different from the shortest way, indirect and circuitous, with many windings and retreats. It is only at a later stage of knowledge, when a new domain has been sufficiently explored, that it becomes possible to reconstruct the whole theory on a logical basis, and to show how it might have been discovered by an omniscient being, that is, how it might have been discovered if there had been no real need of discovering it.

George Sarton

The Study of the History of Mathematics

Evolution is chaos with feedback

Joseph Ford

The previous chapter explained that the Chinese generally saw living as an art form and that this culture offers another perspective on living and philosophy. What needs to be added is that within this relationally premised paradigm of social organization there is less disparity between philosophy, religious theory and experience. The notion of disparity is important to think through because of how Chinese philosophies lend themselves to being compared to living systems theories now developing in the West. Systems theories, like Chinese philosophies, look at things in terms of their connectedness. A key difference between the two, however, is that the Chinese philosophies have some connection to what we might term religious roots, and systems theory grew out of a scientific approach.

The Chinese philosophies emphasized negotiation and reciprocity, intrinsically relating the person with the principle of a self-organizing pattern. While empirical learning was also encouraged, the de-emphasis on theoretical abstraction combined with the urge to design a culture that looks to the past. People in China were molded to understand synthesis in terms of hierarchy, and negotiation in terms of mutual compromise. Children were taught to esteem the aged, the men, the family, the ethics and the tradition. Adults were allowed to mellow later in life. All of this, however, was perceived in terms of becoming closer to a natural harmony correlated with primitive simplicity. In short, the belief was that abstract and theoretical analysis — the kind of thinking which encouraged creating rationales about “fixed” categories and designs — interfered with one’s alignment with nature, *li*.¹

¹The Neo-Confucian thinker Chu Hsi speaks of *li* as the underlying pattern in

To this day the Chinese method is, in practice, to fix responsibility in terms not of “who has done something” but of “what has happened.” When something has once happened, responsibility must be assigned; and hence there is always an underlying tendency to try to prevent decisive things from happening, and to diffuse responsibility. Escarra gives a revealing verbatim account of a member of a merchant-guild council replying to the questions of a foreign assessor in a treaty-port mixed court in 1926. Against all suggestions he stuck to his point that the guild members could accept decisions of the Supreme Court in Peiping only if they seemed in accordance with *li* (Needham, 1953, p. 529)

What is key here is that the Chinese view of self-organization is fundamentally different from the systemic ideas developed in the postmodernism environment, which is scientifically based, falsifiable, and was born of theoretical abstraction. In addition, evaluating the historical story showed that even within a relationally and systemically oriented system challenges emerge, and they can be significant ones. Within the Chinese culture this has been especially evident. Despite the emphasis on balance and self-organization the cultural experience has not been a seamless harmony. This continues to be evident today in events like Tiananmen Square and the issues surrounding human rights. Seeing Chinese systems and Western systems theories in the complex world of the twenty-first century underlines that systems theories were developed to model the world multi-dimensionally. System thinking strives to integrate various possibilities. Thus it offers an alternative to reductionistic

things. “*Li* is like a piece of thread with its strands, or like this bamboo basket. Pointing to its row of bamboo strips, the philosopher said, One strip goes this way; and pointing to another strip; Another strip goes that way. It is also like the grain in the bamboo — on the straight it is of one kind, and on the transverse it is of another kind. So also the mind possess numerous principles (*li*)” (Needham, 1953, p. 558).

approaches that look at one thing at a time, and look at categories as if they were isolated parts. As an alternative approach, systemic thinking strives to integrate context and content. Variables are seen in terms of patterns of relationship and levels of interaction. Moreover, the very purpose of a model is to attempt to find correspondences among apparently diverse relationships.

One key difference between the Chinese view and scientific views on systems is that Western systems absorb the Western view of law, which came to see law as tied up with nature and God. Historically, this evolved into an objective view that is characterized by a closed quality but it also was a quality that included an ongoing questioning through the scientific method. The result was that the Western perspective increasingly took the vitality out of views of nature and was eventually used to infer the natural pattern was separate from human impulses. Nonetheless, the motivation behind studying the pattern included human impulses and the quest to see beyond the apparent pattern. This allowed Western science to enlarge human understanding of the apparent patterns in terms of an ongoing refinement of apparent inconsistencies. Finding relationships within the patterns allowed the pieces to fit together better and thus Western science modeled the hope that they could decipher the patterns presumed to be inherent laws.

One of the most basic background ideas of modern natural sciences is embodied in a phrase on the lips of everyone who talks about them — the Laws of Nature. Instinctively recognized as a metaphor by most people, it does nevertheless express the regularities of behavior of objects in the world we live in, the invariable tendency of heavy things to fall, the fact that water always flows downhill, or that the sun will rise again tomorrow. (Ronan, 1993, p. 276)

The Western view began to open significantly in the twentieth century. As noted above systems theory has been a part

of this and the emerging systemic theories have often been compared to Chinese view. This is due to the way the Chinese have traditionally used relational thinking, which is systemic. When we compare the two, however, we find there are clearly differences. Turning to symbols of both offers an effective way of entering each point of view and seeing how both speak about patterns of relationship.



Yin/yang

The Chinese *yin/yang* symbol explains the Chinese view of relationship and complementarity. It also explains how the Chinese philosophies see the continual flow and change of the *Tao* —the essence of reality — in terms of exchange. The symbol represents the intertwining of two kinds of activities. On the one hand, there is the acceptive *yin*. On the other hand, *yang*, its counterpart, is assertive. The key here is that neither *yin* nor *yang* is separate from the other. Nor is one good and the other bad, for moral values do not apply. Rather, all activity represents the dynamic categories of balancing the transitions between them. Moreover, because all is intrinsically related, what is “bad” is imbalance in a universe where there are two kinds of activity — the activity in harmony with nature and that which can go against the natural flow of things (Capra, 1988). This is why the symbol is not divided into two parts but represents each kind of energy. Each is represented with the other.

Yin and *yang* . . . are key ordering concepts in the organic worldview of traditional Chinese philosophy . . . [They] first appear in texts of the Spring and Autumn period (722-481 BCE) in their root meanings of “a hillside in shade” and “a hillside in sunlight,” or by extension, “cool” and “warm.” By the latter part of this

period, a wide variety of dualistic phenomena were being characterized in terms of *yin* and *yang*: female and male, low and high, earth and heaven, moist and dry, passive and active, dark and bright, and so forth. The use of the terms *yin* and *yang* . . . aptly suited the Chinese concept of dualism, which was never absolute or antagonistic, but rather, relativistic and complementary . . . The *yin* of winter moves inevitably to the *yang* of summer, and back again: each contains the germ of the other. (Major, 1987, p. 515)

The *yin/yang* duality/nonduality categorically refines ideas about complementarity, relationship, interconnection, and process. It does not include a precise language for clarifying how things evolve in time. Nor does it explain how things develop over time. Similarly, we are not told how we refine our understandings of patterns, which relate to the natural and cultural interchange on many levels simultaneously. It also fails to concretely address how we learn to create more effective personal and interpersonal patterns of self-organization. All of these modes are confined to metaphor. The categories delineated above, however, are a part of our experience.

The limitations within the metaphoric focus were evident in how Neo-Confucianism used the *yin/yang* complementarity to define what became the cultural vision of reality. The Neo-Confucianist composite saw the sense of relatedness and ebb and flow that the symbol represented without accounting for how the particularization within the ebb and flow evolves in time. Thus, the symbol became a tool to explain how the pattern is also a principle of process. It became a blueprint of the process despite its failure to provide a concrete measure to explain how we might comprehensively update assumptions symbolically. Therefore, the symbol enclosed potentials, and the metaphoric explanations spoke about all that the symbol pointed to and could not express. The metaphoric vocabulary was evolving, but it was not revising the symbolic assumptions so much as reinterpreting the culturally inscribed symbology.

A strange attractor (see Figure 1), a Western mathematical invention, offers a good counterpoint. It is a representation that includes the relational tensions within the *yin/yang* complementarity and offers more information. Developed by chaologists,¹ the strange attractor is used to model self-organization multidimensionally. Chaos itself was born through combining computers and mathematics to model and find patterns in dynamics and fluctuation. The theories that evolved speak of ways to model nonlinear systems where the rules were always unpredictable — like the weather, a key component in framing ideas about chaos.² (See Figure 1)

The strange attractor itself is a visual pattern of an evolving *and* self-organizing dynamic. Offering static representations of a dynamic, like the graphic mappings used to demonstrate the concept behind the strange attractor images, show that we can represent a theory as a picture by using coordinate points. What must be kept in mind is that these pictures are *not* what attractors look like. The attractors effectively represent a dynamic. Each provides a plotting of this dynamic and reveals the self-organizing pattern. Each delineates the pattern of movement as a whole, showing how it changes in time. The pictures show that self-organization is not simply an ebb and flow. Rather a process that appears to simply ebb and flow can be plotted to show a pattern that takes form over time and never returns to a previous point.

¹People who specialize in studying chaos are chaologists.

²The nature of weather systems, in fact, was one of the first areas where it became apparent that there were patterns in hard to predict systems. These systems, which appeared chaotic, did so because they never exactly repeated the pattern and the points do not intersect with a historical pattern but loop around and around forever. Modeling the behavior of weather on a computer, for example, suggested a pattern self-organized with a bounded nonlinearity, and with it the ideas of some kind of “attractor.” The map displayed a kind of infinite complexity. It always stayed within certain bounds, never running off the page but never repeating itself, either. It traced a strange distinctive shape, a kind of double spiral in three dimensions, like a butterfly with its two wings. The shape signaled pure disorder, since no point or pattern of points ever recurred. Yet it also signaled a new kind of order” (Gleick, 1987, p. 30) I should also add that Ed Lorenz’s work with the weather is legendary in the annals of chaos. A good review of this can be found in James Gleick’s book *Chaos* (Gleick, 1987). Figure 1 offers a good example of the butterfly effect, or the strange attractor. The image corresponds to Ed Lorenz’s weather pattern chartings.

What is important here is that images (e.g., Figure 1) can offer a means to visualize and represent a process, although the image is *not* the process itself. Giving the dynamic a form shows that relationships that may appear chaotic are not random but can have a pattern. We have come to call this pattern a “strange attractor.” This pattern had not been explicitly defined previously and with its definition we can communicate about how a dynamic is self-organized over time. We can show its self-similarity is a pattern that repeats itself without ever returning to any point it has plotted previously.

What I want to emphasize is that the pattern of chaos offers the information of the *yin/yang* symbol and more information as well because each chaotic pattern offers a different representation of how variables are interwoven. Through the plotting of the strange attractor, for example, we bring a sequential mapping, a form, and a stability to what would otherwise appear to be an irregular, unstable, and nonlinear dynamic. These representations also show that something that might appear one way from one perspective (e.g., chaotic) can have some kind of order when looked at from another perspective (e.g., the ordered pattern of the strange attractor). The model also differentiates how the self-organizing dynamic is reconfigured and self-organized over a period of time. Thus the available information includes the kinds of quantified, measured, and designed information preferred by scientists. At the same time the formulation of the pattern offers a good example of how information about process, flow, and self-organization that cannot be measured — because it is not apparently obvious how to comprehensively quantify it — can still be refined, clarified, and made more “measurable.”

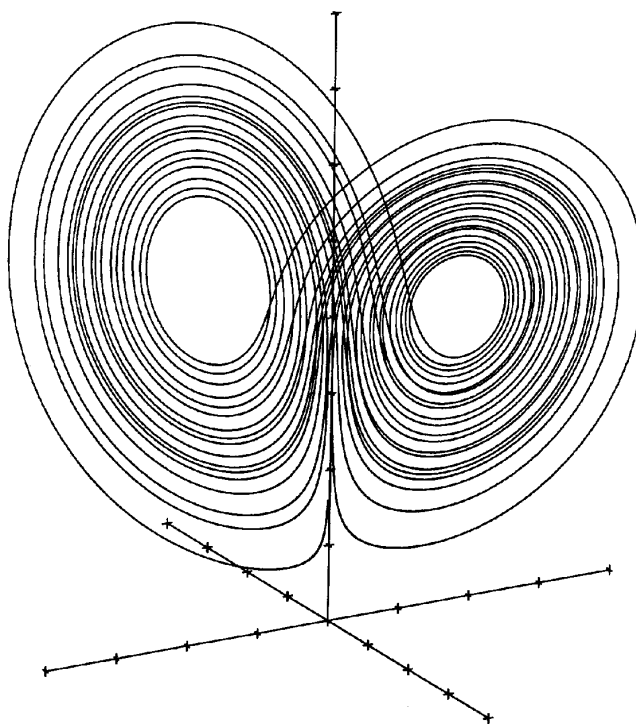


Figure 1: This Lorenz attractor “became an emblem for the early scientists of chaos. It revealed the fine structure hidden within a disorderly stream of data. Traditionally, the changing values of any one variable could be displayed in a so-called time series. To show the changing relationships among these three variables required a different technique. At any instant in time, the three variables fix the location of a point in three-dimensional space; as the system changes, the motion of the point represents the continuously changing variables. Because the system never exactly repeats itself, the trajectory never intersects itself. Instead it loops around and around forever. Motion of the attractor is abstract, but it conveys the flavor of the motion of the real system. For example, the crossover from one wing of the attractor to the other corresponds to a reversal in the direction of spin. (Gleick, 1987)

We can also use the pattern as a metaphor. For example, if I apply the strange attractor to the story of history I can speak with more specificity to why the historical pattern of unfoldment is neither linear nor a cyclic recurrence but, nonetheless, resonates with elements of both. For example, if we look at the Renaissance we find that it differs from the Middle Ages, the epoch that preceded it. While some infer the later period was merely an extension of ideas formulated in classical Greece, this perspective suggests there was some sort of linear evolution from the Greek view to that of the Renaissance. This kind of linearity does not accommodate the focus on faith in the medieval period. It does not address how building a right relationship with God was quite different from the focus in classical Greece and the Renaissance.

Yet, to assume there is an ebb and flow that infers some sort of cyclic recurrence — because prior to classicism in Greece the focus was religious — could be as if to infer that the Renaissance returned human thinkers to a point of view that the Greeks had held — and the Middle Ages did so again in another phase of the cyclic change. This was not the case. To be sure there was a similarity between the Greek and the Renaissance period, just as there was a religious focus throughout the Middle Ages and in the pre-Homeric culture. Even still, there was some kind of linear progression — because the latter periods did not include the ideas of the former. Thus, the path was not reversible. It was not possible for the former to include what had not yet become a part of its world. Therefore, while the path did not have a straightforward direction as it progressed, there was a progression. The progression was a self-organization and the new worldview was self-similar to an older one because they were clearly not the same.

The transition from the Greek views to those of the Renaissance offers an excellent example of this. Étienne Gilson speaks of how easy it is to assume the Renaissance returned people to the Greek vision because there were philosophical similarities. Gilson also notes that, in actuality, the Renaissance

emerged from a human desire to pursue science without religious constraints and was defined so that the Christian God retained His place. It was clearly not a return to the polytheistic Greek natural philosophy. The underlying assumption held by each is radically different. The most apparent difference is that the Greeks do not include Christian beliefs in their worldview for the obvious reason that they were not a part of their world. The Renaissance thinkers did and this is an important point to hold in mind when comparing the views of classical Greece and the Renaissance.

[T]he immediate consequence of [the Renaissance era] should have been to bring back human reason to the philosophical attitude of the Greeks. . . . It would have been so logical for Descartes to adopt such a position that some of his best historians do not hesitate to maintain that in fact he did . . . Descartes had come after the Greeks with the naïve condition that he could solve, by the purely rational method of the Greeks, all the problems which had been raised in between by Christian natural theology . . . what he did, at least in metaphysics, was to restate the main conclusions of Christian natural theology as if Christian supernatural theology itself had never existed . . . the essence of the Cartesian God was largely determined by his philosophical function, which was to create and to preserve the mechanical world of science as Descartes himself conceived it. (Gilson, 1941, pp. 83-88)

These differences correlate with the different points in a plotting of a strange attractor. There was not a merely a cyclic recurring or merely a flowing back and forth because the movements were irreversible in time. This irreversibility infers there was a progression forward in the sense that the later period included the information and experiences not a part of the earlier period. This is not meant to infer “progress” in the sense of creating an improvement so much as movement into an open, as

yet unknown area that included changes in time that had become a part of the cultural vision.

In terms of human evolution the idea suggests an evolutionary development with increasing complexity and differentiation — one that includes our learning.¹

Species that survive do not persist in basic errors but learn to correct them. The new solutions may likewise contain errors that come to light subsequently. Thus an endless vista is opened for learning . . . Learning leads to the emergence of the differences between members of the same species and creates true individuals. (Laszlo, 1987, p. 119)

Learning can include insights that enlarge our parameters as we engage with the world and add information to the community. However, there are no guarantees. But, in a developmental mode it has innovative potential that could be compared with how the realization of the elliptical orbits of the planets dislodged the *a priori* principle of uniform circular motion that had held firm for centuries. In offering a new way of modeling patterns of relationship the ellipse, like the strange attractor, was a symbolic representation that proved useful. Both were only able to add information to the cultural discussion and offered a means others could use to discuss new possibilities. They enlarged our shared body of knowledge.

This is not to suggest that new symbols will lead us to truth for I, for one, would prefer Kepler's ideas had not been used to erect the new Newtonian edifice of Truth. That this was the case does not negate the value of revising our symbols. Moreover, it was only possible because Kepler saw some of the limitations within the old symbolic assumptions and lived in a society that believed we could quantify Truth. The new edifice

¹Child development is a good example of this for a child does not simply build on ideas already learned, but repeatedly embodies a new conceptual understanding on an ongoing basis. In doing so, she repeatedly reorients her relationship to life as previously known information assimilates and radically re-forms with each newly discovered concept.

that grew out of the revised cosmology rested on this cultural belief in one God-given Truth. In other words, the underlying cultural assumption, not the insight per se, created the new edifice. In sum, Kepler insight was not merely a theoretical advance. Being able to more easily align patterns facilitated human understanding of the world in a way that brought some ease to the experience of human living. Navigation, for example, became more straightforward.

Chapter Twelve

Cultures as Value-Guided Systems

Cultures are, in the final analysis, value-guided systems. Insofar as they are independent of biological need fulfillment and the reproductive needs of the species, cultures satisfy not bodily needs, but values. Values define cultural man's need for rationality, meaningfulness in emotional experience, richness of imagination, and depth of faith. All cultures respond to such suprabiological values. But in what form they do so depends on the specific kind of values people happen to have.

Ervin Laszlo
The Systems View of the World

We must learn from an interpretation of reality as a whole, at least from an interpretation of life as a whole . . . [even without any] claim of transhuman significance for human conduct, an ethics no longer founded on divine authority must be founded on a principle discoverable in the nature of things lest it fall victim to subjectivism or other forms of relativity. However far, therefore, the ontological quest may have carried us outside of man, into the general theory of being and of life, it did not really move away from ethics, but searched for its possible foundation.

Hans Jonas
The Phenomenon of Life

Although many think of science in mechanistic terms, life and living processes are at the heart of systems thinking in Western science. Biological approaches complemented the mathematical endeavor to understand how complexification is the result — not the goal — of a dynamic system. These qualities comprise the technical definition of a natural system that is defined as an “open system in a steady state.” According to this definition openness is defined in terms of the import-export activities of the system. This means a steady state is what the system needs to “stay in the same place.” The same place is a steady state but it is not a static equilibrium. It is an activity which maintains its dynamic, adapting to constant change and realigning the balance of the import and export activities. Each change changes the “information” surrounding the system. This results in an ongoing adjustment which is another way of saying a steady state is an active process which complexifies the system, adds to its information, and maintains its multi-level dynamic.

Besides the complementarity of self-assertive and integrative tendencies, which can be observed at all levels of nature’s stratified systems, living organisms display another pair of complementary dynamic phenomena that are

essential aspects of self-organization. One of them, which may be described loosely as self-maintenance includes the process of self-renewal, healing, homeostasis, and adaptation. The other, which seems to represent an opposing but complementary tendency, is that of self-transformation and self-transcendence, a phenomena that expresses itself in the process of learning, development, and evolution. Living organisms have an inherent potential for reaching out beyond themselves to create new structures and new patterns of behavior. This creative reaching out into novelty, which in time leads to an ordered unfolding of complexity, seems to be a fundamental property of life, a basic characteristic of the universe. (Capra, 1988, pp. 285-286)

The key here is that there is a complexity within systems and there are levels within systems. This is why the idea of hierarchy has become key idea in systems thinking and one very much tied up with the efficiency within a system. How hierarchy and efficiency are used in systems thinking is not only key, but is also intrinsically tied up with whether a systems is open or closed. For example, in an open system the environment is open to new information, feedback, and penetration. Closed systems are not always open to the fullest extent possible. More specifically, Chinese philosophy was premised on a systems-like philosophy. Nonetheless the system was not open to the fullest extend possible because the cultural conservatism crafted a specific kind of approach to life. People were educated through information presented with the intention of orienting people to see life in ways that encouraged them to adopt the specific premises and practices valued by the Chinese society.

Moreover, just as the Chinese were molded to see their lives from a particular perspective, so are the people of all ages and all cultures to some degree. In addition, the evolution into the Middle Ages and the Modern world shows that even if a culture does not appear to subscribe to a systems-like philosophy

there is a self-organizing process inherent in how it changes. In other words, we cannot say this or that was the specific cause of the rise of Christianity or the rise of Modernism. Rather, the people changed their lives and values through the process of living their lives. Their lives were maintained and transformed organically. Therefore, the new “paradigm” was not new at all. It integrated old ideas as it reached out for new ones within its growing process.

The hope that changed the Middle Ages into Modernism was that we could keep our inquiry into the nature of life valueless or value-free.¹ Of course this too was a valuation. Modernist values became tied up with “objectivity” and detachment, and the Modern vision of what this meant continued to retain many historical assumptions and values of the ethical systems that preceded them. Hierarchy stands out here, returning the discussion to systems because, again, the idea of hierarchy was at the heart of systems development.

In the 1930s Ludwig von Bertalanffy developed General Systems Theory hoping to define how the different kinds of hierarchies that are apparent in nature work, and work together, in living organisms. Von Bertalanffy's hope was to apply natural efficiency to the world of practical applications so as to more effectively consider alternative solutions, choose promising solutions, optimize maximum efficiency, and minimize conflict and cost — even in a tremendously complex network of interactions (von Bertalanffy, 1968). He saw the natural and cultural exchange as best facilitated through first acknowledging there were different ways a hierarchy could take form. In

¹“The ethical element which has been prominent in many of the most famous systems of philosophy is, in my opinion, one of the most serious obstacles to the victory of scientific method in the investigation of philosophical questions. Human ethical notions, as Chuang Tzu perceived, are essentially anthropocentric, and involve, when used in metaphysics, an attempt, however veiled, to legislate for the universe on the basis of the present desires of men. In this way they interfere with that receptivity to fact, which is the essence of the scientific attitude toward the world. To regard ethical notions as a key to the understanding of the world is essentially pre-Copernican. It is to make man, with the hopes and ideals which he happens to have at the present moment, the centre of the universe and the interpreter of its supposed aims and purposes.” (Russell, 1957, p. 103)

addition, he believed that once we built a better understanding of how hierarchies operate we could better address practical applications.

Hierarchy has remained a key component of systems theory. In considering this I want to emphasize that the idea has long been a part of our cultural history. The word itself is a compound of *hieros* (sacred) and *archein* (to rule). This has historically implied a relationship between a sacred derivative and one of control. To state the obvious, this relationship has always been a problem for those lower down in the hierarchy.

The historical problems that are attributed to how hierarchies take form in the social environment have led many contemporary systems theorists — like Erich Jantsch, Ilya Prigogine, and Joanna Macy — to try to reconfigure our ideas about hierarchies. They use systems theories as a means to correlate the perceptions of hierarchies in nature with the evidence that systems are always self-maintaining and self-transcending their own self-organization simultaneously.

For example, in Jantsch's view, living systems optimize the dynamic qualities of our lives. They open us to develop new potentials and open our perceptions so that we see beyond the accepted ways of approaching the world.

This new understanding may be characterized as *process-oriented*, in contrast to the emphasis on “solid” system components and structures composed of them . . . The basic themes are always the same. They may be summarized by notions such as self-determination, self-organization and self-renewal; by the recognition of a systematic interconnectedness over space and time of all natural dynamics; by the openness and creativity of an evolution which is neither in its emerging and decaying structures, nor in the end result predetermined . . . The dualistic split into nature and culture may now be overcome. In the reaching out, in the self-transcendence of natural processes, there is a joy which is the joy of life. In the connectedness with other processes within an

overall evolution, there is a meaning which is the meaning of life. We are not the helpless subjects of evolution—we *are* evolution . . . Micro- and macrocosmos are both aspects of the same, unified and unifying evolution. Life appears no longer as a phenomenon unfolding *in* the universe — the universe itself becomes increasingly alive. (Jantsch, 1980, p. 8)

In presenting these ideas Jantsch retains the idea of hierarchy and assumes that since he does not include the metaphysical dualism of a God separate from nature, the hierarchy he is advocating is more creative than historical hierarchies. In short, “God is not the creator, but the mind of the universe” (Jantsch, 1980, p. 308). The problems arise when Jantsch attempts to explain the evolutionary character of self-organization in relation to our cultural concerns. His view is a blend of the Neo-Confucian concept of *li*¹ and the medieval model of Church authority. The result is that the elite among us are seen to be the most able to administer the system. These people are said to know what morality is — having understood it through a direct inner experience. Therefore, they are, according to Jantsch, at a higher level.

Jantsch’s view of democracy demonstrates spiritual elitism is a part of Jantsch’s model. Jantsch sees democracy as the rule of the average. It is a means toward “the equilibrium of spiritual, social and cultural death” (Jantsch, 1980, p. 270). This characterization allows Jantsch to put aside the problems that arise when elitist communities within the culture craft a particular worldview. To use his words, “evolution questions the principle of democracy in a very profound way” (Jantsch, 1980, p. 270); and “the most profound political paradox of our time lies in the need for ‘elitist’ fluctuations to turn self-determination into evolutionary, creative self-transcendence” (Jantsch, 1980, p.

¹The Neo-Confucists saw *li* as a self-organizing principle. This principle was the dynamic pattern underlying humans, nature, matter, and spirit.

270). In sum, Jantsch does not question that the creative elite will insure the system's optimal enfoldment.

Ilya Prigogine offers another view. He thinks assuming a hierarchy in science is a mistake (Briggs & Peat, 1984). Prigogine argues that there is no real hierarchy, no fundamental level of description with other levels stacked on top of it. Instead there are *different* levels, each dependent on the others in complex ways. Building on this idea Prigogine suggests that a major factor that distinguishes open living systems from closed mechanistic systems is that open living systems have an environment that is far from equilibrium. In contrast to machines, life forms are "open" systems. They emerge and actually thrive in a volatile area *far* from equilibrium. This means that as open systems they are able to adjust to outside changes; they take in food, grow, replace their own parts, they reproduce, and even survive the total loss of some parts — all without the aid of a mechanic¹ (Briggs & Peat, 1984). Yet Prigogine is not able to translate this into a new model socially. He, too, sees a creative minority as the key to social transformation.

Looking at these systems views in light of the historical story, I must raise the question of who the creative people who transform the system are — or who will they be.

Does the fact that a relatively small fluctuation can become the dominant factor in creating a new system imply that a creative minority of humans is about to transform society to a higher plane? Jantsch, Prigogine, and others . . . have drawn such conclusions, though the fallacies seem obvious. The creative minority which transform society might be Plato's philosophers — or it might be the Nazi Party. (Briggs & Peat, 1984, p. 205)

¹According to Prigogine's views, "Nothing new enters or leaves a closed system. The system has clearly defined parts. For maximum efficiency these parts must keep to a fixed regime. They can only operate within very narrow ranges. A part can be replaced, of course, but the system itself doesn't make such repairs. That help has to come from the outside — usually in the form of a mechanic . . . Thus closed systems always involve equilibrium or near-equilibrium situations." (Briggs & Peat, 1984, p. 162)

The range of possibilities suggests that *who* the elite is requires consideration — especially since historical hierarchies have shown a failure to accommodate ideas out of step with the views of the ruling body. Moreover, those with alternative views are unlikely to be held in high esteem. Events like the Holocaust and Tiananmen Square show we need not look far to find examples of how social systems can be imposed upon others, and that violence can be a part of this imposition. These well known examples also show the problems embedded in hierarchical systems do not apply only to specific cultural or philosophical orientations.

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Coupling the need to consider whom the people are who mold the hierarchy, with the evidence that hierarchies take many forms, has led some systems theorists, like Joanna Macy, to offer alternative possibilities. Macy correlates Buddhism with systems theories in attempting to revise the linear, hierarchical models of Western tradition. Using the Buddhist idea of *paticca samuppada* (mutual causality) Macy redefines hierarchical systems in terms of *holonarchy*.

Macy's model asserts that the core teachings of Buddhism, like the process potentials of systems theory, offer a means to model holism, mutual causality, co-participation, and interdependence (Macy, 1991). In her view what is key is who the people within the system are. This leads Macy to replace the idea of hierarchical relationships with the idea of holonarchy to show that there is a difference between a "good" hierarchy and a "bad" hierarchy — and it is one of intention¹ (Macy, 1991, p. 203). The result is a model that calls the hierarchy within living systems a "holonarchy" — to infer a holistic and organic quality. This holonarchy is used to model the assumption that society is

¹Others, such as Arthur Koestler, have adopted similar approaches (see Hampden-Turner, 1981).

an organism that effects an *integral* unity.¹ This design highlights the co-causal dynamics in terms of health and assumes that the integrity of the holistic process is sustained through healing what is dysfunctional in our social systems.

The health of a social system, that is, its flexibility and adaptiveness, is enriched by heterogeneity and, by the same token, threatened by regimentation which restricts its variety and internal communications . . . a social system is maladaptive where, through external force of the incapacitation of its members, it hampers diversification and the processing of information. It is also dysfunctional with the larger systemic hierarchy when it cannot integrate its sphere. If it is alienated from surrounding realities, it imposes this alienation on its members. "To 'adapt' to such a social systems is,' as Laszlo puts it, "just as desirable as to 'adapt' to a tumor on the brain." Rather, corrective measures are needed in such cases, if the social body is to retrieve the flexibility necessary to survive. (Macy, 1991, p. 201)

Thus, holonarchy is a theory that encourages what is "healthy" for human consciousness and attempts to speak about

¹I want to emphasize that this idea that society is an organism that effects an integral unity is very much a part of Western hierarchical models. It is evident in both Greek philosophy and Christianity. For example, Plato used this idea to explain the hierarchy of the Republic city, then, is best ordered in which the greatest number use the expression 'mine' and 'not mine' of the same things in the same way . . . For example, if the finger of one is wounded, the entire community of bodily connections stretching to the soul for 'integration' with the dominating part is made aware, and all of it feels the pain as a whole, though it is a part that suffers, and that is how we come to say that a man has a pain in his finger. And for any other member of the man the same statement holds, alike for a part that labors in pain or is eased in pleasure . . . the best-governed state most nearly resembles such an organism." (Hamilton & Cairns, 1989, Plato, *The Republic*, V. 462d) A good example from Christianity can be found in I *Corinthians* 12:12-26 . . . "For by one Spirit we have all been baptized into one body, whether Jews or Greeks, whether slave or free, and we have all been imbued with one Spirit. The body consists not of one but of many members. If the foot should say, 'Because I am not a hand, I do not belong to the body,' it would nevertheless remain part of the body. Or if the ear should say, 'Because I am not an eye, I do not belong to the body,' it is nevertheless part of the body. If the entire body were an eye, where would the hearing come in? Or if all were hearing, what of the smelling? . . . The eye cannot say to the hand, 'I do not need you.' . . . when one member suffers all the members share the suffering. When a member is honored, then all share the joy."

what this means in systems terms. The overall idea is that within a holonarchy there is a co-creative process that encourages the parts to transcend themselves in favor of a whole with reorganizable divisions, countless feedback loops, and flexible structures. This ideal, however, is theoretical. My point is that while the new name tries to *represent* a specific quality of integrity, what does not change is that the individuals within the community still, ultimately, define how the organism works. Because neither the new name nor the theoretical design creates a new kind of community, what we have is an attempt to offer human psychology as a means to philosophically redefine a problematic aspect within the known perceptions of hierarchy.

The new metaphor, however, is based on human psychology and defined in terms of our definitions about healthy human psychology. This creates a need to define what we mean by healthy human psychology and identity. Both human psychology and identity *must* be clarified to a greater degree if we are use them within systems theories and apply these ideas to our lives, especially since the Western model evolved as it did because the co-creative, systems-like worldview failed to address significant psychological issues in regard to identity.

For example, as I discussed above, Achilles' story created one basis for asking precisely "who" the individual was in relation to the group when his commitment to the group *could not* be actively expressed. He wanted to honor his community and the group's commitment to war but was in a situation in which this was not possible.

Faced with the validity of Achilles' dilemma the Greeks began to reflect on personal identity in relation to communal assumptions. By the time Socrates' chose to drink the hemlock some of the psychological effects that resulted in seeing the individual in terms of the group were clarifying to a greater degree. Socrates was a part of this clarification. When he was charged with crimes that questioned how he conducted his life, his actions showed that the perceptions of one individual's life did not always easily align with the group impulse — even when

the individual respected the idea of a co-created environment. In this case Socrates chose death rather than exile from his life in Athens. Socrates honored the Greek system that brought him to trial and he honored the group, his community, in doing so. While Socrates understood that he could probably persuade his judges to allow him to live what remained of his life in exile, he refused to do so. According to Plato, for Socrates death represented a more integral statement than exile could because he understood that the culture would have to integrate the long-term ramifications of making him a martyr.

. . . Reflecting that I was really too honest a man to be a politician . . . I went, and sought to persuade every man among you that he must look to himself and seek virtue and wisdom . . . If you think that by killing men you can prevent someone from consuming your evil lives you are mistaken; that is not a way of escape which is either possible or honorable; the easiest and the noblest way is not to be suppressing others, but to be improving yourselves.” (Socrates speech: Plato, *The Apology*)

The death of Socrates convinced Plato that a group vision could too easily lead to the loss of some of the best among us. Plato, therefore, decided a group mind was better off when molded by those capable of knowing what was best for the society. This was why Plato’s philosophy emphasized hierarchy and elitism. I might add that in this sense Plato’s ideas are similar to Jantsch’s because Plato continued to see the society organically while, also, revising the living systems matrix of Homeric ideas.¹ Jantsch is recreating premises Plato rejected. Yet, in doing so, Jantsch is rejecting the kind of culture that grew out of Plato’s philosophy in order to uphold the kind of systemic society Plato rejected. Their views, nonetheless, align because

¹See my earlier note in regard to Plato’s picture of the community as an organism.

both favor elitist hierarchies. Both also share a concern for values.

It is for this reason that I want to point out that the cultural changes that led the systems-like Homeric worldview to be replaced with the Platonic hierarchy were intrinsically tied with the cultural evolution and how the culture perceived its ideas about values. The Greek concept of *arete* (excellence) shows how living systems ideas developed in relation to ideas about values. In the Homeric world, which had what we would call a living systems worldview today, *arete* was seen as a systemic quality that spoke of the *function* of a part within the self-regulating, just, and organic whole. While the word has come to be translated as virtue, *arete*, initially, was used to convey the idea that each part of the whole was dynamically related to how the whole *lived*. As a systemic quality *arete* was not a concept, an ethical term, or even something easily reified. It was the element of excellence needed in a particular context in order to do a job well. Therefore, by definition, the word suggested an organic and a co-variant quality, one that initially reflected the presumed value of being integral with the whole that was assumed to be organic in the early Greek culture.

Through extending the idea of efficiency to humans the Greeks were endeavoring to explore efficiency as a function of human living. It was when *arete* assumed connotations of correct conduct that the organic ideal lost its flexibility and became more mechanistic. Over time the quality of having skill or efficiency at one's particular job or function as a part of the *living* organic whole came to be re-defined as virtue (Guthrie, 1950) — and in terms of an objective, unchanging truth. Plato, Aristotle, and Socrates were all instrumental in this. Each was attempting to help define the individual more effectively in terms of the whole. Some of the ideas Socrates presented, like “know thyself” and “virtue is knowledge,” speak to the perception that an individual could not live with efficiency unless he or she took the trouble to learn how he or she did so. These ideas have now become a part of Western psychology as the aspiration toward values and our

valuation of excellence, organic integrity, and functional efficiency continue to be considered.¹

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Like hierarchy, holonarchy fails to adequately address that many systemically premised philosophies have always been a part of the human worldview. It also fails to accommodate human learning as an experience where people, ideally, question cultural truths to some degree so that they can experience the world in ways which allow them to know why they believe what they believe. What this process is about is important to consider because there have always been people who have simply not “fit in.”

For example, the Sufi tale about how the water was changed (see Appendix A) asks us to consider whether a man who “gives up” his sanity to be a functional member of his “insane” community makes an appropriate choice. In the story humans are warned that all of the water in the world will disappear and be replaced by different water that will drive them mad. With the warning they are told that water saved in a special way would not be affected. Everyone ignores this warning except for one man who collects the good water and saves it so that when the day arrives that all had been warned of, only the one man had the safe water to drink. Going among the other people on this day he found, as predicted, they had all become insane. They not only talked differently, they thought differently; and not one of them remembered that they had been warned about the changed water. To make matters worse, when the man tried to remind them of the warning, they thought *he* was crazy. At first

¹Albert Einstein offers a good counterpoint here. He is often categorized as an objective realist. Nonetheless, when he was trying to explain his objections to quantum theory his rationale was that “Adhering to the continuum originates with me not in a prejudice, but arises out of the fact that I have been unable to think up anything organic to take its place.” (in Briggs, 1990/1988 p. 31)

he continued to drink his pure water, but ultimately found that he could not bear the loneliness.

Instead of assuming he should govern the society, as Plato does with his philosopher-kings, or as perhaps would be the case in the elitist systems advocated by some systems theorists, this man decided to give up the pure water and live like the rest of the people. In doing so he forgets all about what had happened and where the water of sanity was. The result was that he was regarded as the madman who had become sane again.

This tale, of course, does not address a situation where one cannot simply drink the water to “forget” and, as a result, must determine how to act, given that he or she fundamentally disagrees with all or some of the group’s assumptions. This situation is especially problematic if he or she cannot “forget,” and *wants* to support the idea of co-creation. And this happens in many ways, on many levels.

The nuances within this also are tied to what we mean by dysfunction. For example, when we look at Nazism and how most Germans adapted to the atrocity of Hitler in World War II, where do we find the dysfunction? Was the dysfunction confined to the “evil” of Hitler? Was it evident in the people who became Nazis and continued to work, to support their families, to not see — because they could not believe in the possibility of the atrocities developing around them? Is it apparent in the behavior of the Jews in Auschwitz who continued to study the Talmud and observe the traditional festivals?

. . . not because they hoped God would rescue them but because it made sense. . . one day in Auschwitz a group of Jews put God on trial. They charged him with cruelty and betrayal. Like Job, they found no consolation in the usual answers to the problems of evil and suffering in the midst of this current obscenity. They could find no excuse for God, no extenuating circumstances, so they found him guilty and, presumably, worthy of death. The Rabbi pronounced the verdict. Then looked up and said

that the trial was over: it was time for the evening prayer. (Armstrong, 1994, p. 376)

The complexity within these examples lead me to have reservations about ideas which use dysfunction as a measure of health. In this case, while I agree with Macy's assessment that an individual who adapts to a dysfunctional situation is not helping the process, I strongly hesitate to accept a model that suggests the elimination of dysfunction will allow a better interface between biological and social systems. Defining where the dysfunction is, and what the dysfunction is, includes the question of *self-interest*, as Macy acknowledges.

Her idealism, like that of many who theorize about community in terms of health, does not adequately address that our relationship to the community is not necessarily solved by our communal participation. It also reflects our levels of maturity and our acknowledged and unacknowledged levels of dogmatism, tolerance, and willingness to question. What is important is that we can have innovative ideas that are not dysfunctional and are not directly a part of the communal dialogue.¹ People within a community often do not understand new ideas until ways are developed to bring them into the communal dialogue. In addition, we can also make legitimate mistakes while still being psychologically healthy people.

To be sure, the idea of mutual causality diffuses the idea of linear causality. It does not, however, speak about how we grow effectively. Not only does the concept of mutual causality have difficulty in accommodating creative ideas that have no pre-existent or acceptable place in the communal system, it also fails to consider that human inventions can reach beyond the communal parameters. More to the point, these innovative ideas must enter the human dialogue if we are to enrich our communal perspectives. My point is that a community can believe it is

¹Kepler's idea of the ellipse was this kind of idea. So was Einstein's perception of relativity.

living in terms of a systems model, or a model of co-creation, while defining and sustaining its own maladaptive assumptions. When this is the case, those who do not agree or conform can easily be labeled as “dysfunctional.”

Macy’s work, again, is useful in framing how some systems theories become a part of the communal matrix. For example, one weak link in Macy’s design stems from her efforts to compare mutual causality (*paticca samuppada*) with living systems in a way that affirms the similar philosophical and psychological assumptions of Buddhism and systems theory without addressing the limitations within each. This is especially unsettling in regard to Buddhism because she overlooks the living process of Buddhism. Turning Buddhism into a philosophy her presentation becomes philosophically reductionistic despite her attempt to speak about systemic process. For example, she chooses her premises carefully. This allows her to compare Buddhism with systems theories without addressing how the Buddhist religion took form as a living system in the world as it unfolded. This makes her presentation reductionistic in a way that belies its premise of process. How this works is especially evident in the way Macy puts aside the impact of *karma* on Buddhists.

Buddhists throughout history have used *karma* extensively to speak about “the suffering we create, the traps we fabricate through fear and greed, and the possibility of liberation from them”¹ (Macy, 1991, p. xi). By not directly addressing that the idea of *karma* grew with Buddhism and was used by Buddhists to rationalize suffering as the religion developed, she does not deal with how Buddhism was an experience of living

¹In Macy’s words, “the notion of karma is associated with belief in rebirth or reincarnation, a widespread belief in Indian thought. Yet the Buddha’s concept of karma, or the determinacy of deeds . . . can be approached and understood apart from metempsychosis (the doctrine of the transmigration of souls). And as I explain below it is within the spirit of the Buddha’s teachings to do so. This setting aside of the question of rebirth is not meant to judge its validity, but to assert that it is not central to the concerns of this book.” (Macy, 1991, p. 162)

people. This makes Macy's portrayal of Buddhism, in effect, a static philosophy rather than the story of a living system.

Another weak link in Macy's presentation is evident when she talks about human suffering in relation to dysfunction. She inadvertently undervalues that our learning process is creative in a way that includes a certain level of probing possibilities. While I do not believe this is Macy's intention, I do believe her emphasis on dysfunction undermines personal growth in an uncomfortable way because it discourages the kind of creativity that yields insights that extend beyond the group's synthesis. The kind of probing I am referring to is like a child stumbling while learning to walk. Without allowing for this kind of stumbling we encourage political correctness and discourage people from making genuine efforts to enhance their experience.

There are many levels of intention involved in our lives and to assume disease is at the core of communal dissent is as ludicrous as suggesting a child who stumbles is not trying to learn to walk. The approach excludes what it means to reach out for learning and for new ways of envisioning our relationships with life and one another.

Coupled with the suggestion that the intention is to actually encourage personal growth, I believe the idea of holonarchy offers a good example of how easily we can undermine growth in others by encouraging them to perceive their limitations in terms of personal dysfunction. I would even suggest this undermines our co-creative process.

In addition, despite our good intentions, psychological systems that assume the concept of dysfunction as a measuring rod can easily be used to justify the point of view of those defining dysfunction and to denounce the perceptions of other. It is the kind of situation where we can interpret what we do not like in our world as dysfunction. We can also say that whatever we find discomfoting is the result of dysfunction. When dysfunction is the quality we use to define the health of our systems we create the need to ask how a culture or individual comes to define what "function" is or means. As Macy herself

acknowledges, it is not what the humans call themselves or the patterns they evolve that is the issue.

In sum, while I respect the intentions of systems theorists and believe they are well placed, I question whether the perception of hierarchy, like the circular cosmology before it, has blinded us so that we are not effectively envisioning something that would more comprehensively and concretely address our needs. This point is underlined when we consider that the idea of hierarchy has been extended into a cultural context so that those who assume some are elite and best equipped to lead the hierarchy have not merely *inferred* a pyramid of power, authority, or control, they have frequently created the kinds of societies that reflect this kind of belief.

Ideas like holonarchy do not “solve” this problem. The situation in our world today highlights that replacing a rhetoric that affirms authority with a new one that affirms healing, nurturance, and co-creation has its own set of problems. In a world where attempts to heal our dysfunction suggest compassion, our environment reveals our stories of pain and suffering seem to mushroom as we focus on finding them. Developing the capacity to live more interdependently — through healing one another — has led our community to be one where stories of wounding seem to be multiplying rather than diminishing. Sometimes it seems that the intentions in sorting out our histories and relationships are facilitating the creation of a society where many are co-creating environments where we can comfortably act out the tragedy of victimization rather than creating an environment that actually speaks of optimal self-actualization.

These models that promote interdependence, co-creation, and group visions based *solely* on *integral intentions* may not be facile enough to explain how we expand and integrate *new* and varied perspectives: the differing kinds of needs of children, adults, the elderly; our differing capacities; and multiple visions. If we prefer a learning process that

encourages creative growth, how can we actually encourage a genuine process of growth and discovery?

Chapter Thirteen

Science, Religion, and Creativity

One of the reasons for its success is that science has built-in, self-correcting machinery at its very heart. It takes account of human fallibility. One of its commandments is, “mistrust arguments from authority.” Too many such arguments have proved too painfully wrong. Authorities must prove their contentions like everyone else. This independence of science, its unwillingness to pay obedience to conventional wisdom, makes it dangerous to doctrines less self-critical The values of science and the values of democracy are concordant, in many cases indistinguishable. Science confers power on anyone who takes the trouble to learn it. Science thrives on the free exchange of ideas; its values are antithetical to secrecy. Science holds to no special vantage points or privileged positions. Both science and democracy encourage unconventional opinions and vigorous debate. Both demand adequate reason, coherent argument, rigorous standards of honesty and evidence.

Carl Sagan

“Carl Sagan’s Push for Popular Science”

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Understanding is the reward of faith. Therefore seek not to understand that thou mayest believe, but believe that thou mayest understand.

Augustine of Hippo

In Joannis Evangelium tractatus, XXIX, 6

All things excellent are as difficult as they are
rare.

Benedict de Spinoza
The Ethics

The relationship between science, religion, and creativity is key in addressing the question of learning, and of some of the limitations within systemic theories. This is because systems theory as we know it today was conceptualized by scientists, and science grew out of religions which never questioned what we would call a systemic way of living today. The convergence of science and religion in older cultures is especially evident in how ancient cultures responded to the cycles in the moon, the stars, the seasons as symbols to speak about their relations to the world. For example, they created cultural myths to speak about the physical reality. Through a slowly developed and shared symbology cultures eventually conceptualized that there was a time to sow and a time to reap. These ancient cultures saw science as inseparable from religion and did not question the relational nature of all they knew.

It was when ancient people developed the awareness that they could question the nature of what they were doing that the nature of the exercise changed. The various interpretations that emerged have led to the different kinds of orientations we now define as scientific and religious approaches. Some, however, question why we now see science and religion as different when both are derived from similar intentions and foundations.

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The religious geniuses of all ages have been distinguished by . . . religious feeling, which knows no dogma and no God conceived in man's image; so that there can be no church whose central teachings are based on it . . .

How can cosmic religious feeling be communicated from one person to another, if it can give rise to no definite notion of God and no theology? In my view, it is the most important function of art and science to awaken this feeling and keep it alive in those who are receptive to it. (Einstein, 1973, p. 38)

Each time I read the above words of Albert Einstein I am drawn to see them as a religiously-felt statement, and to see them in light of David Bohm's words that "scientific theories should be presented like poetry because, like poems, theories are insights, acts of perception, rather than hard and fast conclusions" (Briggs, 1987). Yet, while I always end up believing Einstein, who rejected traditional religion,¹ subscribed to Bohm's view, I also end up qualifying my belief because I am keenly aware that Einstein saw science as poetry, while also seeing something definitive, hard, and fast, behind the study of science. I believe the following paragraph from *The Evolution of Physics*, a book by Albert Einstein and Leopold Infeld, states Einstein's belief well.

Physical concepts are free creations of the human mind, and are not, however it may seem, uniquely determined by the external world. In our endeavor to understand reality we are somewhat like a man trying to understand the mechanism of a closed watch. He sees the face and the moving hands, even hears its ticking, but he has no way of opening the case.

¹Einstein clarified his position in regard to the relationship between science and religion when he responded to questions from a Japanese scholar on scientific truth. He offered four points to define his position, saying, "I. It is difficult even to attach a precise meaning to the term 'scientific truth.' Thus the meaning of the word 'truth' varies according to whether we deal with a fact of experience, a mathematical proposition, or a scientific theory. 'Religious truth' conveys nothing clear to me at all. II. Scientific research can reduce superstition by encouraging people to think and view things in terms of cause and effect. Certain it is that a conviction, akin to religious feeling, or the rationality or intelligibility of the world lies behind all scientific work of a higher order. III. This firm belief, a belief bound up with deep feeling, in a superior mind that reveals itself in the world of experience, represents my conception of God. In common parlance this may be described as 'pantheistic' (Spinoza). IV. Denominational traditions I can only consider historically and psychologically; they have no other significance to me." (Einstein, 1973, p. 262)

If he is ingenious he may form some picture of a mechanism which could be responsible for all the things he observes, but he may never be quite sure his picture is the only one which could explain his observations. He will never be able to compare his picture with the real mechanism and he cannot even imagine the possibility or the meaning of such a comparison. But he certainly believes that, as his knowledge increases, his picture of reality will become simpler and simpler and will explain a wider and wider range of his sensuous impressions. He may also believe in the existence of the ideal limit of knowledge and that it is approached by the human mind. He may call this ideal limit the objective truth.” (Einstein & Infeld, 1966, p. 31)

Putting Einstein’s ideas next to Bohm’s suggestion that scientific theory should be presented like poetry suggests scientific theories include metaphor and raise two questions. First, what do we mean by metaphor in poetry and science? Second, since Einstein was so committed to objective consistency in his science, can we actually correlate science as he presented it with poetic qualities, even given the extraordinary qualities of his insights? Reflecting on this I am drawn to consider how poetry, like science, can take many forms.

For example, the poetry of T. S. Eliot differs from that of my five-year old nephew. To be sure, both have validity and touch me on some level. It is what makes them different that is important here. I must admit that this difference fascinates me because I find it hard to clarify. I do know, however, that the difference is a part of why I am more inclined to return to the poetry of Eliot than that of my nephew. Attempting to offer some clarity about my feelings — or perceptions of — the differences between Eliot and my nephew, I find that the difference feels more like a quality than a preference to me. This quality that draws me to Eliot’s poetry, however, does not feel “innate” to

Eliot because, clearly, my nephew may develop this quality to a greater extent as his life develops.

Reflecting on this in relation to Bohm's words about science and poetry, and adding Einstein's person, point of view, and discoveries to my thoughts, leads me to suggest that Einstein expressed the elusive quality of "exceptional" poetry, and this creative quality cannot be relegated to one category of our experience. It is not only evident in science. This quality, which made Einstein innovative in an exceptional way, is how philosophy, art, and religion are fertilized. When these perspectives have been effectively intertwined with aspiration in the human environment, as they were in ancient Greece and the Renaissance, they have enhanced our ability to enlarge our interpersonal languages and perceptions of relationships.

In this context Einstein's "objectivity" can be seen as a belief that a representation of our ideas allows us to create symbols that are more precise than relative or subjective. This gives his science a foundation in the physical world because it suggests "objectivity" allows us to cover more territory when we communicate. From this perspective, even if it has become commonplace in the West to suggest there are schisms among science, religion, art, and philosophy due to specialization, we can also suggest that they came together because they are ways individuals look at the community and define it as well.

For example, when religion is seen as a Truth all individuals must aspire to, or as a "fixed" convention, it defines a different kind of ground than is found in a community that does not define religious Truth, or communal Truth, or what the underlying convention for defining change is or means. The range of possibilities is even more apparent in science where scientific discovery has enhanced our lives as well as created destructive technologies — showing that if we focus on how science, sometimes, adversely controls and manipulates the environment, we do not do justice to the whole of what science is. In other words, science is not, by nature or by definition, the key to a better world. Nor is it destructive or focused on

fragmentation and obliteration. We are the nature of the science we create and, as we participate with science, what we produce shows who we are as well as the nature of our science. We can say the same about religion.

On the one hand, what takes form culturally is very much related to how we approach our lives. On the other hand, how we form our lives is very much related to how we approach our culture. These complementary aspects suggest many possibilities live in relation to both the individual and culture. For example, we can expand the vision of the cultural matrix as presently defined through presenting new insights. This allows us to overturn or extend long held assumptions and metaphysics. We can also work with the potentials and limitations within the defined realities. This allows us to acknowledge that the many options presented are in relationship, and that what we do not believe in has a validity that requires some level of respect — as does our own point of view. Finally, we can maintain the cultural matrix. Usually we do all of these and I might add that all of these approaches are creative on some level because they issue from living beings, people interactively working with the tensions of their person, others, and the world. Even still, each of these three approaches impacts our living in a different way.

If we turn to religion, for example, we find evidence of all of these modes and can see how each has impacted human living in a different way. The Buddha offers an example of how insight can expand vision. I do not say this to infer that when he “awakened” he discovered the Truth through realizing there was a path that led to the cessation of suffering. Rather I believe that upon awakening and introducing his teachings — the Middle Way — the Buddha offered an alternative to the three approaches to living that were evident within his society at that time. His ideas were innovative and the result was the introduction of

another way of life that was able to more effectively serve the needs of some of the Indian people.¹

Someone like Mahatma Gandhi, on the other hand, shows how much a vision that sees beyond previously held assumptions is tied up with how we live out our vision. Gandhi perhaps personified what it means to follow a middle way. In his life Gandhi worked with the potentials he envisioned and the limitations surrounding him in the defined reality so as to bring about change. Balancing his beliefs in nonviolence, freedom, and human equality with the oppressions of colonization and the caste system, Gandhi did not compromise his belief system nor did he impose it on others through the kinds of oppressive methods he was trying to overturn. Rather, Gandhi worked with the potentials he envisioned and the limitations reality contained. Finally, in the pre-Renaissance Church we see an example of how an institution can attempt to maintain the cultural matrix. At that time natural philosophy was chastised (or worse) when offering physical models (like the heliocentric solar system) that did not fit the Church's interpretations of revealed scriptural truth.²

In science, too, all of these approaches are evident. I return to Albert Einstein to underline this and to also point out that even within any one of us all of these approaches can co-

¹This applies to the Buddha's followers and the Indian tradition as a whole, which was called upon to re-define its worldview when challenged by the Buddhist approach. In effect, the emergence of new Indian philosophies, for Jainism emerged at this time as well, catalyzed Hinduism to define itself more effectively. All were encouraged to add reason to faith in order to justify ideas that had previously been accepted implicitly, on faith alone (Radhakrishnan & Moore, 1971). The situation in Indian that engendered these changes in the sixth and fifth centuries BCE was dominated by three attitudes. These attitudes were pulling the culture in three directions. First, some saw ritual and sacrifice as the most effective means for securing whatever was desired. Second, some were concerned with the identity of *Atman* and *Brahman* as reflected in the Upanishads. Finally, there were the skeptics, who denied physical, moral, and sacrificial causality and also denied the possibility of knowledge (Koller, 1985).

²I might add that both the Church and its reformers negated the "progress" of Renaissance science. Both vehemently opposed the possibility of a heliocentric solar system. For example, Martin Luther, so instrumental in redefining the Church, disallowed the new theories of Copernicus, even before the Church did. Luther wrote, "This fool wishes to reverse the entire science of astronomy; but sacred Scripture tells us (Joshua 10:13) that Joshua commanded the Sun to stand still, and not the Earth." (in Coveney & Highfield, 1990, p. 47).

exist. For example, Einstein saw beyond long held assumptions when he introduced ideas like the photoelectric effect, Brownian motion, and relativity.¹ These ideas revolutionized science and laid the groundwork for quantum theory. Additionally, Einstein, to some degree, engaged with his own limitations in revising the limitations he saw within quantum theory. Einstein envisioned a unified field theory, but was never able to fully define it. Nonetheless, Einstein continued to engage in the community dialogue and continued in his efforts to present his point of view scientifically. Finally, Einstein showed that even a genius might be blinded by long-held cultural assumptions. He initially refused to allow himself to even consider the possibility that the universe was expansive, even though his equations suggested it.

The discovery that the universe is expanding was one of the great intellectual revolutions of the twentieth century. With hindsight, it is easy to wonder why no one had thought of it before . . . The behavior of the universe could have been predicted from Newton's theory of gravity at any time in the nineteenth, the eighteenth, or even the late seventeenth centuries. Yet so strong was the belief in a static universe that it persisted into the early twentieth century. Even Einstein, when he formulated the general theory of relativity in 1915, was so sure that the universe had to be static that he modified his theory to make this possible, introducing a so-called cosmological constant into his equations. Einstein introduced a new "antigravity" force which, unlike other forces, did not come from any particular source, but was built into the very fabric of space-time, and this could be made to balance

¹The photoelectric effect explains how electrons can be both particles and waves, and created the foundations for what eventually became quantum theory. Brownian motion of microscopic particles in liquids is the random movement of microscopic particles suspended in a liquid or gas, caused by collisions with molecules of the surrounding medium. The special theory of relativity says that the speed of light remains constant no matter how fast one observer is traveling with respect to another and the general theory defines the curvature of spacetime.

exactly the attraction of all the matter in the universe, so that a static universe would result . . . Only one man it seems, was willing to take general relativity at face value, and while Einstein and other physicists were looking for ways of avoiding general relativity's prediction of a nonstatic universe, the Russian physicist and mathematician Alexander Friedmann instead set about explaining it.¹ (Hawking, 1990, p. 40)

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This comparison is incomplete without considering that science and religion use these three approaches in different ways. Science, for example, derived a relational method. The scientific theory or model allows us to mutually access, represent, and discuss the particulars involved. Using models and theories scientists re-present ideas and extend them into the larger environment. This is a critical component of science, and additionally important in terms of this discussion because it is through the use of models that science brings a provisional and visible quality into scientific theory. This is well stated in Karl Popper's idea of falsification. As Popper points out, a good theory can, in principle, be disproved or falsified by observation² (1965).

In other words, while our confidence in a theory is enhanced each time new experiments are observed to agree with the predictions, if a new observation is found to disagree, we have to, by definition, abandon or modify the theory. This means

¹It should be noted that Einstein called this introduction of the cosmological equation the biggest mistake of his life (Hawking, 1990).

²In his book *Does God Play Dice?* Ian Stewart offers an example of the value of falsification in our living process while discussing how we can create our questions and answers in many ways. Using as an example the superstition on the island of Corfu that if you see a praying mantis, it either brings you good luck — or bad luck, depending on what happens, Stewart points out that this doesn't amount to a scientific theory, since scientific theory must in principle be falsifiable, and it is hard to see how an experiment could disprove the theory, even if you could measure luck (1989).

that while a theory can never be *proved*, it can be *improved*. Within this ongoing process of evaluation each theory allows us to model ideas that others, too, can use, reproduce, reference, and extend. Because of this science is not simply a deliberate procedure. At best it includes a larger community. Moreover, contributions from the community as a whole influence research and this community also evaluate reported results. All of this includes some deliberate dialogue about the research.¹ Thus science aids all of us as we develop and model questions that are not strictly limited to science.

The importance of physical science for the development of general philosophical thinking rests not only on its contributions to our steadily increasing knowledge of that nature of which we ourselves are part, but also on the opportunities which time and again it has offered for examination and refinement of our conceptual tools . . . The revision of the foundations for the unambiguous application of our elementary concepts, necessary for comprehension of atomic phenomena, therefore has a bearing far beyond the special domain of physical science. The main point of the lesson given us by the development of atomic physics is, as is well known, the recognition of wholeness in atomic processes, disclosed by the summary of the quantum in action . . . In its application to problems of a broader scope . . . [T]he gist of the argument is that for objective description and harmonious comprehension it is necessary in almost every field of knowledge to pay attention to the circumstances under which evidence is obtained. (Bohr, 1987, p. 1-2)

¹ This can include a certain degree of irony as Stephen Hawking notes in reference to his work with Roger Penrose in regards to how the universe started. ". . . in the end our work became generally accepted and nowadays nearly everyone assumes that the universe started with a big bang singularity. It is perhaps ironic that, having changed my mind, I am now trying to convince other physicists that there was in fact no singularity at the beginning of the universe." (1990, p. 50)

Because science allows us to improve theories and define their limitations science operates on many levels as the scientific method refines our perceptions. This refinement is one example of how science is creative and why scientific creativity is often aligned with something we see as more of a religious quality. In other words, when the purpose behind the engagement with theory aligns with an inner or a guiding question the scientist is engaging with a religious intensity. The effort is directed toward giving form to something that is undefined but felt in a primary way. The irony within this is that scientific ideas are in effect symbolic. They show how a scientist combines reflection and action in creating new ideas.¹

Ideally, this kind of modeling brings more than technique or method to the endeavor² (Briggs, 1990/1988), despite the degree to which this element is often obscured because the scientist is more formally goal-directed than someone like Mother Theresa who is living out a religious vision. This passionate quality, however, can be a part of why a scientist invests long years in attempting to find a means to bring an insight into our shared environment. This passion to explain

¹Joachim Weyl, a mathematician, known for having established the first unified field theory of gravitation and electromagnetism (1969) saw science as a philosophic domain. He wrote: "In the intellectual life of man we find discernibly separated, on the one hand, a sphere of *action*, of shaping and constructing to which the active artist, scientist, engineer, and statesman are dedicated and which is governed in the field of science by the norm of objectivity; and on the other hand, the sphere of *reflection*, which fulfills itself in insights into the meaning of our actions, is to be considered the proper domain of the philosopher. The danger faced by the work of creation, if not controlled by reflection, is that it outruns reason, goes astray, and hardens into routine; the danger of reflection is that it becomes just noncommittal 'talk about it,' paralyzing man's creative powers." Other scientists have spoken with more specificity in regard to how method, insight, and communion communicate to form a conceptual idea. What stands out within this discourse is that many say this conjunction feels like a revelation. For example, Charles Darwin's penned the following passage that germinated into his theory of evolution." The delight one experiences in such times bewilders the mind; if the eye attempts to follow the flight of a gaudy butterfly, it is arrested by some strange tree or fruit; if watching an insect one forgets it in the strange flower it is crawling over; if turning to admire the splendour of the scenery, the individual character of the foreground fixes the attention. The mind is a chaos of delight, out of which a world of future and more quiet pleasure will arise" (in Briggs, 1990, p. 116). Another good example is Henri Poincaré's essay on mathematical creation in relation to the discovery of Fuchsian functions (See Ghiselin, 1952, pp. 42).

²Einstein once described [Albert] Michelson as the artist in science. According to Michelson, "His greatest joy seemed to come from the beauty of the experiment itself and the elegance of the method employed." (Coveney & Highfield, 1990, p. 319)

something felt within one's person was at the heart of the inventions of scientists like Kepler, Newton, and Einstein, as noted above.

To overlook that this passion accompanies much scientific insight is to overlook that science is creative and that scientists can be creative *and* may also be deeply religious people although their "religion" might not have anything to do with traditional ideas about god or correlate with the spiritual ideas of any religious traditions. The intention behind their craft is not to make a religious feeling explicit but to measure, reproduce, and quantify. This does not negate that scientists have deeply felt relationships with the ideas they pursue or that they use their internal passion to bring new symbols into our world. It also does not negate that the passions they bring to their work can allow their insights, their method, and the symbols they evolve as they work, to resonate with life

Newton offers a good touchstone here for his vision allowed him to represent that aspects of reality that were once seen to be supernatural could be defined in the realm of the natural. He was not alone in this and he shows that at its most creative level science might also be a form of engagement that allows individuals to attempt to model religious questions "objectively." When they do so their insights add re-presentation and repeatability to what had before been only defined through metaphor or not at all. For example, when Newton saw the mysteries of nature and life and used them to speak about God in terms of the mechanical laws of nature, he was speaking in scientific terms and using a scientific vocabulary. Some of his contemporaries, like Leibniz, may have had different spiritual foundations. Even still, they were able to create similar symbolic correspondences and develop the new perspective in regard to the relationship between the physical and the invisible. Many, however, see the revision and criticism that science includes and conclude that science is detached from the subtlety, sensual, and vitally human qualities of life. They say it is reductionistic and without feeling. This perception overlooks that critically engaged

science includes a dialogue with one's peers and, like any endeavor conducted by humans, works best when some internal passion is brought to the activity.

Scientists, like those in other fields, do science in many ways. Many turn to science out of a desire to give a more precise form to something loved and believed in (Briggs, 1990/1988). The theories, models, and formula scientists bring into our world represent how science — through scientists — have shared their insights and ideas. Through doing so scientists have extended their ideas and offered others a means to facilitate the further engagement with the formulator's desire to dig deeper into questions concerning the relation between being and becoming, between permanence and change. Their efforts are not flawless.

In religion and the humanities, on the other hand, engagement is more subjective, internal, or personal. While “good works” create a living and objective form of expression, it is, nonetheless, true that these models are qualitative. Religious models are particularly difficult to characterize. How does one define “genuine religious feeling” and quantify what is embodied through religious transformation? This kind of quality cannot be measure or translated into something else. The religious models — be they symbols, allegories, creeds, parables, koans, or rituals, etc. — are, however, often said to point to different ways to reference our beliefs, our experience, and our assumptions. It is also said, however, that religion should not be confused with an Ultimate Reality or a God.

. . . To study the nature of this experience is rather a difficult matter . . . [Religion] is a type of experience which is not clearly differentiated into a subject-object state, [it is] an integral, undivided consciousness in which not merely this or that side of man's nature but his whole being seems to find itself . . . giving rise to inward peace, power and joy. (Radhakrishnan, 1988, p. 72)

Looking at the possibilities through the lives of religious people we find that when practical life reflects a religious

intention it does not matter whether the insight brings “emptiness” or “fullness” any more than it matters whether the spiritual is defined in theistic or impersonal terms. It also does not matter what “method,” or whether any method at all was used to embody this very personal and strangely impersonal quality for it is commonly accepted that, in the final analysis, there is no way of learning a religious experience and no institution, method, or technique that will insure a religious feeling within anyone of us. The embodiment of the belief is a personal understanding. It is who someone is.

Yet, whatever this religious affirmation is, it is something others can feel is present in one who holds it. While what “this” is, is non-transferable, at the same time, in an explicable way, the bearing of a deeply religious person offers an indication that there is another way to experience living. At best, the immediacy and sincerity of the person who “is” this way embodies the kind of insight that led the Buddha to recognize he had become “awake” in a way he had not been before. He also recognized that until the insight was “there,” it was not possible for it to be a part of his perception of the world.

This is to suggest our questions are neither scientific nor religious. Nor are they humanistic *per se*. We experience our world in many ways. As we do so questions about intention and values invariably arise, as they should because we are alive and continually realigning our experiences as we react to the world and review our belief systems. Since we learn with each experience, we must be able to bridge and communicate different levels of knowing and differing perspectives on reality. The parameters within this are complex and raise some questions in regard to how we communicate and whether there is a value in qualifying different relationships with science, religion, and the humanities in our lives.

Chapter Fourteen

The Limitations in Comparisons of Quantum Theory and Eastern Religious Traditions

All language is a set of symbols whose use among its speakers assumes a shared past. How, then, can I translate into words the limitless Aleph, which my floundering mind can scarcely encompass? Mystics, faced with the same problem, fall back on symbols . . . Really, what I want to do is impossible, for any listing of an endless series is doomed to be infinitesimal. In that single gigantic instant I saw millions of acts both delightful and awful; not one of them amazed me more than the fact that all of them occupied the same point in space, without overlapping or transparency . . . I saw, close up, unending eyes watching themselves in me as in a mirror; I saw all the mirrors on earth and none of them reflected me . . . I saw the circulation of my own dark blood; I saw the Aleph from every point and angle, and in the Aleph I saw the earth and in the earth the Aleph and in the Aleph the earth; I saw my own face and my own bowels; I saw your face; and I felt dizzy and wept, for my eyes had seen that secret and conjectured object whose name is common to all men but which no man has looked upon — the unimaginable universe.

Jorge Luis Borges
The Aleph

For centuries knowledge meant proven knowledge — proven either by the power of the intellect or the evidence of the senses. Wisdom and intellectual integrity demanded that one must desist from unproven utterances and minimize, even in thought, the gap between speculation and established knowledge . . . Einstein's results again turned the tables and now very few philosophers or scientists still think that scientific knowledge is, or can be, proved knowledge. But few realize that with this the whole classical structure of intellectual values falls in ruins and has to be replaced . . .

Criticism and the Growth of Knowledge
Imre Lakatos & Alan Musgrave

Quantum theory is a symbolic and statistical theory that mathematically represents subatomic reality. This mathematical approach is necessary because at the subatomic level matter does not exist but rather shows “tendencies to exist.” This means subatomic events do not occur at specific times and in definite ways but show “tendencies to occur.” These “tendencies” are not quantifiable until the probabilities are “collapsed” and become particles. Then the probabilities, which are not probabilities of things so much as observable interactions, quantify how they are related through their interactions. This is why, in effect, quantum theory is a physics theory that can be described as a way of speaking about energies more than substance. It is also why quantum theory is a systems theory, being a theory that talks about how energies overlap, intertwine, and create the texture of the universe.

Quantum theory is usually described in terms of an underlying complementarity¹ and potential.¹ This means, on the

¹The wave/particle relationship is the attribute involved here. It is best known in terms of Heisenberg's uncertainty principle, which says that if you measure position accurately you must sacrifice an accurate knowledge of momentum.

one hand, all cannot be clearly defined simultaneously. On the other hand, because this is the case, quantum theory is not a traditional classical theory. Traditionally, classical theories assumed that all of an entity's attributes were, at least in principle, accessible to precise measurement. In quantum theory this is not possible. For example, both position and momentum are needed to define a quantum attribute — yet both cannot be measured at the same time. Their relationship is indivisible and does not give one description but two contradictory descriptions.

Like any systems approach quantum theory is relational. It is thus a useful tool in qualitatively looking at all that cannot be quantified. The irony of this must be acknowledged. In other words, quantum theory literally means a theory that quantifies. What quantum theory quantifies are relationships. More to the point, it is a systems theory that specifically speaks about relationships that cannot be quantified in a classical sense because in quantum theory one cannot establish a one to one correspondence between the statistics and the physical reality. In addition, because quantum relationships define the subatomic level of reality and systems theory has its roots in biology, quantum theory defines a different kind of system than a traditional biological or physical system.² This makes the puzzle of quantum theory even more intriguing because ancient traditions saw the world as a living system and in a way that assumed that physics and biology were inseparable.

All of these factors have attracted many nonscientists to quantum theory as if to a magnet. They see the theory as a

¹In this framework the traditional idea of potential is changed. What is key here is that quantum potentials do not exist as some kind of precise and preexisting possibility. Rather, in quantum theory unmeasured possibilities are unrealized tendencies for action. The world of potential is empty of actualities, even possibilities.

²"Something about the structure of living systems themselves — from the humblest yeast cell to a complex human being — is such that their very existence creates a special kind of order . . . This living order somehow manages to get round the Second Law of Thermodynamics, which claims that everything in the universe is running down, or falling into disorder (the law of entropy) . . . The kind of order created by living systems is not the order of tidying-up operations . . . We have a physical *impulse* to be creative that follows from the physics of living systems." (Zohar, 1990, p. 190, 194)

systemic model of a participatory universe. Some have proposed that the theory offers an avenue for combining science and ancient religious traditions. Non-scientists of this bent are likely to support their ideas about the relational, interactive, and co-creative possibilities the theory offers using the ideas of scientists like John Wheeler, a physicist who said,

Nothing is more important about the quantum principle than this, that it destroys the concept of the world as “sitting out there,” with the observer safely separated from it by a 20-centimeter slab of plate glass. Even to observe so minuscule an object as an electron, he must shatter the glass. He must reach in. He must install his chosen measuring equipment. It is up to him to decide whether he shall measure position or momentum. To install the equipment to measure the one prevents and excludes his installing the equipment to measure the other. Moreover, the measurement changes the state of the electron. The universe will never afterward be the same. To describe what has happened, one has to cross out that old word “observer” and put in its place the new word “participator.” In some strange sense, the universe is a participatory universe. (in Capra, 1984, p. 127; Wheeler, 1979)

The frequently overlooked point in these arguments is that when quantum theory is adapted to emerging ideas about consciousness and ancient views of spirituality there is a tendency to overlook that it was through the scientific method, not revelation, that quantum theory took form. Wheeler’s ideas, for example, grew out of the internal logic of science and the faith of scientists in this logic. Wheeler, like many scientists involved in quantum research, was not negating the scientific method of creating models and isolating problems. Nor was the introduction of quantum theory an attempt to temper the scientific method. Rather it became clear to people like Wheeler that our models include our own participation with them as we study them. This was acknowledged within the context and using the methods of science. What is especially significant in terms of

this discussion is that when Wheeler saw his ideas adapted to support perspectives and intentions that he felt were radically different in purpose and intention from scientific ideas, his response indicated the degree to which our creative tensions and intentions interpenetrate.

In this case Wheeler not only rejected the assumptions that his views corresponded to what some non-scientists were saying he meant, he also released two scathing letters branding all attempts to associate physics and mysticism as “moonshine,” “pathological science,” and “charlatanism.” As Wheeler put it, “in the quantum theory of observation, my own present field of endeavor, I find honest work almost overwhelmed by the buzz of absolutely crazy ideas being put forth with the aim of establishing a link between quantum mechanics and parapsychology” (Wilber, 1990, p. 153). It should also be noted that Wheeler and some of his colleagues also asked to have all sanctions of the American Association for the Advancement of Science (AAAS) removed from any endeavor tending toward transpersonalism, a sanction that Margaret Mead had fought hard to obtain.¹ (Wilber, 1990)

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I have introduced these differences in perception in order to extend the considerations of science and religion begun in the previous chapter. In this chapter I have tried to re-focus the discussion in two ways. First, I examined the relationship between quantum theory and the mystical experience. In addition, I delineated some of the limitations in correlating quantum theory with mystical traditions. These comments are intended to clarify some of the discussions that promote a

¹AAAS is a Washington-based organization that represents all branches of physical, biological, and social sciences. With approximately 133,000 members, the AAAS is among the largest scientific societies in the world. It is also a strong force in establishing scientific policy and promoting science in education (Trefil & Hazen, 1995).

perception of reality based on the unity of spiritual and scientific realms. The popular premise states that quantum theory provides a foundation for this correlation and it can be seen as a model of ongoing (spiritual) energy exchange. Yet when the theory is used to *confirm* the "truth" within mystical traditions (*e.g.*, Capra, 1984; Hayward, 1987; Wallace, 1989) there is the inference that quantum theory "proves" what mystics have said throughout time. This kind of argument invariably overlooks many of the limitations mystical traditions have shown throughout the ages. As this book demonstrates from several vantage points, these kinds of analyses are incomplete. They inevitably adopt a framework that fails to incorporate our practical living. Or, as the physicist Erwin Schrödinger said, "[if atomic research] cannot be fitted into space and time, then it fails in its whole aim and one does not know what purpose it really serves."¹ (letter to Willy Wien, 25 August, 1926, in Moore, 1989)

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When looking at comparisons of Eastern religious traditions and quantum theory the most striking quality is that mystical traditions are generally homogenized theoretically. Yet, if we compare quantum theory with mystical tradition without addressing the complexities of each mystical tradition in its living environment we are theoretically defining the mystical insight and separating it from the context of human living. Thus, the homogenous approach ignores that mystical insights are a part of a larger cultural context in both the East and the West. For example, in both the East and the West we find examples of

¹Jules-Henri Poincaré offers some insight on this issue as well. In *The Value of Science*, Poincaré wrote, "A reality completely independent of the spirit that conceives it, sees it or feels it, is an impossibility. A world so external as that, even if it existed, would be forever inaccessible to us." (See Herman von Helmholtz, *Popular Lectures on Scientific Subjects*, trans. by E. Atkinson, 2nd series (New York: D. Appleton & Co., 1881, in Wallace, 1989, p. 30).

historical, linear, atemporal, contemplative, theoretical, and cyclically based views of reality.

In addition, in any one tradition we find many perspectives. Hinduism offers a good example. The spiritual philosophy of Hinduism sees the mystical insight as the supreme knowledge. Even still, we find a variety of religious beliefs and practices. Some Hindus aspire to see God face-to-face, others aspire to merge with a vision of truth. Some Hindus find peace in action, others in non-action. In addition, while Vedanta has served as the preeminent theological system and has developed ideas about the path of knowledge (*jnana*), the majority of Indian people have followed a devotional path (*bhakta*).¹

Hinduism also shows a mystically oriented religious culture can take many forms, adding other religious traditions to the discussion further emphasizes that many interpretations of mysticism co-exist in our world. They also co-exist within all kinds of cultural matrices. This is especially evident in the East where there are numerous Eastern traditions and many developed interpretations of the mystical, often contradicting one another as they did so.

These variations underscore that we cannot convincingly refer to mystical Eastern traditions as if they are interchangeable. Moreover, in Asia we find a number of easily recognizable cultures. The theoretical and metaphysical cultures, such as like the Indian religious philosophy discussed above differ significantly from the pragmatic philosophy predominant in the religion of areas like China and Japan. Indian metaphysics and Chinese pragmatism also differ significantly from Islam, which is rooted in the Abrahamic traditions and is diffused throughout Asia, making it yet another cultural component of the Asian worldview — one that is not based on a mystical aspiration.

¹At the same time, other Hindu approaches — like the Carvaka system — do not even encourage mystical realization. Within the Carvaka tradition valid knowledge is only attainable through direct perception. Therefore, in the Carvakas tradition the attainment of pleasure and the avoidance of pain are the chief goals of life — not liberation.

In addition, when the focus is only on mysticism within Eastern traditions, the focus often tends to overlook Western mystical traditions as well as why the West chose to develop secular structures. Also overlooked is how Western solutions were intended to alleviate some of the limitations the people experienced as a result of having religious institutions involved in social issues. To be sure, the western heritage grew out of the Greek tendency to be seduced by reason but this is no more the whole story than is the assumption that the Eastern mind is one that has drawn attention to the limitations of reason. In short, just as Eastern cultures have always included reasoned philosophies, mystical *and* practical approaches, the East has also, always, included populations as unaware as their western counterparts. Mystical orientations and lack of awareness have always been a part of all traditions. In the North, South, East, and West we find reasoned philosophies, mystical *and* practical approaches.

More to the point, when the focus is on intertwining the sacred and the secular three points are particularly noteworthy. First, the tendency to speak in terms of East and West is incredibly misleading. As noted, cultures in the North and South have rich histories, as research focused on these cultures demonstrates. Second, diverse cultural traditions, throughout the world continue to define their secular structures through their religious traditions. Finally, diverse traditions are now wrestling with the issues of secularization and much social unrest has resulted from this.

If we focus primarily on relationships between quantum theory and Eastern traditions when we consider the idea of some kind of correspondence between science and the sacred, we find that quantum theory and mystical traditions do not cleanly converge. On the one hand, quantum theory offers a model that defines processes beautifully. The model, however, explains nothing.¹ More precisely, as Nick Herbert's points out in

¹—Quantum theory works like a charm: it correctly predicts all the facts we can measure plus plenty we can't. . . This theory has passed every test human ingenuity can

Quantum Reality,¹ quantum theory offers eight versions of quantum theory, all of which are experimentally indistinguishable and, again, explain nothing.² Eastern mystical traditions, on the other hand, model possibilities that are really specific to one's internal experience.

David Loy's book, *Nonduality* (1988) notes there are at least five major nondualistic traditions in the East alone. Yet overall Loy's point conforms to one frequently encountered in mystically inclined philosophical analysis, and I would propose that this view is misleading. Loy, like many others, presents the idea that apparent philosophical differences among the traditions do not pose an intrinsic problem because those who have known nonduality know it is indivisible in a way that cannot be represented outside of its essential wholeness. In the words of the *Kena Upanishad*, "It is not understood by those who [say they] understand It. It is understood by those who [say they] understand It not." (Radhakrishnan & Moore, 1971, p. 42)

Probably the most reliable conclusion we can draw from this is that there is only a very tenuous basis used to create the ground that correlates quantum theory and nonduality. Quantum theory explains nothing and the mystical traditions claim nothing is explicable. The two meet because mystical traditions and quantum theory both revolve around the idea of connectedness. Yet, each view defines connectedness in a fundamentally different way. First, the impulse in Western science — and by extension quantum theory — differs from that in the spiritual systems. Western science includes our involvement with reality as well as other epistemological and ontological issues (Kafatos

devise down to the last decimal point. However, like a magician who has inherited a wonderful magic wand that works every time without his knowing why, the physicist is at a loss to explain quantum theory's marvelous success . . . fifty years have gone by and the structure appears stronger than ever . . . [yet] nobody can agree on what's holding the building up. Different people looking at the same theory come up with profoundly different models of reality, all of them equally outlandish compared to the ordinary experiences which constitutes both daily life and the quantum facts." (Herbert, 1987, pp. 157-8)

¹See Appendix B for an outline of these eight points of view on quantum reality.

² Since this book was written Nick Herbert has added two more versions of quantum theory to the eight published in *Quantum Reality*.

& Nadeau, 1990; Zohar, 1990). This is critical to acknowledge because the mystical philosophies do not encourage the kind of rigorous method and experimentally replicable qualification / verification process that is a part of the scientific model and a part of the debate quantum theory continues to engender within science. Stephen Toulmin's book *The Philosophy of Science*, for example, speaks about how quantum theory offers a model that explains nothing, and this is a part of the nature of the philosophical dialogue in regard to the theory.

The impossibility of providing a single model by which to interpret the mathematical theories of quantum mechanics has . . . been felt by many to be a drawback . . . Previously, it has always been possible to match one inferring technique over its whole range of application with a single model: it is this which, for demonstrable reasons, cannot be done in the case of quantum mechanics, so that while a wave-model may be of use in some applications of the theory a particle-model is more suitable in others. (Toulmin, 1960, p. 35)

In addition to our inability to define a single quantum model there is the realization that human awareness *per se* cannot be defined within the quantum reality. We cannot explain what our correlations say in terms of quantum reality because once we bring in our perceptions we are outside of quantum reality. Our interpretations are contextual and even engaging in the exercise of saying why quantum theory does or does not correlate with Asian or mystical traditions, brings us face-to-face with the “reality” or the “problem” of observation in both quantum theory and the Eastern nondualistic traditions. This “problem” emphasizes there are many perspectives about how we best correlate our spiritual and physical understandings which are, themselves, observation parameters. Our definitions particularize. They take form within the world of qualities.

The Eastern mystical traditions themselves show that the nature of living religions take form in the world of qualities.

We see this in looking at how the most influential Asian nondualistic philosophies — *i.e.*, Buddhism, Hinduism, or Taoism — developed. In each of these traditions it is accepted that our world *appears* as a collection of discrete objects, interacting causally *in* space and time. As a result these religions developed various conceptual modes and metaphysical tools to communicate about the indivisible nonduality. These conceptual modes complement our lives, or the perceptions of being “separate” people that often come up through our awareness of living and dying, through the evident differences among us, or in a yearning some feel inside to deepen their perception or extension of wholeness.

Nonetheless, Hinduism, Buddhism, and Taoism still discuss why we can have a perception of separation and why this kind of perception can co-exist with our indivisibility. The Hindus talk of the higher and the lower self, the Buddhists point out the error in adhering to the idea of the permanent, substantive self, and even in the Tao, where all is only the Tao, we are left with the question of why, if there is only the Tao, some ask why it is, or what it is, in the first place. Moreover, while both Taoism and Hinduism admit that what can be named is not really what is, they use the convenience of a name when referring to this unknown quality (the former calls it the *Tao*, the latter *Atman/Brahman*). Buddhism, on the other hand, does not adopt a substantive view of reality or a name for our perceived duality but does define a variety of interpretations about our perceptions of the mutual co-arising (*paticca samuppada*), or how we perceive changing and becoming.

In quantum theory this recognition of the appearance of our world as separate or discrete is evident through what is simply called the observation problem. The observation problem arises because quantum theory shows that at the quantum level we can transcend the tension between the I and the not-I but the idea of “we” does not “fit” in the indivisible realm. In sum, quantum theory cannot address how *we* ground the reality of “we” in a new conceptual structure since this kind of

categorization does not apply in the quantum realm. The answer nondualistic traditions would offer — given this paradoxical situation — is to act nondualistically for nondual action is effortless. It speaks of integrity of mind, intention, action and the indivisible reality. In other words, our perceptions of separateness have only brought about diverse interpretations of “I” and “we.” Moreover, when all is experienced as nondual, life is not an effort where part of the person is pushing another part any more than an intention is separate from an act.

The Taoist *wei-wu-wei* is the denial of objective action, while the Indian Buddhist concept of *anatman* and the no-mind of Ch’an [Zen] emphasizes the denial of an agent. The Taoist denies that I *act*; the Buddhist denies that I act. But to deny an objective action amounts to the same thing, since each half of the polarity is dependent on the other, [In Hinduism] The *Gita* . . . implies how this bifurcation occurs. The sense of dualism arises because action is done with reference to the fruit of action — that is, because an act is performed with some goal or aim in mind: I act *in order* to gain some particular result . . . The only way to transcend the dualism between the self and the other is to act without intention — that is, without attachment to some projected goal to be obtained from the action — in which case the agent can simply *be* the act.” (Loy, 1988, p. 106)

Yet, if the agent can simply be the act and nonduality is the underlying matrix, and is affirmed by quantum theory, we underline rather that solve the question of duality because quantum theory *per se* cannot hold our awareness of nonduality as Danah Zohar points out in her book *The Quantum Self*.” Ironically, while urging us to transcend the old observer/observed duality, quantum physics as presently understood actually sustains it” (Zohar, 1990, p. 50). Thus, while many might claim that quantum theory offers a metaphor for wholeness, and a means to affirm nonduality as a matrix, how we extend a perception of what wholeness is into effortless

interpersonal living is not defined metaphorically but through our actions. We *still* have the problem of how to create a composite of the many possible ways each one of us is time and how each one of us changes in time and over time. We also have the question of how action and perception integrate and communicate with phenomena. It is at this point that interpretations step in.

Existence and relationship are inextricable in the quantum realm as they are in everyday life . . .
The wave/particle duality is a good metaphor for a deeply integrated mind/body relationship . . .
The wave/particle duality of quantum “stuff” becomes the most primary mind/body relationship in the world and the core of all that, at higher levels, we recognize as the mental and physical aspects of life. Because it is so primary, and thus irreducible to any other thing or process, the wave/particle duality allows us to see the origin of the mental and the physical and to see what we really mean by each. (Zohar, 1990, p. 98)

The question of what we really mean by each other brings this discussion full circle, raising the question of how we create our lives from a perspective that highlights how much our values mold our scientific and religious insights. This, in effect, reframes the question of how we use our symbols, metaphors, religion, and science as we communicate about our perceptions, interpretations, and assumptions. Do we stabilize a new vision of truth or continue to challenge apparent inconsistencies? What is the relationship between insight and reduction?

This relationship is very much tied up with how we define the relationship between scientific and religious approaches. It is also a critical ingredient in the kinds of values we bring to our relational environment as we create our lives. The idea of context offers a good counterpoint here as does the creativity Einstein employed in adding relativity to Newtonian mechanics and opening doors that helped develop quantum theory. To once more reflect on the insights of these two men,

when relativity changed the context of Newton's view of absolute space and absolute time Newton's theory did not "change" so much as it was extended because the Einsteinian revision did not challenge the classical assumption that we could define a one-to-one correspondence between the physical realities and our theories. Moreover, the intention behind Einstein's theories of relativity was not to prove that everything is relative, as people who do not understand the theories often assume. Rather the theories are concerned with what is relative and attempts to arrive at a statement about the physical world that does not depend on the circumstance of the observer (Storr, 1992).

Quantum theory, on the other hand, changed the whole picture by suggesting the underlying nature of reality is paradoxical. One significant outcome of this is that people who now call themselves classical scientists are seeking further self-consistency within theories, despite how the fundamental nature of reality appears paradoxical. They are not suggesting we can enhance our metaphoric vocabulary so much as suggesting we can try to more consistently define the apparent inconsistencies (Bell, 1988). Thus, classically oriented scientists continue to look for theories that will hold ideas like relativity and quantum theory together. This kind of orientation represents an effort to continue to represent ideas about the invisible more effectively and more efficiently. In addition, their goal is to bring them into the relational dialogue of science concretely and within the interpersonal environment. This is a significantly different kind of emphasis than one that emphasizes subjective experiences and spirituality.

Chapter Fifteen

Falsification and the Perennial Philosophy

This true religion or philosophy, whose goal is *theosis* and attainment of sacred knowledge, has existed from the beginning of human history and is attainable through either the historical expression of this truth in various traditions or by intellectual intuitions and “philosophical contemplation.”

Seyyed Hossein Nasr
Knowledge and the Sacred

Are those who know and those who do not
know equal?

Quran

Some who advocate seeing quantum theory as a confirmation of mystical insights incline to the view that the theory as a confirmation of the perennial tradition. According to this view the mystical experience cannot be reduced and offers a certitude that awakens one to something that can only be felt and can never be totally articulated interpersonally. The perennial philosophy itself asserts that there is a unity of experience that permeates all religious insight and speaks to something eternal, universal, and immutable. Its appeal rests on its premise of a truth that is known once and for all. The perennial view is frequently presented as a metaphysical engagement defining a metaphysic that is not a system so much as a consistent doctrine concerned with the attainment of sacred knowledge.

The metaphysical “philosophy” is called “perennial” because of its eternity, universality, and immutability . . . it is not a matter of words. That the doctrine has no history by no means excludes the possibility, or even the necessity, for a perpetual explication of its formulae, an adaptation of the rites originally practiced, and an application of its principles to the arts and sciences . . . Of these explications and adaptations a history is possible. Thus a distinction is drawn between what was “heard” at the outset and what has been “remembered.” . . . Within the tradition itself there cannot be any contradictory or mutually exclusive theories or dogmas. For example, what are called the “six systems of Indian philosophy” (a phrase in which only the words “six” and “Indian” are justified) are not mutually contradictory and exclusive theories. The so-called “systems” are no more or less orthodox than mathematics, chemistry, and botany,

which, though separate disciplines more or less scientific amongst themselves, are not anything but branches of one “science.” (Lipsey, 1977, p. 6-7)

Why has the perennial philosophy become popular among many in the twentieth and twenty-first centuries? It seems a number of enthusiasts are drawn to, and highlight, the idea that a sense of religious realization can bring a person a deep feeling of spiritual peace. From this perspective the perennial philosophy offers a framework useful to those who aspire to re-spiritualize society. It is important to note that the perennial philosophy is usually defined philosophically, and the philosophical tenets are frequently characterized in terms of “sacred knowledge.”

[sacred knowledge] allows the sage to “see God everywhere,” to observe harmony where others are blinded by darkness. The man of knowledge goes beyond himself to reach Heaven and through this process the Tao of his own self which is none other than the sacred Ground of his own being. (Nasr, 1989, p. 8)

The universal flavor of this philosophy has been an ongoing part of its appeal as it asserts that many religions have defined different paths to the one underlying truth. Still, as Aldous Huxley points out in his book *The Perennial Philosophy*, the perennial philosophy itself is a metaphysic. It is:

. . . the metaphysic that recognizes a divine Reality substantial to the world of things and lives and minds; the psychology that finds in the soul something similar to, or even identical with, divine Reality; the ethic that places man’s final end in the knowledge of the immanent and transcendent Ground of all being. (Huxley, 1970, p. vii)

Aldous Huxley wrote that Leibniz, a Renaissance thinker, first employed the term *philosophia perennis*, the perennial philosophy. Others trace its origin to medieval and Greek thought (Nasr, 1989). It was probably first used by

Agnostino Steuco¹ (1497-1548), the Renaissance philosopher and Augustinian theologian,² who was influenced by Marsiglio Ficino (1433-1499), Pico della Mirandola (1463-1507), and Nicholas of Cusa (1401-1464), (Nasr, 1989). Steuco employed the term “*perennial perennis*” to signify a perennial wisdom embracing both philosophy and theology that was not related to only one school of wisdom or thought.

Some, like Ken Wilber, see this philosophy as the transcendent essence of the great religions. As Wilber writes, the perennial philosophy has at its core the notion of *advaita* or *advaya* — “nonduality,” which means that reality is neither one nor many, neither permanent nor unified, neither pluralistic nor holistic.

[The perennial philosophy] is entirely and radically above and prior to *any* form of conceptual elaboration. It is strictly unqualifiable. If it is to be discussed at all . . . it must involve paradoxical statements. So, it is true that reality is one, but equally true that it is many; it is transcendent, but also immanent; it is prior to this world, but it is not other to this world — and so on. (Wilber, 1990, p. 156)

Because Wilber has written extensively in this area, I want to turn to him to consider the perennial philosophy in light of what it means that the perennial philosophy puts Spirit at the apex of hierarchical philosophies. Moreover, because I see Wilber’s ideas voiced by many who speak in terms of why the so-called mystical implications are beyond anything science can define, I believe adding his thoughts to this book can help clarify some of the problematic issues that arise in relation to the perennial philosophy. These issues are especially evident in

¹Steuco emphasized the significance of Zoroastrianism as the origins of primordial wisdom, believed that true philosophy originated with Plato, who was heir to this wisdom, and that true theology originated with Christianity (Nasr, 1989).

²Nasr notes that the identification of the “perennial philosophy” with Thomism or Scholasticism in general is a twentieth century phenomenon and in the Renaissance the Scholastics in general opposed the thesis of Steuco (Nasr, 1989).

regard to how ideas about values and creativity are configured hierarchically and in terms that define spiritual realization as the highest — or ultimate — state of consciousness. Finally, Wilber's ideas are useful in showing that spiritual hierarchies can easily rest on tautological assumptions. This is an important point to pursue because some see the spiritual model Wilber defines as a "unified field theory of consciousness — a synthesis and interpretation of the world's great psychological, philosophical, and spiritual traditions." (Wilber, 1990) If the unified theory confirms its own assumptions, and I am asserting it is tautological in this way, it is not open to actual revision, or revisioning.

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In Wilber's view the perennial philosophy is very much tied into the mystical experience where nonduality is apprehended directly, immediately, and is without mediation. This mythical experience cannot be defined by symbolic elaboration, conceptualization, or abstraction because it is through mystical realization that one knows spirit in its transcendent aspect is the highest summit of being. At this point one also knows that Spirit is the radically immanent aspect of spirit, or the Ground or reality of all levels. Wilber's point is that since most of us do not experience spirit in its transcendent aspect, or Spirit as radically immanent, most of us are ". . . not yet in contact with ultimate reality. We are still imprisoned in our cave with our backs to the light, and can only watch the shadows on the wall" (Wilber, 1985, p. 10).

Some, however, have had a direct glimpse of the mystical and know how real it is. Unfortunately, according to Wilber, this has led many to attempt to "prove" the mystical exists through using physics. This, in Wilber's opinion, misses the point and is a fundamental error because in trying to "prove" mysticism using modern physics we engage in an exercise that is actually detrimental to genuine mysticism for three reasons.

. . . 1) it confuses temporal, relative, finite truth with eternal-absolute truth . . . 2) It encourages the belief that in order to achieve mystical awareness all one need do is learn a new worldview; since physics and mysticism are simply two different approaches to the same reality, why bother with years of arduous meditation . . . 3) In the greatest irony of all, this whole approach is profoundly *reductionistic*. It says, in effect: since all things are ultimately made of subatomic particles, and since subatomic particles are mutually interrelated and holistic, then all things are holistically one, just like mysticism says. But all things are *not* ultimately made of subatomic particles; all things including subatomic particles, are ultimately made of God. And the material realm, far from being the most fundamental, is the *least* fundamental: it has less Being than life, which has less being than mind, which has less Being than soul, which has less being than spirit. Physics is simply the study of the realm of least-Being. Claiming that all things are ultimately made of subatomic particles is thus the most reductionistic stance imaginable. (Wilber, 1985, p. 27)

While I would agree with Wilber when he suggests it is detrimental and reductionistic to try to “prove” mysticism using modern physics; I would suggest it is equally detrimental and reductionistic to try to *prove* the existence of the *spiritual* domain using scientific methods. Moreover, in my opinion, in suggesting that the “spiritual” is a higher realm, Wilber reconfigures the balance between religion and science in a way that elevates religion at the expense of the science rather than allowing that each may deepen our experience of the other.

All of these points raise the question of what personal realization is and means in the context of a community. This question is highlighted by how the perennial view glorifies Truth in a way that I would assert has traditionally closed down many potentials and possibilities. Like many religious philosophers Wilber attempts to assert the value of the philosophy he favors, the perennial philosophy, by asserting that the core belief cannot

be communicated. Nonetheless, he attempts to show that we can use the scientific approach to validate the core experience he is referring to. Therefore, he is claiming we cannot discuss the mystical insight at the so-called rational level and we can use the scientific method to discuss the perennial philosophy. An important variable is left out: This is the evidence that science has the capacity for self-correction and the perennial philosophy does not. Scientists create a dialogue that holds the various points of view that comprise their community. Although there are evident limitations within the scientific system, the interpersonal dialogue does include a measure of critical analysis that opens the system to change as participants evaluate and re-evaluate their assumptions.

Given how the scientific method evolved, it is interesting to see that Wilber leans on it. He acknowledges that science can be used in many ways and that science, traditionally, has used public hypotheses and models as its method of gaining knowledge. His position is that this approach has traditionally not included that we can apply the scientific method to the trans-rational levels (levels that are, in his view, higher than the rational). He suggests this is possible and that the scientific method can be applied to any context that is accessible to it. He also suggests that we often overlook this when we debate the trans-rational because, according to Wilber, the trans-rational realm is hard to define and, because it is non-rational. An untutored eye cannot distinguish the trans-rational from the pre-rational, which is also non-rational but is considered prior to or lower than the rational.

Wilber postulates that the problem is that it is easy to confuse what he calls the pre-rational with what he calls the trans-rational realms, both being non-rational. In his opinion it is extremely important to differentiate the two so that we can ascertain where our insights arise and to also be able to differentiate those insights that are genuine from those of the pseudo variety. It is with this in mind that Wilber turns to science. He explains why the criteria used by science can

distinguish the genuineness of direct apprehensions. Moreover, according to Wilber, we do this through recognizing that we can apply Karl Popper's method of falsification in both the rational and trans-rational realms. Using this method of falsification Wilber claims we can ask — and answer — the following two scientific questions: First, do the contents perceived have genuine meaning so that they are experimentally verifiable/refutable? Second, are they "bogus" by virtue of being dogmatic, nonexperiential, nonverifiable/refutable? (Wilber, 1985; Wilber, 1990)

Wilber is asserting that in applying these scientific criteria and then turning to recognized masters who have shown they have a genuine awareness of the trans-rational, we can verify whether a person's intuitive apprehensions are, likewise, genuine and *really* have been directly apprehended. According to Wilber this means there is a means to verify the trans-rational or the realm of experience which transcends the lower levels at which we can experience our world (Wilber, 1985; Wilber, 1990).

. . . as Karl Popper has made very clear, if there is no way to at least theoretically disprove a datum, then that datum cannot enter cognitive status — if there is no way whatsoever to disprove a point, then there is no way to prove it either. . . . In communications and discourse, many minds may step into the union of shared symbols, entering into each other in a way that greatly transcends mere bodily contact or intercourse . . . meaningful communication is no mere chaos or random babbling — it has *structure*, it has *rules*, it follows a *logic* or *form*. *It is a very real territory with very real data* — but data that are hidden to mere sensory apprehension . . . phenomenological apprehensions are not "mere values" or "just ideas" as *opposed* to "real facts," because in the mental realm, values and ideas *are* the real or immediate facts or data *directly* disclosed . . . these phenomenological apprehensions can be

tested by striking them against the community of other minds who have followed the proper injunctions. (italics are Wilber's) (Wilber, 1990, p. 45-49)

From this perspective Wilber acknowledges that various communities of mediators could interpret spirit differently. This does not, however, invalidate the method because when the mind speaks of spirit it generates paradox or contradictory interpretations, as it should. This is also why, according to Wilber, we verify Truth through the community of those who *have* directly intuited this Truth. Through this community of intersubjective interpreters we can insure proper verification because we use a community of trans-subjective mediators, or a model similar to a Zen Master and Zen student.¹

... what is verified in meditation itself is not a particular interpretation of spirit, but a direct and immediate identity with and as spirit, and that occasion is not subject to interpretation because it is not a symbolic or mediated event. On the mental level, however, there are only *interpretations* of the event, most paradoxical, and that is inescapable. "They call Him many who is really one." (Wilber, 1990, p. 188)

This approach means that Wilber throws out the credibility of his model as a scientific one, at least according to Popper because Wilber's model cannot be falsifiable since it cannot be critically analyzed. This is obvious when Wilber points out that Spirit cannot be qualified. Instead, according to this view, an intersubjective community of minds verifies those who have spiritual knowledge, or have intuited something that resonates with their own intuitions.

¹Zen is actually the Chinese idea of *Ch'an*. Popularized in the United States by D. T. Suzuki, it is usually referred to by its Japanese name, *Zen*. *Zen* is *dhymna*, which means meditation. According to Zen the essential tradition is *only* passed on by "direct pointing" or nonverbal communication. It is assumed that only an enlightened master can authenticate an enlightenment experience.

Let me emphasize that Wilber claims his approach can be framed scientifically because it can be falsified in terms of the criteria of Popper's theory. Yet, as the following quote shows, Popper specifically disallows for what Wilber is doing in his presentation because Wilber does not offer a basis for anyone to offer any kind of social challenge to the intersubjective definition of Truth as defined by the interpreters. Clearly Wilber misses Popper's point in regard to how we use and test successful scientific theories. Popper writes,

According to the view that will be put forward here, the method of critically testing theories and selecting them according to the results of tests, always proceeds along the following lines. From a new idea . . . conclusions are drawn by means of logical deduction. These conclusions are then compared with one another and with other relevant statements, so as to find what logical relations . . . exist between them . . . if the singular conclusions turn out to be acceptable, or *verified*, then the theory has, for the time being, passed its test . . . if the conclusions have been *falsified*, then their falsification also falsifies the theory from which they were logically deduced . . . a positive decision can only temporarily support the theory, for subsequent negative decisions may always overthrow it. So long as a theory withstands detailed and severe tests and is not superseded by another theory in the course of scientific progress, we may say it has "proved its mettle" or that it has been corroborated . . . I never assume we can argue from the truth of singular statements to the truth of theories. I never assume that by force of "verified" conclusions theories can be established as "true," or even as merely "probable." (italics Popper's) (Popper, 1965, pp. 32-33)

In reading Wilber my impression is that he believes he has superseded Popper's criteria of logical deduction because he

is speaking from a trans-rational level, which he is certain is beyond or higher than the mundanely empirical. The critical point here is that Wilber does not offer a means for bringing new perceptions into the world because to bring forth an idea at a so-called lower, or empirical level is to attempt to qualify a perception.

Spirit as Ground has no qualities with which it can be compared, contrasted, or paralleled. In order to compare Spirit with, say, the findings of physics, Spirit has to be assigned *some sort* of qualifications or set-apart characteristics, at which point it ceases absolutely to be Spirit. (Wilber, 1985, p. 24)

The result of this point of view is that the method of verification offers no genuine mechanism for dialogue among us — for there is no means to offer disagreement that can have validity in the plane of our lives. We could say that Popper discusses propositional hypotheses and Wilber's interest is more akin to what might be called feelings. Feelings, however, cannot be verified (or falsified) using Popper's philosophy of science because Popper is speaking in terms of the self-correcting scientific dialogue and Wilber is concerned with the certitude within the mystical experience. Therefore, in asserting the validity of his philosophy in terms of Popper's he is justifying his use of a position Popper clearly states is not an appropriate use for his theories.

In addition, Wilber's assertion is that belief cannot be quantified and he attempts to use science to frame this. In doing so, Wilber misrepresents the scientific method. Therefore, I must point out that when Wilber misrepresents the idea of falsification he, in effect, creates a rationale to explain why those who do not see eye-to-eye with what the masters within the community "know" can only be "in error." My concern is that Wilber disallows genuine dialogue by asserting the validity of the singular statements that are affirmed by the spiritual experts. The result is that he disallows that truth can be alive and exist as an

expression of our experience of truth. What stands out within Wilber's position is that, in effect, he highlights Popper's intention in proposing and using the falsification criteria for defining what theories are and how we test them, but misses Popper's whole point. Again I quote at length.

The choice before us is not simply an intellectual affair, or a matter of taste. It is a moral decision [and] . . . will deeply affect our whole attitude towards other men, and towards the problems of social life . . . since the days of Plato, it has been a characteristic of all mysticism that it transfers this feeling of the irrationality of the unique individual, and of our unique relations to individuals, to a different field, namely, to the field of abstract universals . . . this holistic and universalistic irrationalism is misplaced. The "world" and the "whole" and "nature," all of these are abstractions and products of our reason . . . Since an "uncritical" rationalism is inconsistent, the problem cannot be the choice between knowledge and faith, but only between two kinds of faith. The new problem is: which is the right faith and which is the wrong faith? (Popper, 1962a, pp. 232, 246)

Popper's intention is to stress that a scientific theory is provisional and malleable. For example, Stephen Hawking, a physicist defines a scientific theory in a way that uses Popper's falsification principle in congruence with Popper's intention.

. . . [a scientific theory] is just a model of the universe, or a restricted part of it, and a set of rules that relate quantities in the model to observations that we make. It exists only in our minds and does not have any other reality (whatever that means) . . . Any physical theory is always provisional, in the sense that it is only a hypothesis; you can never prove it . . . As philosopher of science Karl Popper has emphasized, a good theory is characterized by the fact that it only makes a number of

predictions that could in principle be disproved or falsified by observation. Each time new experiments are observed to agree with the predictions the theory survives, and our confidence in it is increased; but if ever a new observation is found to disagree, we have to abandon or modify the theory. At least that is what is supposed to happen, but you can always question the competence of the person who carried out the observation. (Hawking, 1990, p. 9-10)

Wilber's use of the "scientific method" is postulating what I see as a model in which some of us, those of us who have experienced the Truth, live at a "higher" level. This experience of truth is not simply a part of a personal belief system, and this extensive aspect is where the model's conclusions become problematic. The proof, as discussed below, lives in a social context. It includes the idea that *some of us* can verify who the enlightened people are. Thus a social element is intertwined with our assumptions about life and belief. As Popper pointed out, the social problem revolves around who decides what "right faith" is since the underlying assumption is that the vision is one that cannot be quantified or put into words that can be understood by those who have not had the experience. While, on balance, I must admit I find it odd that many scientists who recognize the provisional quality of theories continue to look for a Grand Unified theory that will finally complete our physical models, I do respect that in seeking this grand synthesis they still accept their models as provisional. This allows us to at least continue to dialogue about our premises and to question the competence of any person who postulates a theory — including one that suggests there is an unqualifiable experience of truth.

Wilber's model, however, does not consider the question of whether it presents a "right faith" because he is presuming that those who know the Truth all know the same unquantifiable Truth and this kind of knowledge is an experience that transcends our questions. Since the completeness of this kind

of knowing is presumably intersubjective, it becomes a matter of definition as to whether or not one can genuinely intuit *new* possibilities as we continually reconsider the relational nature of the many living processes and potentials that intermingle as we live our lives. I see it as highly implausible that anyone could do so easily because Wilber's proof of Truth, being complete, eternal and outside of the realm of time, has little need for new potentials. Its impulse is really directed more toward the transcendent than toward balancing the vision that the transcendent is immanent. Since new possibilities enhance our lives as a whole when they are shaped, shared, and defined within the empirical and intuitive realms, I would hold it is important to balance the two. Wilber, despite his words to the contrary, recreates two ongoing historical dilemmas that make change and balance difficult.

On the one hand, there is the problem of verification, which has and adds a cognitive context. To my mind it somehow seems "in error" to suggest that someone who feels they have been spiritually transformed, and feels that the immanent and the transcendent are one in a way that does not correlate with Wilber's belief system, should simply accept that this "misperception" can be rectified if they follow the proper disciplines and injunctions. This inference that there is a "path" we can follow that will lead us to spiritual intuition, one that can be accessed through following the proper procedures, etc. infers a "right path." The limitations within this have been discussed at length above.

This suggestion of a "right" path and a "proper" method also brings to mind work being done on creativity and the human mind, (e. g., see Gardner, 1993; Ornstein, 1993) which suggests there may be multiple kinds of intelligence. These theories suggest we show these different kinds of intelligence as we develop, and that even from birth we show different personality traits and different orientation. As I have said, it seems that an explanation of one underlying truth, confirmed intersubjectively does not really allow for our unique developmental needs. I

would also hold that our differences suggest we have different needs, and to “solve” them by *specific* procedures intended to lead us to assume a *specific* way of knowing, overlooks important parameters and could be damaging to some.

All of these points speak to the second historical dilemma the perennial philosophy recreates in embracing the mystical vision as a higher level of consciousness. The belief in an underlying, all-inclusive Truth does not consider the value of attempting to use a method that recognizes our differences in age, orientation, and inclination. Generational variations are a part of life. They will not go away as long as civilizations continue and the legitimacy of these variations underscore that our visions should *differ* in some ways. As such, surely we benefit in emphasizing the need to find more effective forms for translation. This is the contextual aspect of our lives. It is a way of acknowledging that more effective forms of translation allow us to express and enhance the integrity of our understanding. In the process, we can express ideas about how the whole is always reaching beyond its expression, and constantly expressing an expansive and growing possibility.¹ Why it isn’t considered to be necessary to reflect on why the vision of any one of us — pure as it may appear to us personally — is not subjective, internal, and self-affirming on some level, evades me because the visions of many have been the rationale used to oppress others in the name of their particular transcendent Truth or God.²

¹I defer to William James again here. As James said, “. . . No matter what the content of the universe may be, if you only allow that it is *many* everywhere and always, that *nothing* real escapes from having an environment; so far from defeating its rationality, as the absolutists so unanimously pretend, you leave it in possession of the maximum amount of rationality, practically attainable by our minds. Your relations with it, intellectual, emotional, and active, remain fluent and congruous with your own nature’s chief demands.” (James, 1987, p. 775)

²As Popper noted above, these kind of elitist frameworks can be traced back to Plato who used his vision of truth to design a society where those who knew the Truth governed. In its final form Plato’s society decreed, “The principal thing is that none, man or woman, should ever be without an officer set over him and that none should get the mental habit of taking any step, whether in earnest or in jest, on his individual responsibility: in peace as in war he must live always with his eye on his superior officer, following his lead and guided by him in his smallest actions . . . in a word, we must train the mind not even to consider acting as an individual or know how to do it.” (Plato, *Laws*:942AB) The approach is

Galileo, who was condemned by the Church for speaking in violation of Church belief, always seems to be the obvious example of what it means to uphold spiritual truth. In Galileo's case his life led him to assert: "In questions of science the authority of a thousand is not worth the humble reasoning of a single individual" (in Shlain, 1991, p. 47). Ultimately, however, the questions extend beyond science because the view of the perennial philosophy has the potential to separate out the context of anything that has no pre-existent basis within the consensual belief system. Since what one would "aspire" to know is assumed, by definition, to be beyond qualification, and open to verification by a community of "proven" minds, it can easily seem as if anyone who develops questions that "do not fit" has some fault within. Again, we can easily point at the person and say she is dysfunctional.

The weight of discomfort on her was guilt. Although she did not know it for she had not known of the possibility of such a state. Recognizing, among the many calamitous and heavy emotions that moved in her, taking so many different shades and weights and colors, this one that returned, and returned, seeming at last to become the ground or inner substance of all the others, she learned its taste and texture. Guilt, she named it. *I, Al•Ith, am at fault*. Yet whenever this thought came, she started to back away from it in dislike and mistrust. How could *she*, Al•Ith, be at fault, how could *she*, only she, be in the

also evident when it is assumed that those of us who *know* must lead the others and is evident among well-respected mystical teachers of the twentieth century. For example, as the twentieth century mystic Sri Aurobindo wrote: "The coming of a spiritual age must be preceded by the appearance of an increasing number of individuals who are no longer satisfied with the normal intellectual, vital, and physical existence of man, but perceive that a greater evolution is the real goal of humanity and attempt to effect it in themselves, to lead others to it, and to make it the recognized goal of the race. In proportion as they succeed and to the degree to which they carry this evolution, the yet unrealized potentiality which they represent will become an actual possibility of the future." (*The Human Cycle*, in McDermott, 1973) Of course the inference is that those who "know" think like we do, and problems only arise if they don't!

wrong . . . she had not lost the knowledge, which was the base of all knowledge, that everything was entwined and mixed and mingled, all was one, that there was no such thing as an individual in the wrong, nor could there be. If there was a wrong, then this must be the property of everyone, and everybody in every one of the Zones — and doubtless beyond them, too . . .

. . . "It's there," she was whispering to herself. "There . . . if I could only grasp it . . ."

And yet as she rode . . . greeted by everyone with such kindness and recognition for the good times they had all enjoyed, it was there again, and more than ever — "You are at fault, Al•Ith, at fault . . ."

And she rode on, saying to herself, I am not, I am not, how can I be, if I am queen here, it is because you have chosen me, and you have chosen me because I am you, and you recognize it — I am the best part of you, my people, and I call you *mine*, as you call me *ours*, our Al•Ith, and therefore I cannot be at fault any more than you can . . . (Lessing, 1980a, pp. 58-59)

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The oft unspoken challenge that comes with the spiritual focus is how do we extend our belief into the world of others? Ultimately, our lives include other people as well as the world of nature, and all of this influences how we live. The mystical experience does not concretely address either natural phenomenon or the community experience. Our lives, however, are not abstract. Experience takes place in the realm that

particularizes the indivisible. We bring name and form to our experience. While this may foster societal tension for some, one that needs a mystical validation, if the mystical validation of wholeness is not extended into the environment that holds the societal tension, the tensions will remain. This may be at the heart of why the mystical vision alone has never been enough and why mystics have shown historically that there can be many results when mystical visions are the foundation for social change.

Popper's falsification criterion grew out his concern with some of the negative manifestations of the mystical vision. These manifestations were expressed in his two books on *The Open Society and its Enemies*. Begun in 1938, the day Hitler invaded Austria, *The Open Society and its Enemies* (Popper, 1962a; Popper, 1962b) is Popper's attempt to outline that a vision can easily define a totalitarian climate where the leaders who believe they have had a mystical vision assert their knowledge of a Truth that they *irrefutably* "know" will better society.¹

It should be noted, as Popper does, that Henri Bergson first used the terms "open society," and "closed society" in his book *Two Sources of Morality and Religion*² (Bergson, 1935; Popper, 1962a; Popper, 1962b). Bergson uses a *religious* distinction in speaking of open and closed societies. In his view an open society is the product of mystical intuition. Bergson characterized a closed society as "a human society fresh from the hands of nature."

According to Bergson's perspective, the return to nature was the return to union. Popper, on the other hand, uses the terms

¹In retrospect, Popper acknowledged that the book had a very emotional tone because, at that point, there was no way of knowing how the war would turn out (Popper, 1976; Popper, 1962a).

²In this book Bergson inquires into the nature of moral obligation and into the place of religion and the purpose it has served since primitive times. He speaks of static religion and its value in preserving man from the dangers of his own intelligence. Bergson also defines dynamic religion, which he sees as mysticism, as a manifestation of the life force. For Bergson mysticism is a means of producing man's forward leap beyond the limits of the closed society for which nature intended him and into the open society which is the brotherhood of man (Bergson, 1935).

open and closed society to indicate a *rationalist* distinction. Popper, who was a realist, believed there is an objective reality. He also suggested the closed society is characterized by the belief of magical taboos, while the open society is one in which people have learned to be critical of taboos to some extent, and, as a result, have learned to base decisions on the authority of their own intelligence (after discussion) (Popper, 1962a; Popper, 1962b). As a result, Popper suggests that mysticism may be interpreted as an expression of the longing for the lost unity of the closed society and, therefore, as a rationalization of an open society.

Popper and Bergson approach almost every philosophical problem differently (Popper, 1962a). The major foundational difference between Popper and Bergson, however, revolves around how each approaches and values science and mysticism. Indeed their differences provide an excellent starting point for considering what we infer when we speak about logic, mystical insight, and values as they pertain to open and closed systems. On this issue I lean toward Popper's views that the mystical intuition can be used to *rationalize* an open society rather than allowing for the society to actually be open. I also strongly agree with his argument for seeing knowledge as something that is never complete. As Popper indicates, our knowledge is enlarged through our experience, and to assume that an insight cannot be revised is to assume that more information about our world cannot refine our assumptions. Dialogue helps define our assumptions and should not be underestimated if we aspire to interpersonal relatedness. Good dialogue fosters relationships and aid in developing an inhabitable social context. I do not, however, agree with how Popper frames his objective foundations, being more inclined to see Bergson's creative, life force as the dynamic quality that holds our lives, our stories, nature, potential, and possibilities.

Aligning Popper's and Bergson's views perhaps goes to the heart of the question of what human creativity is—because as a pair they offer conflicting responses to the questions of how,

why, or whether humans left the “womb” of the primeval unity of nature and whether the mystical insight leads us back to this perception. As I outlined earlier, my research leads me to believe we are creative on many levels and it is highly unlikely we could return to the perception of unity held by children and the vision many now apply to early, primitive cultures — even if we wanted to. The evidence that living systems complexify and evolve makes it clear that the qualities among us are real and evolutionary. They are a part of our unique perspectives and renewed within the learning process of each life as life is reinterpreted by each generation. This renewal includes the kind of cognitive learning that is not easily equated with the mystical orientation.

The value of shared cognitive assumptions is supported by the limitations within mysticism. When we look at how intuited mystical visions are brought into that which transcends our reality we see our inner visions and outer presentations are both a part of how we live our lives. To be sure, a vision can change how one lives or perceives life. It does not, in and of itself, change how we live together, or that we do live with others. Juxtaposing this with the assumption that there are many visions of truth which lead to the same place, highlights that the mystical model ultimately falls short. It fails to address that the nature of each insight lives in a “personal” and a “shared” environment.

Coupled with the assertion that “authentic understanding” can be confirmed by *some* of us, puts some of us in a special position. It is the righteousness within this, and the irrefutable nature of the vision that concerns me. While all of us like to feel “special” this kind of model can easily lead those who “know” they are different to feel they have the right to engage in “social engineering” for the good of all. Wilber suggests that this is not the case at all. In his view those who know are not imposing specific ideas on others so much as they are pointing the way. In his words, “. . . paradigm transcendence cannot be forced. There are only *participants* in emancipation. You can

only force slavery; you can't force a person to be free" (Wilber, 1990, p. 196). I must admit I find the way Wilber explains that transcendence is freedom a bit mercurial.

Since freedom tends to suggest we can be free from something, the inference of freedom suggests there is a possibility different from our ordinary lives. As a result the inference is that freedom is somewhere else. This emphasis on something different from our living experience does not adequately validate that living is a natural process, enhanced by relationally enriching our understandings about life as we live it.

I would ask this: does an aspiration to be free actually encourage us to honor one another relationally? I would suggest it does not because the goal of freedom itself is one that undervalues our relatedness. The model does not encourage balance so much as transcendence as a higher form of experience. Radhakrishnan spoke to this idea of balance when he said, "if experience is the soul of religion, expression is the body through which it fulfills its destiny" (Radhakrishnan & Moore, 1971, p. 616). Albert Einstein emphasized balance as well when he said, "science without religion is lame, religion without science is blind" (Albert Einstein in Pais, 1982, p. vi). The Buddhists, too, infer this when they point out that before enlightenment one is chopping wood and carrying water and after enlightenment one is still chopping wood and carrying water.

In sum, I see the perennial philosophy as an approach that stifles communication because it suggests that our experience cannot be translated into the realm we share. Sarvepalli Radhakrishnan summed this up well when he wrote,

If our experiences were adequately intuited at once, such immediate intuitions could not be doubted under any circumstances; but, as it is, we are compelled to relate our intuitive experiences with others and here we are obliged to form formulas . . . In the utterances of the seers, we have to distinguish the given and the interpreted elements. What is regarded

as immediately given may be the product of inference . . . The confusion of the simple realization of the universal self in us with a catastrophic revelation from without is an interpretation, a personal confession, and not necessarily an objective truth. (Radhakrishnan & Moore, 1971, pp. 622-23)

Chapter Sixteen

Conclusion

History tells us how in that past time
When all things happened, real,
Imaginary, and dubious, a man
conceived the unconscionable plan

Of making an abridgment of the universe
In a single book and with infinite zest
He towered his screed up, lofty and
Strenuous, polished it, spoke the final verse

About to offer his thanks to fortune,
He lifted up his eyes and saw a burnished
Disc in the air and realized, stunned,
That somehow he had forgotten the moon.

Jorge Luis Borges
The Moon

Science is the reason, art the joy, religion the harmony of life. None is complete without the others. We cannot hope to understand the mystery of life unless we be prepared to consider it from these three angles, and this means, first of all, that we must drop our scientific conceit, and second, that we must never, never, subordinate humanities to technicalities.

George Sarton
The Life of Science

In closing I will propose that we look closely at the numerous interpretations offered to speak about who we are and how we form our interactive environments, for interpretations abound. The physicist David Peat, for example, expressed one point of view popular in the postmodern environment when he wrote that science has become the most powerful of all devices in removing humans from feeling a deep sense of connectedness and meaning in their living.

Maps, symbols, mandalas, petroglyphs, and other symbolic works are used all over the world to express the link between the inner and the outer, between the self and the world, the individual and the environment. Such maps enrich us and bind us together . . . they are synchronicities, patterns of meaning and connection between the mental, spiritual, and material worlds. But in our own society one set of maps — the maps of science — have become the most powerful of all devices, overshadowing all other earlier maps and reducing them to the status of myths, legends, and “primitive” representations. Scientific maps have reached a high degree of abstraction and sophistication, but on the way they have lost their deeper meaning and connection to the world. (Peat, 1991, p. 14)

Stuart A. Kauffman, a well-known biologist offers another perspective. In effect Kauffman's experience in writing *The Origins of Order* falsifies Peat's premise that science does not connect mental, spiritual, and material worlds. Kauffman's preface to the book, a biologically based scientific study of self-organization and selection in evolution, shows how deeply he feels his work is involved with the mysteries of life.

Like many other books by scientists, this one is ineluctably autobiographical. It witnesses one mind's sense of mystery. The famous physicist Wolfgang Pauli is said to have remarked that the deepest pleasure in science comes from finding an instantiation, a home, for some deeply felt, deeply held image. I share this odd sense. . . . The greater mystery, after all, is not the answers that scientists contrive, but the questions they are driven to pose. Why? Why this question rather than another? Why this search, hope, despair, rather than another? (Kauffman, 1993, p. vii)

Together these views emphasize that we think, grow, and live in many ways. In addition, even when approaches appear to diverge there is often convergence. For example, the artist Tony Robbins suggests art and science have usually been in step historically and continue to be in step in the contemporary world.

Artists who are interested in four-dimensional space are not motivated by a desire to illustrate new physical theories, nor by a desire to solve mathematical problems. We are motivated by a desire to complete our subjective experience by inventing new aesthetic and conceptual capabilities. We are not in the least surprised, however, to find physicists and mathematicians working simultaneously on a metaphor for space in which paradoxical three dimensional experiences are resolved only by a four dimensional space. Our reading of the history of culture has shown us that in the development of new metaphors for space

artists, physicists, and mathematicians are usually in step. (Robbins, 1983, p. 351)

The complexity within these various orientations reflects that people are continuing to probe what discovery is and what it brings to our lives from various perspectives. I have tried to show this has always been the nature of developmental discovery and want to suggest it continues to be so today. How we interpret human understanding and how we reach out for all that extends beyond human understanding defines the nature of our interactive environments and what we become individually and as communities.

For example, a child sees discovery as a part of learning. It is the ongoing process a child expresses as the child reaches for language and uses language to share feelings, express ideas, raise questions, and answer some as well. This process of discovery is also apparent in how a child approaches the possibility of standing and then reaches toward walking and running and expanding her parameters. In each case she continues to embody understandings that complexify her capacities and allow for a broader experience of life to emerge. This expansive reaching out is a discovering of new mysteries, engaging with them, gaining insights about them, assimilating insights, and then moving on to new mysteries. The process allows the child to share and communicate what she is experiencing to a greater degree. As the child does so she absorbs new information and this allows her to be growing, creatively forming, and assimilating simultaneously.

As adults we still learn and we still grow moment-to-moment, day-to-day, year-to-year. Moreover, as adults, our learning is intergenerational. We are involved with teaching our children and this includes how we interpret the socialization process of our own lives. Suggesting that adults need to remember the joy of *discovery* a child holds so naturally fails to acknowledge that children usually benefit to some degree from the joys and the “restraints” that contribute to the socialization process. Given the value of learning to accept the complexity of

life, it seems more useful to acknowledge that as adults we can continue to reach out and we have the capacity to expand our parameters on multiple levels. It is not a given that we will “lose the magic” that a child holds so that it will feel as if “realization” is “needed” in order to re-experience life as an arena of mystery and wonder. Even if we come to believe “realization” might offer a “solution” to a perceived lack in our lives, and even if we have a realization of what childlike wonder offers within the context of our adult experiences, this realization, in and of itself, is not going to provide a “solution” unless it is sustained in our ongoing, day-to-day, living experience.

This is because there are critical differences between being a child and being an adult. To state what should be obvious, any worthwhile perspective on our living must recognize there are contextual differences that are not going to change, age differences are perhaps the most evident. Clearly a child is not the same as an adult. A child’s perception of life is also not the same as that of an adult who has retained her connection with the process of stretching, growing, and embracing life. Moreover, perceiving like an adult is not possible for a child who has not learned how to do so cognitively.

Both cognitive and contextual differences exist on the personal level. Similar qualities are also evident in the larger community. History provides a framework for perceiving a rough outline of this. As earlier chapters explained, Modernism was primarily a Western movement and it was a cultural movement that radically revised long-held global assumptions as to the relationship between religious and secular concerns. Westerners began to revolutionize the historical alignment of the spiritual and secular in the sixteenth and seventeenth centuries. This revision seeded questions. Comparable questions are now being asked by all cultures as all discover traditional solutions are not as adaptable as they were when the cultures were a part of a “smaller” world.

Reflecting on this “evolution” in terms of development we find that there are limitations within all cultural solutions and

that what it means to aspire is key in actually evolving the way we perceive our cultural composites. Since my focus here is largely on Western history let me end by noting that if we want to achieve things that have never been achieved, we must use methods, ideas, and insights that have never been used before. We must use methods, ideas, and insights appropriate to our own situation.

This kind of aspiration was given form in periods some are devaluing today. For example, in ancient Greece and the Renaissance, humans were expressing an active desire to try to *purposefully* build better lives. The solutions derived during these periods were incomplete, and inadequate in many ways. Nonetheless, it should also be remembered that the people of these periods creatively changed their lives, their symbols, and their overall definitions through their efforts to broaden the scope of human living. It was precisely because their symbolic languages complexified that new ideas about logic, intuition, method, and intention were integrated into the community. Human perceptions were able to evolve in ways that *allowed* people to *open* doors *relationally*. The people of these eras created shared languages through creating conceptual tools and using them to speak more comprehensively to one another about perceptions that had previously not been a part of their shared environments. We can find similar expansions in other cultures.

If we focus on the West specifically we find one appealing aspect of ancient Greece and the Renaissance is that the dialogue was interdisciplinary and cultural development included an internal element. This “internal element,” I might add, was at the root of their very human discoveries because heartfelt passions were brought into the dialogue and the exploratory process. Each of these periods probed nature, religion, and the world of human experience. Each period also significantly re-defined the religious, philosophic, and scientific foundations of other eras. In addition, these periods *deepened* our conceptual scope through their efforts to stretch, to grow beyond the limitations of their world and their worldview.

This is evident in how the Greeks, for example, did not invent metaphysics to define their reality but to re-present their questions so that they could dialogue in a fashion that allowed for interpersonal correction. This new vantage point allowed more effective exchange about their beliefs and assumptions in regards to the nature of reality (Seligman, 1962). Through this they re-defined potentials and possibilities. This active relationship with cultural questions was revived in the Renaissance. Despite the differences, noted earlier, Renaissance individuals also were renewing the classical thirst to know more about life and their experience of life.

Today I believe we benefit in contextualizing aspiration and recognizing there were limitations in older solutions. One such limitation was the failure to address multi-level potential. Including multi-level potential offers a means to address how creativity includes possibility and how human creativity includes awareness. Correlating this with historical perceptions and changes it seems the relationship we bring to our symbols and metaphors is key.

Metaphors, like symbols, have always been a means to help humans envision more than one frame of reference. Our metaphors help us reach beyond harmonies we know, and our symbols help us bring form to our visions so that we can look at what we believe our metaphors point toward together. The tension between our symbols and our metaphors is essentially one-dimensional if it does not include a means to foster the kind of ongoing dialogue that constantly re-evaluates the visible, the invisible, and the relationship between process and form.

This dialogue is the nature of the human story where we find that symbols and metaphors were developed to aid human communication. They have offered people the means to teach, to learn, to order, and to *enhance* human understanding. They offer a means to ask who humans are in relation to what we consider and what we can only describe as inexplicable. This is evident in exploring how older cultures looked at what was inexplicable and used it to affirm their participation with their perception of a

self-regulating whole. Eventually, cultures developed more facility in dealing with the world, and the nature of the exercise changed. Through cataloguing their religious ideas they juxtaposed ideas about sacred numbers with what we now call the pre-sciences or the pseudosciences (e.g., astrology, numerology, alchemy, etc.). Contemporary research in cognitive science has further pushed the boundaries.

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I have attempted to show here that to assume that older symbolic systems comprehensively capture the essence of religious insight for all time is as shortsighted as to see ancient symbologies as complete in their ancient forms. It is as if to suggest there is some kind of universal Truth that is written in a primary, universal, symbolic language rather than seeing that our symbolic languages, our metaphors, and our ideas as evolving as we use them. It is to infer ancient truths live outside of our living and that while we once knew the truth that they knew, we have “lost” this knowledge. If we do not see our lives as primary as we are living, how can we address our living experience as experience we have in real time?

Accepting the idea of a primary truth disallows that the views of truth held by ancient cultures diverged. Moreover, the ancient assumptions — be they religious, symbolic, or philosophical—are frequently out of touch with the nature of the contemporary world. Historical circumstances differed from what is found in our environments. Using the views of earlier cultures, as such, can diffuse our own critical exchange. Surely, when we see these older ideas as unchanging, sacred truths we set aside issues relevant to the contemporary world. We fail to recognize that it is in the terrain of our lives, not ancient ideas, that we live, as our lives come together.

The origins of a symbolic universe have their roots in the constitution of man. If man in society is a world-construction, this is made

possible by his constitutionally given world-openness, which already implies the conflict between order and chaos. Human existence is, *ab initio*, an ongoing externalization. As man externalizes himself he constructs the world *into* which he externalizes himself. In the process of externalization he projects his own meanings into reality. Symbolic universes, which proclaim that *all* reality is humanly meaningful and call upon the *entire* cosmos to signify the validity of human existence, constitute the farthest reaches of this projection. (Berger & Luckmann, 1967, p. 104)

AuAppendix A:

A Sufi Tale: When the Waters Were Changed

Once upon a time Khidr, the Teacher of Moses, called upon mankind with a warning. At a certain date, he said, all the water in the world, which had not been specially hoarded, would disappear. It would then be renewed, with different water, which would drive men mad.

Only one man listened to the meaning of this advice. He collected water and went to a secure place where he stored it, and waited for the water to change its character.

On the appointed date the streams stopped running, the wells went dry, and the man who had listened, seeing this happening, went to his retreat and drank his preserved water.

When he saw, from his security, the waterfalls again beginning to flow, this man descended among the other sons of men. He found that they were thinking and talking in an entirely different way from before; yet they had no memory of what had happened, nor of having been warned. When he tried to talk to them, he realized that they thought that he was mad, and they showed hostility or compassion, but not understanding.

A first he drank none of the new water, but went back to his concealment, to draw on his supplies, every day. Finally, however, he took the decision to drink the new water because he could not bear the loneliness of living, behaving, and thinking in a different way from everyone else. He drank the new water, and became like the rest. Then he forgot all about his own store of special water, and his fellows began to look upon him as a madman who had miraculously been restored to sanity.

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Legend repeatedly links Dhun-Nun, the Egyptian (died 860), reputed author of this tale, with at least one form of Freemasonry. He is, in any case, the earliest figure in the history of the Malamati Dervish Order, which has often been stated by Western students to have striking similarities with the craft of the

Masons. Dhun-Nun, it is said, rediscovered the meaning of the Pharaonic hieroglyphics.

This version is attributed to Sayed Sabir Ali-Shah, a saint of the Chishti Order, who died in 1818. Source: Shah, 1984.

Appendix B:

Nick Herbert's 8 Quantum Realities

1. *Copenhagen Interpretation #1: There is no deep reality [Bohr, Heisenberg]*

If we ask, for instance, whether the position of the electron remains the same, we must say “no”; if we ask whether the electron’s position changes with time, we must say “no”; if we ask whether the electron is at rest, we must say “no”; if we ask whether it is in motion, we must say “no” (J. Robert Oppenheimer in Herbert, 1987, p. 159).

Bohr’s notion of *relational reality* comes from the way the theory works. This interpretation denies the existence of the major attributes with which classical physics described a particle’s external motion, saying the quantum piece’s so-called attributes reside in the *relation* between the entity and a “classical” measuring device. Therefore, on the one hand, there is no single image that corresponds to an electron since quantum entities possess no dynamic attributes of their own. On the other hand, the so-called attributes belong to the entire measurement situation. This position is not saying that attributes are meaningless, but rather they are nonexistent, and this conclusion is not based on philosophical principles but in the specific structure of quantum theory itself. In sum, the argument is based on the uncertainty principle which says electrons possess no attributes of their own, rather an electron’s so-called attributes are really relations between the electron and its measuring device and do not properly belong to either. The quantum world is not made up of objects or, as Heisenberg puts it, “Atoms are not things.”

2. *Copenhagen Interpretation #2: Reality (or the world) is created by observation. (J. A. Wheeler)*

Nothing is more important about the quantum principle than this, that it destroys the concept of the world as “sitting out there,” with the observer safely separated from it by a 20-centimeter slab of plate glass. Even to observe so minuscule an object as an electron, he must shatter the glass. He must reach in. He must install his chosen measuring equipment. It is up to him to decide whether he shall measure position or momentum. To install the equipment to measure the one prevents and excludes his installing the equipment to measure the other. Moreover, the measurement changes the state of the electron. The universe will never afterward be the same. To describe what has happened, one has to cross out that old word “observer” and put in its place the new word “participator.” In some strange sense, the universe is a participatory universe (Wheeler, J. A. in Buckley, P and Peat, D. 1979).

In this view the absolute existence of matter — electrons, photons and the like — is upheld. This view also upholds matter’s static attributes. However, observer-created reality physicists do believe that *dynamic attributes* — position and momentum for instance — do not exist until they are actually observed.

3. ***Reality is an undivided wholeness [Bohm]***

Despite the obvious separations, the world is a seamless whole. This notion arises from the presence of “phase entanglement.” In quantum theory, two quantum pieces that have once interacted do not separate into two waveforms, but are forever afterwards represented as a single quantum wave. Therefore, this entanglement never surfaces in the world of phenomena, but it does hold in the quantum realm because the

quantum connection means that each quantum piece holds a piece of itself in the other.

4. *The many-worlds interpretations [Hugh Everett]*

Everett solves the problem of quantum measurement by stating that the wave function collapse is an illusion caused by human inability to experience reality truly. According to this view, waveform does not collapse into one outcome but realizes all possibilities. Each part occupies its own parallel universe. Moreover, we only see and experience one of these outcomes because we are unaccountably blind to all but a single branch of these co-existent universes.

5. *Quantum Logic. The world obeys non-human kind of reasoning [John von Neumann and Garrett Berkhoff]*

Because quantum logic is represented by waveforms, they combine according to a peculiar “wave logic.” This framework assumes the world is put together like a non-Boolean lattice and attributes must follow a non-Boolean arithmetic form of logic.

Quantum logic has made little impact on practical physics because most of the work carried out in its name has been concerned neither with the nature of reality nor the elucidation of experiments but with the mathematical study of non-distributive lattices for their own sake . . . A photon’s attributes obey a non-human logic, which we must learn to understand if we want to make sense of what’s really going on in the quantum world. (Herbert, 1987, p. 181, 185)

6. Neorealism: The world is made of ordinary objects.

John Von Neumann's proof shows that if quantum theory is correct then neorealism is impossible because Von Neumann showed that quantum theory represents attributes by waveforms and makes predictions that no collection of ordinary objects can duplicate. Van Neumann's proof outlaws the particle and field model most neorealists use.

Neorealists claim that the familiar objects that make up the everyday world are themselves made of ordinary objects; they believe, in short, that atoms are "things." Werner Heisenberg, for instance, considered this way of thinking as outmoded as the idea of a flat earth:

The ontology of materialism rested upon the illusion that the kind of existence, the direct "actuality" of the world around us, can be extrapolated into the atomic range. This extrapolation, however, is impossible . . . Atoms are not things (Herbert, 1987, p. 186).

7. *Consciousness creates reality*

John von Neumann in *Die Grundlagen* concluded that from a strictly logical point of view, only the presence of consciousness could solve the measurement problem. Therefore, the world is not objectively real but depends on the mind of the observer.

Consciousness-created reality should not be confused with mere observer-created reality . . . The observer "creates reality" here by choosing *what kinds of attributes a* [quantum particle] *shall possess* . . . Consciousness-created reality goes one step further. Consciousness selects . . . [or] "creates reality" by deciding *what particular attribute value shall materialize* (Herbert, 1987, p. 192-193).

8. *The Duplex Universe. [Heisenberg]*

This view is based on what unmeasured quantum reality might look like and hence attempts to describe in non-mathematical terms what the world would look like before measurement. According to Heisenberg, and most physicists, *the results of measurements are truly real*.

. . . according to Heisenberg's duplex vision, the unmeasured world *actually is* what quantum theory represents it to be: a superposition of mere possibilities (Heisenberg called them *potentia*), unrealized tendencies for action, awaiting the magic moment of measurement that will grant one of these tendencies for action, awaiting the magic moment of measurement that will grant one of these tendencies a more concrete style of being which we humans experience as actuality . . . Heisenberg's world of *potentia* is not only empty of actualities, even its *possibilities* are not as well defined, in the absence of a measurement situation . . . until its actually observed, a quantum entity must be considered "less real" than the same entity observed. On the other hand, an unobserved quantum entity possesses "more reality" than that available to ordinary objects because it can entertain *in potentia* a multitude of contradictory attributes which would be impossible for a fully actualized entity. 'In the experiments about atomic events we have to do with things and facts, with phenomena that are just as real as any phenomena in daily life,' says Heisenberg. 'But the atoms or the elementary particles themselves are not as real; they form a world of potentialities or possibilities rather than one of things or facts.' (Herbert, 1987, p. 195)

Notes

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- p. 15 Werner Heisenberg. *Physics and Philosophy* (1958, p. 58).
- p. 16 Peter L. Berger and Thomas Luckmann. *The Social Construction of Reality*. (1967, p. 26).
- p. 27 Ervin Laszlo. *Evolution: the Grand Synthesis*. (1987, p. 93).
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- p. 57 Bruno Snell. *The Discovery of the Mind In Greek Philosophy and Literature*, (1982, p. i).
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- p. 71 Anatole France. (in Stewart, 1989, *Does God Play Dice*, p. 331).
- p. 72 A. N. Whitehead. *Process and Reality*, (1929, p. 53).
- p. 83 Francis Bacon, *Novuum Organum* (1620), *Aphorism VI* (1965, p. 332).

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- p. 93 A. N. Whitehead. *Symbolism*. (1959, p, 88); Philip Wheelwright. *Metaphor and Reality*. (1968, pp. 19, 93).
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p. 215 Jorge Luis Borges. *The Moon* (1970, p. 64).

p. 216 George Sarton. *The Life of Science*. (1960, p. 28).

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The learning of many things teacheth not understanding, else would it have taught Hesiod and Pythagoras, and again Xenophanes and Hekataios.

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