National Library of Canada

Acquisitions and Bibliographic Services Branch

395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale du Canada

Direction des acquisitions et des services bibliographiques

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

Canada

UNIVERSITY OF ALBERTA

THE CONSCIOUSNESS CONTINUUM:
A FOCUS FOR ANTHROPOLOGICAL INQUIRY

BY

JAMES WILLIAM HENRY SCOTT

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF MASTER OF ARTS

DEPARTMENT OF ANTHROPOLOGY

EDMONTON, ALBERTA

SPRING 1993

National Library
of Canada

Acquisitions and
Bibliographic Services Branch

395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale
du Canada

Direction des acquisitions et
des services bibliographiques

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-315-81993-6

Canada

UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR: James William Henry Scott

TITLE OF THESIS: The Consciousness Continuum: A Focus For Anthropological Inquiry

DEGREE: Master of Arts

YEAR THIS DEGREE GRANTED: 1993

Permission is hereby granted to the University of Alberta Library to reproduce single copies of this thesis and to lend or to sell such copies for private, scholarly or scientific research purposes only.

The author reserves all other publication and other rights in association with the copyright in the thesis, and except as hereinbefore provided neither the thesis nor any substantial portion thereof may be printed or otherwise reproduced in an material form whatever without the author's prior written permission.

Apartment 8, 9928 - 114th Street
Edmonton, Alberta T5K 1P9

DATE. Dec. 11, 1992

UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled *The Consciousness Continuum: A Focus for Anthropological Inquiry*, by James William Henry Scott in partial fulfillment of the requirements for the degree of Master of Arts.

Carl Urion, Ph.D., Supervisor

C. Roderick Wilson, Ph.D.

Foster N. Walker, Ph.D.

Jayne Gackenbach, Ph.D.

Date December 4, 1992

ABSTRACT

An assumption in Western science is that there is an objective world which is describable in terms of mathematical relationships. In this view, the universe can be explained by breaking down components and systematically observing them. For the past decade or so there has been within academia a greater acknowledgement of the validity of tribal and cultural bodies of knowledge. This thesis is a defense of the proposition that anthropology is uniquely situated to relate such indigenous systems of knowledge to their complements in the Western tradition. The argument is introduced with the observation that cross-cultural study of time perception requires considerations of both cosmology and of the nature of consciousness. When indigenous systems of knowledge about the universe and about consciousness are taken at face value and not simply as ethnographic data, there appear to be commonalities between recently developed scientific theories and those indigenous sytems of knowledge, particularly in a supposition of universal interconnectedness and unity. In the exposition of similarities between the shamanistic experience and reports of near-death-experiences, the argument is developed that the shamanistic experience and shamanistic knowledge, in traditional societies as well as in technologically complex societies, is a promising area for anthropological investigation.

ACKNOWLEDGEMENTS

As with most endeavors in life, the production of a thesis from conception to completion is not, despite appearances, a solely solitary effort of one individual. It is in acknowledgement of this realization that I would like to offer my most sincere thanks and appreciation to all of the following individuals.

To all of the people who researched and wrote before me in my area of interest, thank you.

My appreciation to Dr. Regna Darnell, who said I should do a thesis and started me on the process

To Marcia Oetiker who knew I could, and to Elaina Firestone who knew I would

To Paul Napora who always knew that I must and gave me constant and unceasing support throughout the process

To Dr. Helga Vierich for her continued encouragement

To Dr. Foster N. Walker and Dr. C. Roderick Wilson for their generous and constructive critiques

To Dr. Jayne Gackenbach for her patience and generosity in editing draft copies

To Dr. Carl Urion who, as thesis supervisor, gave most generously of his time and knowledge during a time of great personal strain and difficulty due to illness

Finally, to all of those people, too numerous to mention individually, who gave me support throughout the process

Thank You

TABLE OF CONTENTS

CHAPTER I: INTRODUCTION

The Issues

Anthropology as a discipline can be broadly conceptualized as being concerned with the totality of human experience as manifest in culture. Thus anthropology, above all disciplines, supposedly takes all possible precautions to avoid the pitfalls of ethnocentrism and adopts the perspective of cultural relativism. This is very demanding, and more than likely is a task that is impossible to achieve in practice. Because of its relativistic stance, its mandate to explain other cultures' views of the world and to explain systems of indigenous knowledge, its access to records of such attempts at explanation, and the experience of anthropology's practitioners in living with and sharing other cultures' space and time, and its foundation in Western science, the discipline is uniquely situated to effect an important task. What the discipline of anthropology can effect is a facilitation of the building of transcultural bridges between modern sciences, such as physics or biology, and ancient bodies of knowledge, such as the knowledge incorporated in shamanism or reflected in Vedic literature.

We have much to learn from ancient and indigenous systems of knowledge which have as their focus an understanding of, and participation in, the forces of the cosmos. That requires the definition of another focus within anthropology. This thesis is a preliminary step toward such a definition. It does not purport to constitute such a definition, but rather raises a series of related initial propositions for a definition of purpose and focus. The need for such a preliminary step can be exemplified by an initial premise: to build the kind of bridge between science and indigenous knowledge on fundamental issues, there must be at least some place in anthropology where the teachings, practices, and principles articulated by shamans are accepted at face value, as systematic bodies of knowledge, rather than being contextualized in Western scientific and social scientific models. The fact that we can generalize about shamanism and the knowledge we have of shamanism demonstrates that in a large number of cultures there are traditions that have much in common. The term "shaman" is used here as a general nomenclature to indicate individuals such as seers, psychics, mediums, and medicine men. That we see shamanistic traditions as having something in common is evident in our categorization of them as such. That shamans have a legitimacy in common with practitioners of modern science is perhaps a bold claim, a sentiment to which Kalweit reacts:

> The history of the exploration of shamanism is the story of a conspiracy against nonrational, nonobjective, and non-Cartesian thought. To the "enlightened" mind, the medicine man, the trance medium, the visionary, and the sorcerer have always been the archenemies of common sense. The learned scientists, in their conceit, look upon the shaman as a monstrous product of human superstition.

> In short: Any intellectual movement dealing with this "orphan" of science runs the risk of wielding the double edged sword of scientific ruin, if it refuses to treat the subject from the point of view of behaviorist sociology or other naively materialistic concepts, which are academically recognized and acceptable (Kalweit 1988:XIV-XV).

For many centuries the Western scientific complex has generally not accepted, and in fact for the most part has rejected, most other traditional cultural forms of science and knowledge. The Western world has seen a wholehearted adoption of Descartes' rational philosophy and Newton's physics, and has interpreted scripture to confirm a Judeo-Christian notion that God had divinely appointed humans as custodians of the earth. All of nature was to be segmented and classified and everything put in order. In turn this ordering would allow for inevitable progress, with all else being nonsense.

> We call something nonsense if it does not agree with the rational edifices that we carefully have constructed. However there is nothing intrinsically valuable about these edifices. In fact, they themselves often are replaced by more useful ones. When that happens, what was nonsensical from an old frame of reference can make sense from a new frame of reference, and the other way round. Like measurements of space and time, the concept of nonsense (itself a type of measurement) is relative, and we always can be sure when we use it that from some frame of reference it applies to us (Zukav 1980:187).

There is increasing evidence in recent years of a paradigm shift occurring across the sciences, such that rigid and arrogant postures of exclusivity of legitimacy of definitions are giving way. It is not only the mavericks in science, but some of the leading members of the Western scientific establishment, who speak in terms, pose questions, and suggest alternatives, which only a few years ago would have been scientific heresy. For example, in terms of wide-ranging theoretical implications, chaos theory appears to have taken a central place in reformulating the basis of all sciences. On a more practical level there is the Center for Applied Intuition, headed by scientist William Kautz, who was at the Stanford Research Institute for over 35 years. He and his staff of expert intuitives have hundreds of clients around the world. Many are in Japan, a culture which traditionally honors intuition. Such enterprises offer evidence of a spectrum-wide shifting from the reluctance of Americans to apply intuition to business practices. Ironically this shift in perspective is being brought about in part by certain elements of the very same scientific establishment which until recently was charging ahead in the opposite direction.

Through the far reaching implications of chaos theory and the reformulations in the quantum mechanics area of physics, there is an emergence of the realization that all reality is not in fact within the physical level, but is more accurately

conceptualized as being within the interconnected continuum of the totality of all. With this realization coming to fruition in the West, after so long an absence from the technological mind, the potential to cross new and exciting conceptual boundaries, and to enter into the uncharted regions of new dimensions, across disciplines, within and outside of science, should be openly investigated.

A central concept in the emergence of this new thinking, from physics to psychology and across to ancient bodies of knowledge, is the notion of consciousness. *Homo sapiens sapiens*' whole evolution can be seen, not just in anatomical or physiological terms, but as a metamorphosis from one level of consciousness to another, with levels and attributes of consciousness varying at different stages of the evolutionary process (Nelson and Jurmain 1985). Central to concepts of consciousness is the development of awareness of self, as opposed to otherness. This is a necessary step in the development of consciousness. Another necessary step seems to be in the perception of one's place within the oneness of the totality of the continuum of reality. All the ancient teachings agree that this one true reality is universal and not to be viewed in culturally relativistic terms. Connecting this perspective requires physiological as well as psychological changes. Tuning into this "greater" reality via states of consciousness is somewhat like fine tuning a short-wave receiver. One must really be familiar with the dial and know what frequency they are at to understand what they are receiving. If one only understands English and receives messages in Russian then the meaning of what is being received must be deciphered.

These "other realms of existence" and their interconnection with the physical level of everyday existence have been discussed throughout the history of humankind. All life in its myriad forms is a passage through time while age is determined by the duration of this journey of passage. A great many cultures hold the philosophical view that time is cyclical and somehow all here and now in a single existence. However, in the Western world, this view was radically altered and relegated to a position of non-credibility with the rise of Christian political philosophy.

Cosmology is a complex enterprise in any tradition, and if we propose to bridge between cosmologies it is clear we cannot begin to discuss the whole, except as we recognize the unity of the whole. It is instructive, though, to look at one concept, and to contextualize that concept in alternate cosmologies. One of the most instructive, but difficult, concepts to investigate in different cosmologies are the concepts of time and time perspective. That is the starting point for this thesis. The description of different cultures' perceptions of time must start with the observation of cultural relativism: time is a central organizational principle in any cosmology. The difficulty in understanding another culture's perception of time seems to be a function of our inability to understand that culture's cosmology *in its own terms.*

In Western culture shifts in conceptualizations of time have occurred. For instance, the first great Christian philosopher of the medieval ages, St.Augustine, stated that we could not, and did not, measure things which were not. That which was past or yet to come was not, and therefore could not be measured or seen.

It was with Descartes that the formation of the modern Western scientific theory of knowledge began. He emphasized that knowledge of the nature of things was to be attained only through the evidence gained by exercising the intellect. We ought not to be persuaded of the truth of anything based on the information of our senses. For Descartes there was an absolute distinction between that of mind and body in that the intelligent nature was distinct from that of the corporeal. He supposed that by investigation an organized science should be able to deduce the whole body of mathematical laws that would explain the world. This was of course the very path upon which Western science set out with the advent of the Newtonian quantitative scientific method. It is a method informed by linearity and thus, when time is considered, the method structures time in linear relationships.

Western science assumes that there is an objective world which more or less obeys mathematical laws. In this view, reality can be learned about through breaking down matter into its simplest components and then systematically observing and measuring it. However, for the most part our units of measurement are quite arbitrary. We have merely generated a set of consistency relationships to explain our common ground of experience. It is the capacity and capability of our physical sensory perception mechanisms which are the true determinants. For the last three centuries, Western science has presumed itself to be objective and therefore more rigorous than other systems of thought. There is a basis of belief in Western science that there is an inexorable progression of knowledge and therefore the new inevitably replaces the old and fallible. From its analytical position this conceptualization of science has maintained an attitude that it has little to learn from other bodies of cultural or tribal knowledge.

All cultures have knowledge which immediately addresses physical reality as well as the greater reality of all existence. For instance, it is only in the past ten to fifteen years that any credence has been given to traditional forms of agricultural practices such as crop rotation practices, varying the range of crops that are grown, or knowledge of animal husbandry and knowledge of seasonal migration patterns and habits of a variety of species.

Every culture has a psychological/philosophical sequential breakdown of time into units which reoccur in some sort of cyclical manner. The continuing duration of our passage through time is measured by a repeating of something or other within an individual's life span or from nature as a whole. Because of time being continuous and homogeneous there must be reference point markers placed at certain intervals.

Although past, present, and future exist as perceptions of time in the human mind, without memory they are meaningless. "Time is not an absolute quality in memory; it is an ordering of people, places, things, and events. There are no calendars in the brain" (Rosenfield 1988:166). Memory can be affected by what is promoted culturally as well as by what is cognitively required in daily life.

Western society creates our reference-point time markers through the invention of social life intervals. There are personal events such as birth, death, and marriage; and social festivals such as Christmas, Easter, and Thanksgiving. The latter can also be seen as markers for a greater overall ordering of time, that is, "one year between Christmas and Christmas." For the larger concepts of time we have created millenniums, centuries, and decades; for the smaller concepts there are months, weeks, and days. Days are broken down into hours, minutes, and seconds. With the advent of the computer, and the rapid advances in computer technology, we have the microsecond (10^{-6}), nanosecond (10^{-9}), and the picosecond (10^{-12}). These last mean little or nothing to the average person, and are at best difficult to conceptualize, originating from the classical physics of Newton which assumed that time and space are infinitely divisible.

Knowing for sure that we are all part of the irreversible process of birth, aging, and death led E. R. Leach to state: "to think that all other aspects of time, duration for example of historical sequence, are fairly simple derivatives from these two basic experiences: (a) that certain phenomena of nature repeat themselves; (b) that life change is irreversible" (1961:125).

An individual may review the past and in some way or other plan for the future, but it is the present which presents the greatest challenge for placement or location within the continuum of time. It is the present moment which is continuous or non-existent—non-existent in the sense that as one speaks or thinks of the present moment it is no longer. Thus the present ceases to exist because in the passage of time the present becomes immediately the past or the future. To be constantly in a continuing present time, the continuum of time would have to come to a stop. To stop time, not just slow it down, would be to freeze all existence into the eternal present. About this Wilber comments:

> As we try to move away from the present world, that world appears to move past us. The eternal present thus appears bounded, constricted, limited. It is sandwiched on the one side by all the experiences we have run past, and on the other side by all the future moments we are trying to run into. Thus, to move away is to create a before and after, a point of departure in the past from which we move and a port of destiny in the future to which we move. Our present is reduced to the moving itself, the quiet running away. Our moments pass (Wilber 1979:154).

Are the ideas of duration and the reference point time [illegible] of historical sequence arrived at from the same philosophical perspective cross-culturally? If it can be assumed that we are all, to some degree or other, a product of our immediate environment, it stands to reason that philosophical perspectives, which are the final products of a translation process based on different sources shall in the final analysis differ from one another. Although there may seem to be some deep underlying similarities in dealing with the physical realities of life, the philosophical understanding behind approaches is different.

While consciousness enables an individual to focus on what is relevant at a given moment it is also influenced by the presence of others. Although the continuous flow of experience can be segmented through noetic consciousness this in itself is not a quality of the world, but a psychological/perceptual product.

Anthropology must come to a deeper understanding of human consciousness, but not limit itself in this instance only to the study of tribal cultures. There is much knowledge to be gained from studying how people in technological societies enter into a communion with the ultimate mysteries of the universe. This understanding must not only be from the cross-cultural perspective. A physiological perspective can be seen as providing a kind of triangulation: if physiology is not taken to be *definitive* of perception, measures and observations from physiological research should provide data and perspective that are complementary to data which come from reports of people's lived experience of awareness. It is the combination of Western scientific and cross-cultural sources of information which will constitute the "data base" for this thesis in asking the question what are cross-cultural time concepts?

The Thesis

Conceptual Steps Toward a Thesis Statement

The articulation of a thesis statement is best described as a series of conceptual steps, each of which involved the statement of a principle. Each principle is shown below in italics, followed by a brief explanation of its place in coming to a thesis statement.

> *Explaining cross-cultural differences in perspectives on time necessarily involves dealing with cosmology and consciousness.*

The first step in this inquiry was to observe that different cultural systems have quite different perspectives on the nature of time, and that such differences have been described on both the practical, everyday level (i.e., how one conducts and orders one's life with respect to time) and the cosmological level (i.e., how indigenous and other cultures conceive of the nature of time itself in the context of

describing who we are, our origins, the nature of all that is known—the universe of knowledge about the universe—and how we may come to know, to be aware, of it). The question of cultures' differing perspectives on the nature of time seems to be a fundamental question. It is impossible to contextualize different cultures' conceptions of time (except at a trivial level) without raising fundamental epistemological questions: how do we know things? The question of time raises the question of consciousness.

> *In order to understand other cultures' accounts of time in the context of cosmology and consciousness, we must (at least operationally) assume an equality of legitimacy of traditions (Western, scientific, tribal, indigenous, ancient).*

A second step was to observe that if we take reports from other cultures, especially tribal cultures, or from shamanistic traditions within Western culture, and explain them in terms of Western science, we cannot accept their accounts at face value, because the Western scientific methods used in anthropology, by their nature, seem to accept such accounts as ethnographic data but not as evidence of knowledge of a system for inquiry. We are thus in the strange position of denying the legitimacy of the *experiences* of a large number of people. Thus the completion of this second step in this thesis was to assume, operationally, the validity and legitimacy of the experiences reported by shamans. Operational retention of the Western concept of linear time has the effect of de-legitimizing other systems.

> *A fundamental principle in all the traditions, including modern physics, is the idea of connectedness within an inclusive unity.*

A third step was to attempt to articulate that principle of common perspective.

> *There is a range of ordinary or individual human experience which seems to be describable in terms of individual connectedness, in consciousness, within that unity.*

A fourth step was to pose a range of reported experiences of conscious states which appear to be explicable, or at least understandable, as individual realizations and affirmations of individual connection within that "unity of consciousness." By way of example in this thesis, some of the reported experiences of shamans are compared to accounts of near death experiences.

The Thesis Statement

The thesis statement is a proposition. There are two background statements to the formal statement.

First Background statement: That cross-cultural study of time perception necessarily involves considerations of cosmology and the nature of consciousness

Second Background statement: That there are fundamental commonalities (a) between modern physics (and other sciences) and ancient or tribal traditions, in cosmology; and (b) between accounts of conscious states, cognitive processes, and experiences involved in shamanism on the one hand and, on the other, such experiences reported in other societies of clairvoyance, clairaudience, intuition, and near-death-experiences.

The thesis statement: Assumptions in shamanistic and ancient tradition about

(a) the cyclicity of time;
(b) the inter-connected unity of the cosmos;
(c) conscious experience of that unity; and ultimately
(d) a cosmologically inclusive consciousness;

are useful in anthropology, not simply as ethnographic data but as epistemological *a priori* assumptions and organizational frameworks for exploring the human experience.

What the Thesis is Not

The thesis neither defines nor documents a tradition in anthropology. It is not a comprehensive review of related literatures in the area. For example, there is a large literature on shamanism in anthropology. There is a literature about consciousness which, if defined broadly enough, would incorporate a major portion of American ethnography and all of the literature in cognitive anthropology. There is a newer literature directed specifically at the nature of consciousness.

The selection criterion in an interdisciplinary literature was just this: given (a) the statement of issues, (b) the steps taken in definition of a thesis statement; (c) the background statements to the thesis statement, and the thesis statement itself; examples of literature that spoke to the issues were chosen. The intent of the thesis is not to define the new focus, nor to review its possible antecedents and contributors in the current discipline, but to present a position statement of potential for the discipline.

The Organization of the Thesis

Consciousness can be conceptualized as opening the doors of perception. Chapter II begins with a description of the biological and physiological descriptions of visual and auditory perception; the notion of consciousness is raised, and related

briefly to the organization of the brain and to the evolutionary development of consciousness.

It is clear from the discussion in Chapter II that consciousness discussed in those terms requires the consideration of culture as a component of—and to an undeterminable degree, a structural determinant of—the nature of consciousness. In Chapter III, philosophies and world views, relative to time, are discussed, with examples drawn from indigenous North American cosmologies and Western religious and philosophical traditions. That leads to a discussion of modern physics and the nature of questions which are raised therein which have some resonance with conceptions of time in Western culture and in Eastern religious traditions.

Chapter IV builds on that discussion to pose the cosmological principle of interconnected consciousness—the consciousness continuum—and relates that principle to individual experience in a variety of traditions and currents of thought.

Rather than summarizing the discussion, the final chapter is a discussion of the potential for anthropological inquiry if "the consciousness continuum" were to be, at least operationally, a focus in the discipline.

CHAPTER II: PERCEPTION AND CONSCIOUSNESS

The Perceptual Link to the Environment

There is a bio-physical link between humans (indeed all biological organisms) and the immediate environment in the form of sensations received from that environment. The end result of an organism's translation process of these sensations is what is known as sensory perception.

> Our sensory perception of the world begins with receptors that translate all messages from the outside world—sights, sounds, or smells—into electrical impulses, the common coinage of our nervous system. These impulses are either all or none; each is identical to all the others, and only their pattern conveys meaning. Our brain reads not the world itself but this encoded version of it, a sort of Morse code translation into a series of dots and pauses. From this lumpy input, our consciousness somehow manufactures the illusion of its own continuity (Wilczek and Devine 1987:139-140).

Physiologically humans detect information from the external environment through sensory receptors activated by specific adequate stimulus which is unique to each sensory receptor. The stimuli detected from the external environment are in the form of sound, heat, pressure, light, and chemical substances and odors, each of which is capable of activating a specific type of sensory receptor.

All sensory information gathered by the sense organs and activated receptors is transmitted to the brain via specialized pathways for each type of sensation. The nervous system relays clear messages to the brain about the quality or type of a stimulus through sensory receptor coding mechanisms called the labelled-line code of stimulus quality. The number of receptors activated in a population code and the number of action potentials generated in a frequency code is what registers the intensity of a stimulus. One of the ways in which the nerves inform the brain is through the frequency code of stimulus intensity, which results from the intensity of pressure generating a certain number of action potentials per unit time. The greater the pressure, the greater the number of action potentials.

The behavior or experiences evoked in a living organism by physical stimulation acting on the senses occur only at a certain threshold. A threshold is the point at which there is a minimum stimulus sufficient to excite a neuron and trigger a nerve impulse. To understand absolute and difference thresholds the intensity of sensory experiences must be measured and the correlation of the relationships, between psychological experiences as related to certain amounts of physical stimulation, shown. The correlation between the physical stimulation and psychological experience is a function of psychophysics, which is a developed set of methods dealing with "the intensity of a physical stimulus, measured in physical

units, and the magnitude of the sensory experience, measured in psychological units" (Zimbardo 1988:145). These psychophysical techniques measure the strength of sensations, derived from stimuli such as light, sound, taste, odor, and touch, as experienced by an alert normal organism.

In some circumstances certain individuals will sometimes behave in a manner indicating that they have heard or seen something although their detection performance has indicated stimulation below the point of sensory threshold; this is a phenomenon referred to as subliminal perception.

However the reason it may be regarded as subliminal perception may simply be due to the lack of measuring techniques that are refined enough, or are oriented properly, to detect stimuli. Within the universe there is an interconnected flowing matter-energy continuum of which the human structure and its physical processes are part. It is very likely that individuals who have sensory systems that are for some reason, as yet to be fully understood, more finely attuned can and do make contact with the cosmic energy continuum from other than what is generally perceived to be the immediate reality.

Often, after a continuously applied unchanged repetitive stimulation, sensory modalities tend to lose their power to respond and at some point the brain no longer perceives the stimulus. This adaptation to a sensory stimulus is a phenomenon called sensory adaptation and can be caused by mechanisms within the brain, at the receptor site, and at the molecular level.

> After prolonged exposure, colors seem to lose their intensity and tend to look grey; warm water feels less warm after a time; an odor that is noticeable when you enter a room soon seems to disappear; ticking clocks become silent, and rock music becomes bearable (Zimbardo 1988:165).

After continued exposure to some addictive drugs the chemical receptors on membranes are internalized and removed from the surface of the membrane.

> With the removal of these chemical receptors, higher levels of the drug are necessary to achieve the same effect. This may be why, after repeated use, the body develops a tolerance to drugs such as heroin. A similar molecular adaption mechanism is found in receptors for vision. During sunny days, our eyes quickly adapt to the brightness of the outdoors by the 'bleaching' of the photoreceptors. The underlying basis of this bleaching process is the removal of molecular receptors that capture light (Rhoades and Pflanzer 1989:260).

Dark adaptation of the visual system is an increased sensitivity to low levels of light due to changes occurring in the photoreceptor cells of the retina which

produces a two-part reaction. Cone adaptation occurs at a more rapid rate than that of rods, however it never drops to as low a threshold level as that of the rods.

The Visual System

The visual sensory system "is the most complex, highly developed, and important sense for humans and most other mobile creatures, because animals with good vision have an enormous evolutionary advantage" (Zimbardo 1988:151). The determination of the shape and color of objects as well as the detection of movement is made through the processing by different cell groups within the visual system. The predators, most of whom have eyes set right on the front of their heads, can detect and track their prey from far away through the use of binocular vision sighting. The prey, most of whom have eyes set at the sides of their heads, can detect and keep their distance from predators through the use of their more accentuated peripheral vision which allows them to be aware of when something is sneaking up behind them. "Vision also enables us to be aware of changing features in the physical environment and to adapt our behavior accordingly" (Zimbardo 1988:151).

The sensory organ of the visual system is the eye. Photoreceptors, rod cells and cone cells, located in the retina transduce light into electrical impulses which are then used to transmit information to the brain by the nervous system.

> Before light can reach the rods and cones of the retina to result in image formation, it must pass through the cornea, aqueous humor, pupil, lens, and vitreous humor. For vision to occur, light reaching the rods and cones must form an image on the retina. The resulting nerve impulses must then be conducted to the visual area of the cerebral cortex (Tortora 1989:568).

The light perceived is a small portion of the continuum of a physical dimension called the electromagnetic spectrum. The continuum of electromagnetic radiation ranges from cosmic rays, gamma rays, and x-rays to microwaves, T.V. waves, and radio waves, which cannot be seen without the aid of technological instruments. The only physical property which distinguishes amongst photons (units of electromagnetic energy) is wavelength, as in the example of x-ray waves being very short and radio waves being very long. The wavelengths which we see as the visible colors of light are in between x-ray waves and radio waves, with an approximate range of 400 to 700 nanometers (billionths of a meter). The visible wavelengths of light correspond to the color range which can be seen in a rainbow.

> The important point is that light is described physically in terms of wavelengths, not colors. Colors exist only in your experience (Zimbardo 1988:155).

> Visual images are transmitted to and processed by the brain as sequences of ionic impulses. Nowhere in the brain are there beams of colored light that translate these ionic impulse sequences into a graphic rendition of the associated image. The lights and the associated picture are purely mental events. There is no light in the physical world as man experiences light (Pinkel 1992:90).

> At night, there is not enough light to stimulate the cones. But there is enough to stimulate the rods. However, rods cannot distinguish colors. Therefore, you do not see much color in dim light.
>
> Rods produce a substance called visual purple. The rods do not interfere with cones in bright light because bright light fades visual purple. This makes the rods insensitive to more light. But, at night, visual purple does not fade as fast. The rods are able to make it as needed. This explains why it takes you a while to see when you suddenly leave a bright room and walk into the dark night. The visual purple must be restored for you to see in dim light (Otto and Towle 1977:594-595).

Photons must pass through the cornea and lens before they can reach the retina at its most sensitive part, the very center, called the fovea. The fovea is made up of only densely packed cones with no rods and it is here that color and spatial detail are most accurately detected. As the fovea is the area of sharpest vision the lens attempts to focus images on it, but these images are projected onto the retina in an upside-down manner. However the brain reorganizes this inverted information about the form of objects and interprets the outside world as right side up.

> One of the most remarkable features of the human visual system is that our experience of form, color, position, depth, and other aspects of perceived objects are based on different kinds of processing of the same sensory information. If you observed the nerve impulses carrying these different kinds of information about the external world, they would be identical (Zimbardo 1988; 155)

There is an exact mapping of the visual field onto the visual cortex area of the brain. This visuotopic organization is formed by light from the visual field being projected onto the retinas (retinotopic map) and then neural messages being sent to the two visual centers of each hemisphere via the lateral geniculate nucleus of the thalamus. "Cortical processing of information from the two eyes gives us our perception of color, depth, shape, and recognition of known patterns" (Zimbardo 1988:154). The visual field for each one of the eyes is divided into two parts, the temporal (lateral) half and the nasal (medial) half. In each of the eyes, light rays from objects in the temporal half fall on the nasal half of the retina and vice versa.

It must be realized that these parameters for the visual sensory system apply to human populations in general as measured by the technology presently available.

> The optic nerve connects from the eyes to a region in the thalamus called the lateral geniculate nucleus (LGN) and from there to the visual cortex. The standard information-processing description (still found in textbooks and popular accounts) is that information enters through the eyes and is relayed sequentially through the thalamus to the cortex where "further processing" is carried out. But if one looks closely at the way the whole system is put together, one finds little to support this view of sequentiality (Varela, Thompson and Rosch 1991:94-95).

But as with the technological ascertaining of quantitative knowledge in any area, as the devices used for the information gathering are refined the results will change accordingly.

> It is evident that 80 percent of what any LGN cell listens to comes not from the retina but from the dense interconnectedness of other regions of the brain. Furthermore, one can see that there are more fibers coming from the cortex down to the LGN than there are going in the reverse direction. To look at the visual pathways as constituting a sequential processor seems entirely arbitrary; one could just as easily see the sequence moving in the reverse direction (Varela et al., 1991:95).

There is in the midbrain region of the brain stem a cluster of nerve cell bodies called the superior colliculus which serves a major function in that it "gives the organism flexibility in orienting to multiple sensory stimulation from its environment" (Zimbardo 1988:154). One of the sensory inputs that is integrated by the superior colliculus is that of sound, by orienting the head, ears, and eyes towards environmental cues.

The Auditory System

The auditory system is stimulated by adequate sound. Sound is vibrational energy which is transmitted through the air, at a rate of about 1,100 feet per second, as sound waves, by the compression and expansion of air molecules. "Like vision, audition (hearing) provides us with reliable spatial information over extended distances. In fact, it may be even more important than vision to orient us toward distant events" (Zimbardo 1988:167). Sounds are detected by the auditory system and transmitted to the brain. "Although vision is better for identifying an object once it is in our field of view, we often see it only because we have used our ears to point our eyes in the right direction" (Zimbardo 1988:167).

> Some sound enters the external canal directly and some after being reflected off the external ear, or pinna. At the inner end of the canal, the sound wave encounters a thin membrane called the eardrum or tympanic membrane, which is set into motion by the pressure variations of the sound wave (Zimbardo 1988:170).

The middle ear (tympanic cavity) is a small air-filled chamber hollowed out of the temporal bone in the skull and separated from the external auditory canal by the partition of fibrous connective tissue called the eardrum. Separation of the middle ear from the inner ear is by a membranous structure containing two small openings called the oval window and the round window.

Sound waves cause the eardrum to vibrate and in turn this vibration causes the exceedingly small bones called the auditory ossicles to move. Extending across the middle ear, these bones (the malleus or hammer, incus or anvil, and the stapes or stirrup) which are connected in series by synovial joints, "form a mechanical chain that transmits and concentrates vibrations from the eardrum to the primary organ of hearing, the cochlea, which is located in the inner ear" (Zimbardo 1988:170). The malleus (hammer) head articulates with the body of the incus (anvil) while being attached to the internal part of the tympanic membrane by its handle. The incus in turn articulates with the stapes (stirrup) of which the base fits into the small opening called the oval window (fenestra vestibuli) between the middle and inner ear. The round window (fenestra cochlea) is directly below the oval window and is enclosed by the secondary tympanic membrane.

Structurally the internal (inner) ear, also called the labyrinth,

> consists of two main divisions: an outer bony labyrinth and an inner membranous labyrinth that fits in the bony labyrinth. The bony labyrinth is a series of cavities in the petrous portion of the temporal bone. It can be divided into three areas named on the basis of shape: the vestibule, cochlea, and semicircular canals. The bony labyrinth is lined with periosteum and contains a fluid called perilymph. This fluid surrounds the membranous labyrinth, a series of sacs and tubes lying inside and having the same general form as the bony labyrinth. The membranous labyrinth is lined with epithelium and contains a fluid called endolymph (Tortora 1989:573).

The oval central portion of the bony labyrinth is called the vestibule and its membranous labyrinth consists of two sacs called the utricle and saccule which are connected to each other by a small duct.

> Projecting upward and posteriorly from the vestibule are the three bony semicircular canals. Each is arranged at approximately right angles to the other two. On the basis of their positions, they are called

> the anterior, posterior, and lateral canals. The anterior and posterior semicirc· nals are oriented vertically; the lateral one is oriented horizont: ortora 1989:573).

Each of the semicircular canals has one end which enlarges into what is called the ampulla. The semicircular ducts (membranous semicircular canals) lie inside, and are almost identical in shape to, the semicircular canals and communicate with the utricle of the vestibule.

The semicircular ducts contain the receptor organs for equilibrium such as the maculae of the utricle and the saccule which have to do with static equilibrium (orientation of the body relative to gravity). Also, there are the cristae which act as receptors for dynamic equilibrium, the maintenance of the body's position as a response to sudden movements such as acceleration and deceleration or rotation.

In front of the vestibule is a liquid filled bony cone-shaped spiral canal structure called the cochlea. Coiling about 2.75 turns around the modiolus (a central bony core), the cochlea looks much like a snail's shell. A flexible structure called the basilar membrane runs down the middle along the length of the cochlea. When sound impinges upon the ear drum the fluid in the cochlea is set into wave motion and this in turn causes the basilar membrane to vibrate in a travelling wavelike motion which deforms its shape.

> As the travelling wave progresses down the length of the membrane, the amplitude of the deformation becomes greater and greater until it reaches a peak. As the travelling wave progresses further, its amplitude diminishes. The location of the peak amplitude of the travelling ave along the basilar membrane depends upon the frequency of the sound. High-frequency sounds cause the travel wave to reach its peak amplitude near the base of the cochlea. Low-frequency sounds cause the travelling wave to reach its peak near the apex of the cochlea. Intermediate frequencies of sound causes peak amplitudes to occur at locations along the membrane between the base and apex of the cochlea. Thus, the basilar membrane is designed mechanically to respond to different frequencies of sound by changing its form (Rhoades and Pflanzer 1989:291).

The sound wave of one frequency is called a tone. Tones of different frequencies and intensities is what characterizes the receptive properties of neurons along the auditory pathway. Auditory nerve fibers have a tonotopic organization with certain frequencies activating particular nerve fibers. High-frequency sounds vibrate the basilar membrane near the base of the cochlea and low-frequency sounds cause vibration near the apex of the cochlea.

> Neurons of the auditory system also respond in a variety of different ways to a particular tone. Some neurons generate action potentials only when the tone is on; other neurons are prevented from generating action potentials with the onset of the tone. Some neurons generate action potentials when the frequency of the tone is suddenly changed whereas others generate action potentials only when the amplitude changes. The variety of responses suggests that nerve cells of the auditory system extract the basic features of a sound from its complex wave form. The fundamental features of a sound are reassembled by the convergence of neurons. These neurons converge onto other neurons that respond only to the reassembled complex auditory stimuli (Rhoades and Pflanzer 1989:297).

The development of auditory nerve cell connections, which are needed for hearing and speech, can be seriously hindered in infants through serious ear infections which chronically impair the ability to hear spoken words. Such a hearing disorder can lead to lifelong language disorders in that these auditory nerve cell connections will never occur if they are not formed within the first few years after birth. This developmental disorder which is critical to the underlying development of language skills is of great importance when consideration is given to the influence that language exerts on the structures of thought. While the spoken language is an abstraction of what has, could have, is, or might happen; it also relates to all sorts of levels of realities and therefore has an important relationship in the development of perception. Communication between individuals in some ways plays as important a part in the development of perception as does an individual's physiological senses.

Just as in the case of the visual senses, there are certain individuals whose auditory senses exceed the range of what is considered the norm for the average human being. While, generally, medical science can explain many of the physical problems which can have an effect on the auditory senses, it cannot explain why an individual is, or what would cause one to become, clairaudient. Western science tends, for the most part, to dismiss clairaudience but it is often used (successfully) by shamanic healers, as is medical clairvoyance for viewing an individual's biofield (aura).

> Just as the brain translates sequences of ionic impulses into visual images,
>
> Similarly, auditory information shows up in the brain as sequences of neural impulses. There are no sounds or words or music, as such, in the brain. These sounds, words, and music are purely mental experiences. Nor is there sound in the physical world; there are instead vibrations. Neuroscientists have provided no information on the physicopsychic transducer that converts sequences of ionic impulses into mental experiences (Pinkel 1992:90).

Perception

> Perception through the senses does not depend upon the immediate physiological details of the eyes or ears alone but on a much wider context that involves the whole disposition of the individual. In the case of vision this has been investigated from a number of different perspectives. Scientists have shown that seeing requires the active movement of the body and the mind. Visual perception is therefore an intentional and not a passive act (Bohm and Peat 1987:63-64).

The mind has an overall disposition to apprehend objects in particular ways. This plays an important role in selecting and giving form to what is seen. The eye, through rapid movements, extracts elements from a scene. Then, depending on the individual's view of the nature of reality, a whole consciously perceived picture is built. Previous knowledge affects what we "see" as much as incoming data.

> Sense perception is therefore strongly determined by the overall disposition of both the mind and the body. But, in turn, this disposition is related in a significant way to the whole general culture and social structure. In a similar way, perception through the mind is also governed by these wider issues (Bohm and Peat 1987:64-65).

The perceptual task, in the narrow usage, is to organize sensory input into a stable, orderly, and meaningful internal representation of an object that is relevant to the perceiver. The perception which is perceived is not the real physical object (the distal stimulus) in the environment, but corresponds to it. Also, the perception which is perceived is not the physical object's receptor image (proximal stimulus). However, it is from the image in the retina, which is often quite different, that the stimulus for the information is derived. "In fact, perception can be thought of as the process of determining the distal stimulus from information contained in the proximal stimulus" (Zimbardo 1988:188). It is this phenomenological or experienced percept which "provides a working description of the perceiver's external environment" (Zimbardo 1988:155). Stimulus features and elements are converted into recognizable patterns and forms by higher-order brain processes and then grouped into familiar categories. This classification process (e.g., circular objects become coins, clocks, moons etc.) is based on higher-order processing like past knowledge, expectations, and inferences. It is through different mental processes such as synthesizing, estimating, comparing, judging, associating, and remembering that an interpretation of sensations is made through past experience with similar sensations.

The term bottom-up (data-driven) process refers to the way in which interpretation is made of incoming sensory data, by the upward flow of the data to the brain for extraction and analysis, to determine whether or not it is derived from

meaningful objects in the external environment. The top-down (hypothesis-driven) process refers to the interpretation and classification of the object of perception being influenced by aspects of the perceiver's higher mental functioning such as prior experience, knowledge, motivations, and expectations, as well as language and cultural background. The nature and evaluation of environmental perception is affected by interaction of these two processes.

> To the domain of functions of perception belong the perceptual functions of the various sensory systems. To the domain of the processing functions belong above all those of learning and remembering. Information processed through the sensory organs is prepared and stored away. But processing does not occur independently of evaluation. Our perception, our learning and thinking, are from the outset embedded in the dimension of evaluation (Poppel 1988:125).

Survival depends greatly upon perception accurately perceiving events and objects in an environment which is not always necessarily easy to fathom due to ambiguous data. To avoid uncertainty and confusion, at certain times, the appearance of reality is not entirely trusted and what the senses record is supplemented with other knowledge. Sometimes there can be a misinterpretation of sensory stimulus which leads to the experiencing of a perceptual illusion by most individuals in the same perceptual situation. An awareness of two considerations are made due to perceptual illusions and they are that of "the active role the mind plays in structuring our view of the world and the effects of context on the way we perceive stimuli within it" (Zimbardo 1988:192). As social creatures, much of the information and significant experiences available to humans is dependent upon interactions with others. The socially acquired attitudes and categorizations of a given culture can have a strong unconscious influence upon the evaluation of a new sensory input.

> What each of us considers to be "reality" is determined in large part by common agreement. The notion that reality is a social construct based upon mutually agreed-upon ways of perceiving significant aspects of the environment within a given community of peers is termed consensual validation (Zimbardo 1988:216).

Social influence plays such an important role concerning the meanings seen in perceptual data that it actually "may lead us to distort the information provided by the data" (Zimbardo 1988:218). The variables of social influence are so pervasive "that even as private a process as our consciousness is, to some extent, influenced by the actual or symbolic presence of other people" (p. 216).

The biological and physiological account of perception, and descriptions of social processes which influence how perception is organized, do not appear to be

adequate to account for the full range of conscious states commonly reported in many cultures. It is true that the surrounding influences of an individual, such as the immediate physical environment, society, and culture, all have an impact on the developmental processes leading to a given perception of what reality is. However, it must be clearly understood that there is also a process at work leading to a perception of what reality is not, and cannot even be considered to be, (ie. the perception that spirits are always around to either hinder or help humans versus the perception that no such thing as spirit entities even exist). In other words, just as human beings are taught to perceive, they are also taught not to perceive. But it is more than likely that any of these developmental processes are not giving a totally accurate and complete view of what the actual total essence of reality is.

Consciousness

Reflective consciousness, in general, is the state of being aware of ourselves as separate from other beings and objects. Ego consciousness is a psychic structure "which perceives the world and the unconscious by means of images, but this image-forming capacity is itself a psychic product, not a quality of the world" (Neumann 1954:294). Attention is the process that enables an individual to tune out what is not relevant and focus on what is relevant at a given moment. It is due to noetic (knowing) consciousness that the continuous flow of experience can be segmented into objects and events, or patterns, in space and time.

Noetic Consciousness

> Noetic consciousness frees individuals from the constraints of concrete objects and present events. Symbolic knowledge of the world is acted upon in a flexible way, allowing awareness and cognitive manipulation of objects stimuli, events, and relations in their absence" (Zimbardo 1988:224).

In contrast to noetic, there is anoetic (nonknowing) consciousness which is spatially and temporally limited to a current situation; it is this form of consciousness ethologists generally refer to when describing animal consciousness.

What is it that precipitated the developmental difference between humans and animals?

> Image formation alone makes perception and assimilation possible. A world that cannot be imagined, a nonplastic world like that of the lower animals, is of course a living world; there are instincts in it and the organism as a whole responds to it by unconscious action. But such a world never gets represented in a psychic system that reflects

> and shapes it. The psyche is here built up through a series of reflexes; it responds to stimuli with unconscious reactions, but with no central organ in which stimulus and reaction are represented. Only as centroversion develops and gives rise to systems of ever higher scope and caliber do we get the world represented in images, and an organ consciousness - which perceives this plastic world of representations (Neumann 1954:294).

In recent years ethologists have been proposing the argument for animal conscious awareness based on the adaptive economy of conscious thinking in animals. The demands and challenges of any environment are dealt with more efficiently and wasted effort avoided by thinking before acting mindlessly: animals can accomplish this through the anticipation of "probable future events, by considering likely effects of one action over another, by observing and communicating with other members of the species" (Zimbardo 1988:223). A good example of this type of animal behavior is that of chimpanzees who "have learned to use suitably prepared branches as probes into the openings of termite nests. They 'fish' for termites who climb onto the probe" (Jane Goodall, quoted in Zimbardo 1988:223). Even though specific goals and past learning may influence an animals behavioral repertoire it is a very limited consciousness which is mediating these actions. "There is no evidence that it has symbolic knowledge of the world in the absence of concrete objects and events in the current situation" (Zimbardo 1988:224). It would appear that animals do not have the noetic consciousness that humans have which allows for the cognitive manipulation of objects, events, and relations in their absence. "An elder chimp does not teach a younger one by sketching models of termite hills and fishing rods from the symbolic representation in its memory" (p. 224).

Autonoetic Consciousness

Humans, as well as having noetic consciousness, have what is known as autonoetic consciousness.

> Autonoetic consciousness is the kind of consciousness that makes people aware of the autobiographical nature of personally experienced events. This self-knowing consciousness is associated with a subjective sense of the past and the future, a sense of the present as a personal continuation of one's own past and a prelude to the future. Autonoetic consciousness is necessary for remembering, anticipating, and for developing a sense of a personal identity. The adaptive value of autonoetic consciousness lies in the heightened confidence that it confers on information retrieved from memory. This subjective certainty about the orderliness of the past leads to more decisive

present actions and more effective future planning (Zimbardo 1988:224).

While there is no universally agreed upon normal state of consciousness it can, in general, be seen as one's normal complete waking state of beta level brain-wave activity. Brain waves range from 14 to 27 cycles per second in the beta level. Approximately 75 percent of the beta level consciousness is used in monitoring physical functions. Generally during meditation, biofeedback, mild hypnosis, daydreaming, and in hypnagogic (just prior to sleep) and hypnapomic (just after sleep) states, the brain is in the alpha state. In this state, with brain-waves of 8 to 13 cycles per second, subconscious material is available. The theta level, a level which some individuals can attain during meditation and biofeedback, is equivalent to the nonaware state of light sleep with brainwaves of 4 to 8 cycles per second. The delta level, with brainwave cycles of O to 4 cycles per second, is characterized by the deep sleep level.

An advantage enjoyed by individuals such as shamans is that they can, at will, move between ordinary states of consciousness and shamanic consciousness which is an altered, but lucid, state of consciousness. While the shaman can access the underworld or the celestial world in his altered state, he can also view the nature of reality from the perspective of the ordinary state of consciousness. There is a great difficulty in making unprejudiced judgements regarding the degree of validity one can attach to reported experiences and observations in a contrasting state of consciousness and yet there is nobody, "even in the sciences of ordinary reality, who has incontestably proven that there is only one state of consciousness that is valid for first hand observations. ... The persons most prejudiced against a concept of nonordinary reality are those who have never experienced it. This might be termed cognicentrism, the analogue, in consciousness of ethnocentrism" (Harner 1982:xvi, xvii).

But this prejudice has little meaning to people like shamans because their status is determined and conferred on them, as a recognition of their successes, by those they have attempted to help in matters of power or healing. In recent years there has been an increasing growth in the number of Western health professionals who are attempting to investigate the curing practices and healing powers of shamans in all areas of the world. Pinkel appears to be discussing the development of autonoetic consciousness in his summary statement:

> Whatever might have been the combination of structure and processes that represented the spark of consciousness in the brain stem of man's reptilian progenitor, it continued substantially in that location through the various stages in the evolution of *Homo sapiens*. This spark of consciousness grew in its capabilities as evolution provided more elaborate cerebral systems to supply information to the brain stem and to permit greater manipulation of this information (Pinkel 1992:125).

The Triune Brain

One of the things that precipitated the developmental difference between humans and animals is that of the evolutionary development of *Homo sapiens'* three interconnected brains over millions of years. This triune brain has been "identified as belonging to different epochs in our evolutionary past, according to Paul MacLean (1977, quoted in Zimbardo 1988:127).

> The trend in brain evolution has been toward an increase in the forebrain and decrease in mid- and hind-brain. The amphibian brain is not much modified from the fish; the olfactory lobe is somewhat smaller and the cerebrum slightly larger.
>
> Significant changes appeared in the reptile brain. The cerebrum is greatly enlarged but much of the forebrain is still devoted to smell. A striking innovation developed in the reptilian cerebrum. The cerebral hemispheres are coated by a pallium of neurons; in the reptile a small portion of the front part of the cerebrum is covered with a new sort of nervous tract called the neopallium or neocortex. This covering in general is what we know as "grey matter," and while the reptilian neopallium was a feeble beginning, it was a most important one.
>
> In mammals, the neopallium dramatically expanded and spread over the cerebral hemispheres. Central control, formerly in the midbrain, passed almost entirely to the neopallium of the forebrain. The cerebrum increased in size to compose most of the brain and developed convolutions making for an even greater surface area without increasing brain size.
>
> In humans, the growth of this section of the brain reaches its ultimate development, a fact which has made the human brain, in proportion to body size, one of the largest and most complex of any animal (Nelson and Jurmain 1985:233).

Biological Evolution

The whole direction of the evolution of our species can be said to have changed towards a greater reliance on the brain than on brawn. However, "there is little understanding about how animal behavior evolved through time to produce the human 'mind'" (Crook 1980:4). Certainly it must have something to do with the rapid biological evolution of the brain and skull structure over the last million or so years, which resulted in a rapid cultural evolution as the prime cause of behavioral change. This phase of rapid biological evolution begins with the appearance of early *Homo*, at around two million years ago, with a cranial capacity of 646 cm^3 compared to the *Australopithecus* capacity of 450 cm^3 to 504 cm^3. But it is with the emergence of the intermediary (between the australopithecine and sapiens stage)

Homo erectus, that there is great apparent evolutionary change, for it appears that at this point in hominid evolutionary history culture becomes the strategy of adaption.

> From a time perspective, *H. erectus* is usually associated with the Middle Pleistocene (which we have dated from 700,000 to 125, 000 years ago). However, there are African, Japanese, and Chinese remains that may go back an additional million years. Nevertheless, the evolution of *H. erectus* proceeded most rapidly during the middle pleistocene.
>
> The cranial capacity of *H. erectus* ranges widely from 775 to 1,225 cm^3, with a mean of 1,020 cm^3. In terms of averages, this would make the skull of *H. erectus* roughly twice the size of australopithecines, 50% larger than early *Homo*, and 75% as large as *H. sapiens* (Nelson and Jurmain 1985:469).

Part of the evolutionary change from australopithecines to *Homo erectus* (pithecanthropines) could very well be due to changes in diet from plant material to that of a far greater dependence on meats. Such a dependence on meat would have changed chewing habits which in turn would have caused a reduction in jaw and posterior teeth size thereby altering facial and skull structure. It was this taller statured *Homo erectus* with erect posture and striding bipedalism who embraced culture as a strategy of adaption. *Homo erectus* apparently established more or less permanent living sites in caves and may have built temporary huts, as evidence at Terra Amata suggests. Due to the great amount of evidence of fire at Zhoukoudian it is obvious that *Homo erectus* controlled fire by keeping it burning for long periods of time in a specifically confined area, However, while they controlled fire and cooked their food with it, it is not known whether or not they were capable of making fire themselves. They did, however, fashion specialized tools (such as awls) of stone and bone and even made ornaments.

The most interesting aspect of *Homo erectus* is that due to the complicated, difficulty, and hazardous task of hunting large animals they must have routinely used cooperative effort involving many individuals. It may well have been the cultural flexibility required for these more complex social interactions which selected for a larger and reproportioned brain. Cranial parts found at Zhoukoudian in 1966 with marked bilateral asymmetry in size and morphology provides one of the few direct morphological correlates with the ability to speak in humans. With the basis for speaking seeming to lie in the neurological structure and with the appearance of hemispheric dominance and asymmetry; could *Homo erectus* speak? "Their hunting and technological skills would suggest they possessed some kind of symbolic communication" (Nelson and Jurmain 1985:487), primitive though it may have been.

Homo erectus surely had a keen sense of awareness with regards to the immediate flux of sensations arising out of their environment as well as the ability

to react in certain situations using knowledge gained through, and retained from, past like or comparable experiences. "Awareness is in the whole set of interrelated mental images of the flow of events" (Griffin 1976:5).

> An intention involves mental images of future events in which the intender pictures himself as a participant and makes a choice as to which image he will try to bring to reality. Mental images obviously vary widely in the fidelity with which they represent the actual surrounding universe, but they exist in some form for any conscious organism (Griffin 1976:5).

However, "being aware has a slightly different meaning from being conscious. Both terms have to do with perceiving a source of stimulation, either external or internal. In general, awareness is concerned with external and consciousness with internal events" (Klein 1984:6). Was *Homo erectus* concerned mainly with the external and not yet fully aware of the internal? "Awareness is less personal and reflective than consciousness, so unreflective animals may be aware but not conscious in the sense of recognizing or thinking about their own awareness" (Klein 1984:6).

Human beings do reflect and "to reflect is to be conscious of being conscious or to know that one knows" (Klein 1984:8). "Because humans are self-conscious organisms, it is argued, their behavior is in principle not comparable to that of other animals" (van den Berghe 1978:37-38). It is a fact that human beings are unique creatures, "yet, it is the unique features of *Homo sapiens* that become crucial in any comparisons of animals with men" (Crook 1980:3).

> Of all the mysteries of nature, none is greater than that of consciousness. Intimately familiar to all of us, our capacity to contemplate the universe and to apprehend the infinity of space and time, and our knowledge that we can do so, have continued to resist analysis and elude understanding" (Tulving 1985:as quoted in Zimbardo 1989:224).

On a graded scale from other animals to human, *Homo erectus* may have been in some ways closer to other animal and in other ways closer to human. The radical move to the human end of the scale comes with the emergence of *Homo sapiens*. "For 300,000 years, more or less, *Homo sapiens* has been in existence and evolving from more erectus-like forms to Upper Paleolithic anatomically modern sapiens form" (Nelson and Jurmain 1985:520). Although it has been suggested by Gould and Eldredge that evolution can proceed in the form of "punctuated equilibrium," there is a transitional period of species modification "somewhere in the 400,000 YA to 100,000 YA range, between the old species, *Homo erectus*, and the new, *Homo sapiens*" (Nelson and Jurmain 1985:508).

It is during the period from 125,000 years ago to 40,000 years ago approximately that the Neandertals lived. On the average the Neandertals have a brain size "at least that of H. sapiens and probably larger. Estimates for Neandertal skulls range from approximately 1,200 to 1,800 cm^3" (Nelson and Jurmain 1985:515). Evidence of Neandertal's intelligence can be seen in their high quality tool production and the invention of a new technique for flaking, as well as in the fact that they hafted some of their tools. Through their cleverness they developed techniques to cope with the cold glacial weather such as wearing clothing, building fires, and living in caves as well as open sites. Some of their settlements extended all the way to the Arctic Ocean. Being as there would have been very little vegetable foods in the tundra area they would have been required to be excellent hunters. "They had to be skilful hunters in order to survive by subsisting off herds of reindeer, woolly rhinoceros, and mammoth" (Nelson and Jurmain 1985:515)

But even more telling evidence of Neandertal intellectual development leads one to suspect that they must have had a conscious view of the value of self as well as that of others (other than self) which allowed them to develop a fairly complex social system. There are Neandertal skeletal remains showing evidence of massive and severe damage resulting from injuries after which there is evidence of atrophy and healing of various fractures and scars on arms, feet, skulls, and ribs. This suggests that one of the important values of their culture may have been a cooperative effort to take care of the sick and disabled. Thus, an individual in helping and recognizing another being would realize that they also would receive the same acknowledgement of worth in similar circumstances; the altruism may of course be due simply to the fact that they belonged to the group. It is this specific psychological structure of the human mind which allows for the individual to form a conceptual resolution of the mind-body dichotomy while simultaneously relating to their social setting.

> Self-consciousness in humans is a conceptually structured awareness of self-processes that are unique to man. Relatively simple observation of the activities going on within one's head would produce such a phenomenological definition. Whereas we may postulate 'awareness' as a basic property of any behavior, the ongoing 'here-and-now' relating together of incoming sensations to provide a consciousness of 'oneself as an object' requires a sustained act of attention utilizing a coded representation of reality in which the self as agent is included (Crook 1980:7-8).

What is known of the total cultural complexity of the Neandertals is far from complete and may never be fully known. The few material things found to date must only indicate a tiny part of the total of all the cultural activities of people at the time. Long gone are the artifacts made from wood, bark, skin or anything soft and easily biodegradable.

> In Europe, during a warm break in the Wurm glaciation, about 40,000 years ago, and elsewhere in the world at about the same time, two impressive events occurred in human evolution. Modern humans very similar to ourselves appear; and a remarkable change occurs in culture, especially in stone/bone tool technology (Nelson and Jurmain 1985:534).

Compared to the Neandertals the innovative Upper Paleolithic peoples produced a surprisingly sophisticated culture noted for its rapid change, variety, and artistic achievement. The Upper Paleolithic personal ornaments of decorated antler, shell, and bone suggest that these people had an increased, and steadily developing, sense of awareness of personal, and perhaps group, identity.

> There is a certain uneasiness that accompanies our discovery that we are not really the self-enclosed and contained unit that mechanical notions of the body permit us to assume. To discover that our selfhood takes place in the context of dramas of selfhood that go on around us is to learn something that challenges us: I am I only in the encounters of others. That discovery, like all revelation, may be an unnerving experience (Wentz 1984:35).

For the most part, all of the processes of human development would not have left any physical traces such as material products of a culture. It was the conscious thought processes which were important.

> Tied as we are to a mechanistic concept of culture, we find it difficult to attribute intelligence to anything or anyone who does not share our kind of configuration. We tend to have more respect for technology than we do for intelligence. Our tests for mind are measures of experience and manipulative ability, nothing more. Those without our hang-ups, or our hands, will always fail them (Watson 1986:17).

The most important evolutionary development of our species has been the greater reliance on our brain in place of brute force. "It seems inevitable that this process will continue: that there will be a greater development of the brain, a further thinning and extension of the cranium, and an additional attenuation of the jaws and other joints" (Watson 1986:16-17). So, "in some sense it can be said that humanity has evolved through qualitative changes of consciousness during the life of our species" (Mishlove 1975:xxxiii), as a direct result of the physical evolution of the brain.

> If we ask ourselves why it is that we are concerned about our uniqueness, or the uniqueness of an other existent, don't we have to reply that it is because we wish to understand what it means to be

> self-conscious of the fact that we exist in encounters of otherness? (Wentz 1984:35).

To understand existence all cultures have developed, over time, world views which make it possible for their individual members to cognitively approach life on a daily basis by the utilization of that culture's philosophy.

CHAPTER III: PHILOSOPHY, RELIGION, AND PHYSICS

Philosophy and Culture

Philosophy can mean several different things. There are two definitions of philosophy between which there is an implicit dialectic in this thesis. In both definitions, philosophy can mean both a body of knowledge and the processes by which that knowledge is generated. The first has a cross-cultural applicability. The first definition of philosophy is that it is a system of practical or moral wisdom, generating a system of ethics, and dealing with human nature (whatever that is) and human conduct. Still within that first definition of the term, philosophy can be seen as the tradition which investigates the facts and principles of reality (whatever it is) and encompasses within it the views concerning logic, ethics, aesthetics, metaphysics, and the knowledge system of a given culture. It is the practical interpretation of these facts and principles, as relating to the immediate environment, which translates into the general world view for the individual member of a given culture. When "philosophy" means "world view," it is acknowledged that much of the knowledge is tacit.

The second definition of philosophy is that of an explicit and self-conscious process and body of knowledge, the discipline of philosophy as understood in Western culture. This tradition in philosophy can produce a critique of the world view. The dialectic between the two, in this thesis, is the result of the disciplinary critique of common knowledge, a critique which defines that which is "scientific." In Western culture the tradition is mechanical and materialistic, and has defined some of the states of consciousness dealt with in this thesis—though they are commonly discussed in many cultures as constituting part of the human experience—as "paranormal."

All cultures have a world view which is a product of a cognitive orientation developed partially as a result of the influence of the environment out of which a culture rises and to which it remains adaptive. For the individual members of a given culture their world view is the product of psychological and social processes which allow them to make meaningful interpretations of the objects and persons, and events happening around them.

> Culture may be defined as the totality of the mental and physical reactions and activities that characterize the behavior of the individuals composing a social group collectively and individually in relation to their natural environment, to other groups, to members of the group itself and of each individual to himself. It also includes the products of these activities and their role in the life of the group (Boas [1911] 1963:149).

To no matter what traditionally-defined ends the individuals of a given culture are motivationally directed, "a genuine culture is perfectly conceivable in any type of stage of civilization, in the mould of any national genius" (Sapir 1924:314). In some cultures, such as traditional North American aboriginal non-agricultural societies, there is "scope for variation in the interpretation of the meaning of particular events, the choice of modes of action, and the achievement of individual goals consonant with the value system" (Hallowell [1963] 1976:391). For example, in the hunting and gathering societies of North America the achievement of individual goals was consonant with the value system in that it was the individual who was the carrier and creator of the culture. However, in Eastern cultures, especially where Hinduism and Buddhism are the predominant philosophies, the individual, while being the vehicle of the culture, must pay strict adherence to a much more culturally strict interpretation of a given philosophical tradition. "The specific culture of a nationality is that group of elements in its civilization which most emphatically exhibits the mould" (Sapir 1924:312). However, what cultures of the Eastern tradition and North American indigenous tradition have in common, a commonality in which they both contrast with Western culture, is their overall philosophical view of time, which is that time is of a cyclical nature.

Indigenous North America

Traditionally the North American indigenous culture viewed time as an ongoing cyclical continuum. The reoccurring cycles represented not just the immediate present, but a flow of past, present, and future combined. The flow of the cycle rejuvenates and perpetuates all things: plants, animals, humankind, the people, the world, the heavens and even the universe itself. Everything goes on and on in a continuous circle, for according to Black Elk

> there can be no power in a square. You have noticed that everything an Indian does is in a circle, and that is because the Power of the World always works in circles, and everything tries to be round.
> ...
>
> This knowledge came to us from the outer world with our religion. 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, 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 circle in their changing, and always come back again to where they were. The life of 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 own children (Neihardt [1932] 1972:164-165).

The North American native's consciousness arose out of the observation of the relationship between themselves and their environment. A form of consciousness comes from the ability of the mind to create a concept, through language. The society created is a reflection of the form which a consciousness, of any given group, takes. Language can be used to form and change a consciousness so that, for the most part, an individual's consciousness is but a reflection of the society's consciousness. But generally, the individual's consciousness is a reflection upon the whole society's consciousness because an individual's consciousness is derived from the immediate environment. However, the individual also creates a society's consciousness and changes it to a certain degree. Hallowell elaborates this apparent paradox with reference to time concepts:

> Whether formalized or not, the characteristic reference points employed by the individuals of different human societies are relevant to a full understanding of the functioning of temporal concepts. They are basic cultural phenomena of the utmost importance in the ordering and coordinating of human activities. It is impossible to picture any human society without them. In terms of individual experience, they are orientational. The individual's temporal concepts are built up in terms of them; he gets his temporal bearing by means of them, and his temporal perceptions function under their influence. It is impossible to assume that man is born with any innate "temporal sense". His temporal concepts are always culturally constituted.
>
> Like other cultural phenomena, temporal frames of reference vary profoundly from society to society. This fact is as important psychologically as it is culturally (Hallowell 1955:216).

Linguistics

To a large extent the world we live in is only part physical, with much of our environment including a cultural world, which is created by each group of people for themselves. There is a close affinity between linguistic categories and cultural categories. It could be said that:

> languages differ not so much in what it is possible or impossible to say but rather in what it is relatively easy—or even obligatory—to say. Languages tend to encode only a portion of the thoughts that presumably are in the speaker's mind, and each language is quite arbitrary about the things that it selects for automatic inclusion in the message (Pearson 1977:299).

For both Edward Sapir and Benjamin Whorf language and cultural thought patterns are seen somewhat like two sides of a coin in that relativity and change in the language, through human free will, constitute a form of creativity. Whorf, although he has often been misread to the contrary, speaks mainly of habitual thought and does not see linguistic structure as entirely deterministic. "Whorf's goal was to identify parallels between the grammatical categories of language and 'logic' of culture" (Hickerson 1980:111). He began with the assumption, shared by Boas and Sapir, that there is a close connection between language and culture. By studying a language one gets an indication of the "world view" of the speakers of a language. There are broad areas of meaning which must be dealt with by all languages, so Whorf asked:

> (1) Are our own concepts of "time," "space," and "matter" given in substantially the same form to all men, or are they in part conditioned by the structure of particular languages;
> (2) Are there traceable affinities between (a) cultural and behavioral norms and (b) large scale linguistic patterns? (Whorf [1956] as quoted in Hickerson 1980:109).

Granted that a language is not absolutely deterministic of perception or thought, a specific language's syntactic and semantic categories which indicate temporal categories and relationships may reflect a culture's world view respecting time. Most native North American languages do not structure time in the same way that a Western language such as English does. For instance in Navajo and other Athapaskan languages, the distinctions between time and space are not the same as in Western languages. A comparison between Indo-European languages and American indigenous languages reveals that there is a fundamental difference in the categorization of spatial relationships which imply causality, and between what might be called "concrete" or "abstract" categories. For example, "Navajo philosophy assumes that mental and physical phenomena are inseparable and that thought and speech can have a powerful impact on the world of matter and energy" (Witherspoon 1977:9). Therefore Navajo thought apparently denies basic metaphysical notions which most Western intellectuals take for granted. By assuming a Western metaphysical stance one will be able to comprehend the Navajo interpretations of the constitution of reality and the causation of events only with difficulty, through circumlocution and with exhaustive description and qualification of fundamental precepts. As Gearing describes that difficulty, "When one is estranged he is unable to relate, because he cannot see enough to relate to" (1970:4). In order to try to understand and relate, we seek to explain events in the other's world, and to reduce the estrangement we feel by finding parallels and affinities between our beliefs and the other's practices.

> If the human mind in another culture does not respond to experience in a predictable, closed fashion that could be accounted for by our Western theories, then it is we who are lacking the tools to interpret

> behavior and generalize about it in its contextually defined richness and complexity. Our science, it seems, comes to grips with alien experience only by robbing it of its unique richness and translating it into abstract meanings. To understand the individual in his human fullness we must therefore suspend total commitment to our own scientific preconceptions (Watson and Watson-Franke 1985:133).

Time in North American Indigenous Culture

Time, in the traditional native view, is a product of nature in that it is cyclical. Western time is reified to a degree that it is thought of, not as a complement of experiences, but as a sequential collection of hours, minutes, and seconds. "And because it has become customary to 'time' so many human activities and events with precision, a high level of conscious temporal orientation is inescapable" (Hallowell 1955:217). There is a great deal of difference between the Western clock-wise (mechanical) time and the sun-rise (nature) time of North American natives. In the native concept of time all events "involve a meaningful sequence of activities, in that there are certain things that must happen, and must happen in a certain order, in order for it to be said that the event has in fact taken place" (Philips 1974:98). In the Western mind time is a linear continuum which is quantitative. When discussing Pueblo world view, Alfonso Ortiz (himself a Tewa Indian) says that none of the Pueblos

> has abstract terms for space and time; space is only meaningful as the distance between two points, and time cannot be understood apart from the forces and changes in nature which give it relevance and meaning. It is precisely when time becomes cut up into arbitrarily abstract units (weeks, hours, minutes, seconds) that the tribal peoples lose all similarity in their time-reckoning customs with those of Western peoples. And these smaller units of time-reckonings are precisely the ones which concern Western minds the most (Ortiz 1972:137).

In that North American natives do not see time from a Western perspective, there are much more complex time presuppositions than the tense-related indication of past, present, and future, used in the Western concept of time. There is a qualitative and evaluative difference between the way natives and non-natives see time. The native sense of time is an ongoing cyclical process which is continually re-occurring.

> One result of this perception of time is that finality is modified. Where creation in the Western sense begins, proceeds along a purposeful track and ends at some time in the future, this perception removes the sharpness of the ultimate goal and shifts importance to a

continuous discovery process. It is in the experiencing of new creations that insights come, not in one exemplary event (Waugh 1979:ix).

Time in Western Culture

Even in Western culture time has not always been viewed from a unidimensional linear perspective. The idea of an abstract universal time which we measure on our clocks and watches is a recent invention. Newton's assumption that true and mathematical time flowed equably without relation to anything external was a useful invention for the purpose of his calculations. In *Philosophiae Naturalis Pricipia Mathematica* (1687) Newton sees time as an absolute thing from its own nature. Descartes' invention of little minds extended in time, mirroring nature without relation to anything external, had come into being with his *Principia Philosophica* (1644). Matter (body) was extended in space and mind was extended in time. Although "there are many different and legitimate ways of thinking; we in the West value one of these ways above all others—the one we call 'logic,' a linear system that has been with us since Socrates" (Hall 1977:9). Time is often viewed as a road stretching into the future. Progression along this road often consists of good scheduling and orienting our view toward the future. "Time with us is handled much like a material; we earn it, spend it, save it, waste it. To us it is somewhat immoral to have two things going on at the same time" (Hall 1959:20).

In the Western world time is conceived as an unconscious determinant or frame fixed in nature, an ever present part of the total environment upon which everything else is built. Time and space are two systems which are functions of each other in their use as organizing frames for activities. Hall categorizes and compares two perceptions of time and space as *monochronic time* and *polychronic time*. While a polychronic system stresses the involvement of people, the completion of transactions, and the happening of several things at once, it is seen as less tangible than monochronic time. Monochronic time (M-time) orders life as a classification system which heavily emphasizes segmentation, promptness, and schedules. All important activities are scheduled and it can be seen how it is that many people:

> make the common mistake of associating the schedule with reality and one's self or the activity as something that is removed from life. M-time can alienate us from ourselves and deny us the experience of context in the wider sense. That is, M-time narrows one's view of events in much the same way as looking through a cardboard tube narrows vision, and it influences subtly and in depth how we think—in segmented compartments (Hall 1977:20-21).

For approximately the past 300 years Western science has been predominantly occupied with measuring, calculating, and quantifying forces and impacts which were a natural result of the chain of cause and effect.

> The mathematics available to Newton was preponderantly quantitative, and this fact, combined with the central focus upon forces and impacts, led men to measure with remarkable accuracy quantities of distance, time, matter, and energy" (Bateson 1972:xxi).

However universal linear time (t), while supposedly forming with space a framework for the happening of events, was itself outside of observation for science. Time was assumed in all observation to be a measure of the passing of one relative thing to another. "The time assumed by science is thus the relative measurement of the separation between two moments neither of which is now, both of which have already passed by the time science measures them" (Hayward 1987:166). Life in the Western world is dominated by this one-faceted time which is believed to be real. This one-faceted time is measured on our watches and bounds our births and deaths.

Physics and Culture

Physics and Time in Western Culture

> The description of any event examined by a physicist or chemist was to be founded upon budgets of mass and energy, and this rule gave a particular kind of rigor to the whole of thought in the hard sciences (Bateson 1972:xxi).

The Western physical sciences have generated a group of consistency relationships to explain the common ground of experiences. But these relationships, which are determined by the capacities and capabilities of the physical sensory perception mechanisms, are not necessarily a true reflection of reality. All of our units of measurement, regarding no matter what, are of course arbitrary—not "given in nature" but "referred to nature." The quantitative measurement of observation is not a definition of reality. Without initially being able to know what the actual quantities of mass, charge, time, and space are, we have applied useful but arbitrary units of measurement upon them, and so have defined them to have certain unchanging properties. Thus we have developed mathematical laws upon which we have constructed our edifice of knowledge. "Whatever we call reality, it is revealed to us only through the active construction in which we participate" (Prigogine and Stenger 1984:293).

One would think that all the fundamentals of science would be arrived at by inductive reasoning from experience. However, the answer is not that simple and

as Bateson says "we should go back to the very beginnings of scientific and philosophic thought"; we must certainly go back "to a period before science, philosophy, and religion had become separate activities separately pursued by professionals in separate disciplines" (Bateson, 1972:xxii, xxiii).

Where was the starting point for primitive philosophy? Was it that of inductive reasoning based on observation and experience? Looking at the fundamental philosophic and scientific problems posed by the Genesis origin myth one can see some of the fundamentals of ancient Chaldean thought. Many of the fundamentals and problems of modern science (origin and nature of matter; origin of order; a separation of the laws of matter and energy from the laws of order, negative entropy, and information; order being seen as separation by sorting and dividing; and classification [naming]) are foreshadowed in this myth.

> The conception of time that held sway in ancient Greece was cyclical, and as closed as the crystalline spheres in which Aristotle imprisoned cosmic space. Plato, Aristotle, Pythagoras, and the Stoics all espoused the view, inherited from an old Chaldean belief, that the history of the universe consisted of a series of "great years," each a cycle of unspecified duration that ended when the planets all came together in conjunction, unleashing a catastrophe from the ashes of which the next cycle began anew. This process was thought to have been going on forever: As Aristotle reasoned, with a logic as circular as the motions of the stars, it would be paradoxical to think of time as having had a beginning in time, and so the cosmic cycles must eternally recur (Ferris 1988:217-218).

For the Greeks, time was not separate from changing appearances, but was an expression of these changes. Plato held that true reality was unchanging and beyond appearances, for true reality was outside of time. All through ancient philosophical discussion one can find the view expressed that there was no time, except as a characteristic of phenomena. Basically the same view was maintained by philosophers in Western culture until the late Middle Ages. The Medieval philosophers had difficulty in reconciling this fundamental atemporal position with the idea of a divinely planned developmental universe progressing towards a historically revealed goal. How could the creation of an eternal, perfect God justify a historical development which could lead to imperfection? For St. Augustine time began at the instant of creation and would end only after the Armageddon and the Last Judgement. In the end the kingdom of God (City of God) will be established on earth, with all the faithful being reborn into it. There was thus a clash between the linear time of Christianity and the cyclical time of the Greeks: an eternal recurrence of the events that would lead to the establishment of the City of God on earth would deny the finality of that establishment and so deprive the concept of the City of God of its meaning. Through the idea of repeated reincarnations, most ancient religions seemed to use cyclical time as their antidote to death, while

religions based on linear time generally rejected the idea of reincarnation. Meaning and form are given to linear time in religions which subscribe to that idea of time, by the order of worldly and human events being perceived in the context of God's master plan.

> In spite of the rise of Christianity, the cyclical world view of the Greeks remained a persuasive force during the Middle Ages. Philosophy and science were strongly influenced by the work of Aristotle. It is quite understandable why cyclical time and a static model of the universe had such appeal during this time, given the lack of historical and scientific growth. History seemed to come to a standstill. Wars were fought and territories changed hands, but there appeared to be no rhyme or reason to these events. Empires rose and fell without any sense of historical progression. No new territories were discovered during the Middle Ages, so the world map remained fairly static. When space is static, time loses its significance in terms of measuring change. In other words, if space is unchanging, time does not have an arrow of direction (Halpern 1990:27).

But the doctrine of infinite cyclical history, with its endless repeating cycles of creation and destruction, had the tendency of discouraging attempts at gauging the genuine extent of the past. It was impossible to measure the age of a universe when its endless cycles were actually outside of time itself. Also, the concept of evolution had little place in an immeasurable infinity of reoccurring cycles. So if the age of the earth and the universe was to be assessed the closed circle of cyclical time had to be pierced. Oddly enough this was begun with an idea that was for the most part disastrous for progressive empirical inquiry, the Christian linear model of time and the universe. Christianity and the related cosmologies of Islam and Judaism are complex bodies of thought and, like many such complex cosmologies, incorporate apparent paradoxes. It would be inappropriate to characterize the entire body of Christian teleological thought as being constrained by an *a priori* assumption of linear time. The point is that patristics and scriptural hermeneutics in the Christian tradition have had specific social and intellectual effects at pivotal times in the development of the Western secular scholarly tradition, and one of those effects was the operational conceptualization of time as linear.

> Initially Christian cosmology diminished the scope of cosmic history, much as it shrank the spatial dimensions of the empirically accessible universe. The grand, impersonal sweep of the Greek and Islamic cycles of time were replaced, in Christian thought, by an abbreviated and anecdotal conception of the past, in which the affairs of men and God counted for more than the inhuman workings of water on stone. If history for Aristotle was like the turning of a giant wheel, for the Christians it was like a play, with a definite beginning and end,

> punctuated by unique, singular events like the birth of Jesus or the giving of the laws to Moses (Ferris 1988:220).

Creation, in Christian tradition, came out of chaos and nothingness. In an hermeneutic tradition of interpretation of scripture as chronology, "the beginning of time" could be fixed at the point of creation and it could be reckoned to have occured a finite and calculable number of years ago. As far as St. Augustine was concerned, it could be reckoned "from the evidence of the holy Scriptures, that fewer than 6,000 years have passed since man's first origin" (Augustine [1467] 1984:484). Humans were formed from the dust of the earth and placed in the Garden of Eden, where they lived an idyllic existence without any sense of change or time flow. By disobeying God, humans ended up being tossed out of their idyllic world and were thus made painfully aware of the ravages of time and the existence of death. The Biblical concept of a linear historical approach to time had begun. In contrast to the Indian and Greek cyclical visions of the universe, the dates of biblical events represent a unidirectional world scheme. From the beginning the Bible is the chronicling of a process of human deeds and of the points of divine intervention into these affairs.

> Christian scholars estimated the age of the world by consulting scriptural chronologies of human birth and death—by adding up the "begats," as they say. This was the method of Eusebius, Chairman of the Council of Nicaea convened by the Emperor Constantine in A.D. 325 to define Christian doctrine, who determined that 3,184 years had elapsed between Adam and Abraham; of Augustine of Hippo when he estimated the date [of] the Creation at about 5,500 B.C.; of Kepler, who dated it at 3,993 B.C.; and Newton, who arrived at a date just five years earlier than Kepler's (Ferris 1988:220).

The apotheosis of the use of scriptural chronologies by Christian scholars came in 1650 with the publication of *Annales Veteris et Novi Testamenti*, authored by James Ussher, the bishop of Armagh, Ireland. Through his spurious exactitude Ussher arrived at the conclusion that the beginning of time and the world was on October 23, 4004 B.C.

During the rapid change of the Renaissance era there was a clear breaking away from the relatively static quality of the Medieval period. The ritualistic aspects of Christianity were de-emphasized in favor of a linear-time view of God's plan for humanity. In John Milton's *Paradise Lost* (1667) and *Paradise Regained* (1671), meaning is given to form and time by viewing humanity's affairs in the context of God's master plan. The meaning of these two works are dependent on the sequential ordering of events being of great significance. "Seeing the events in reverse order would not make sense. In contrast, in the circular time scheme there is no perceived pattern of change in the world. Therefore, the order of worldly events has no special meaning" (Halpern 1990:28).

Just because patterns of change cannot be readily perceived in a cyclical time concept does not mean that there is no meaning at all to worldly events. If the true unchanging reality is outside of time and therefore beyond appearances, then the changing order of worldly events applies to, and effects only, the physical world. "It is the way time is thought of in most nonscientific societies, from the great Chinese and Indian civilizations to the Native American and Balinese societies" (Hayward 1987:166). The idea of cyclical time has not been totally lost in Western society; in some scientific circles it is seeing a great resurgence.

> [C]yclical time is still popular today, with many cosmologists arguing for "oscillating universe" models in which the expansion of the universe is envisioned as eventually coming to a halt, to be followed by cosmic collapse into the cleansing fires of the next big bang (Ferris 1988:219).

Eastern Religious View of Time

One of the basic philosophical premises in most religions through the world is that of the ultimate deity being either everlasting in time or timeless. This timeless quality always seems to be concomitant to any unitive experience with the ultimate. This perception of timelessness is articulated by Lao-tzu in the *Tao te Ching* (Chapter 25):

> There was something formless and perfect
> before the universe was born.
> It is serene. Empty.
> Solitary. Unchanging.
> Infinite. Eternally present.
> It is the mother of the universe.
> For lack of a better name,
> I call it the Tao.
>
> It flows through all things,
> inside and outside, and returns
> to the origin of all things.
>
> The Tao is great.
> The universe is great.
> Earth is great.
> Man is great.
> These are the four powers.
>
> Man follows the earth.
> Earth follows the universe.

> The universe follows the Tao.
> The Tao follows only itself.

In this Taoist passage, a power creating the universe (in Taoist terms, another cycle) has a similar import as the words of the Christian New Testament: "In the beginning was the Word, and the Word was with God, and the Word was God" (John 1:1).

In most of the religions of the world, from the primitive to the complex, the very spiritual core is made up of a creation myth. An interesting point in the Genesis creation myth is that things happen and developments take place in an evolutionary manner—that is from day one to day six, a sequence that culminates with the appearance of man. "In the Genesis account, as well as in many other creation myths, the creation event is closely associated with the emergence or production of light" (Fagg 1985:137). "And God said, Let there be light, and there was light" (Genesis 1:3). Could this sudden emergence of light be the result of a Big Bang?

> [L]ight in the form of high energy photons was present in the very early stages of the birth of the universe, and that light from atoms became possible at about T_o+10^5 years, still quite early on a cosmic time scale. This intense light emission in the early stages of the universe finds a rather remarkable comparison with the light attendant in the creation scenarios of many ancient cultures (Fagg 1985:138).

It appears that the ancients were able to sense reality and time's place in it through that form of intuitional knowledge which allows for spiritual insight. "The remarkable thing to be noted here is that so many early religious mystics saw that there was a beginning, often involving light emission, thousands of years before anyone heard of the big bang theory" (Fagg 1985:138). For a number of natural philosophers, the Big Bang is more than just theory; Rucker (1983, p. 12), for example, says that "recently it has become an established fact that the universe does have a beginning in time known as the Big Bang." This can be seen in the evidence that "the universe is expanding. This means that at earlier times objects would have been closer together. In fact, it seemed that there was a time, about ten or twenty thousand million years ago, when they were all at exactly the same place" (Hawking 1988:8). The purpose of this discussion is not to affirm the Big Bang theory of creation, but to note consistencies between the terms used in creation stories of many kinds, particularly between the Big Bang and Eastern religious traditions.

> About 18 billion years ago the universe was born with a gigantic explosion, the results of which are still observable. Among these data are: 1) the observation that light received from receding stars and galaxies is shifted toward the red end of the light spectrum as determined by the Doppler effect; 2) primordial low energy radiation emitted in the early history of the explosion is still detectable (Fagg 1985:71).

While it is known that there was a definite beginning to the universe, as we know it, the puzzling questions which remain are "what was there before the big bang?" and "will it all come to an end at a given moment in the future, and if it does, then what happens?".

> Discussions of the big bang theory often make use of such terms as the "the beginning," "the creation of the universe," and so on. The use of such terminology does not imply that the big bang theory states that the universe was created at a given instant in time. It says nothing of the sort. All the theory can really tell us is that at the Planck time, the universe was in a extremely hot, dense state. The Planck time is a point beyond which we cannot see; it is the point at which all of known physics breaks down.
>
> Naturally it is possible to make conjectures about events that took place before the Planck time. But when one does this, one is engaging in philosophy, or possibly theology; one is no longer doing physics. However, if we keep this reservation in mind, it is possible to enumerate the various different possibilities. There seem to be three of these: (1) The universe was created at a given instant in time. (2) The universe existed in some unknown form before the big bang. (3) Space and time were themselves created in the big bang.
>
> Many physicists find the third possibility to be particularly appealing. It avoids all of the philosophical problems associated with the contemplation of an infinite past, as well as those associated with creation at a particular point in time (for example: "Why was the universe created at that instant and not a billion years sooner?"). And of course this third possibility is scientifically plausible as well. After all, the big bang was not an event that caused the universe to expand explosively outward into space. On the contrary, the big bang was an event that happened everywhere. Space itself expanded with the universe (Morris 1985:195-196).

Many of the recent theories by physicists, concerning the creation of the universe, have a great similarity to ancient Middle Eastern creation myths in which creation arose out of a kind of formless chaos. It should be noted that here one is

not suggesting that the author of Genesis or the creators of ancient mythology had any premonitions concerning modern physics. However it is interesting that the idea of creation out of a primordial chaos should suddenly be reborn in a new form today (Morris 1990:176).

Today there are some physicists who feel that physics is drifting away from its experimental base as an approach to the solving of problematical questions because of those physicists who endlessly pursue ideas which are for the most part untestable. In some instances it is felt that there is an unscientific philosophical or metaphysical approach to questions concerning anthropic principles or a creative force which permeates all of creation. The idea that a creative force or a "God designed the universe may not be scientific either, but at least it is a reasonably straightforward idea that each of us can choose to believe, or not to believe, according to our philosophical prejudices" (Morris 1990:219).

> When the big bang took place around 18 billion years ago our universe was the size of a point, and it has been expanding ever since. What happened before the Big Bang? It is at least possible to answer, "Nothing." The apparent paradox of having a first instant in time is sometimes avoided by saying that the Big Bang did not occur in time ... that time is open, rather than closed, in the past.
>
> This is a subtle distinction, but a useful one. If we think of time as being all the points greater than or equal to zero, then there is a first instant: zero. But if we think of time as being all the points strictly greater than zero, then there is no first instant. For any instant *t* greater than zero, one has an earlier instant *t/2* that is also greater than zero.
>
> But in any case, if we think of time as not existing before the Big Bang, then there are certainly not an infinite number of years in our past. And what about the future? There is no real consensus on this. Many cosmologists feel that our universe will eventually stop expanding and collapse to form a single huge black hole called the Big Stop of the Gnab Gib; others feel that the expansion of the universe will continue indefinitely.
>
> If the universe really does start as a point and eventually contract back to a point, is it really reasonable to say that there is no time except for the interval between these points? What comes before the beginning and after the end?
>
> One response is to view the universe as an oscillating system, which repeatedly goes through expansions and contractions. This would reintroduce an infinite time, which could, however, be avoided.
>
> The way in which one would avoid infinite time in an endlessly oscillating universe would be to adopt a belief in what used to be called "the eternal return." This is the belief that every so often

> the universe must repeat itself. The idea is that a finite universe must return to the same state every so often, and that once the same state has arisen, the future evolution of the universe will be the same as the one already undergone. The doctrine of eternal recurrence amounts to the assumption that time is a vast circle (Rucker 1983:12-16).

The only major religious cosmology which involves such specific time durations in such cosmic proportions is that of Hinduism. Here we have a religious cosmology which asserts a cyclical universe whose operation is a result of the actions of Brahma (creator), Vishnu (preserver), and Shiva (destroyer), the three manifestations of Saguna Brahman. At the end of each periodic cycle the universe is destroyed and the indescribable Brahman absorbs it and then creates a new universe for the next cycle.

> As generally accepted in the Puranas, the smallest period of the Hindu cosmic cycle is the yuga, of which there are four, which total to 4,320,000 years. Each is progressively shorter by one quarter, ranging from the krita yuga of 1,728,000 years to the kali yuga of 432,000 years. Also each is characterized by successively decreasing dharma of moral order. We are now in the kali yuga whose end will involve chaos, war, and dissolution of all moral standards and cultural traditions. Then a new cycle of four yugas, known as mahayuga, will commence again and last for another 4,320,000 years. One thousand mahayugas (4,320 million years) is a kalpa, one day in the life of brahma, Creator of the universe. At the end of the day the universe is reabsorbed into Brahman, and the night of Brahma, also one kalpa in length, takes place. At the end of the night Brahma is reborn. The "Brahmic" year consists of 360 days, and Brahma is to live for 100 Brahmic years. This yields a total cycle of 311,040 billions years, after which total dissolution occurs for a Brahmic century, whereupon the vast cycle recommences (Fagg 1985:81).

Hinduism is the only religion which envisions cosmological time durations within its scriptural and soteriological writings comparable to time scales as envisioned today. "What is striking here is that these giant cycles involving durations of billions of years represent time scales comparable to the current age of the universe, i.e, 18 billions years" (Fagg 1985:81). What is most interesting is that the Hindu mystics arrived at these time durations through religious insight and a limited knowledge of astronomy and mathematics. Probably the closest to the Hindus in calendric calculations were the Mayans with a calendar dating back only to approximately 3,114 B.C., but with calculations projecting back 400 million years. However only the Hindus had conceived of time durations comparable to the present estimated age of the universe.

> Not only that, it is still possible that the Hindus could be right and the universe does undergo cycles. If the universe does turn out to be closed, then billions of years from now the present expansion will cease, reverse and ultimately result in a big crunch. But maybe it will re-emerge with another Big Bang (Fagg 1985:142).

The most systematic presentation of Upanishadic insights and representation of modern mainstream Hindu beliefs is the philosopher Shankara's (approx. 686 A.D.) Advaita Vedanta. At the end of a Hindu cosmic cycle the universe, as well as time and space, all return to the state of timelessness associated with the ineffable Brahman. "Brahman is the Absolute, the only true reality: beginningless, endless, changeless, indescribable, and also beyond good and evil, nature, the universe, time, space, and causation" (Fagg 1985:80). In the Vedantic view of Shankara "time is but a temporary manifestation of Brahman and thus without absolute reality" (p. 83). Within Advaita Vedantic literature the concept of timelessness takes on a certain awesomeness in that because of Brahman being "the only absolute Reality, then timelessness associated with Brahman is endowed with a reality not possessed by time" (p. 83).

The Ātman (the ultimate individual self) is identified inseparably with Brahman because it is the indestructible spirit of Brahman in man. Therefore the Ātman is also beyond the entrapping concerns of this physical world. It can be said that "the ātman is the sole reality, that there can be nothing beside it, and therefore with the knowledge of the ātman all is known" (Deussen [1906] 1966:183). All is known with knowledge of the Ātman because it is outside of time and space, beyond the phenomenal, beyond the empirical, eternal.

> It cannot be said to have arisen in time, to be subject to a "present," or to have an end in time—for all such sayings apply only to what is relative and conditioned. Time, according to Advaita, is a category of the empirical or phenomenal world only. Time, with its before and after, can make no claim on the "eternal Now" which is the state of Ātman realization (Deutsch 1969:48).

Truth is realized only with the removal of ignorance which affects the whole empirical being. Absolute truth is Brahman, upon which the empirical world is wholly dependent and without which it could not exist. In the empirical universe there is God (Isvara or saguna Brahman), selves, and the world.

"The individual self is the agent of activity. It is the universal Self or Ātman limited or individuated by the object. It is connected with buddhi or understanding, and this connection lasts until release is obtained" (Radhakrishnan and Moore 1957:507). Moksha (self-realization of freedom) is the displacement of avidyā (false outlook) by vidyā (right outlook, wisdom) through the direct realization of the one truth, there for all eternity. In the state of Moksha there is a

transcendent timelessness and "on the basis of modern physical theory we have every reason to think of the passage of time as an illusion. Past, present, and future all exist together in space-time" (Rucker 1983:11). Moksha is essentially a timeless experience of total awareness, with all sense of time being replaced by a total sensitivity to the living moment.

> A reverence for the living moment is thus indispensable for any sense of timelessness; the living moment is the looking glass through which timelessness can be perceived. It is in the eternal now that apprehensions of time and timelessness find their interface (Fagg 1985:149).

For Shankara mind and matter are both objects of knowledge. However, the world is not "unreal simply because its existence depends upon our perception" (Prabhavananda 1963:283). For Shankara the world "is and is not." It is like seeing a rope in the grass and thinking it is a snake; upon closer inspection one sees what it really is and is "no longer deluded by the appearance—the snake—appearance vanishes into the reality of the rope, the world vanishes into Brahman" (p. 284). However, it takes an ultimate mystical experience of an illumined soul to understand this fundamental unreality.

> When the illumined soul passes into transcendental consciousness, he realizes the Self (the Ātman) as pure bliss and pure intelligence, the one without a second. In this state of consciousness, all perception of multiplicity ceases, there is no longer any sense of "mine" and "thine," the world as we ordinarily know it has vanished. Then the Self shines forth as the One, the Truth, the Brahman, the basis of the apparent world (p. 283).

Could the sense of timelessness of the Brahman "in some way be identified with the timelessness of the submicroscopic world" (Fagg 1985:147), a world in which, according to J.A. Wheeler's theories, time has no meaning and in which the very concepts of "before and after" may be broken down totally? "He speculates that the curvature of space-time ... in this realm can assume a variety of weird and distorted shapes. He also points out that at the incredibly short distance of about 10^{-33} centimeters time in fact may have no meaning (Wheeler quoted in Fagg 1985:39). There can be seen in the thinking of some of the early thinkers the broad development, through spiritual insights, of the more focused physical view which seems to be presently developing in science.

> [N]owhere in either the literature of physics or religion is the sense of timelessness so beautifully and supremely delineated as in the Vedantic Hindu concept of Brahman. The accumulated wisdom of millennia in the Hindu religious tradition lays claim to reality of timelessness. It increasingly appears that it may be one of the

missions of physics to refine the nature and import of something approximating this concept (Fagg 1985:147).

It should be observed however that any form of cyclical temporal system generally has a timeless aspect about it and "one can only sense cyclical and linear temporality when both exist" (Schlegel as quoted in Fagg 1985:147). In other words

> [O]ne can only sense that one is involved in cyclical time if linear time also exists as a reference. If we were totally immersed in cyclical time with no distinction from one cycle to another, we would be in what amounts to a timeless state (Fagg 1985:147).

The great physicist, and arguably philosopher, Albert Einstein showed his apparent apprehension of timelessness when, at the passing away of his close and life-long friend Michele Besso, he commented:

> And now he has preceded me briefly in bidding farewell to this strange world. This signifies nothing. For us who are convinced physicists, the distinction between past, present, and future is only an illusion, even if a stubborn one (Hoffman 1972:258 as quoted in Fagg 1985:149).

If Einstein considered, as Shankara did, the distinctions between past, present, and future to be only an illusion then

> Consider the conclusion that reality includes both the past and the future, but existence includes only the present and is totally dependent on the reality of past and future universes,. Without them there is no existence now (Wolf 1988:257).

CHAPTER IV: PHYSICS, METAPHYSICS, AND THE INTERCONNECTED CONTINUUM

Old Physics—New Physics

While in many fields of science there is a certain disdain towards philosophy, there are at this juncture in history many physicists on the leading edge of their discipline who are confronting questions once thought to be metaphysical or even religious in nature.

> At one time, the study of the natural world was part of philosophy. We find discussions of cosmological questions in the dialogues of Plato, and there are numerous analyses of natural phenomena in the books of Aristotle. When modern science began in the sixteenth century, it appropriated questions that had previously lain in the province of philosophy (Morris 1990:222).

Over the centuries more and more of the subject matter of the constant questioning of reality by the human species fell into the realm of science. Philosophy, metaphysics, and theology lost ground to the new spearhead in the quest for knowledge, science. Now, those who pursue knowledge under the banner of the science camp are asking many questions which were once wholly in the metaphysical camp.

> Physicists have found themselves asking such questions as, Is it meaningful to speak of a time before the universe began? Did the universe have a beginning? If it did, was there any such thing as "before"? Or did time come into existence with the universe itself? What exactly is the logical status of "other universes" if these universes cannot be observed? Can we then say that they really "exist" (Morris 1990:220)?

One could ask if it is only an attempt at a kind of pseudoexplanation to speak of what cannot be observed, and whether it is even meaningful to do so? Many theoretical physicists now preoccupy themselves with theory which, although not typical of theory, does not give itself very readily to testable prediction. Physics asks if it is possible to have creation out of nothing and where did the universe come from and what exactly is time and how does it flow (assuming that indeed it flows) and where does it go? So, "if an untested, possibly untestable, theory contains mathematical variables that no one can interpret, just what does this say about our conception of physical reality" (Morris 1990:221)?

There is a point at which the limits of experimentation are reached and after which progress can be made only via theory. It is inevitable that at this point physics sometimes becomes less empirical (in the Western sense) and bears a

resemblance to the metaphysical. For some prominent physicists this is a situation which is alarming and viewed as nothing more than a form of medieval theology. "Meanwhile, some all-embracing theories are proposed that yield unverifiable conclusions, and appear similar to the metaphysical systems constantly proposed by nineteenth-century philosophers" (Morris 1990:222).

Physics is not the only discipline in science asking questions with a metaphysical bent. Biology and biochemistry ask about memory and evidence of memory transmission. Some of those engaged in the field of cognitive science are asking what exactly is mind and where is it located; and what is free will, and what is the relationship of free will to consciousness?

It is interesting that science, through which we arrived at our present state of technological society, is also that which removed us ever further from our relationship with the natural world and which now might have the potential to bring us back to where we can once again commune with that holistic reality which is nature. Those of the modern technological societies might once again be ready to embrace that joyous mystical experience which arises out of a sense of communion engendered by a direct experience with the reality of nature, for there has been in recent centuries a denial of this.

> This recent period of quantitative physical science has been extremely important to humankind's development since it has forged a clearly discernible, albeit materialistic, path through the uncharted terrain of Nature's expression. It has taught us how to perform meaningful, reproducible experiments and to build and test relevant theories about Nature. However, we have presently become so focused on this one path that we have lost the flexibility of sensing all the other possible paths of knowledge available to us in the wonderland of Nature (Tiller 1988).

The "scientific method," which provides sufficient protocol for anyone to duplicate a given experimental result successfully, has been, for the greater part, very effective in past experimentation. We have come to think that one has to be coldly objective with regards to experimentation. In future experimentation the states of mental or emotional bias will have to be quantitatively measured. For as we move off the purely physical path it will become apparent that the very substratum in which our physical laws operate can be altered by the human mind.

I see it as a problem with the modal Western mind that it has been so dominated by an attachment to an objectified and mechanistic "reason," and that this has provided only an artificial, spectator view, of nature as being separate from the conventional preconception of reality. Being a part of nature has been replaced with being apart from nature.

> The twentieth-century Western mind is a product of its gradual withdrawal from an awareness of nature and its place in it. Westerners believe that nature serves them and that divine intention makes them the dominant beings of the world (Highwater 1982:143).

For most Westerners life is carried on at a rapid and rigid pace set by the mechanics of the technological society of which they are a part. "The time concepts of traditional societies reflect their close ties to the rhythms of nature, whereas we think of time as an endless continuum that encompasses all events" (Friedman 1990:110). While it can be considered normal for most humans to be responsive to the natural cycles of life, the pressure to follow the precise pattern of doing the right thing at the predetermined right time shows how most Westerners "have moved away from intimacy with natural fluctuations" (p. 110).

As individuals, our lives rise and fall in response to the natural cycles and rhythms as we ride the energy currents which flow through that great living, breathing organism called the cosmos, of which we and all forms of life everywhere are a part.

> The idea that all life is an ongoing process of which we are a part is not in itself new. Anyone who is close to Nature and her processes can see that it is obviously the case. No new physics of the person or of immortality is required to see that my body is made out of atoms that once were stardust and that one day they will find their home again among distant galaxies. I am made of the stuff of which the universe is made, and the universe shall be made of me (Zohar 1990:151).

However, for the greater majority of those who live in the modern technological culture of the Western world, seeing reality as a simplistic flow has not been generally a predominant factor in everyday thought patterns.

> Our physical science does not necessarily deal with reality, whatever that is. Rather, it has merely generated a set of consistency relationships to explain our common ground of experience, which is determined, of course, by the capacity and capabilities of our physical sensory-perception mechanisms. We have developed the mathematical laws based ultimately on a set of definitions of mass, charge, space, and time. We don't really know what these quantities are, but we have defined them to have certain unchanging properties and have thus constructed our edifice of knowledge on these pillars. The edifice will be stable so long as the pillars are unchanging. However, we appear to be entering a period of human evolvement in which certain qualities of the human being appear to be able to change, or deform, these basic

quantities. Thus, our set of laws or consistency relationships will have to change to embrace this new experience (Tiller 1988).

Now there is a new period of change dawning in the Western world, one in which science is taking a new look at where it has been and where it is going. The old rules and laws of Western science have to be reviewed and, in many instances, reevaluated. There will be major changes in humankind's view of itself and the synergistic interrelationships with the universe as a whole as new states of consciousness are adopted as reference frames for observing nature. It is only comparatively recently that humankind has seen itself as apart from the rest of creation. Now there is a returning to an emphasis on human wholeness and the interconnectivity with everything at all levels of the universe, thereby creating a oneness.

> Modern man is still a part of nature, yet because he recognizes himself as a uniquely conscious being with power to depart from nature, he separates himself from the cosmic process.
>
> Yet how far can he go? He has been described by Jung as the 'unfinished creature' and he behaves as if this is so: always seeking as he does for a goal that the East would say he already has in his grasp. He is perhaps further from its realization than when he was able openly to declare his belief in spirits (Page 1988:38-39).

"The universe is so rich in diversity that almost anything one says about it is correct, provided one takes a broad enough view" (Bentov 1988:160). Part of the new consciousness which is arising is that in the West steps are being made towards the realization that there is an interconnectedness of all things no matter what form they be.

> Old physics reduced the world to building blocks.
>
> New physics sees it instead as a process, as matter in a state of flux. Atoms are now understood as both waves and particles and are perhaps best described as "poorly defined clouds," whose form is dependent on the whole environment (Watson 1987:275).

The Whole as One

Is this state of flux a sign of a kind of free will of matter to move in a certain direction and take up a certain form when conditions for such change are deemed appropriate or necessary as a part of the continuum?

> Common sense also treats people as conscious agents, possessing beliefs and desires, and capable of acting freely. This sort of talk does not seem to fit in with the metaphysics of mechanistic materialism.

> 'Consciousness' is not a state recognized in the vocabulary of organic chemistry, and there seems to be no place for 'freedom' in a universe governed by inexorable physical laws (Powers 1982:3).

But the free will of matter and energy forms can very well exist within a boundary order of imposed operating laws, like the child that has total freedom of movement within the yard but not past the gate, until one day when someone or something opens the gate, and the boundary is breached.

> There is a popular belief that living things require energy, but that is not quite correct. Physics tells us that energy is conserved—it cannot be created or destroyed. When a person metabolizes food, some energy is released in his body which then dissipates into the surroundings as heat, or work performed by activity. The total energy content of a person's body remains more or less unchanged. What happens is that there is a flow of energy through the body. This flow is driven by the orderliness, or negative entropy, of the energy consumed. The crucial ingredient for maintaining life is then, negative entropy (Davies 1983:64-65).

It seems that an organism has the "astonishing gift of concentrating a 'stream of order' on itself and thus escaping the decay into atomic chaos—of 'drinking orderliness' from a suitable environment" (Schrödinger [1944] 1992:77). "To put it briefly, we witness the event that existing order displays the power of maintaining itself and of producing orderly events" (p. 277). Being convinced that life does not defy the basic laws of physics is not, of course, the same as saying that the laws of physics explain life, only that they do not contradict it" (Davies 1983:65-66). The physiological basis on which the human body operates, taking in energy in one form, processing and releasing it in another form, is an example of the process of interconnectedness which is a continuum throughout the cosmos.

> Ultimately, the entire universe (with all its 'particles', including those constituting human beings, their laboratories, observing instruments, etc.) has to be understood as a single undivided whole, in which analysis into separately and independently existent parts has no fundamental status (Bohm 1983:174).

On some level of the cosmos, human beings can be seen as energy-processing units; just as on another level, certain organs of the body process energy while working within the organizing system of a human body. All of the energy processing is the product of an energy intelligence or memory which organized the coming into being at all levels.

> It is the same at every level of Being: an endless number of planets will not of themselves, result in a solar system and neither will

a multitude of solar systems result in a galaxy without the appropriate energy field coming into play.

> The universe is a living Being that is made manifest as a scale of intelligences; each one organizes the activities of its own level and, in the process, takes on the corresponding material form (Thomas 1991:56).

Our universe is a creation of an ordered energy that forms fields which permeate the whole of the material universe. Conscious of its own existence, it organizes its activities at progressive levels. With each level having all the material of the highest levels, everything in our physical world has in it the energies of the psychological worlds. Thus each individual human acts as a bridging device between the material and psychological worlds.

It is this very idea of being a connecting bridge between various elements of the continuum which still remains the most difficult concept for most individuals in the Western world to accept. "Implicitly we tend to think of ourselves as 'detached observers', standing outside nature, and thus as beings whose essential character is not comprehended by mechanistic materialism" (Powers 1982:3). However, being an integral part of the continuum can be compared to a checkered pattern where, although one can observe a single square, all of the squares are connected together and form a complete oneness of the overall whole.

> A centrally relevant change in the descriptive order required in the quantum theory is thus the dropping of the notion of analysis of the world into relatively autonomous parts, separately existent but in interaction. Rather, the primary emphasis is now on undivided wholeness, in which the observing instrument is not separable from what is observed (Bohm 1983:134).

The Interconnectedness of Physical and Mental Well-being

Being as the continuum is a totally interconnected wholeness, then the transformation and flow of energy forces must be flowing in all directions at the same time. "Such transformation of energy is happening continually, not only 'horizontally' (within each biological, physical, psychological and spiritual level) but also vertically between levels, from higher to lower and vice versa" (Thomas 1991:57). "At all levels, from atoms to persons, connection is a requirement for life" (Dossey 1982:76). The very conditions of good health depend greatly on the non-violation of the basic conditions of life itself in that the individual should not be isolated from others. For an individual to continually live in isolation is to court the eventuality of ill health and ultimately premature death.

> The biodance, the constant renewal of our body from the world outside, stands in playful contrast to our ordinary idea of death. We ordinarily presume that we are physically intact until we die. Scrapes and bruises and broken bones notwithstanding, we believe the physical integrity of the body is unchallenged until the time of death, at which point an irreversible decomposition begins. Eventually we are returned to the earth, we say, and the fulcrum of the process is the moment of death. But it is not so simple and abrupt. We do not wait on death, for we are constantly returning to the earth while *alive*. Every living moment a portion of the 10^{28} atoms in our body returns to the world outside. This constant streaming is so pronounced, so necessary for life, that the very notion of "boundary" begins to appear as an arbitrary idea rather than a physical reality.
>
> The incessant flow of matter from living organisms forms endless chains of connections. Just as DNA can be endlessly transferred by viruses from one living creature to another, the atoms that leave our body may enter other bodies on leaving (Dossey 1982:76).

A good example of the interconnectedness of living organisms on this planet can be readily seen using the flow of oxygen as a medium. Depending on the altitude, latitude, season, and other factors it takes approximately a week to a month for air to complete a global circulation.

> Did you know the average breath you breath contains about 10 sextillion atoms, a number which, as you may remember, can be written in modern notation as 10^{22}? And, since the entire atmosphere of Earth is voluminous enough to hold about the same number of breaths, each breath turns out, like man himself, to be about midway in size between an atom and the world—mathematically speaking, 10^{22} atoms in each of 10^{22} breaths multiplying to a total of 10^{44} atoms of air blowing around the planet. This means of course that each time you inhale you are drawing into yourself an average of about one atom from each of the breaths contained in the whole sky. Also every time you exhale you are sending back the same average of an atom to each of these breaths, as is every other living person, and this exchange, repeated twenty thousand times a day by some four billion people, has the surprising consequence that each breath you breathe must contain a quadrillion (10^{15}) atoms breathed by the rest of mankind within the past few weeks and more than a million atoms breathed personally sometime by each and any person on Earth (Murchie 1978:320).

All of us are subject to electro-magnetic vibrations from the most simple form to the most complex. We are subject not only to those vibrations which can

be registered by our audio and visual senses but to all of the countless processes which resonate to the same principle.

The Interconnected Flow of Consciousness

> Through all of us are passing both ascending and descending octaves— two streams—of energy. What these processes or streams of energy are cannot be observed outside of the self. I can't make observations about anything without including myself. How is it possible to make observations about consciousness and its activities outside of my own state of being, when consciousness is the very process of seeking for it (Thomas 1991:57)?

It is these observations about consciousness which have for so long been the domain of philosophy and religion. The very act of looking into the self through altered states of consciousness is said to be the key to seeing beyond the self and the immediate surrounding reality to the oneness.

> The recognition of this mystical truth seems inseparable from every major form of religious illumination, satori, or moksha. Like the wish-fulfilling gem in both fairy tales and sacred stories, this truth has many facets. In it may be seen the corollary that we are all aspects of the same underlying force, a part of everything; and that one must not confuse the temporary with the permanent nor cling to what must pass. These are among the deepest of men's religious insights.
>
> For countless generations mankind's philosophers and mystics have been haunted by this truth: the vision of the one underlying energy beneath the separate forms of appearance. Philosophers have argued it (but who listens to them?). Yogis have gone beyond argument into the ardors of manifesting this principle in their own personal lives. And this was indeed the supreme insight of the Buddha. But for the greater part of humanity it has functioned as a myth, both in the positive and the pejorative sense: a potent idea, which opens the mind to what is beyond the senses, yet remains ultimately an unproven assertion (Larsen 1988:136-137).

A very great part of humanity are those who live apart from a direct close contact with nature or in a technological materialist society. There are those who simply will not give any sort of credulity to the notion of a flow of consciousness as an overall cosmic reality. Can that which cannot be observed be real and actually have an existence? "So, if the real exists, how do we recognize it? Reality exists according to our own state of Being" (Thomas 1991:103-106).

The idea of freedom and consciousness may be dismissed by ardent materialists as some sort of delusion. Most experimental scientists conceive of themselves as free, conscious, rational agents while engaged in accepting or dismissing certain theories. Dialectical materialism asserts that at new levels of evolution, into which matter evolves, new laws of behavior emerge. This allows scientists to study different levels of matter without having to reduce behavioral patterns "of complex systems to the laws and properties of elementary particle physics" (Powers 1982:3-4). While human beings are a part of nature and not reduced to mere mechanisms, the question of free will is still not resolved.

> If you reject the idea of emergent properties but accept the 'reality' of consciousness, then you seem to be obliged to choose between dualism, the view that mind and matter are distinct and separate 'substances', and panpsychism, the view that all forms of matter—animals, plants and even sticks and stones—possess 'consciousness' in at least a rudimentary form. Some have argued that the latter position is forced upon us by the discoveries of modern physics (Powers 1982:4).

To Feel and Speak of the Continuum

There are forms of knowledge which are extremely difficult to convey through the use of language; words are not enough for clarification of the concept involved. This is precisely the problem when one tries to explain a feeling or knowing which is beyond physical consciousness. "We cannot think what we cannot think; so what we cannot think we cannot say either" (Wittgenstein 1961:57). This is part of the problem, one source of ambiguity, when trying to express ideas about time, space, and substance in the West. Generally the language we use to express our concepts of these areas has in part formed those very concepts. In a manner of speaking we are saying what our language has taught us to think.

> None of us is born free. To a large extent, our minds are made up for us even in the womb by a tyranny exercised by some words that trick us into thinking along certain lines. Most European languages, for instance, have adopted the strange habit of representing time in spatial terms. Things, we say, take a long time or a short time, which encourages us to think of time in linear terms, a something made up of distinct units which can be measured. We end up, as a result, treating time as a commodity which can be wasted or saved (Watson 1987:246).

It is the same frame of mind, which must quantify time into separate manageable units, that also has great difficulty with the concept of an energy

continuum throughout the cosmos. In many ways our senses act as a reducing valve which restricts our window on the world. Language further circumscribes this view and, if there is a lack of words to render any sort of justifiable explanation, it becomes hopelessly blurred. The specific structure of any language can have a pronounced influence on attitude and understanding. "The limits of my language mean the limits of my world" (Wittgenstein 1961:56). Because of our difficulty in dealing with raw experience and concepts of the metaphysical we stick on labels or verbal symbols. Thus we explain it to ourselves by giving it an identity with some form of clarity and definition.

Not all peoples have constructed a conceptual process which is structured like that of the West. In many ways the North American natives conceptualize themselves as part of the whole, a total continuum, of all reality. They see their relationship to the world as symbiotic participation within a singular whole. Due to this conceptualization of a symbiotic relationship with all of creation there is not the idea that segmentation and quantification is finally definitive of the environment, an idea which seems to be prevalent in Western thought.

> To Western people the distinction of number is so essential to their thinking that they do not mention an object without also indicating whether it is singular or plural; and if they refer to it in the present tense the verb always reflects the number (Highwater 1981:73).

This bias has been avoided in many other languages, such as that of the Wintu of northern California, among whom there is no nominal plural form. The word for man is "wita," but there is a completely different root for the plural word men, which is "gis."

> To someone brought up in the Indo-European tradition, this is a position hard to understand. We know that the plural is derived from the singular. It is logical and natural for our grammars to start with the singular form of a noun or verb, and then to go on to the plural" (Lee 1959:122).

The manner of a culture's speech and/or writing can well illustrate its mode of thought, as in the essential distinction of numbers to the thinking of Western people.

> But to a Wintu Indian it is equally natural to speak of deer or salmon without any distinction in regard to number. To a member of this tribe a flock or a herd is a singular whole; it is not a collection of individual elements (Highwater 1981:73).

The way in which the Wintu see themselves in relation to the world is that they perceive of the whole with a conceptualization of a reality beyond the delimiting experience of the single individual.

> His experience is that of a reality shaped by his perception and conceptualization. Beyond it is the timeless design to which his experience has given temporality. He believes in it, and he taps it through his ritual acts and his magic, seeking "luck" to reinforce and validate his experiential skills and knowledge, to endow his acts with effectiveness. A Hunter must have both skill and luck; but skill is the more limited. An unskilled hunter who has luck, can still hit a deer by rare chance, but a skilled hunter without luck can never do so. The myths contain examples of hunters who, having lost their luck, can never kill a deer again. Now knowledge and skill are phrased agentively and experientially; but luck is phrased passively or in terms of non-actualized reality. The hunter who has lost his luck does not say *I cannot kill deer any more*, but *Deer don't want to die for me* (Lee 1959:129).

Practical knowledge and skill are reasoned to be effective on the physical level, but they are only a part of the total reality. "The world and life are one" (Wittgenstein 1961:57). To be successful in life one must understand that there is a flow into which one must tap to be able to participate fully and well. This is an image of the continuum which most primal peoples have and:

> Images are a result of concepts of perception. Indians do not address nature as underlings nor do they command. Their participation in the world is symbiotic to such an extent that they discover nature within and outside of themselves (Highwater 1981:74).

This symbiotic relationship can be seen in the Indian's attitude of respectful humility toward nature and reality, for in his perception of reality, "I am my world. (The microcosm.)" (Wittgenstein 1961:57).

> I cannot find an adequate English term to apply to a habit of thought which is so alien to our culture. We are aggressive toward reality. We say, This is bread; we do not say like the Wintu, *I call this bread*, or *I feel* or *taste* or *see it to be bread.* The Wintu never says starkly *this is*; if he speaks of reality which is not within his own restricting experience, he does not affirm it, he only implies it. If he speaks of his experience, he does not express it as categorically true. Our attitude toward nature is colored by a desire to control and exploit. The Wintu relationship with nature is one of intimacy and mutual courtesy. He kills a deer only when he needs it for his livelihood, and utilizes every part of it, hoofs and marrow and hide and sinew and

> flesh. Waste is abhorrent to him, not because he believes in the intrinsic virtue of thrift, but because the deer has died for him (Lee 1959:129).

There is an intense deep relationship between primal peoples and the very nature of the essence of an animal's being which seems to be achieved through other than simple observation. This kind of awareness is achieved through transformation.

> The term smacks more than a little of science fiction, and it describes the kind of peculiar experience that is not a conscious capability of many people of the West. American Indians, on the other hand, look at reality in a way that makes it possible for them to know something by temporarily turning into it.
>
> That is not as strange as it may seem. Indian oral tradition and the teachings of holy people make it clear that "becoming something else" is not exactly what is meant by the English word "transformation." So I am not trying to convince anybody that the metamorphosis of one thing into another is a possibility in terms of Western realism. But there are other worlds and other realities. People like American Indians, who do not normally make a distinction between dreaming and waking, are capable of a type of projection or transference which they experience as "transformation" (Highwater 1981:61).

However, it should not be assumed that primal people do not have a sense of what is empirical reality. They are simply aware of that 'otherness' which entails a multiverse of possibilities.

> What is characteristic of [primal] mentality is not its logic but its general sentiment of life. [Primal] man does not look at nature with the eyes of a naturalist who wishes to classify things in order to satisfy an intellectual curiosity. He does not approach it with merely pragmatic or technical interest. It is for him neither a mere object of knowledge nor the field of his immediate practical needs. We are in the habit of dividing our life into two spheres of practical and theoretical activity. In this division we are prone to forget that there is a ... stratum beneath them both. [Primal] man is not liable to such forgetfulness. All his thoughts and his feelings are still embedded in this ... original stratum. His view of nature is neither merely theoretical nor merely practical; it is sympathetic. If we miss this point we cannot find the approach to the mystical world. [Primal] man by no means lacks the ability to grasp the empirical differences of things. But in his conception of nature and life all these differences are obliterated by a stronger feeling: the deep conviction of a fundamental

> and indelible solidarity of life that bridges over the multiplicity and variety of its single forms. He does not ascribe to himself a unique and privileged place in the scale of nature (Cassirer quoted in Highwater 1981:68-69).

"The sympathetic undertone of the relationship of primal peoples to the world around them is ritualized in both empirical and mystical forms" (Highwater 1981:69). Most primal peoples observe nature with a respect and a knowing that while they may bring about some change through ritualized actions they in turn are affected. If one thing is changed then something else is changed and the balance is kept in the continuum. They are a part of nature and nature is a part of them. "It is quite clear that man is not able to stand outside and observe dispassionately and objectively. His very presence, the very fact that he is observing, affects that which he observes. Similarly, that which he observes affects him" (Page 1988:108). When primal peoples conduct their ritual conversations and ceremonies with that "other" which is all around them, it is also within them. They visualize that which is.

> I was once given advice by an Indian who was very much worried about my preoccupation with words. "You must learn to look at the world twice," he told me as sat on the floor of his immaculately swept adobe room. "First you must bring your eyes together in front so you can see each droplet of rain on the grass, so you can see the smoke rising from an anthill in the sunshine. Nothing should escape your notice. But you must learn to look again, with your eyes at the very edge of what is visible. Now you must see dimly if you wish to see things that are dim--visions, mist, and cloud-people ... animals which hurry past you in the dark. You must learn to look at the world twice if you wish to see all that there is to see.
>
> The ability to envision a second world is a major source of knowledge ... that which is so deeply known and felt, so primal in form that it is neither word nor outcry, neither sign nor symbol—but the ineffable thing itself; that which precedes speech and thought, that which is the raw experience itself without evaluation or judgements. It is the ineffable, structured into images. And what, after all, is this mysterious iconography that has eluded the Western mind for centuries, and why have I spent so much time discussing it as a prerequisite for understanding the Indian use of imagery? It is an appearance—an apparition, if you like—that springs not from what we are, but from what we experience in our perceptual exchange with nature. When you see an image you do not merely see what is physically before you. What you see is an interaction of forces by which something else arises. Those who see only what is before them are blind to many of the events of reality. Primal images, like all art, require us really to see. What we are able to see if we are capable of using our bodies as eyes is a virtual image. It is real, for when we are

confronted by it, it really does exist, but it is not actually there. The reflection in a mirror is such a virtual image; so is a rainbow. It seems to stand on earth or in the clouds, but it really "stands" nowhere. It is only visible, not tangible. It is the unspeakable, the ineffable made visible, made experiential (Highwater 1981:75-76).

Receptiveness to the Continuum

While it is understood that perception is a result of electrochemical activity it is also important to note that that activity is translating the sensory input being received at the given moment. There are no specific moments only at which a mystical experience may occur. They may occur at such diverse times as childbirth, sexual intercourse, listening to music, viewing landscapes, and especially during the simple act of "being." But the mind must be in a receptive state for such an event. It appears that the sensory translation experience of mysticism occurs more readily during certain psychological states than others. One of these states is when there is a heightened attention which is directed completely to the sensory pathways and another is when there is a complete absence of controlled analytic thought. Also, there must be an opened attitude of receptivity to stimuli, as opposed to one of defensiveness or suspicion. These are the generally desired states of receptiveness; instruction "in contemplative meditation is specifically directed toward attaining a state with those characteristics" (Deikman 1974:228).

For some people, like the American Indian, the mind is almost always predisposed to a state of receptivity to stimuli which a mystical experience may transform.

> The individual experience of images and ideas is for almost all Indians of the Americas a communion with the "mighty something" that is the abiding power of the cosmos. Much as all creative people depend upon intuition or inspiration for their life-supporting and life-affirming discoveries and imaginings, Indians depend upon some sort of personal contact with the ineffable for their most precious wisdom. But consistent with the primal willingness to visualize or to imagine experience holistically rather than carefully restrict its existence to a material realm, Indians understand their contact with the unspeakable in a ritualized form so that it takes the real shapes of beings that anthropologists usually call "spirit-helpers." Although the importance of such spirit-helpers differs considerably from area to area in the Western Hemisphere, they exist in virtually every region of the Americas. This contact of an individual with cosmic power is extraordinary from the Western perspective, insofar as such contact in the West is normally restricted to an initiated and somewhat secretive

priesthood. By comparison spiritual power is usually highly individuated among Indians.

Such personal experience of the "mighty something" is not as democratic among the masonry civilizations of Mexico and Central America. Likewise, among the Pueblo Indians of the American Southwest, as well as other localities where there is a sedentary, agricultural lifestyle and an organized priesthood, visionary experiences are largely confined to the specialists much as they are in the Western world. By contrast, the vision quest is the supreme value among the Indians of the plains, where a hunting and nomadic culture lent a decided individuation to the Native American mentality. Generally, however, Indians are encouraged to make contact both individually and as a group with the underlying spiritual powers of the cosmos. Every adult Indian tends to agree that the basis of success in life is much dependent upon not only one's own efforts, but also the symbiotic relationship with forces that put the individual and the tribe in touch with the "mighty something" (Highwater 1981:81-82).

The Continuum of Life, Death, Self, and Others

This conceptualization of the fundamental power of the "mighty something" has traditionally been designated by anthropologists as that which is part and parcel of animistic belief systems which entail primal forces as existing in all things. But as has been very perceptively noted, this is not the actual way in which American Indians conceptualized their belief systems.

> It was a vast old religion, greater than anything we know: more darkly and nakedly religious. There is no God, no conception of a god. All is god. But it is not the pantheism we are accustomed to, which expresses itself as "God is everywhere, God is in everything." In this Indian religion everything is alive, not supernaturally but naturally alive (Lawrence quoted in Highwater 1981:82).

For most primal people, if not all, there seems to be no problem with the basic understanding that there is a basic underlying vibrant power of the universe and that one should—indeed must—tap into it for the help and guidance which is essential for the true betterment of one's life.

> "Octaves" do not belong to a frozen framework but to an evolving dynamic structure of vibrations that applies not only to 'ordinary' exchanges of energy in the form of the octave of sound, or the spectrum of light and so on, but to every other process. The octave applies not only to mechanical and pre-determined processes but also to changes in consciousness—such as the change from the limited,

personal consciousness of passing-time to the possibility of merging with higher levels of Being. It is possible that I can merge and connect with higher energy levels, perhaps even to the extent of concentrating a certain amount of their energy in and around me.

The scale of Being is not just an intellectual concept but a living system, brought to life by the constant outflow of energy from Being into time. However, this energy is not unlimited and endlessly poured out but is part of a whole system of cyclical flow and return—like the cycle of breathing, or the circulation of the blood (Thomas 1991:57-58).

It would seem that quantum theory has given us a general insight that shamans and mystics have always known. All things are connected to each other in a cosmic-like chain, and fragments are illusory. Reality is a flowing wholeness which changes all the time.

The implications of this are far reaching.

If *reality* flows like a stream, then *knowledge* of such reality also becomes fluid, a process rather than a set of fixed truths.

And because all *knowledge* is produced, displayed, communicated and applied in thought; then *thought* too must be seen as part of the same eternal tide.

This line of reasoning is becoming very abstract, but let me take it just one step further with the additional observation that *thought* is, in essence, a response of *memory*. It consists of a repetition of some image or sensation, or it involves a combination or reorganization of such repetition in a new and useful way.

So, in the end, *intelligence* turns out to be part of the flow. It is not grounded in cells or molecules, but drawn from the same moving stream as *reality*.

In other words, mind and matter are ultimately inseparable.

The artefacts around you—this book, the building in which you read it, all man-made objects—have passed from memory into the environment. And as you look up at such things, and think about them, they pass back into memory again, completing a cycle. Thoughts can have a concrete existence as part of this cycle. And if I should pass through the same room in the same building, sharing with you the experience of your environment, I too become part of the cycle. And our thoughts and our memories get entangled. And so it goes on, indefinitely far into the past (Watson 1987:275-276).

The classical prequantum view of looking at the survival of the self was dualist from the point that there was mind and there was body, separate entities. Persistence of the living self in an existence through time and involvement in intimate relationships to others was, to say the least, difficult to account for. Sharp

distinctions between the self and others through time, while alive and after death, cannot really be drawn in a quantum view.

> In a quantum view, my relationship to myself across time—the wedding of my many accumulating subselves through quantum memory—is very like my intimate relationships with another at any moment. In both cases "I," as I am "now," arise from a tapestry of interwoven patterns (oscillations) on the quantum system in my brain. Some of those patterns emerge from neural pathways laid down in my own past, and some emerge from nonlocal correlations with patterns on the quantum system in the other's brain, but both are woven into "me."
>
> I am I (the union of all my subselves), but I am also I-and-you (the union with you). If I die, it is true that there will be no more ongoing dialogue within myself—within that inimitable pattern that arises from the combination of all my past, all my awareness and experiences, all my relationships, all my genetic material, all my bodily idiosyncrasies. In the language of quantum physics, I will have no more "particle aspect." But the part of myself which I have brought into relationship with you, my "wave aspect," the I-and-you, will continue as part of your dialogue with yourself and others.
>
> Thus as long as you have experience, I-and-you have experience; as long as you have a future, I-and-you have a future. While I am alive, fully alive in the commonsense understanding of that word, I create myself; after I am "dead," when I have ceased to be a "particle," you create me.
>
> In principle, there is only a shade of difference in the way I create myself (weave myself) across time while I am alive and the way in which I continue being created by you after I am dead. After all, if you and I are in an intimate relationship, I am being partially created by you at every moment as I live. There is no sharp dividing line between these stages of my personal evolution (the period of my lifetime and the period after my death); they are both aspects of one ongoing process (Zohar 1990:149-150).

Is this creation of, and dialogue between, the I-and-you what most primal peoples engage in? Is this the reason there is so much attention paid to the memory of ancestors? It could very well be this process which takes on the form of duties to ancestors.

> Imagine what we must be like to the primitive peoples who receive our attentions as anthropologists. We come upon them armed with our mastery of nature, and yet they can disarm us with the simplest metaphysical inquiry: what happens when people die? where do they go? what are the duties of the living to the dead? Their cultures are as

> rich in answers to these questions as our culture is rich in answers to the technical and scientific problems which baffle them (Ignatieff 1986:77).

In the Western world the duties to the ancestors have become more and more minimal, especially as society has become more and more technologically oriented. Death is seen as the enemy and in general most individuals try not to think about it. By giving time to the thoughts of one's ancestors one is constantly reminded of the link between generations and their voyage through time. The individual is made to realize that they also are a part of this process and must continue the voyage across the threshold between what is perceived as life and death, willingly or not.

> Insight into the process of becoming and the continuity of persons through the process made possible by quantum memory is one of the deep and abiding visions that quantum physics holds out for our way of being in the world. It touches to the core both our senses of ourselves as persons through time, and our understanding of our relationships to ourselves and to others both within time and beyond time. It places us in the world, not just here and now, but always.
>
> Like an electron, each of us is a "point source" in space and time (our particle aspect) and at the same time a complex pattern woven from our commingling with others (our wave aspect). We, too, are patterns of active energy, patterns arising from within ourselves (our genetic codes, the structures of our bodies, our senses, and all our experiences) and from beyond ourselves (the structures and experiences of others, many of whom have lived before us and others who will live after). For each of us, there is no clear way to say where that pattern begins or ends (Zohar 1990:150).

Every individual is a part of the "all" and the "all" is a part of each individual. Just as we consume sustenance from various levels of existence, so do we in turn furnish sustenance back to many levels. This commingling of thought process, animal feelings, mineral and vegetable elements is an essential process without which we would simply cease to function as human beings.

> Each of us is a world in which many levels of Being are represented: the mineral kingdom (in the bones), vegetable life (in the digestive system), the animal instincts—right up to the highest human possibilities. Evolution does not stop at the everyday level: it is continuous and our role is to carry it upward (Thomas 1991:59).

It is perfectly clear that we receive genetic material from our parents and we in turn pass it on to our children. It is in this way that the links of the physical chain, connecting all of the generations through time, are forged.

> But with a quantum view of the self, and an understanding of the way my own self is literally (physically) woven into the selves of others (has become a pattern on the quantum substrates of their consciousness), my place in this process becomes more personal and more abiding. I am not just a link in the chain of process, a bridge that others cross on the road to the future—these are Newtonian images taken from the notion that time is a series of successive moments.
>
> Rather, with a quantum view of process, it becomes clear in a new way that "I," not just my atoms or my genes, but my personal being—the pattern that is me—will be part and parcel of all that is to come, just as it is part of the nexus of now and, indeed, was in large part foreshadowed in the past (Zohar 1990:151).

We are surely more than just successive links in an ongoing process. We are blended into the cosmic flow of energy much like a vial of tincture poured into a body of water and stirred. Where is the boundary between the one and the other?

> [T]here is no real division in space or time between selves. We are all individuals, but individuals within a greater unity, a unity that defines each of us in terms of others and gives each of us a stake in eternity.
>
> Understanding this, understanding the full reality of the extent to which we are all physically interwoven, requires a revolution in our whole way of perceiving ourselves and our relation to others. It is a revolution required when we apply quantum concepts to the nature of the self. We know that quantum physics calls upon us to alter our notions of space and time, but now we have to accept that this touches each and every one of us at the core of his personhood (Zohar 1990:151).

It is this total interconnectedness of all living things, animal, vegetable, and mineral, that the shaman relates to with a highly developed sensitivity. The shaman, even more than the average primal individual, has developed this sensitivity to the point where he is aware of the flow of energy between all living things.

> The wicasa wakan loves the silence, wrapping it around himself like a blanket—a loud silence with a voice like thunder which tells him of many things. Such a man likes to be in a place where there is no sound but the humming of insects. He sits facing the west, asking for help. He talks to the plants and they answer him. He listens to the voices of the wama kaskan—all those who move upon the earth, the animals. He is as one with them. From all living beings something flows into him all the time, and something flows from him. I don't know where or what, but it's there. I know (Lame Deer and Erdoes 1976:145-146).

"Oriented toward this mysterious flow of life, shamans respond to the ceaseless rhythms of silence and sound in the earth" (Grim 1987:10-11). The shaman's whole being, his mind, body, and spirit are attuned to all the energy that is flowing around him and through him.

> The concept behind the term "spiritual body" does not envision just the anatomical body but all the still-mysterious physiology by which the body experiences itself and the world, the amplification of the senses and the puzzling process of perception and thought by which "brain" re-creates itself as "mind" (Highwater 1981:150).

Seeing the Continuum

Is there something which flows back to plants and all living beings from the shaman's thoughts, from his mind, which are received as an energy force, leaving behind them some form of imprint, as memory traces, which are registered in the continuum of time and space?

> There is no way of confining thought. We cannot say where it begins or ends. Everything flows together into one unbroken totality of movement which does not belong to any particular place, person or time.
>
> Reality isn't a thing after all, it is much more like a thought.
>
> The role of memory in all this is clearly crucial, but far from clearly understood. Psychology breaks the process of memory down into the four sub-functions of learning, retention, remembering, and forgetting. Biology sees it in more organic terms as a single process, an organism's unwritten record of reality. Both regard it as something which passes through the brain, leaving a memory "trace", but neither can be certain where this is housed. Large parts of the brain can be destroyed without abolishing memory of past events (Watson 1987:276).

If the mind and memory are not locked into the brain in some mechanistic manner then the implications for the study of shamanic trance are significant.

> Until very recently, the mechanistic hypothesis was hardly challenged. "All the experiments of the past fifty years that I did were built on the principle that the brain generates the mind and that mind is completely dependent upon the brain," Wilder Penfield, one of the most eminent of neurophysiologists, recalled on his retirement. "They were all built on this principle and they were all designed to prove it. All of them proved exactly the opposite." But if the mind does not lie in the brain,

where is it? Is it immaterial, lying outside the confines of space-time" (Inglis 1989a:244)?

For decades scientists have tried to locate memory traces stored within the nervous system. "The most popular idea is that memory traces somehow depend on modifications of the junctions between nerve cells, the synapses" (Sheldrake 1991:115).

> Suspicion at one time fell on RNA molecules as chemical memory banks, raising the awesome possibility of memory transmission through cannibalism, but this has never been satisfactorily proven. And now the new physics revives an old idea—that memory could be stored, or at least carried, in a physical form.
>
> When talking about space and time, physicists represent the movement of particles as "world lines." Very simply, these describe the path of an object such as an electron over a period of time. In graphic form, an electron that doesn't move has a world line that runs straight up from the bottom of the page—the past, to the top—the future. An electron that changes its position, as well as being carried along by the flow of time up the page, will leave a world line that lies at an angle or zigzags through spacetime.
>
> These diagrams are convenient ways of representing reality in geometric form, but physicists also insist that world lines have a real existence. They are actual routes followed by particles and there is nothing in mathematics that prevents them from being retraced. In other words, things can go backwards as well as forwards in time—and memory could be nothing more than a peek back down a particular world line.
>
> More than that, because physics makes no distinction between particles in organic and inorganic matter, memory isn't something peculiar to brains. It can equally well be stored in a rock. As far as we know, rocks can't remember; but that doesn't mean that they don't hold a memory, or that we can never share it. In fact, there is a fair amount of evidence to suggest that this is precisely what some of us can do (Watson 1987:276-277).

Further Into the Continuum Through Psychometry, Clairvoyance, and Morphic Resonance

There is a force field surrounding all living organisms. Biologist Rupert Sheldrake calls this "morphic resonance" and claims that within this energy field there is a form of species memory which exists outside an organism's body. While there is a storage of memory in the human brain, it may also exist outside the body in "morphogenic force fields." The temporal lobes may interact with these energy

fields much as antenna picking up radio waves. While this theory must be examined further in the future, it could be a possible explanation for a variety of so-called paranormal experiences. Here there is the possibility to suggest that human thoughts can be transferred from the mind into such things as rocks, trees, rings, bracelets etc. Then, at some time in the future, resonant interaction with another psyche-field may produce emotional impressions or mental pictures of past events. "We are now in a better position to understand the phenomenon of psychometry, also called psychoscopy or object reading, since it appears that the events recounted by the sensitive are mediated by the object" (Lorimer 1990:35). However there are cases in which events described relate to the future or to happenings which took place after the particular object was no longer in the owner's presence.

> In such cases the only two theories remaining open are telepathy and clairvoyance: the telepathic explanation would suggest that the object enables the sensitive to make contact with the mind of the owner, whether deceased or not, and thus gain access to the appropriate memories; while the clairvoyant explanation would suppose that the object acts as a tuning fork for the sensitive to read out the images from a sort of cosmic memory or akashic record. Cases in which there is no obvious human intermediary mind favour the latter explanation (Lorimer 1990:35).

The term clairvoyant is often used to describe those individuals who feel or receive something in the form of a presentiment. "But some people are literally clairvoyant, in the narrow sense of the term. They 'see', in the mind's eye, 'stills' or sometimes the equivalent of film, relating to whoever they are with at the time" (Inglis 1989b:118). Is the seeing of future events the same process as that of seeing past events?

> In a causal framework it is hard to see prophecy as anything but a look forward along the straight line of time, but it could be a glimpse of the quality of a future time. That glimpse, which may even be a sideways glance at a part of the future that is contained in the present, could contain a feel about it in which events of a particular nature seem inevitably to become unfolded. Alternatively, the prophet may really see the future event as it occurs. If so, he will have jumped across time, not in the sense of a time slip, but in a similar way to the everyday experience of seeing a past event. It could be memory in reverse (Shallis 1983:178).

However to see a potential event in the future is also, in many instances, to have a sense of its causes. If the causes can be seen then there is the possibility of choice to avert certain outcomes in the future. If this is the case then prophecy and precognition may very well [illegible] seeing of alternate possibilities in the future.

> The hypothesis of formative causation suggests that memory depends on morphic resonance rather than material memory stores. Morphic resonance depends on similarity. It involves an effect of like on like. The more similar an organism is to an organism in the past, the more specific and effective the morphic resonance. In general, any given organism is most like itself in the past and hence subject to highly specific morphic resonance from its own past. For instance, you are more like you were a year ago than like I was. This self-resonance helps to maintain an organism's form, in spite of the continuous turnover of its material constituents. Likewise, in the realm of behavior, it tunes in an organism specifically to its own past patterns of activity. Neither your habits of behavior, speech, and thought nor your memories of particular facts and past events need be stored as material traces in your brain (Sheldrake 1991:116).

We are similar to members of our own family as well as to the social, language, and cultural groups to which we belong. To some extent we have a similarity to all human beings, not only now, but also in the past as well.

> If we are influenced by morphic resonance from particular individuals to whom we are in some way linked or connected, then it is conceivable that we might pick up images, thoughts, impressions, or feelings from them either during waking life or while dreaming, in a way that would go beyond the means of communication recognized by contemporary science (Sheldrake 1991:221).

This idea of some form of communication during the dream state being seen as close connections between people on the unconscious level is not a foreign concept to Jungian analysts.

> On a theoretical level, the occurrence of synchronistic dreams are evidence of a close connection between the unconscious of one person and that of another. They may also be taken as evidence that the unconscious is less limited in time and space than the conscious mind (Hall 1983:93).

Distance between individuals should have no bearing on the connection of one unconscious to another unconscious. "The time concept, whatever it means, is certainly bound to the flow of energy in consciousness, for our conscious processes follow one after another. There are times when the unconscious does not follow that order" (Von Franz 1980:95). "Such resonant connections would be possible even if the people involved were thousands of miles apart. Is there any evidence that such a process actually happens? Perhaps there is: for such a process may be similar to, if not identical with the mysterious phenomenon of telepathy (Sheldrake 1989:221).

> Coincidence as a temporal phenomenon is a wonderful example of time's duality. If the concept of the dual nature of light as both wave and particle is acceptable, then coincidences should help in the acceptance of the no more strange idea that time displays the duality of the connected, linear, causal side of its nature and its acausal, unconnected aspect. The experience of time through coincidence points to a much more complex, much more bewildering and awesome aspect of nature that was overlooked in the more familiar descriptions of the apparently explicable and seemingly controllable world given by instructional science (Shallis 1983:140-141).

Any organism is most like itself in the past and therefore is most subject to morphic resonance coming from its own past, or from a similar organism in the past.

> Morphic resonance might also provide a new interpretation for a relatively rare but well-documented phenomenon: memory of past lives. Some young children spontaneously claim to remember a previous life and sometimes give details about the life and death of the previous person whom they claim to be. Careful research has shown that some of the details they give could not have been known to them by normal means (Sheldrake 1989:221).

"G. N. M. Tyrrell advances the hypothesis that recurrent and apparently automaton-like ghosts exhibit a 'brooding reminiscence' and suggests that people living in haunted houses are drawn into "the ghostly idea-pattern" (Tyrrell quoted in Lorimer 1990:34). The fabric of the building would have picked up the habits and/or traumas of its previous occupants. Then these energies would be displayed, in the perceptions of some of the current inhabitants, as mental images. "Images, or mental pictures, tend to produce the physical conditions and external acts that correspond to them" (Assagioli 1973:27). While this theory may make sense of certain types of apparitions, it should not be taken as a blanket explanation for all apparitions.

Many adults, under hypnosis, have described previous lives and, while it is often explained in terms of reincarnation, the evidence is much less impressive than that from the spontaneity of young children.

> Those who accept the evidence for memories of previous lives usually explain it in terms of reincarnation or rebirth. However, the hypothesis of formative causation provides a different perspective: in such cases a person may for some reason tune in by morphic resonance to a person who lived in the past. This might help to account for the transfer of memories without our having to suppose that the present person is the

other person whose memories he or she can pick up (Sheldrake 1989:221).

The main way in which morphic resonance from other people may influence us might be through a kind of pooled memory. Social morphic fields can be thought of as coordinating patterns of social organization.

> The members of a traditional tribe, for instance, are included within the social field of the tribe and the fields of its cultural patterns. These fields have a life of their own and give the tribe its habitual patterns of organization, maintained by self-resonance with the tribe itself in the past. Thus the field of the tribe includes not just its living members but also its past members. And indeed, all over the world, the invisible presence of the ancestors in the life of traditional social groups is explicitly recognized (Sheldrake 1991:119-120).

Is this maintenance of cultural patterns and social organization maintained through a kind of pooled memory the result of a cosmic consciousness being filtered through a group's collective unconscious?

> Consciousness is a subtle order with a delicate, sensitive, and intangible movement that is quite different from the order of explicate matter, yet is inseparable from it within the common spectrum of orders. Consciousness cannot be reduced in any absolute way to the physical operations of the brain, neither can these material processes be described as totally conditioned by mind. Rather, mind and brain arise as two indivisible aspects of the one underlying source
> ...
> However, the word "consciousness" is generally used to denote that light of awareness and attention which illuminates the mind of the particular individual, rather than the whole universe. Just as the elementary particle unfolds out of the quantum field, the soliton appears in the nonlinear field, and the vortex emerges from the river, so may an individual consciousness emerge out of the complex background order of consciousness that extends into the whole universe. The individual mind is therefore a sort of localization or concentration of consciousness that unfolds into the brain and body of the individual. But just as the electron will fold into other elementary particles and back into its ground of the quantum field, and just as the vortex has no absolute independence from the ripples and vortexes of the river, so too an individual mind cannot be separated, in any absolute way, from the consciousness of society as a whole. In this way the individual mind unfolds out of the consciousness of all humanity and then folds back again, in a continuous process.

> Indeed it is only relatively recently, historically speaking, that an individual conscious separated from that of the "group mind" of the tribe or social group. Many passages in the Old Testament, for example, move in a fluid way between speaking of the tribe and its individual representative without making any marked distinction between them. This suggests that such a differentiation was not yet firm. This essential unity between individual and tribe has been referred to as the "corporate personality." And it is possible that in even earlier, prehistoric times, mind moved beyond the tribe into surrounding animal life and pervaded the whole of nature (Peat 1987, 218, 219-220).

Even today, those few hunting and gathering groups which still survive seem to have managed to retain that sense of unity between themselves and the animals they hunt. When communicating with the animals they become one with them and ask for help in the very act of hunting them.

> In its origins, the content of consciousness is the whole world, but in the individual it becomes focused and concentrated, bound up with the individual's body and drawing upon various memories, habits, life experiences, and dispositions to result in a personal consciousness. Indeed this individual mind may have grown out of the society as a sort of reflection. Just as a person comes to know his or her own face not by looking inward but by looking in a mirror, so will society reflect back something of an individual's persona. The self, in this sense, is projected outward into society and then reflected back and taken for some actual, persistent substance or entity.
>
> In this way consciousness unfolds into the individual mind and so becomes associated with a particular person, who then interacts, with others and with the world in general. Through the long process of evolution of the human society, the mind developed its powers to discriminate, calculate, play, reflect, develop strategies and solve problems, and generally to develop an increasing technical power and an increasing knowledge. But the price of all this appears to have been the development of a self which is increasingly isolated from a more direct contact with nature or society (Peat 1987:220-221).

The sense of loss has of course been greatest in the Western technological societies. It is only in the very recent past that the realization of the estrangement from the natural flow of life has been given any recognition. Nature is not the enemy for we are all part of the continuum, but those who speak out about this are still, for the most part, voices in the wind.

Synchronicity

> Even the individual consciousness is divided from itself, for a large part of the mind is said to be "unconscious" and to contain a wide content that is not normally available to the self. However, various mystics claim that the separation of the individual self from the unconscious and the rest of the world is not absolute and that a deep sense of unity with the whole universe can be achieved, so that even the ground of consciousness can begin to be explored. In this way the mystic feels that life is pervaded by meaning and a sense of "oneness" with the whole of nature.
>
> Something similar, but on a much smaller scale, appears to happen during a synchronicity in which a person experiences a strong sense of meaning which unites inner thoughts, dreams, and feelings with patterns of events in the outer world. If such epiphanies of meaning were to be sustained throughout the whole of life then clearly the human mind would operate on a different level. While preserving its powers to plan, predict, and solve problems, it would also be able to reach out and share the corporate meanings of society and maintain a greater sensitivity to the rhythms of nature. In this way rigid structures of thought would be dissolved and creativity would operate through the whole field of consciousness (Peat 1987:221).

There is that certain quality of being unexpected about synchronistic coincidences in that they occur just at the right moment. "Synchronistic coincidences are, from the Jungian perspective, boundary events. They manifest, for instance, as transitions across the margin between psychological reality on the one hand and physical reality on the other" (Combs & Holland 1990:84). For Jung synchronicity referred to meaningful coincidences which, he was led to conclude, were related to unconscious psychological processes. However, not content to stop at only the psychological aspects of synchronicity, he worked with his friend, the great quantum physicist Wolfgang Pauli, who felt that the laws of physics should be rewritten to include acausal accounts of physical events.

"With the idea of synchronicity, psychology joined hands with parapsychology and theoretical physics in seeing an underlying "something" akin to what the mystic has been seeing all along" (Bolen 1982:84). Neither the threat or promise of revolutionary changes from the unexpected are ever far from any realm of human experience. The direct experience of a synchronistic event adds a dimension of personal meaning to an intuitive feeling. Accompanied by a sense of purposeful meaning, these happenings stand out from regular everyday events. The idea of an interconnection between all things in the universe has been made thinkable through various theories and laboratory experiences. But, with an intuitive experience, there is a spiritual element which enters and challenges our confidence in chronologically ordered events based on cause and effect. This opening to the

spiritual or miraculous can create quite a conspicuous discontinuity in ordering reality. "The human psyche may be the one receiver in the universe that can correctly apprehend the meaning underlying everything, the meaning that has been called the Tao or God" (p. 84).

Omens, such as distinct formation of clouds or gatherings of animals, were most likely among the first noticeable meaningful coincidences experienced by humankind. Those who noticed such things and made note of them were probably the counterparts of shamans. It was most likely they who interpreted meanings or foretold of future events from all the natural signs or omens. Although omens frequently involve natural events, whereas synchronicity is an acausal connecting principal in which the synchronous phenomena are significantly related to human individuals, they are two sides of the same coin. "Synchronicities give us a glimpse beyond our conventional notions of time and causality into the immense patterns of nature, the underlying dance which connects all things and the mirror which is suspended between inner and outer universes" (Peat 1987:2). Therefore an association between shamanism and synchronistic coincidences should not be surprising. Shamans, for the most part, unlike individuals who are not chosen for special shamanic training, tend to make use of a deeper understanding of the mysteries of life.

> In shamanic work it is important to be on the lookout for the occurrence of positive synchronicities, for they are the signals that power is working to produce effects far beyond the normal bounds of probability. In fact, watch for the frequency of positive synchronicities as a kind of homing beacon analogous to a radio directional signal to indicate that the right procedures and methods are being employed.
>
> When "good luck" is surprisingly frequent, the shaman is working correctly and benefiting from power (Harner 1982:114).

"Looked at from the other side, the unique training and skills of the shaman might well be expected to engender a state of mind, and brain, that catalyzes synchronicity" (Combs & Holland 1990:149).

The Seeing Shaman

Ethnographers in many cultures have described shamans, descriptions of their activities, and accounts of the states of consciousness that shamans have reported experiencing. In many cultures, the shamanistic experience is an unusual one, in that the role of shaman is an extraordinary one. The experiences of shamans are not the experiences of the everyday life of members of a culture. It is important to make a distinction here, based on that idea of out-of-the-ordinary experience. In being marked, or extraordinary, the experience of shamans denotes an idea of extraordinary capacity, or "power." The distinction must be made

between shamans' "powers" and a related but separate characteristic, which might be called "spiritual maturity." Elaboration of that distinction would lead to an entirely different focus in the thesis, but the distinction is necessary none the less. The discussion in this thesis focuses upon the states of consciousness reported by shamans, and thus might relate more directly to the aspect of shamanistic experience understood to describe their competency (or "power"), not their insight, moral authority, knowledge of cosmology, nor maturity.

Not that such discussions have had a great deal of place in anthropology—most ethnography on the subject has been fairly straightforward description of behavior and of belief systems.

> The ethnologists who first came in contact with practitioners such as shamans, labelled their work "magic," "miracle," and "fakery." The church, both Catholic and Protestant, termed it "the work of the devil." They used these terms because what they saw they did not understand nor could they explain it (Beck, Walters and Francisco 1977:100).

There very well may have been those who were engaged in fakery then, just as there are now. But there are always those who fake a portion of their knowledge in any profession—ask anyone who has dealt with the auto-mechanic who doesn't really know what he is doing but insists on fixing it anyway. But the knowledge of the "true reality" has been intimated at and spoken of all through human history in a manner that suggests there is certainly more than the simple physical reality. There have always been those who could "see" in all cultures, worldwide. For the most part humanity has realized that life is a constant struggle for the individual person. "No man can succeed in life alone, and he cannot get the help he needs from men" (Dawson quoted in Grim 1987:13). "Spirits provide human beings with a means of drawing on a sustaining energy as they face their own human inadequacy" (Grim 1987:7).

> The great shamans seem to have power to reach beyond the visible universe to the causal dimension from which it emanates. There, in the bright realm, they dream the timeless myths that otherwise only slowly filter down into the smaller dreamscapes of our sleeping world. With eyes open to three dimensions and bodies caught in time, the fourth, most of us are asleep to imagination, the fifth, and its workings show themselves only dimly in our dreams (Larsen 1988:159).

It is shamans such as these, who are found in all cultures, and who upon receipt of such knowledge of the "other" realm

> can then communicate an understanding of that nonordinary reality to those who have never entered it. This would be comparable to the role of the anthropologist who, by undertaking participant observation in a

> culture other than his own, is subsequently able to communicate an understanding of that culture to people who would otherwise view it as alien, incomprehensible, and inferior (Harner 1982:xvii).

However, for purposes of communication, the shaman or seer must use symbols appropriate to that culture to be in any way understood. Shamans, adepts, seers, psychics or whatever they may be called all "see" the same oneness beyond the level of transcendence; it is on the physical level that imparting this view to others is most difficult. They have only the common language of their culture to explain what is basically inexplicable in mere words. So, world-wide, in all cultures there has been over the history of humankind a development of symbols which are attempts to represent the "oneness."

> Other techniques associated with shamanism are auric reading (or the diagnosis of disease by analyzing the color and light around or in the body, similar to the method used by the "crystal gazers" of the Navajo), massage, laying on of hands, and many forms of hypnosis (Beck, Walters and Francisco 1977:100).

> For centuries, mediums have been describing a phenomenon they called the aura. They diagnosed illness, and states of mind from the cloud of energy they saw around people. Probably the aura seen by a psychic is made up of numerous elements of the human force-fields, including perhaps heat radiation, electromagnetic fields, and many other things still unknown to us (Ostrander and Schroeder 1971:210).

The wavelengths which humans see as light range from 400 to 700 nanometers. While the human eye is designed to detect light, only certain individuals can readily see the aura without going into a trance state. Others seem to need the altered state of consciousness to see the human aura. However, Western science, for the most part, has traditionally denied the existence of that which is called the aura. It has only been very recently, since the development of electrophotography by Semyon and Valentina Kirlian in 1939, that any credence has been given to the phenomenon at all, although the sceptical view is still the prevalent one in Western scientific circles with many scientists believing that "this photography reveals nothing but a commonplace electrical phenomenon" (Moss and Johnson 1974:51). "The Kirlian pictures appear to show at least some of the elements of the aura, a new part of it that no other device has shown or recorded so far" (Ostrander and Schroeder 1971:210). However, it is interesting to note that Kirlian photographs of the fingertips, of a calm, even-tempered, healthy man and those of a man who is overtired and emotionally, tense, repeatedly show the same differences on various occasions. Kirlian photography has also given credulity to the millennia old theory of acupuncture, a form of healing still not totally accepted in Western medical circles. Researchers took pictures of both a broken finger and the corresponding finger on the other hand in a healthy state.

> Clearly, the broken finger gave a far bigger and brighter corona than the healthy one—a finding straight out of acupuncture theory, which states that in a healthy body there is a balanced flow of energy, but when there is a trauma or injury, the flow of energy becomes imbalanced (Moss 1981:106).

The effect on body energy flow was also evidenced when a drug was introduced to the fingers of one hand of a subject.

> We had taken kirlian photographs before and during the xylocaine injection. Each and every time, we saw that after the drug was injected, the drugged fingers showed up brilliantly, but the nondrugged fingers totally disappeared! Here was more, fine evidence of acupuncture's 'imbalance of energy flow' (Moss 1981:109).

Also, it has been shown that the major flare points on the body "correspond to the active points marked on the Chinese maps of acupuncture points" (Tiller 1974:103). These 1,000 odd acupuncture points lay on the "twelve main meridians in the body which are energy circuits. ... There is thought to exist a deep inner circuitry connected to the acupuncture points. The connections appear to occur via an energy field condition" (Tiller 1974:123).

The idea of an all-pervasive flow of existence or Ch'i is very much in evidence in oriental massage as it is in acupuncture. It is necessary that the practitioner always be in a superior state of health and have a stronger Ch'i than his patient as it is passed on during treatment.

> According to the principle of dualistic monism, one often treats an area using a contralateral arm or leg rather than one on the same side. For example, the right foot or hand might be used to treat the left foot or hand.
>
> Ki flows in a specific direction along the twelve major and various minor pathways or meridians through the body. The strength of this energy at particular points on the meridians varies in accordance with the time of day, season of the year, phase of the moon, and other natural cycles. The meridians and the points along them are associated with ten major organs and two energy systems classified according to Yin or Yang respectively. All of these assume a variety of complementary and antagonistic relationships with each other at these particular points.
>
> The natural cycles are of utmost importance, although this is less so in massage than in acupuncture. Massage usually treats the body as a unit, treating all the meridians rather than just specific points on a meridian to alleviate certain symptomatic conditions. A

masseur will, of course, concentrate on certain points and on certain areas (Feldman and Yamamoto 1974:156).

It is this very essence or force of life that psychics, seers, mediums, shamans, or whatever name one applies to them, see and know about.

> A shaman receives his or her healing and vitalizing power from the spirits. After experiencing this power personally, he or she brings the sustaining energy to the community. Such contact with the numinous is a gratuitous gift of the spirits. A person is called to such an encounter and introduced to such mysteries by the spirits. The spirits then become personal helpers of the shaman, who afterwards invokes their aid in a manner that is itself often prescribed by the spirits (Grim 1987:8-9).

The shaman often meditates, communing with that personal spirit helper with whom he or she has become very intimate. As a further result of aid from the spirit helpers the shaman has the ability to travel in supernatural worlds. Through long practice the shaman has prepared himself for a journey into another dimension that is fraught with many perils. Armed with very thorough and precise knowledge the shaman sets out upon the undertaking of exploring the geography of the realm of death. The shaman in a sense dies, and with his soul visits the beyond to see the superhuman beings (gods, demons, spirits of the dead, etc.) who inhabit the world of death.

> The shaman's art calls for supreme control of awareness, thought, and feeling, and culminates in a separation of the soul from the body. This process has been given many names, such as astral journeys, soul-excursions, ascents into heaven, descents into hell, journeys to the Beyond, and out-of-body experiences (OBES), etc. (Kalweit 1988:14).

It is through these special states of consciousness, characterized by unique separation of body and self awareness, that the shaman has been able to contribute in a major way to the knowledge of death. For the shaman, the world of the dead becomes knowable a little at a time as its supernatural inhabitants become visible in form and personality. Accounts of the shaman's journeys enrich the world of the dead with wondrous forms and figures and the evaluation of death becomes primarily a rite of passage to the spiritual mode of being.

> In all probability many features of "funerary geography," as well as some themes of the mythology of death, are the result of the ecstatic experiences of shamans. The lands that the shaman sees and the personages that he meets during his ecstatic journeys in the beyond are minutely described by the shaman himself, during or after his trance. The unknown and terrifying world of death assumes form, is organized

> in accordance with particular patterns; finally it displays a structure and, in course of time, becomes familiar and acceptable (Eliade 1964:509-510).

Generally, all mediums are constantly on guard against possession by an evil spirit. Precautions are taken even though the spirits with which they most often communicate seem to have only good intentions. "In all ages stern warnings have been issued against magic, ritual, drug and trance procedures because of the dangers said to be inherent in communicating with something that could turn the tables and take over control of those involved" (Watson 1987:192).

The barrier between the unconscious and consciousness seems to be powerful and necessary. Our anatomy and experience seem to naturally and inevitably divide our personalities. Among the most mysterious attainments of the human psyche is the intentional separation of consciousness. It may very well be that mediums have more than normally permeable barriers separating the two parts of their minds. A conscious control over these gateways would be utilized by the best of the mediums. Many shamans may have the likes of telepathy, clairvoyance, or precognition well within their range of capabilities. But, for as long as they have not attained entrance to the postmortal realm they remain in a state of incompleteness and are in need of further training.

> The traditional lore of tribal cultures makes a careful distinction between those who are qualified to heal, to diagnose, or to teach rituals and those who, over and above that, are able to communicate with the powers of the Beyond by shedding their body (Kalweit 1988:15).

The shaman's death, although for a limited period of time, often leaves their rebirth from the realm of the dead in a state of uncertainty. Their practices often find them facing hostile circumstances blocking their way back from the edge of extinction. Spirits and demons, or other sorcerers, as well as simple disorientation in a still somewhat unfamiliar spiritual landscape may prevent their return. There may also be problems with a cloudy consciousness or lack of clarity of purpose, or a problem that comes simply from encountering situations for which there was not adequate training. But also there is the delusion, enticement, and confusion of encounters with such beautiful experiences in the other realms which must be contended with.

> The prerequisite for such death experiences is the deconditioning and annihilation of our customary modes of perception, the interruption of biopsychic functions. In the near-death state, the out-of-body experience, and during the journey to the Beyond, we are confronted by real phenomena of consciousness and not just by symbols of the unconscious (Kalweit 1988:17).

Seeing The Continuum Through Near-Death-Experiences

In Western culture the experience of shamans is usually treated as ethnographic data. The shaman willingly and purposively enters that state. Western culture has recently produced a number of accounts provided by people who have had near-death experiences; it is surely worthy of note that their accounts are similar in many ways to accounts of shamans' purposive explorations of the near-death state. The experiencer of a near-death-experience (NDE) in the Western culture senses many of the same things that the shaman does, one being a great reluctance to return from such beauty to the physical plane. Most subjects report that they are told they have to go back and live out their lives because it is not yet their time to depart.

> The central focus of shamanism is the vital human contact with a transphenomenal power that it achieves by specialized techniques. The community that supports the shaman looks beyond his personal foibles or psychic aberrations. Such disturbances are generally considered necessary as a sign to the community of the unsettling ramifications of any numinous communication. The transvestite propensities of shamans, their frenzied yells, or their solitary estrangement are often seen as spirit signs that assist the shamans in their ritual. The shaman's journey and his or her communication with the world of the sacred power transcends such individual idiosyncrasies (Grim 1987:25).

The way in which the shaman behaves has its counterpart in the manner in which there are, more often than not, somewhat radical changes in the behavior of those who go through NDE's in the Western culture. One of the things they talk about is love and peace.

> What did I learn: Well, for one, I learned there are no limits, no time, there is only peace and love. But the most relevant of all is forgiveness. For forgiveness happens in an instant, because an instant is all we have. No past. No future. Only right now, this instant (Atwater 1989:81).

The NDE experiencers also talk about becoming more intuitive, knowing, psychic, spatial, and having enhanced sensitivities.

> Betty Preston: I often have a visit, usually from someone who has just passed on. I have received 'messages' for someone else. I am a receiver. ... I have healing hands (Atwater 1989:90).

They also have a changed view of reality, more detached and objective, and tend to see through problems with less fear and worry.

> Dr. Patrick Gallagher, Palmdale, California:
> All the clothes I now wear have been gifts to me over the past several years. When I left Venezuela, I left virtually everything I owned there—books, clothing, cameras, and a few souvenirs and artifacts and so on; and they remain there without causing me any grief I can identify as mine. ... I seldom make any plans more advanced in time or need than a visit to the bathroom. Each conversation is invariably the best one I've ever had, for it is living, as yet unended, replete with authorship, possible plots. ... I now seem to gradually be getting far more attention and love and approval from one and all, including many of those quite worried at first because I didn't have a hell of an office, a secretary, and my glittering Phi Beta Kappa key in focus at the right place on my vest (Atwater 1989:100).

Many individuals who have experienced NDE's seem to have an inability for recognizing and comprehending boundaries, limits, and rules.

> Dying has such an interesting way of blotting out nonessentials.
> Coming back to life is a startling jolt.
> Rebuilding with what you have left is confusing.
> You deal with situations like: Who said I have to hold my fork this way? Spoons are so enchanting. Why can't I just walk up to her and start talking about what really matters? Beating around the bush makes no sense. Why can't I converse with the vacuum cleaner? It makes better noise than you do. I want to run, skip, jump rope, and climb a fence. I want to catch snow flakes with my tongue and make footprints where none have been. What do you mean I am forty-seven and people my age don't do that sort of thing? That doctor doesn't know what he is doing. Can't he see the halos of color around that patient's head and feel the pain himself? Why won't anyone listen to me? I know what I am talking about. Read the book? Why? I know what it says without reading. All I Have to do is touch it. I don't follow the recipes anymore. I just ask the food what it wants to do and we all have fun. I don't understand why men wear the most comfortable shoes. Fashion, smashion! I'm not ruining my face with cosmetics. If I have more than I need I'll just give the rest away. Why should I charge anyone? What do you mean follow procedures and go through proper channels? Get a college degree? Nonsense. (Atwater 1989:77-78).

All of these people, due to the experiences they have had, are in many ways in the same position as, and are viewed somewhat like, the shaman.

> Alternately, silent and sensitive to the coded pulse of the natural world or frenzied in yearning for the remembered moment of contact with the spirits, the shaman remains a paradoxical figure in many respects. He or she performs a vital function in the tribe and is a central figure in the community (Grim 1987:13).

Shamans are, more often than not, marginal people in their societies as a result of the very experiences which enable them to operate and function as shamans in the first place.

> They cross the threshold into another world and return again to the conventional world. In this ambiguous position they move at times to the center of society and then return to the margins. They draw freely from tribal traditions and yet spontaneously create their own responses to new situations (Grim 1987:13).

"Some of the more unusual phenomena involve survivors who claim they now regularly meet with the light beings or angels they saw during their near-death experience" (Atwater 1989:89). This account of a

> near death experience happened to a child who had a reaction to antibiotics that put her into anaphylactic shock, a sometimes fatal reaction to drugs.
>
> She had an out-of-body experience, went up a tunnel, saw a paradise of light, and was engulfed by a "Godlike light." During this spiritual journey, she also met a guardian angel named Sarah.
>
> This near-death experience occurred twenty years ago. Yet remarkably, Sarah has never left this women's side. During periods of stress, Sarah reappears to provide solace and advice.
>
> The woman and Sarah have had in-depth discussions about several earthly problems, including marital strife, job difficulties, the travails of raising children. When she needs her, Sarah is always there. All this woman needs to do is sit alone in a quiet place and ask for her presence.
>
> Until recently my patient thought that Sarah was invisible. Then a remarkable thing happened. She was having extraordinary problems with her teenage son, who was failing school, staying out late at night, and being generally rebellious in the worst of teenage traditions. Waiting up for him to return from a night on the town, my patient sat in her darkened family room and "called up" Sarah.
>
> For the next half hour, the woman and her guardian angel had a heart-to-heart talk about the difficulties of raising teenage boys. Little did my patient know that her son had come home and witnessed half of their discussion, watching the angel and his mother talk as he peeked around a corner.

> In the morning, he confronted her with what he had seen. "Mom," he said. "Who was that woman you were talking to last night? She seemed real nice."
>
> What else could my patient do? She told her son about her constant companion, Sarah. She then sought me out because of my interest in NDEs. She said she needed a medical opinion as to her sanity. Did I think she was crazy? After talking to her for a while. I had to say that I didn't think she was crazy at all.
>
> "What am I?" she then asked.
>
> I thought for a moment. "Lucky, I guess" (Morse 1990:131-132).

It is interesting to note that evidently this young man's mind was open to all possibilities of seeing or not seeing anything in particular. Not expecting to "not see" an apparition, he did in fact see one. What is very interesting is that he was a member of a culture that is in particular enculturated not to perceive of such things.

> The range of human sensitivity is wider than it sometimes seems. There are people with special talents who ... see wavelengths that would normally be invisible, and it may be possible for all of us to practice this kind of sensitivity. Infrared light waves for instance are beyond the capability of the cone-shaped cells in our retinas, but they may be just within the range of the rod-shaped ones that lie more densely packed around the edges of the screen (Watson 1987:166-167).

Those who have experienced an NDE are also in many ways like the shaman in that they now have a different view of, and relationship to, the physical level. "Many claim to see plants and especially flowers undulate as if breathing, while still others claim to see a web-like substance connecting all in sight with everything else through a network of glistening threads" (Atwater 1989:89). "One of the oldest and most persistent of occult ideas is that all bodies are surrounded by an energy cloud or an 'aura'. ... A few people see this special haze very easily, and have done so since they were children" (Watson 1987:167). It is not really known if certain abilities in some individuals are the last vestiges of abilities that were once common or the dawning of an evolutionary process heralding the development of new sensitivities. Or maybe it is just something within each of us, to lesser or greater degrees of acuteness depending on the individual, that simply has to be fine tuned through usage. "Perhaps those people we call mediums, who are aware of things that we cannot see or hear are simply individuals who by birth or training have stretched their sensitivity beyond our normal sensory limits" (p. 189). But for those whom this ability, whatever it may be, suddenly comes into operation, and they begin to 'see', it is somewhat akin to an individual who has always been blind suddenly having sight. It could be "that the blockage that prevents all of us from being psychic lies not in the sense organs, but at the level of the computer that

interprets information coming in from these systems" (p. 189). Perhaps one day all psychic sensitivity will prove to be susceptible to some "kind of training and that it will not be long before laboratories are churning out talented scientific mediums" (p. 190).

Further Into The Continuum After Death

There are those who feel that the somatic system is supplemented by other systems, and which appear to be most adequately interpreted in the yogic philosophy of the seven principles.

> The first level of substance is that of the familiar somatic system which operates on the Einsteinian space-time frame—about which we already know a great deal. If we are going to assign the new discoveries to their relevant places, then Burr's life field with all its electrical effects fits in here. The second is the etheric level which is said to be inhabited by the 'etheric double' that is unable to leave the body and is primarily concerned with health and the absorption and distribution of prana. The chakra are apparently located at this level and so, if this is where acupuncture operates, then this is where the new bioplasmic or energy body belongs. This level forms a bridge between the first or physical and the third or astral level (Watson 1987:171-172).

The bioplasmic counterpart which accompanies each body, in roughly the same form as the body, exists at a less physical level and "does not disappear at the moment of clinical death" (Watson 1987:198), as it seems "some patterning and perhaps something of the memory and personality survive as bioplasm in the etheric double" (p. 172). This very idea is reflected in the fact that various cultures around the world feel that the soul is nearby or roaming around lost shortly after death. In Central Malaysia it is believed that the soul remains around the grave for seven days, or with the Eskimos it roams lost for three days before setting out for the realm of Sedna. The Sioux Indians believed

> that the spirit which the "Great Mystery" breathed into man returns to Him who gave it, and that after it is freed from the body, it is everywhere and pervades all nature, yet often lingers near the grave or "spirit bundle" for the consolation of friends, and is able to hear prayers (Eastman 1980:156).

As mentioned earlier, much of the funerary geography and mythological themes of death are a result of shamanic experiences. As a result of the shaman's voyages to the realm of the dead their view of death is seen as a rite of passage to the spiritual mode of being. However, when death comes to one who has not had

the benefit of shamanic experiences there is often a denial of, and reluctance to accept, the passage from physical to spiritual existence.

> The funeral customs and expulsion rituals that are performed after death are based on the realization that consciousness, finding itself unexpectedly disembodied, is reluctant to give up its established place in the family. It needs time to accustom itself to the new situation and thus tries to attract relatives (or rather their souls) so as not to be alone. Evidently the soul does not instantly realize that it has lost its body (Kalweit 1988:24).

A common belief is that after death the soul, no longer recognized by those on the physical level, continues to roam about for a while in its new state. The soul must be made to realize that it no longer belongs with those on the physical plain and it is to this end that frequently complex funeral rites are intended. The various rituals for dealing with the soul of one recently deceased can be seen in the following Tewa prayer to the deceased, translated by Alfonso Ortiz.

> We have muddied the waters for you,
> We have cast shadows between us,
> We have made steep gullies between us,
> Do not, therefore, reach for even a hair of our heads.
> Rather, help us attain that which we are always seeking,
> Long life, that our children may grow,
> Abundant game, the raising of crops,
> And in all the works of man
> Ask for these things for all, and do no more
> And now you must go, for now you are free
> (Bierhorst 1984:153).

An explanation of the preceding prayer is as follows:

> The soul is believed to haunt the village for four days following death. On the fourth night, relatives gather to perform a "releasing" rite in which the ghost is offered food mingled with tobacco smoke at an outdoor shrine some distance from the house. On the way back the party stops four times, and each person, at each stop, faces the shrine, spits out a bit of charcoal, and draws four lines in the earth. Back at the house, the lead elder softly recites the prayer given here. *Muddied*: by means of the tobacco smoke. *Shadows*: caused by the charcoal. *Gullies*: the lines. *Ask for these things*: intercede with other spirits in our behalf (Bierhorst 1984:177).

In many cultures we find the idea that one could die before their proper time or still be attached to the physical plane in some manner and not be able to

complete the journey of the soul. "Some dying persons encounter humans or other beings, who are in a pitiful state. They have died, yet are still caught by the longings, desires, and material functions of their former earthly existences" (Kalweit 1988:5).

> To the Ojibway Indians man consists of a physical body that is finite and perishable, and of an immortal substance that must continue to grow while it resides in the body. Its growth is to be directed toward a harmony of heart and spirit. It is a man's duty to further develop his spirit soul. Only if he has lived in a state of goodness to the end of his allotted span does he go to the land of souls. Should he die prematurely without having achieved a "good" life he must return to earth and manifest himself once again in a physical body, unless he decides to remain in no-man's-land between the realm of the dead and the earth (Johnston quoted in Kalweit 1988:25).

There is a state such as this mentioned as well in the Hebraic traditional conceptions of afterlife. Nobody wants it "because the prospect of existence after death as a shade in Sheol is dreary and despondent. For survival of the shade is not ... the survival of a positive, indestructible element such as the immortal soul" (Gaster 1984:79). Sheol is inhabited only by "shades (rephaim) which are fr[illegible], highly attenuated reflections of the human person after death" (p. 79).

There are those who "claim to see and talk with departed spirits of the dead" (Atwater 1989:89), often those individuals who have had an NDE. Most messages received from apparitions seem to be in a telepathic manner. It is interesting to speculate on how an apparition may come about to begin with.

The 'astral body' which is said to be on the third level of the yogic philosophical structure of the seven principles:

> is said to be little more than a vehicle for the mind (which is found on the next three levels) and the spirit (that exists on the seventh plane). Levels four to seven need not concern us here, because it will be a very long time before science can begin to explore these in the way that it now seems to be getting a toehold on levels two and three. The astral area on level three is also difficult to get to grips with, but it is an exciting one to explore, because this is where life in some form must take refuge if it is to survive ... death ... for any length of time. The evidence we already have concerning separation and what has been called astral travelling, suggests very strongly that this area has an objective reality and probably can be examined. The second level is very much more amenable to investigation and I see no major obstacles to our soon being able to formulate physical laws to describe precisely what happens in the etheric area. There may be new and

> different kinds of energy at work there, but I suspect that they will be found to obey the same rules of behaviour as first level matter.
> ...
> And perhaps the cynics who say that it is all in the mind are also right, because all these things exist or are produced at the second or etheric level.
>
> The strange behaviour of all apparitions suggests that they obey laws not quite like those of conventional physics, and that they probably belong to a reality with slightly different space-time references. The fact that those who came to these phenomena, usually receive information structured to support their own beliefs or fears, suggests that these apparitions cannot be entirely independent of the minds of those involved (Watson, 1987:172, 181).

It may be that it is not possible for an apparition to, in any way, manifest itself without the presence of a living body. So, from a speculative position, the following pattern may be a justifiable possibility. The detached etheric body, which is always visible to certain sensitive individuals and to some others under special conditions, produces apparitions of the living. In the same manner, for a short period after clinical death, apparitions of the dead can be seen. If there is a persistence of these apparitions, for a considerable period after death, then it can be a probable assumption that there has been a re-energizing of the etheric body in some way. Since the etheric body itself decays in time, it is most probable that the re-energizing process has been through contact with another and complete living body. Due to the possibility of some sort of holographic action, the mind becomes more amenable to investigation than it has ever been before. Now one must ask if that which the shaman, psychic, seer, medium or NDE experiencer sees is a projection from their own unconscious or that of another projecting unconscious mind the experiencer being only the receiver of the images. Or are we really living in a holographic universe in which all is merely a projection of a reality which only exists as a reality within the individual mind acting as a receiver for the image?

CHAPTER V: ANTHROPOLOGY AND THE CONTINUUM

This discussion began with the observation that anthropology as a discipline is concerned with the totality of human experience and that its practitioners attempt to take all possible precautions to avoid ethnocentrism, viewing each culture from a perspective of cultural relativism.

The cultural background out of which anthropology arises is the scientific tradition of Western Europe and North America. That culture, for the last few centuries, has been materialistic and pragmatic. Even the religious ideologies and philosophies associated with that culture have included a linear time frame tied to the idea of progress. The idea of progress is intimately connected to the practice of science, and has involved increasingly complex material technologies, the production of more and more commodities, and an attempt to control and manipulate nature by describing its characteristics and attempting to impose order upon it.

Education and the production of new knowledge have been based on, and subject to, rigorous rules which were the products of that which was considered to be logical, the product of empirical observations. Knowledge was more highly evaluated, the more it could be quantified and scaled. That which could not be weighed or measured, seen or heard, touched or smelled, or in some way manipulated, in some sense did not exist. Larsen juxtaposes science and indigenous systems of knowledge and asks

> How does the approach to reality which we call science function within the living nervous system of individual human beings? And how does this new world-transforming way of looking at reality fit into the functioning of a psyche which has been preoccupied with spirits, god, and demons for a major portion of its probably one or two million years of existence? (Larsen 1988:126-127)

The dilemma that Larsen poses for the pre-scientific psyche is not exclusive to pre-scientific peoples, but is one that is pan-human. There are questions that the scientific method cannot address, including many basic questions about love, hate, hunger, fear, loneliness, joy, friendship, and so forth—questions that hit at the very heart of human experience and which seem to know no cultural boundaries. Thus in many ways, members of "scientific" societies approach those basic questions with the suspicion that science *should* provide answers, but does not appear to provide very satisfying ones. Perhaps that is related to another issue which faces the scientific anthropologist: it has been difficult to provide descriptions of the knowledge systems of indigenous peoples in a way that truly captures their experience or that does not trivialize and objectify their cosmologies. We thus have the same range of basic questions about "other" societies as we have about our own.

Anthropologists have generated a literature about shamans in indigenous societies. It presents them as magician healers who go through ritual re-enactments of mythic beliefs. Shamans play a role in social consolidation of the group by experiencing some of the religious beliefs held by the people in their society. The credibility of the shaman's cosmology has not, until recently, been a question in anthropology.

The argument in this thesis is that there is the possibility, even the likelihood, that shamans do in fact have a knowledge of the "beyond" and of the workings of the power or forces in the universe.

In comparing indigenous knowledge systems there emerges one "great truth" that does not appear to be subject to relativistic variation; in fact, it is a "great truth" of Western physics, and that has to do with the cosmological observation, not just of "relatedness" but "unity" amongst the components of the universe.

We share more than that with indigenous societies where shamanism is practised. Some of the things that shamans do and practice in their everyday life, such as going into the land of death and spirits, is done by some people who are members of the technological cultures of the world, though it is not often openly admitted to. Perhaps our reluctance even to address the question of the validity of those experiences (and thus have a standard by which to spot the quack or charlatan) is because we have become too far removed from the consciousness of the flow of nature to be aware of the wondrous possibilities of self-realization through the perception of union with the natural flow.

It should be a purpose of anthropology, in its role as chronicler of the human experience, to promote understanding of the true knowledge and comprehension shamans have of the forces of the cosmos; we may learn a great deal from them.

People in technological societies are coming to realize that technology does not have all the answers (and restricts the questions asked to those that can be addressed by science). This is not to say that shamans, psychics and seers will have all of the answers either. There may not even be answers, there, for those most basic questions. This is an argument, however, that we should explore what those other systems of knowledge have to say about the basic questions. If the empirical mind prides itself on being so, then let it be so, and let empiricism extend not just to subjecting "shamanistic" practices to scientific inquiry, but to learning the cosmology of the shaman, on its own terms:

> The basic values of Western thought are becoming somewhat shaky and threadbare. As a result of this new ideas about the nature of consciousness are rapidly gaining ground, and the shaman has become a focal point of their attention. It is almost as if a king who had been

> banished for his folly were reclaiming his realm. Shamanic experiences bring us once again closer to the sacred dimension of nature, and profane science, sacred inspiration, and genuine wisdom are beginning to unite, giving birth to a new kind of metarational science. In other words, the gaping wound of duality is beginning to heal (Kalweit 1988:xv).

The position adopted in this thesis has been that as a discipline anthropology can do much to facilitate the building of a transcultural bridge between modern science (physics, physiology, biology, etc.) and ancient bodies of knowledge such as shamanism. A corollary to this is that cultural anthropologists themselves may have to learn more about the disciplines of physics, biology, psychology, and physiology. What is most important is to approach the study of areas such as shamanism with an open mind, looking for and at absolutely everything, but on the other hand expecting the possibility of absolutely nothing.

> For those who consider it beneath their intelligence to concern themselves with anything but realistic problems, the study of exotic people, particularly of "primitive" magicians, will of course not merit the attention of our present civilization, dominated as it is by the idea of progress. Nevertheless, we are witnessing today a growing interest in magic, the occult, and the extrasensory. The very reason these things are being given more and more attention is that the latest findings of orthodox science appear to be not unrelated to these hitherto neglected fields of study (Kalweit 1988:xv).

It is in the area of quantum physics that increasing attention is being given to areas that were once felt to be the domain of metaphysics. There is a coming together of physics and philosophy, a sort of blending of the minds on the road to understanding. This combined search for knowledge is being led by people who have dared go beyond the boundaries of their disciplines into the murky and uncharted ocean of the concepts dealing with mind and cosmos. Some have entered the territorial realm of the shamanic practice and "this ancient tradition has found itself in the focus not only of anthropology and mythology, but also such diverse disciplines as psychology, ecology, and ethnopharmacology" (Halifax 1988:v). Recent studies of the shamanic experience have moved beyond such rubrics as primitive religion, occultism, or psychopathic aberration:

> They often concentrate exclusively on data that support only an anthropological, sociological, or psychological interpretation. The contributions of those disciplines are crucial in any analysis of the religious dimensions of shamanism, but it is also essential that any analysis assist in explaining how and why a people enter into such a communion with an ultimate mystery governing the universe (Grim 1987:25).

With the allowance of such a focus within the many traditions of anthropology, the discipline could certainly answer some of the questions relating to how a people seem to establish a communion with the unity of consciousness in which the ultimate mysteries of the universe appear to be more plainly discerned. The "why" of the question is already known in that humankind constantly searches, consciously or unconsciously, for knowledge of the great beyond we call death.

> The sort of discrimination and aversion we encounter in death research can also be found in connection with studying the world of the shaman. Cynicism toward death is cynicism toward the mystic's conception of the world. If, in the course of time, the acknowledgment of death were to expand from the present small group of specialists to wider sectors of our Western society, we would look forward to a corresponding upgrading of the shaman's view of life.
>
> On the basis of the growing empirical data provided by people that have been reanimated from a near-death state, we are now in the process of mapping the near-death realm and developing a kind of graph of the death process. The belief of tribal communities in a life after death is not simply a handed-down cosmology. On the contrary, the imagination of these communities continues to be fuelled by the shaman's accounts of his journeys to the beyond.
>
> One day we may find that the anticipation of death through a near-death experience, combined with a psychic rebirth, is not only the best possible preparation for actual death, but also forms an optional basis for restoring a proper balance and harmony in the psyche (Kalweit 1988:18).

To date, there has not been a systematic study, in the light of our most recent findings concerning near-death-experiences, of the sequences of events of journeys to the beyond in tribal cultures. As ethnologists become more familiar with detailed data about those experiences, they will more than likely take a view of shamanic experiences as being more than symbolic and cultural artifacts.

Neither the near-death experience nor the shamanistic experience is a common one in Western culture. A realm of common, commonplace, experience that is as familiar as sleep itself is the state of consciousness experienced in dreams. The experience of time and space in dreams is quite different from their experience while awake. It could be that a first exploration in anthropology might be in the anthropology of dreams and dreaming.

Anthropology as a discipline should not limit itself, in the study of usual or unusual states of consciousness, to only the study of tribal cultures. There is knowledge to be gained from studying how people in technological societies enter into that same order of communion. Working with psychics, seers, and mediums, and "mystics" in Western society would offer an opportunity to discover if, how,

and why they as individuals—who are most often seen as fringe persons in society—map the road to the beyond, and what guideposts they use for getting around the terrain once they are there. Working with the ordinary experience of dreaming may provide an important connection to the understanding of the extraordinary.

> In the course of its history, Western thought has become alienated from our inner sources of inspiration, so that reports on the experiences in the after-death state, cosmological models of the Beyond, and eschatologies which primarily were not the result of philosophical reflection, but arose out of psychic experience, were increasingly regarded as speculative expressions of discursive thought. In this way we lost our knowledge about unsuspected energy reserves of consciousness and their ability to expand and travel beyond the three-dimensional world. The increasingly materialist ideology took the various cartographies of the Beyond for descriptions of physical landscapes in remote areas.
>
> This is not really surprising, because we know that any scientific discipline can judge another only by its own criteria, and for the materialist view the dimensions of consciousness revealed by modern research work quite simply did not exist. As a result, it inevitably misinterpreted psychic data as factual. This, in turn, led to enormous distortions and confusions in the "scientific" study of religions. This tangle of misunderstandings and false interpretations has to be rectified and unravelled step by step. Ironically, this is being done with the very methods of materialist and empirical science (Kalweit 1988:19).

Anthropology must come to a deeper understanding of human consciousness, not only in the cross-cultural perspective, but in the physiological as well. Anthropology must join forces with other disciplines in this search for knowledge but must not allow its own conclusions to be devalued because of a lack of verifiable physical evidence of something which in essence is not physical. Shamanism, as an ongoing and irreducible mode of experiencing the sacred, is not limited to any particular ethnic group. While valuable, much of the data of ethnological reports requires further interpretation.

That to which the shaman responds is the experience of vital and necessary spiritual power. With the ongoing radical reassessment of the more sophisticated and rationalized modes of institutionalized religion in contemporary society the religious meaning of shamanism has a certain attraction for our times. The weakening religious political structures no longer communicate needed power to individuals and the community. The rituals that formerly communicated this sustaining energy have lost their efficacy. With the rise of technology, and under the rubric of progress, the natural world has been viewed as exploitable. Numinous

power ceased to be seen as an integral presence in the natural world and was no longer valorized in ritual activity. Often there was an inappropriate channelling of numinous power into tangential forms which lacked historical and cosmological bases and which had a tendency to be sustained by cultish emotionalism.

Now the sense of relatedness to the earth is reawakening. Shamanism acquires a special significance, with this revalorization of the natural process, for it acquaints us with particular experiences of the manifestation of sacred power in the natural world. While the experiences of such power, and the responses that it evokes from humans, may be beyond description, there can still be an attempt to explain it. For the most part the common metaphors of our three-dimensional world become quite inadequate when attempting to present the subtle experiences encountered in a transpersonal dimension.

> However, they are the only method available to us for verbalizing the inexpressible. At times, the ways in which tribal cultures describe experiences in other realms of consciousness may seem laughable and naive to us, yet their use of plainly realistic and everyday images constitutes the only practical solution if they want to convey anything about such realms of existence.
>
> If one can speak of naivete at all, such a term should not be applied to the language by the shaman, but rather to our inability to decipher the code for translating his words from an accusal and transpersonal level to one of personal language (Kalweit 1988:15-16).

Shamans tell us that communication in the beyond is not language-based but telepathic and feeling-oriented, person-to-person, exchanges. Because, in the beyond, there are "neither material barriers nor corporeal limits, but only pure consciousness in the form of the soul it is perfectly possible to participate directly in the 'other' and to spontaneously penetrate the psychic atmosphere of another person or being" (Kalweit 1988:16).

> If we were to attempt to find an even remotely appropriate style for describing what happens in the Beyond and what the soul experiences there we would, in all probability, have to dissociate ourselves from any allegorical interpretations and turn to the language of modern microphysics because the terminology used by that discipline is sufficiently abstract to describe things our graphic intelligence and logical thought are unable to grasp. Of course it may not necessarily be helpful to make use of microphysical terminology, but such an approach might give us a more precise and unequivocal description than everyday language or allegory can provide (Kalweit 1988:16).

For the past decade or so there has been a greater acknowledgement of particular tribal and cultural bodies of wisdom and knowledge in areas such as health practices—especially by anthropologists—and as well by some Western medical practitioners. Also, now, with the mounting evidence of the disastrous Western scientific mismanagement of the environment, some scientists are beginning to recognize that the wisdom of indigenous peoples actually does have value in many areas.

Anthropologists have generally led the way in trying to understand and accept indigenous wisdom and knowledge. However anthropology is a Western discipline and for the most part anthropologists are rooted in the Western philosophy of science which assumes separability of things, not that all is an interconnected continuum. Their posture is that all things can be understood, and knowledge acquired, through asking the appropriate questions in a scientific rational way. The fact that one can acquire knowledge through direct knowing, through intuition, or through other forms of contact with other levels of reality, is in general a very apprehensive area for the Western mind. Anything that may have a "paranormal" ring to it places many Westerners on shaky ground. The fact seems to be that there are universal laws which are in operation throughout the cosmos and the "paranormal" which evades the analytic tools of Western science is more than likely "paraconceptual" at this time.

The best tool for dealing with this is an open mind.

REFERENCES

Assagioli, Roberto
1973 *The Act of Will.* New York: Viking Press.

Atwater, P. M. H.
1989 *Coming Back to Life: The After-effects of the Near-death Experience.* New York: Ballantine Books.

Bateson, Gregory
1972 *Steps to an Ecology of Mind.* New York: Ballantine Books.

Beck, Peggy V., Anna Lee Walters, and Nia Francisco
1977 *The Sacred Ways of Knowledge: Sources of Life.* Tsaile, Ariz.: Navajo Community College Press.

Bentov, Itzhak
1988 *Stalking the Wild Pendulum: On the Mechanics of Consciousness.* Rochester, Vt.: Destiny Books. (1st ed. 1977).

Bierhorst, John, ed.
1983 *The Sacred Path: Spells, Prayers and Power Songs of the North American Indians.* New York: William Morrow.

Boas, Franz
1963 *The Mind of Primitive Man.* New York: Collier Books. (1st ed. 1911).

Bohm, David
1983 *Wholeness and the Implicate Order.* London: Ark Paperbacks.

Bohm, David, and F. David Peat
1987 *Science, Order, and Creativity.* New York: Bantam Books.

Bolen, Jean Shinoda
1982 *The Tao of Psychology: Synchronicity and the Self.* New York: Harper & Row.

Cassirer, Ernst
1944 *An Essay on Man: An Introduction to a Philosophy of Human Culture.* New Haven: Yale University Press.

Combs, Allan, and Mark Holland
1990 *Synchronicity: Science, Myth, and the Trickster.* New York: Paragon House.

Crook, John Hurrell
1980 *The Evolution of Human Consciousness*. Oxford: Clarendon Press.

Davies, Paul
1983 *God and the New Physics*. Middlesex: Penguin Books.

Dawson, Christopher
1933 *Progress and Religion*. New York: Sheed and Ward.

Deikman, Arthur F.
1974 Deautomatization and the Mystic Experience. *In* Robert E. Ornstein, ed., *The Nature of Human Consciousness: A Book of Readings*, pp. 216-233. New York: Viking Press.

Deussen, Paul
1966 *The Philosophy of the Upanishads*. New York: Dover Publications Inc. (1st ed. 1906).

Deutsch, Eliot
1969 *Advaita Vedanta: A Philosophical Reconstruction*. Honolulu: The University Press of Hawaii.

Dossey, Larry
1982 *Space, Time and Medicine*. Boston: New Science Library, Shambala Publications.

Eastman, Charles Alexander (Ohiyesa)
1980 *The Soul of the Indian*. Lincoln, Nebr.: University of Nebraska Press. (1st ed. 1911).

Eliade, Mircea
1964 *Shamanism: Archaic Techniques of Ecstasy*. Princeton: Princeton University Press.

Fagg, Lawrence W.
1985 *Two Faces of Time*. Wheaton, Ill.: The Theosophical Publishing House.

Feldman, Robert, and Shizuko Yamamoto
1974 Massage in Oriental Medicine: Its Development and Relationship to 'ki,' or Vital Energy. *In* Stanley Kripner and Daniel Rubin, eds., *The Kirlian Aura: Photographing the Galaxies of Life*, pp. 151-159. Garden City, N.Y.: Anchor Books.

Ferris, Timothy
1988 *Coming of Age in the Milky Way*. New York: Anchor Books/Doubleday.

Friedman, William J.
1990 *About Time: Inventing the Fourth Dimension*. Cambridge, Mass.: The M.I.T. Press.

Gearing, Frederick O.
1970 *The Face of the Fox*. Chicago: Aldine Publishing Co.

Goodall, Jane
1986 *The Chimpanzees of Gombe: Patterns of Behavior*. Cambridge, Mass.: Harvard University Press.

Griffin, Donald R.
1976 *The Question of Animal Awareness: Evolutionary Continuity of Mental Experience*. New York: Rockefeller University Press.

Grim, John A.
1987 *The Shaman: Patterns of Religious Healing Among the Ojibway Indians*. Norman: University of Oklahoma Press.

Gualtieri, Antonio R.
1984 *The Vulture and the Bull: Religious Responses to Death*. Lanham, Md.: University Press of America.

Halifax, Joan
1988 Foreword. *Dreamtime and Inner Space: The World of the Shaman*. Boston: Shambhala Press.

Hall, Edward T.
1959 *The Silent Language*. Greenwich, Conn.: Fawcett Publications.
1977 *Beyond Culture*. Garden City, N.Y.: Anchor Books.

Hall, James A.
1983 *Jungian Dream Interpretation: A Handbook of Theory and Practice*. Toronto: Inner City Books.

Hallowell, A. Irving
1955 *Culture and Experience*. Philadelphia: University of Pennsylvania Press.
1976 Ojibwa World View and Disease. In *Contributions to Anthropology: Selected Papers of A. Irving Hallowell*. Chicago: University of Chicago Press. (Originally published 1963).

Halpern, Paul
1990 *Time Journeys: A Search for Cosmic Destiny and Meaning*. New York: McGraw-Hill.

Harner, Michael
1982 *The Way of the Shaman: A Guide to Power and Healing*. New York: Bantam Books.

Hawking, Stephen W.
1988 *A Brief History of Time: From the Big Bang to Black Holes*. New York: Bantam Books.

Hayward, Jeremy W.
1987 *Shifting Worlds, Changing Minds: Where the Sciences and Buddhism Meet*. Boston: Shambhala Publications.

Hickerson, Nancy Parrot
1980 *Linguistic Anthropology*. New York: Holt, Rinehart, and Winston.

Highwater, Jamake
1982 *The Primal Mind: Vision and Reality in Indian America*. New York: New American Library. (1st ed. 1981).

Hoffman, B.
1972 *Albert Einstein, Creator and Rebel*. New York: Plume Books.

Ignatieff, Michael
1986 *The Needs of Strangers*. New York: Penguin Books.

Inglis, Brian
1989a *Trance: A Natural History of Altered States of Mind*. London: Grafton Books.
1989b (assisted by Ruth West). *The Unknown Quest*. London: Coronet Books.

Johnson, Basil
1979 *Und Manitu Ershuf Die Welt: Mythen und Visionen Der Ojibwa*. Cologne.

Kalweit, Holger
1988 *Dreamtime and Inner Space: The World of the Shaman*. Boston: Shambhala.

Klein, David Ballin
1984 *The Concept of Consciousness: A Survey*. Lincoln, Nebr.: University of Nebraska Press.

Lame Deer, John (Fire), and Richard Erdoes
1976 *Lame Deer Seeker of Visions*. New York: Washington Square Press.

Lao-tzu
1988 *Tao Te Ching: A New English Version*. Foreword and notes by Stephen Mitchell. New York: Harper and Row.

Larsen, Stephen
1988 *The Shaman's Doorway: Opening Imagination to Power and Myth*. Barrytown: Station Hill Press.

Leach, E. R.
1971 *Rethinking Anthropology*. London: Athlone Press. (1st ed. 1961).

Lee, Dorothy
1959 *Freedom and Culture*. Homewood, Ill.: Prentice-Hall.

Lorimer, David
1990 *Whole in One: The Near Death Experience and the Ethic of Interconnectedness*. London: Arkana.

MacLean, P.
1977 On the Evolution of Three Mentalities. *In* S. Arieti and G. Chrzanowki, eds., *New Directions in Psychiatry: A World View*, Vol. 2. New York: Wiley.

Mishlove, Jeffrey
1975 *The Roots of Consciousness: Psychic Liberation Through History, Science and Experience*. New York: Random House.

Morris, Richard
1985 *Time's Arrows: Scientific Attitudes Toward Time*. New York: Simon and Schuster.
1990 *The Edges of Science: Crossing the Boundary from Physics to Metaphysics*. New York: Prentice Hall Press.

Morse, Melvin, assisted by Paul Perry
1990 *Closer to the Light: Learning from Children's Near-death Experiences*. New York: Villard Books.

Moss, Thelma
1981 *The Body Electric: A Personal Journey Into the Mysteries of Parapsychological Research, Bioenergy and Kirlian Photography.* London: Paladin Books/Granada.

Moss, Thelma, and Kendall L. Johnson
1974 Bioplasma or Corona Discharge. *In* Stanley Kripner and Daniel Rubin, eds., *The Kirlian Aura: Photographing the Galaxies of Life*, pp. 51-71. Garden City, N.Y.: Anchor Books.

Murchie, Guy
1978 *The Seven Mysteries of Life: An Exploration in Science and Philosophy.* Boston: Houghton Mifflin Co.

Neihardt, John C.
1972 *Black Elk Speaks: Being the Life Story of a Holy Man of the Oglala Sioux.* New York: Pocket Books. (1st ed. 1932).

Nelson, Harry, and Robert Jurmain
1985 *Introduction to Physical Anthropology.* 3rd ed. New York: West Publishing Co.

Neumann, Erich
1954 *The Origins and History of Consciousness.* Princeton: Princeton University Press.

Ortiz, Alfonso
1972 Ritual Drama and the Pueblo World View. In *New Perspectives on the Pueblos.* Albuquerque: University of New Mexico Press.

Ostrander, Sheila, and Lynn Schroeder
1971 *Psychic Discoveries Behind the Iron Curtain.* New York: Bantam Books.

Otto, James H., and Albert Towle
1977 *Modern Biology.* New York: Holt, Rinehart and Winston.

Page, Michael
1988 *The Power of Ch'i: An Introduction to Chinese Mysticism and Philosophy.* Willingborough, Northamptonshire: Aquarian Press.

Pearson, Bruce L.
1977 *Introduction to Linguistic Concepts.* New York: Alfred A. Knopf.

Peat, F. David
1987 *Synchronicity: The Bridge Between Mind and Matter*. New York: Bantam Books.

Philips, Susan U.
1974 Warm Springs 'Indian Time': How the Regulations of Participation Affects the Progression of Events. *In* Richard Bauman and Joel Sherzer, eds., *Explorations in the Ethnography of Speaking*, pp. 92-109. Cambridge: Cambridge University Press.

Pinkel, Benjamin
1992 *Consciousness, Matter, and Energy: The Emergence of Mind in Nature*. Santa Monica, Calif.: Turover Press.

Poppel, Ernst
1988 *Mindworks: Time and Conscious Experience*. Boston: Harcourt Brace Jovanovich.

Powers, Jonathan
1982 *Philosophy and the New Physics*. London: Methuen.

Prabhavananda, Swami
1963 *The Spiritual Heritage of India*. Hollywood, Calif.: Vedanta Press.

Prigogine, Ilya, and Isabelle Stengers
1984 *Order Out of Chaos: Man's New Dialogue with Nature*. New York: Bantam Books.

Radhakrishnan, Sarvepalli, and Charles A. Moore, eds.
1957 *A Source Book in Indian Philosophy*. Princeton: Princeton University Press.

Rhoades, Rodney, and Richard Pflanzer
1989 *Human Physiology*. 12th ed. Philadelphia: Saunders College Publishing.

Rosenfeld, Israel
1988 *The Invention of Memory: A New View of the Brain*. New York: Basic Books.

Rucker, Rudy
1983 *Infinity and the Mind*. New York: Bantam Books.

St. Augustine
1984 *The City of God*. London: Penguin Books. (Originally published 1467).

Sapir, Edward
1924 Culture, Genuine and Spurious. *American Journal of Sociology* 29:401-429.

Schlegel, R.
1968 *Time and the Physical World.* New York: Dover Publications.

Schrödinger, Erwin
1992 *What is Life? the Physical Aspect of the Living Cell with Mind and Matter and Autobiographical Sketches.* Cambridge: Cambridge University Press.

Shallis, Michael
1983 *On Time: An Investigation Into Scientific Knowledge and Human Experience.* New York: Shocken Books.

Sheldrake, Rupert
1989 *The Presence of the Past: Morphic Resonance and the Habits of Nature.* New York: Vintage Books.
1991 *The Rebirth of Nature: The Greening of Science and God.* New York: Bantam Books.

Thomas, Bruce
1991 *The Body of Time and the Energies of Being.* London: Arkana.

Tiller, William A.
1974 Some Energy Field Observations of Man and Nature. *In* Stanley Kripner and Daniel Rubin, eds., *The Kirlian Aura: Photographing the Galaxies of Life*, pp. 92-136. Garden City, N.Y.: Anchor Books.
1988 Preface. *In* Itzhak Bentov, *Stalking the Wild Pendulum: On the Mechanics of Consciousness.* Rochester, Vt.: Destiny Books.

Tortora, Gerard J.
1989 *Principles of Human Anatomy.* 5th ed. New York: Harper & Row.

Tulving, E.
1985 Memory and Consciousness. *Canadian Psychology* 26:1-12.

Tyrrell, G.N.M.
1953 *Apparitions.* London: Duckworth.

Van Den Berghe, Pierre L.
1978 Bridging the Paradigms: Biology and the Social Sciences. *In* Michael S. Gregory, Anita Silvers, and Diane Sutch, eds., *Sociobiology and Human Nature: An Interdisciplinary Critique and Defense*, pp. 33-52. San Francisco: Jossey-Bass Publishers.

Varela, Francisco J., Evan G. Thompson, and Eleanor Rosch
1991 *The Embodied Mind: Cognitive Science and Human Experience.* Cambridge, Mass.: M.I.T. Press.

Von Franz, Marie-Louise
1980 *On Divination and Synchronicity: The Psychology of Meaningful Chance.* Toronto: Inner City Books.

Watson, Lawrence C., and Maria-Barbra Watson-Franke
1985 *Interpreting Life Histories: An Anthropological Inquiry.* New Brunswick, N.J.: Rutgers University Press.

Watson, Lyall
1986 *Earthworks: Ideas on the Edge of Natural History.* London: Hodder and Straughton.
1987a *The Biology of Death.* London: Sceptre.
1987b *Supernature II: A New Natural History of the Supernatural.* London: Sceptre Books.

Waugh, Earle H., and K. Dad Prithipaul, eds.
1979 *Native Religious Traditions.* Waterloo, Ontario: Wilfrid Laurier University Press.

Wentz, Richard Eugene
1984 *The Contemplation of Otherness: The Critical Vision of Religion.* Macon, Ga.: Mercer University Press.

Wheeler, J.A.
1982 *Physics and Austerity: Law Without Law* [Report]. Austin: University of Texas.

Whorf, Benjamin Lee
1956 *Langauge, Thought and Reality: The Selected Writings of Benjamin Lee Whorf.* Cambridge, Mass.: M.I.T. Press.

Wilber, Ken
1979 *No Boundary: Eastern and Western Approaches to Personal Growth.* Boston: Shambala Press.

Wilczek, Frank, and Betsy Devine
1987 *Longing for the Harmonies: Themes and Variations From Modern Physics*. New York: W.W. Norton.

Witherspoon, Gary
1977 *Language and Art in the Navajo Universe*. Ann Arbor, Mich.: University of Michigan Press.

Wittgenstein, Ludwig
1961 *Tractus Logico-philosophicus*. London: Routledge.

Wolf, Fred Alan
1988 *Parallel Universes: The Search for Other Worlds*. New York: Simon and Schuster.

Zimbardo, Philip G.
1988 *Psychology and Life*. Glenview, Ill.: Scott, Foresman and Company.

Zohar, Danah
1990 *The Quantum Self: Human Nature and Consciousness Defined by the New Physics*. New York: William Morrow and Co.

Zukav, Gary
1980 *The Dancing Wu Li Masters: An Overview of the New Physics*. New York: Bantam Books.