PROLOGUE

All the research in modern science has led to the doorstep of the ultimate unity of nature. The next step is direct empirical validation of unity. That requires going beyond sensory experience and reasoning, the basic means of gaining knowledge in modern science. It is most fortunate that we now have systematic means to unify completely our theoretical understanding and empirical experience of nature based on a holistic science of consciousness. Consciousness is the 'lamp at the door,' [1] *illuminating both the outer diversified field of knowledge and the inner unified field of knowledge. Through this more inclusive science, we are stepping into a genuine Age of Enlightenment.*

This book is an in-depth analysis and synthesis of the nature of consciousness. The Prologue and Introduction establish the context for Part 1, an examination of ontological levels of *reality*, the nature of space-time, and the relationship of matter and mind to consciousness. It focuses on quantum theory, relativity theory, and their integration in quantum gravity toward unified field theory. Part 2 applies the unified field-based understanding to core issues in cognitive science and neuroscience of levels of mind—human psychoarchitecture—and states of consciousness. It examines how the nature of consciousness is addressed through direct experience in higher stages of human development. Part 3 connects modern objective science with the most ancient subjective science based in the Veda, and introduces research on fundamental consistencies between the structure of individual physiology and the cosmic structure of nature.

What's Been Missing in Modern Science?

> "It is quite likely that the 21st century will reveal even more wonderful insights than those that we have been blessed with in the 20th. But for this to happen, we shall need powerful new ideas, which will take us in directions significantly different from those currently being pursued. Perhaps what we mainly need is some subtle change in perspective—something that we all have missed..."*—Sir Roger Penrose, mathematician and cosmologist (p. 1045)* [2]

The means we use to gain knowledge has far reaching consequences for our life. In our modern civilization the pre-eminent means has been the objective approach of modern science. It is widely recognized that this approach has produced a massive body of reliable knowledge and rigorous standard of validation, allowing us to progress quite a ways out of the shadows of superstition. It has strengthened our appreciation of universal order in nature, and of our incredible, even sacred fortune to witness its ever expanding display in the vast universe that is our home. Applying this knowledge in everyday life, however, our inner experience has remained separate and isolated from the outer world. This separation is so ingrained in our everyday life that we didn't recognize their underlying unity—let alone make use of it. The knowledge gained through modern science is fragmented. It has left everyday experience in our modern civilization fundamentally isolated, devoid of meaning, and unfulfilling. To get right to the heart of the *whole point*, the knowledge we want most still has eluded us: practical knowledge with the power to create a completely unified and fulfilling experience of life, and to alleviate suffering in our civilization. Because that knowledge has not been discovered through modern science, it is imminent cause for pause—to investigate more carefully what has been overlooked and missed.

In this book we will locate what has been overlooked and missed, and systematic means to validate it empirically. We will explore the deep *inner dimension* of nature, excavating the hidden foundation of modern scientific thought and uncovering how it can bridge with religion and spirituality into a universal system of knowledge and experience. In this exploration we will turn the light of science around onto itself to illuminate its holistic basis. This will reveal profound answers to perennial questions about the nature of matter and mind, of space and time, and ultimately of *consciousness itself*. Fortunately what has been overlooked is right behind where we're looking, within our easy grasp, even within the sound of our own voice.

The fragmentation of objective knowledge. To begin locating what has been overlooked it can be helpful to glimpse below the outer edifice of modern science to its fragmented and jittery foundations. In applying the objective means of gaining knowledge we have used our minds to focus on the concrete, tangible, outer world of ordinary sensory experience. Fundamental to sensory experience is an object of experience, process of experiencing, and experiencer—the *known*, *process of knowing*, and *knower*. This basic three-fold division sets the direction on the bridge to unity described in this book. While modern science investigates the *outer objective* domain of the known, the *inner subjective* domain associated with the process of knowing and the knower has been conceptually separated from the outer objective domain and almost completely left out of the investigation. As we explore the core issues in this book it will become increasingly clear that through modern science we have investigated the outer objective domain of nature only. This approach has resulted in the seemingly intractable paradoxes, unsatisfying incompleteness, fragmentation, and lack of fundamental grounding in our everyday understanding and experience.

As to how this has come about, unwittingly we have conditioned ourselves into it. The objective means of gaining knowledge entrains attention to the tangible outer surface of experience—the ordinary outer natural world. When attention becomes fixated *out there,* the result is incessant exploration of the gross surface level of objects while deeper, subtler experiences become overlooked, elusive, and rare. Attention shifts from one object to another on the surface, rather than to deeper levels of experience of the objects. This results in shorter attention spans, shorter-term perspectives about values and purposes in life, and more emphasis on immediate sensory gratification. Effort is placed on squeezing more out of surface sensory experiences through increased intensity of sensation, rapid changes, and extreme contrasts—such as is increasingly apparent in the field of entertainment. This pattern of attentional focus is a common habit of everyday experience. It is evident in the rapid pace of surface change in our contemporary society, which reasonably might be characterized as an *attention deficit culture*.

This *objectifying* approach—and resulting picture of the world—is the main feature of the materialistic or physicalist worldview still prominent in modern science. In this picture the *primary locus of experience* is the concrete, sensory, material, physical level of existence. Materialism in this sense doesn't just have the popularized meaning of placing high value on tangible material possessions. It is a much more engrossing relationship to the world in which the surface objective level is understood and experienced to be the most substantial or *real*—indeed only—level of existence. This picture has been more gripping in recent centuries, due to its emphasis in the educational approach associated with modern science. The concentrated reductive focus on the sensory level of empirical experience has been institutionalized in modern civilization. Through this training we have bound ourselves to life on the superficial 'flatland' of material existence.

Consequences of fragmented knowledge. The fundamental conceptions, assumptions, and values that guide actions reveal themselves in the results of the actions, such as what has been overlooked in house design and construction later shows up in cracks needing repair. When inadequate attention is given to the foundation, major cracks eventually appear.

As the objective approach of gaining knowledge in modern science has become ubiquitous in our civilization, its fragmenting side effects are more apparent. Some now question whether it actually has resulted in significant improvement in the overall quality of human life. Clearly the material wealth and physical comfort of a significant segment of civilization have increased; but whether the level of suffering has been appreciably reduced is far less clear. Empirical research suggests that happiness is correlated positively with material wealth, for the most part, only for people in poverty or with minimal material resources. [3] [4] The poor tend to struggle for material sustenance, and the wealthy tend to strive for meaning and purpose—about which modern science almost completely has separated itself from addressing.

Some have expressed further concern that the objective means of gaining knowledge breaks apart experiences of deeper meaning and purpose, leaving shards of mini-theories and facts that cannot contain deep humanistic value associated with the holistic interconnectedness of nature. In this way modern science has contributed to the existential malaise of meaninglessness in modern and postmodern thought, fueling current trends of reactionary hedonism and violence.

> "By the 1950s in North America, the United States and Canada attained a standard of living well above that of any previous civilization in history. They were joined soon afterwards by Western Europe, and then other industrialized nations such as Japan... [E]conomists and sociologists predicted that productivity would double by the end of the century. This prediction turned out to be true. They also predicted that by the year 2000 we would be able to enjoy unprecedented affluence by working only half as many hours per day, and turn the rest of our time to leisure pursuits. This of course did not happen... [W]e spend just as much time working as we did before... The pace and stress of daily life have, on the whole, intensified. Our children encounter weapons, drugs, and assaults in their schools. Overt hostility and violence are commonplace..."*—Jonathan Shear, philosopher (pp. 229-230)* [5]

More immediately, applications of the fragmenting objective approach are challenging our fundamental security in extremely grave ways: technologies that break apart the material fabric of nature are placing our basic humanity and even existence at risk. Modern science has not led to development of our inner mental resources to guide balanced use of outer material resources in increasingly powerful technologies. We are at a critical threshold at which the outer focus on matter has gotten ahead of inner development of our minds.

In response to these concerns it is sometimes asserted that the contribution of modern science is descriptive rather than prescriptive—that its purpose is to advance basic knowledge rather than fix the world. This 'value-neutral' perspective also is due to fragmenting assumptions associated with the objectified physicalist worldview. In actual practice even basic research is heavily laden with value judgments about what to study and how to study it. In addition a considerable portion of scientific funding is for technological applications that are thought to be of practical value, but unfortunately often are associated with the highly disintegrating and impractical behavior of waging war. With sincere intent to contribute to societal progress, it is not uncommon for modern scientists to advocate for and forge ahead with the latest innovations, unfortunately without adequate investigation of potential negative effects warranted by their increased power. This clearly reflects aggressive adherence to a value system of pragmatism interpreted within physicalist assumptions and beliefs—as if there were no deeper *reality* and no *subtler* long-term consequences.

While the modern scientific approach has allowed us to progress out of the irrationality of preceding millennia, it has not yet resolved essential concerns of the individual or of civilization. We have become fixated on the outer objective domain, and have not yet developed comprehensive understanding and integrated experience of the holistic, completely unified value of nature.

This is significantly due to the fragmenting reductive physicalist focus in modern science. It is now important to recognize and acknowledge that modern science—as it has been practiced—is powerful enough to disintegrate us, but not powerful enough to *integrate* us.

Consciousness in the Objectified Reductive Physicalist Worldview

The integrative core of the *inner subjective* domain is consciousness. This has been the constitutive issue for psychological science—like matter and energy for physics and life for biology. [6] The practical goals of this field directly concern improving the quality of life and alleviating suffering. Also applying primarily the objective approach, however, it has not established reliable knowledge of the inner subjective domain of mind and consciousness, and it has not achieved its practical goals. This is reflected in the lack of comprehensive theories and the modest benefits of its applications—evident in the continued suffering in our precious world family.

Theories about consciousness in psychological science—and modern science in general—are significantly shaped by the objectified reductive approach and physicalist worldview. In these theories, consciousness is the ability to be *aware of* some object of experience. It is attributed a functional role in attention, intentionality, and the sense of self. It is described as fading out during sleep and coma, restricted by brain damage or malfunctioning, and ceasing when the physical body no longer sustains life. For the most part, in these theories consciousness is an emergent property of complex functional organization in cellular processes of the physical brain. [7 8 9 10]

At more fundamental elemental, atomic, subatomic, and quantum levels, physical systems follow invariant laws of nature that are thought essentially to be a product of random disorder. The basic signifiers of life—intelligence, intentionality, selective attention, the survival instinct—have not been identified at these more fundamental levels of nature, and neither have mind and consciousness. This reflects the physicalist worldview within which the inner subjective domain of mind and consciousness are assumed to fit—but in which nature is fundamentally random and meaningless. While modern science has strengthened belief in the universal orderliness of nature, curiously this belief extends neither to the most fundamental levels of nature identified in modern science (quantum randomness), nor to the inner subjective domain (unreliable subjectivity). Herein are important clues about where the overlooked knowledge can be located.

Commonsense holistic experience. On the other hand, throughout history there have been anecdotal reports and anomalous evidence of subtle, intangible, interconnected phenomena suggestive of a more holistic view of matter, mind, and consciousness as well as a more integrated and fulfilling life experience. Many have reported at least glimpses of being connected with others and with nature through deeper, more expanded conscious experiences that are not easily explained as localized effects of electrochemical activity in the brain. These reports refer to a wide range of subtle but powerful experiences, sometimes difficult to explain, that add deeper meaning and purpose to life—associated with art, religion, spirituality, and also modern science at times.

Even with increasing ability through modern science to explain and manipulate the outer objective domain of nature, the majority of the world's population has not been disabused of beliefs in these subtle, intangible, elusive experiences and phenomena. The beliefs seem to be grounded in a deeply held intuitive sense of something more in life not evident on its material surface—an underlying thread that ties things together and gives deeper meaning to our place and role in the grand play of nature. It might seem reasonable to dismiss such beliefs as due to lack of training in scientific rigor, if it were not that many—again perhaps a majority—of those most revered scientific authorities and key contributors to knowledge throughout history have reported arriving at similar conclusions. It is quite probable that many modern scientists also have an intuitive sense of an underlying *reality* not captured by the objective approach. Indeed most all of us seem to have some inner sense of a deeper, more inclusive *reality* that underpins the physical world; but this inner sense is not developed enough to be of practical value for our everyday life.

Unscientific assumptions in modern science. A key issue of course is how subtle elusive phenomena and experiences of a deeper, more interconnected *reality* can be known accurately and reliably. The objective means of gaining knowledge basically apply rigorous logical reasoning and precise empirical testing, grounded in ordinary sensory experience. Subtle, elusive, highly interconnected, nonlocal phenomena associated with more holistic experiences are virtually unknowable through these means. They are rarely obvious to ordinary gross sensory experience; but without direct empirical experience of them it has been quite difficult even to get beyond their mere possibility to their reasonableness. They are not easily scheduled at the times and conditions required for rigorous objective testing, appearing to disappear in the effort to define them operationally in order to test them. They seem to be outside of the boundaries that frame the ordinary empirical world of modern scientific understanding and experience.

In addition modern science has been understood as basically a methodology of falsification or negation, in which something cannot be proven true but only less likely to be untrue. This methodology, consistent with reductive mentality, has been much more effective for comparing discrete, local, tangible phenomena than capturing deeper holistic, interconnected, nonlocal phenomena and testing them systematically. The knowledge gained has been significantly restricted by the means used to gain and validate it.

It is frequently reasoned that until modern scientific means to test such elusive phenomena are available it is best not to be concerned with them. From this perspective the prudent strategy is not to abandon the approach that has led civilization out of pre-scientific superstitions, but rather wait until modern science has developed means to test them. Without obvious availability or use of the means, however, typically such phenomena are categorized as illusory—or even delusional—and life goes on without addressing them.

But life doesn't just go on. It goes on based on our ordinary surface experience that is fragmented and still fraught with suffering. Frankly, instead of waiting for modern science, most all of us are what are sometimes called *naïve scientists* with respect to experiences not addressed by objective methodology. We commonly make major decisions such as causal attributions about personal relationships, judgments of right and wrong economic and sociopolitical policies, or the chance of avoiding a truck headed our way with little if any systematic objective testing. Much of our daily life is guided by working assumptions about quite important practical matters that have not been objectively verified. We make judgments and take actions based on these assumptions, and then sometimes try to defend them as if they had been objectively verified.

The point here is that this also has occurred with unverified assumptions in modern science. These assumptions, which underpin the rationale for the objective approach of gaining knowledge, are significantly shaped by the objectified reductive physicalist worldview. Not only has the accepted methodology of modern science restricted development of a more comprehensive range of knowledge that addresses the process of knowing and the knower—the inner subjective domain of mind and consciousness—but also unscientific commitment to reductive physicalism has unduly restricted understanding of the methodology of empirical science.

We have been living our lives as if there is nothing more than the physical world, while subtly sensing inside that something more exists. This has greatly contributed to a deep and unfortunate tear in the psychosocial fabric of modern civilization. It has separated subtler holistic experiences many people feel are the most significant aspects of their lives from the more restricted range of knowledge validated through modern scientific methodology. This directly concerns the gap between existential meaninglessness and moral values that separates modern science and spirituality.

One task of this book is to thread through intellectual and emotional gaps in contemporary thought in order to clarify the underlying seamless unity of nature. This integrated understanding leads to systematic means to experience that unity directly, within a rigorous but more inclusive scientific framework. A rational, logically consistent, and more comprehensive alternative is presented that extends modern science beyond the reductive physicalist worldview.

The Overlooked Knowledge and Experience

Fortunately the forefront of modern science has been slowly progressing to the stage where the fragmented shards of understanding of nature are beginning to recollect into a unified state. This is reflected especially in research efforts to build theories of a single completely unified basis of creation—unified field theory. In this progress modern physics has been grappling with the enigma that *matter doesn't have a material basis*. It has arrived at the rational conclusion that the assumption of materialism or physicalism—a main feature of much of the history of modern science—is untenable at fundamental levels of nature.

It is through investigating these fundamental levels of nature that core issues have arisen in quantum and unified field theories about the relationship of the observed and the observer, and objective matter and subjective mind. Historically these issues were prominent in philosophy, associated with the *mind-body problem* and a closed physical system that disallows causal efficacy of mind, and recently with the so-called *hard problem* of consciousness. They also have been recognized to be embedded in the *measurement problem* in the new physics and the *explanatory gap* between brain and mind in neuroscience. They concern subtler, more interconnected or entangled nonlocal levels of nature and their relationship to mind and consciousness. These issues also provide important clues toward locating the overlooked knowledge. They are now on the forefront of scientific investigation, and are major themes to be explored in depth in this book.

Referring back to the knower. The overall direction of this laudable progress is that modern scientists are beginning to consider the importance of looking inside themselves—trying to figure out how to turn attention inward toward investigation of the *knower*, the observer of nature, and to *consciousness itself*. Also fortunately this is leading to a more inclusive interpretation of systematic means of gaining knowledge that recognizes the essential role of consciousness. The cutting edge of modern science is now the empirical investigation of consciousness. An unprecedented phase transition is underway, from matter to mind to consciousness. In other words we are starting to look 'behind where we're looking.'

Unfortunately modern scientific progress toward the ultimate unity of nature has been only in terms of theory and understanding—intellectual wholeness. It hasn't included *direct experience* of that unity. At least in terms of theory the relationship between the outer objective and inner subjective domains is beginning to be considered more explicitly, and we are now poised for a much deeper integration. These developments presage advances in human knowledge far beyond the recognized history of the modern and ancient worlds.

These advances, however, won't come through manipulation of somewhat deeper levels of the outer material surface of nature—such as bioengineering to alter our natural genetic inheritance, nano-implants to build human-machine cyborgs, or colonization of *outer* space. Although in many cases these research initiatives reflect sincere efforts to address major concerns of humankind, they are predicated on a misunderstanding about the fundamental basis of nature. Practical, substantive advances won't come from dismantling nature as if it were merely inert random pieces of matter we can make better through modern scientific reengineering and computational technologies. When we attend only to the world of matter, we begin treating everything as if it were just bits of matter—ourselves included.

Rather than continuing in this increasingly dangerous direction based on untenable physicalist assumptions, the advances will come from a subtler, more profound alignment *with* nature. This is accomplished through scientific application of psychophysical laws in the *inner* subjective domain based on a holistic science of consciousness. This book intends to help debunk the fragmenting reductive physicalist matter-mind-consciousness ontology in modern science and progress to a holistic consciousness-mind-matter ontology. In this newly uncovered understanding of *consciousness-based science*, natural order is found in both the inner subjective and outer objective domains of nature—mind as well as matter. This is a tremendous scientific advance that opens up long-sought prospects for fulfilling our practical goals as individuals and as a civilization. It bridges the gaps between science and spirituality.

An expanded epistemology of knowledge will accompany this advancement, including appreciation of the subjective basis of objective knowledge and the underlying role of consciousness. Chapters 1 and 2 comprising the introduction to this book point to the subjective underpinnings of objective knowledge, and begin to introduce consciousness-based developmental technologies that systematically foster the direct experience of unity.

One way of understanding these developmental technologies in modern scientific terms is that they apply the principle associated with the 3rd law of thermodynamics—reduced disorder through reduced activity. However, this principle is applied to the inner subjective rather than outer objective domain. At this initial stage of discussion, this can be understood to mean systematically settling down mental activity to a more integrated state of globally coherent brain functioning—or even more simply, to establish inner silence.

A rational description of systematic technologies to develop higher states of consciousness is one major theme of this book. As holistic knowledge and experience unfold through these developmental technologies, the outer objective material domain is increasingly recognized to be the least powerful, least fulfilling, and least *real* level of existence. It becomes experienced as the gross outer shell of an infinitely expansive universe far, far more extensive, integrated, meaningful, and fulfilling than modern science has yet envisioned. Many of the puzzles that have been the intense focus and 'heavy lifting' of cutting edge modern science in the 20th Century seem rather like child's play in a sandbox as mind and consciousness are directly developed through these systematic technologies.

> "The science of today is not the science of yesterday. The science of today is the science of total knowledge."—*John Hagelin, theoretical physicist.*[11]

The science of consciousness. This book proposes that the greatest contribution of modern science in formulating theories of the ultimate unity of nature is that it has developed the theoretical basis for linking up with the most ancient continuous knowledge system of *Vedic science* that directly accesses that unity. Only in recent decades has modern science glimpsed deeply enough into nature to be able to link up with this most ancient tradition of knowledge. Like modern science, Vedic science investigates universal laws of nature through systematic empirical means of gaining knowledge that are not dependent on a particular social, cultural, or religious framework or belief system. Unlike modern science, it is a holistic consciousness-based approach that provides both understanding *and* direct empirical validation of the underlying unity of the outer objective and inner subjective domains of nature in the unified field.

Because modern science is just now approaching the doorstep of the ultimate unity of nature in unified field theory, it initially might be difficult to accept that ancient Vedic scientists—Vedic *rishis*—had that knowledge long ago. Ancient records don't seem, at least on their surface, to provide major scientific answers to support the thesis that the ancient records embody advanced knowledge. Archaeological theories have fit these ancient records into a general view of history

concluding that all ancient civilizations were at lesser developed stages of knowledge. This book offers a more complete understanding of ancient Vedic science and its power to address the most challenging contemporary issues in modern science.

The general academic understanding has been that ancient Vedic records—estimated to have originated anywhere from 1500-5000 years ago in India—reflect pre-scientific stages of thought. However, this is now under revision as a longer time frame is unfolding. [12] [13] Numerous philosophical and religious traditions have emerged over the centuries—including the major traditions of Hinduism and Buddhism—drawn from different interpretations of Vedic records. While its philosophical depth and influence were noted, the practical technologies in Vedic science were not recognized and thus not applied in Indian society or anywhere else. When that knowledge provided little practical value to daily life it fell out of sight and remained hidden for millennia.

The crucial ingredient. As connections between modern science and ancient Vedic science are articulated more thoroughly, appreciation is growing that this ancient science provides the holistic knowledge and experience that has been overlooked in modern science and civilization. The crucial factor in revealing the essential understanding and practical value of Vedic science is the work of the foremost scientist of consciousness, Vedic scientist and educator His Holiness Maharishi Mahesh Yogi. Maharishi has described ancient Vedic science in modern scientific terminology and has built a bridge of both knowledge and experience to connect them.

Veda is referred to by Maharishi as 'total knowledge' [14]—the unity of knower, process of knowing, and known. In modern scientific terms, Vedic science refers to consciousness-based science, or unified field-based science. Maharishi has pointed out that while Vedic science has existed continuously through time, its essential meaning had been lost to human society. Its applied technologies were rendered ineffective and even counterproductive due to severe misinterpretation, most evident in the unfortunate conditions prevailing even in India—the '*Land of the Veda*.'

A deeper investigation into the Veda brings to light Maharishi's inestimable accomplishment of recollecting the disparate parts of Vedic literature and reestablishing its unified structure and practical application. Over the past 50 years Maharishi has revitalized the ancient science of Veda in terms of the modern science of consciousness, *Maharishi Vedic Science and Technology,* and has focused on empirical validation of its technologies. [15] [16]

Study in any approach to knowledge that is sufficiently penetrating will eventually encounter issues of universal significance. From a legalistic perspective, approaches to knowledge are not classified by their major topics of study but rather by their stated purpose, overall intent, and predominant methodologies. Although similar in some ways to other traditions of knowledge—including religious and spiritual traditions—Maharishi Vedic Science and Technology has consistently investigated laws of nature using systematic means of validation in a scientific framework.

In a nutshell, for the most part modern science has been concerned with the object of knowledge or known, religion with the process of knowing—in the sense of 'binding back' to the source of all, to the Godhead—and spirituality with the knower. A universal knowledge system—a *mature* science that addresses *total knowledge*—unifies all three in one subject. In testing and applying its developmental technologies systematically, Maharishi has demonstrated the power of Vedic science to bridge our modern Age of Science into an Age of Enlightenment. The deep significance for modern science, religion, and spirituality of this bridge will unfold as we proceed.

A question may arise whether the strategy in this book of emphasizing Vedic science is sufficiently broad or eclectic enough to get to a universal knowledge system. The strategy is not intended to take away from the invaluable contributions of other approaches. With utmost respect for these contributions and reverence for the profound wisdom of their contributors—in religion, spirituality, and also science—a careful investigation of Maharishi Vedic Science and Technology

reveals its unique contribution of the integration of theoretical knowledge and practical applications, science and technology, reason and experience. This book brings out how its consciousness-based technologies have the power to unify the current fragmented state of knowledge and experience, and thus mend the damaging tear in the fabric of our disintegrated civilization.

Overview of Book Contents

Describing the bridge of knowledge and experience Maharishi has built from modern science's current fragmented reductive physicalist view to holistic Vedic science—and showing how it resolves perennial questions—are key objectives of this book. Many planks need to be put in place in order to traverse this bridge. Planks are laid out generally through summarizing major findings, theories, and limitations in modern science, and then 'connecting the dots' into holistic Maharishi Vedic Science and Technology. Topics addressed in this way include:

- Objective and subjective means of gaining knowledge
- Progress in quantum theory, relativity theory, quantum *reality,* and the nature of space
- Quantum gravity and information space underlying conventional space-time
- Gross relative and subtle relative structure of space and time, and the arrow of time
- Unified field theory and the consciousness-mind-body connection
- Human psychoarchitecture, attention, memory, and the emergence of mind
- Free will, determinism, downward and upward causation, and karma
- The top-down structure of nature, and implications for a science of ethics and morality
- Enlightenment and the full range of human development
- Consciousness-based technologies for mental, physical, and societal health
- Collective consciousness and the developmental basis for world peace
- Introduction to Vedic language and the structure of Veda and Vedic literature
- Direct correspondences between the structure of the individual and the cosmos

Chapters 1 and 2 comprising the Introduction establish an expanded rational framework for understanding scientific means of gaining knowledge. Part I of the book —Physics Unbound: *From Here to Infinity*—summarizes progress toward a completely unified field theory. Part II of the book—Psychology Unbound: *From Infinity to Here*—unites body, mind, and consciousness in the unified field. Part III of the book—Introduction to Veda and Vedic Literature: *Here is Infinity*—introduces research that tangibly demonstrates the universality of individual life.

The attempt is to include enough planks on the bridge to unity such that any leaps are less likely to result in falling off the bridge. A way to look at this is that the start of the bridge is the physicalist worldview-–the known—and the bridge is the process of knowing that links to the unified experience of known, process of knowing, and knower. Another way to look at it is that the path across the bridge starts at the ordinary waking state of consciousness and the goal is full development in unity consciousness. However, the bridge is not crossed via intellectual understanding alone. Understanding and experience complement each other; deeper experience validates deeper understanding, and eventually they merge together. This book is intended to help clarify the *essential nature of consciousness itself*—the overlooked knowledge—and encourage its direct validation through *direct experience of consciousness itself*—the overlooked experience.

Maharishi emphasizes the principle of "knowing by being." [17] Knowledge has to be validated by direct experience—by being the knowledge—not just intellectually understanding it. In that light the book also provides a logically consistent explanation of the processes and stages of development through higher states of consciousness. It describes systematic scientific means to develop wise, healthy, and permanently fulfilled individuals as the basis for eliminating suffering in our civilization. It identifies the essential *active ingredient* to achieve these most practical goals as the direct unconditional experience of what consciousness is. In Maharishi Vedic Science and Technology *direct experience of consciousness itself* is the essence of spirituality. [18]

This book characterizes knowledge and experience of consciousness as beyond words and concepts. The term *knowledge* has different meanings, from its common usage as contextual facts or relative truths to universal and timeless truth. It is not just that knowledge is relative to its context, or that language is inadequate for describing experience—though these are useful points to appreciate. It also is that the conceptualizing mind cannot fully grasp consciousness itself. Consciousness is a field of being, knowing, direct experience—or whatever you wish to call it—that is beyond all contexts, conceptions, and descriptions. Every *thing* can be said to be relative to every other *thing*. Consciousness is beyond *things*, beyond *thing-ness*, beyond the conceptualizing mind. Thus any description or labels for it inevitably will be incomplete and misrepresentative. It seems useful to recognize this as we nonetheless use concepts and words to point beyond them.

Maharishi Vedic Science and Technology recognizes that our minds and the universe we observe with them share the same source and the same laws of nature. This allows knowledge to be unfolded directly—educed from within—through *systematic subjective means of gaining knowledge*. The holistic consciousness-based educational system of Maharishi Vedic Science and Technology begins with unity, and then sequentially unfolds the parts of knowledge within that unity—identifying wholeness in every part. An essential point is that the holistic approach emphasizes how the parts of nature sequentially emerge from the wholeness of nature, rather than the reductive approach of wholeness emerging from combining the parts. Wholeness is the basis of the parts: eternity is the basis of time; infinity is the basis of space; immortality is the basis of mortality. This subtle change in perspective is fundamental to a more inclusive and logically consistent science.

A key principle is that "knowledge is different in different states of consciousness." [19] Our state of consciousness determines our view of the world and understanding of the causes of fulfillment and suffering. Three basic points about consciousness are presented:

1. There is an unchanging, unmanifest, unified field of consciousness that underlies and permeates all changing, manifest, diversified nature.
2. The individual is capable of developing higher states of consciousness based on full enlivenment in the individual of the unified field of consciousness.
3. Maharishi Vedic Science and Technology provides systematic, natural, consciousness-based technologies to develop higher states of consciousness and live full enlightenment permanently.

This meaning of consciousness dramatically contrasts with physicalist theories in modern science. In the holistic approach of ancient Vedic science and Maharishi Vedic Science and Technology, the physical brain and body don't produce consciousness but rather just the opposite. Consciousness creates mind and body—the consciousness-mind-body ontology. Mind and body can be said to localize consciousness into a *state of consciousness* in the individual—to be discussed at length in the book.

The primary consciousness-based developmental technology in Maharishi Vedic Science and Technology is the *Transcendental Meditation* ™ (TM) technique, which Maharishi has taught throughout the world for the past 50 years. As described in this book, this systematic method of effortless transcending can be viewed as the most important technological contribution in the history of knowledge development. Its simplicity and subtlety reflect an integrated understanding of the natural functioning of the human mind and body. It is a simple, effective, repeatable means to go from the fragmented experience of the ordinary waking state of consciousness to the underlying, transcendent, unified state of consciousness itself. It provides an experiential bridge from ordinary thinking to unity. As Maharishi states, "Transcending thought is infinitely more valuable than thinking" (p. 444). [18]

In revitalizing ancient Vedic science Maharishi also has revived its extensive system of natural medicine, *Maharishi Vedic Healthcare*. This is a revolutionary contribution to the integration of mental and physical health care and disease prevention based on a holistic understanding of the consciousness-mind-body connection. This aspect of Maharishi Vedic Science and Technology, as well as other disciplines totaling 40 areas of the Veda and Vedic literature, will be introduced toward the end of the book after many of the planks of understanding have been put in place.

Author's Note. One objective of this book is to communicate how Maharishi Vedic Science and Technology can be appreciated rationally as a consistent system of scientific knowledge, compatible with modern science but subtler, more comprehensive and more integrated. Because readers will be highly intelligent and probing—perhaps also confident in their approach to knowledge and critically discerning of other approaches—this is a major challenge.

The extent of this challenge emerged in reactions even to the initial sentence in the initial draft of the initial chapter. To avoid complications that might overshadow the overall picture, a reasonably safe starting point was thought to be a general definition of the term *knowledge* based on dictionary definitions: 'Knowledge may be defined as that which is understood with clarity and certainty.' The reaction from the first reader was, 'You're just trying to sell TM, right?' A second reader said that *knowledge* has nothing to do with *psychological* impressions of clarity and certainty; it must be true, and if it is not true, then it is not knowledge. It relates to universal truths of empirical propositions such as, 'All swans are white;' or, 'My hand has five fingers.' A third reader said that humans can be sure of something but can't really *know* anything, referencing a statement by St. Thomas Aquinas that knowledge belongs to God. A fourth reader said that there is no knowledge in the phenomenal world—it is Maya. The only knowledge is *eternal Being*.

To whatever degree this challenge is met in the book, it is in its wholeness and may not be obvious in any particular point. The emphasis is on the 'forest rather than the trees.' In other words *the whole is the point;* or alternatively *the point is the whole*—to be unfolded as we proceed. Many topics and details are either omitted or covered in a cursory manner, especially the details of modern knowledge development and its numerous contributors. The focus is on the unity that has been lost in reductive detail. It may take some reading through the book to establish enough of the planks to feel comfortable with this strategy, especially because it covers regions that could be a bit foggy—fairly common when crossing bridges. Readers may find it more satisfying to get to the unifying thread and overall import, and later micro-analyze it to the mind's *content*. Hopefully you initially will forgive its many trespasses. At the outset I acknowledge there may be assertions and descriptions that seem awkward or unnecessary, and points important to you not adequately addressed. I extend an apology wherever inadequate sensitivity to your perspective is present, and ask for your patient focus on the global sense of what is attempting to be communicated. Your feedback to help with points in need of further clarification will be gratefully received.

As author of this book my only claim is to be a student of Vedic science whose fortune is to have the greatest of teachers. In that respect a distinction can be made between the authority of the book and the author. That which is accurate and authoritative is due to Maharishi and the Vedic tradition. Whatever may be inaccurate and non-authoritative is attributable to the author.

Progress on the path across the bridge to unity is quite interesting, and often a lot of fun. In the unique case of the ultimate unity, however, the path cannot be more fulfilling than the goal. It is said that in *that* goal every moment is *infinitely fulfilling*.

Prologue Notes

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