

An Introduction to Maharishi Vedic Science

Dr. Paul Corazza, 1993

In this article, we acquaint the reader with the elements of Maharishi Vedic Science, emphasizing aspects of this science that are especially relevant to the themes of this paper. We will discuss the original insights and cognitions that gave rise to the Vedic tradition of knowledge and to Maharishi Vedic Science. We will also give a synopsis of the qualities and dynamics of the ultimate wholeness of life as they were cognized by the great seers in ancient times, and, indeed, as they may be cognized by individuals even today through the technologies for unfolding consciousness that have been revived and refined by Maharishi. For other excellent accounts of Maharishi Vedic Science, see (Chandler 1987), (Hagelin 1987, 1989), (Dillbeck 1988), and (Orme-Johnson 1988) and the references contained therein.

In every field of endeavor, significant pioneering work is always undertaken by a handful of extraordinary geniuses who, seeing more clearly and profoundly than their contemporaries the fine fabric of their field, set the direction for others to follow. In mathematics, the contributions of Euclid, Gauss, Euler, Newton, Cantor, and others were so great as to change the face of mathematics, the very way in which people thought about mathematics.

Such great minds have a way of seeing an underlying elegance and coherence that the ordinary mind somehow always tends to overlook; they can sustain a clarity of insight and vision that the best of their contemporaries can only glimpse from time to time; they are able to travel along inner pathways of thought which often appear quite mysterious to others, but which bring far-reaching, powerful insights and results to their research efforts.

In the ancient Vedic civilization, prominent many thousands of years ago, a handful of geniuses in the field of consciousness saw, in the stillness of their extraordinary minds, the delicate mechanics of Nature's functioning as very few in history have. Their genius in the field of individual consciousness, bears a similar character to the mathematical genius, as described above, whose talent lies in the field of mathematical inquiry. While most people experience their subjective awareness as an endless sequence of thoughts, emotions, and sensations, sometimes flowing in an orderly fashion, and yet often in a rather dreamy, incoherent fashion, these Vedic experts had an extraordinary familiarity with and mastery over their inner life; they were able to explore the very core of subjective awareness. They found that, although the common experience of awareness is quite variable, this deepest core of inner life has a nonvariable status and for this reason can be explored systematically. They discovered that this field of life, which Maharishi calls *pure intelligence* or *pure consciousness*,¹ has its own structure, qualities and dynamics which could be appreciated clearly by any individual with proper training. They found pure consciousness to be, on the one hand, a deeply satisfying, nourishing, blissful field of inner life, and, on the other hand, a universal field from which all life and existence arise systematically.

These great seers, in seeing this profound level of reality within their own awareness, gave precise verbal expression to their experience. Maharishi explains that the nature of this verbal expression was quite different from the usual descriptions of life's experiences that we might relate to a friend. Rather, the language and sequence of utterances that came from these masters were a precise expression of the very structure of pure consciousness in which they were absorbed. Maharishi calls this deep structure of pure consciousness the *Ved*; *Ved* is a Sanskrit word meaning *knowledge*. The knowledge of the structure of pure consciousness that is attained in *being* this structure deep within one's individual awareness is the *Ved*.

¹Maharishi makes a further distinction between pure consciousness and intelligence; we shall elaborate on this distinction later in this section.

²L. Domash [1975] elaborates this analogy in a proposed physiological model of transcending. Domash

The significance of the cognitions of these Vedic seers was appreciated in the Vedic culture and an oral tradition of recitation was established by which the precise sequence of sounds cognized by these seers could be preserved generation after generation. Eventually, many of these cognitions were recorded in written form and now constitute a vast literature, known as the *Vedic literature*.

In the passage of time, much of this oral tradition of knowledge has survived, but a full understanding of how to apply the wisdom of the Ved for the benefit of mankind has, until recently, all but disappeared. *Maharishi Vedic Science* consists of the systematic knowledge and procedures developed by Maharishi to make the profound knowledge and experience of the *Ved*, and all the resulting benefits to life, accessible to everyone in the world.

One of Maharishi's greatest contributions to mankind in his work to restore the wisdom of the *Ved* in our time is a systematic technique--known as *Transcendental Meditation*, easily practiced by anyone from any culture or walk of life--by which the field of pure consciousness can be directly experienced quite effortlessly. Maharishi has explained that this one simple experience is the basis for unlocking the immense practical knowledge of the *Ved* for the use of mankind; without this basic experience, the profound cognitions of the ancients can be of little value, as the *Ved* itself proclaims:

*richo akshare parame vyoman
yasmin deva adhi vishve nisheduh

yas tanna veda kim richa karishyati
ya ittad vidus ta ime samasate*

The verses of the Ved exist in the collapse of fullness in the transcendental field, in which reside all the *devas*, the impulses of creative intelligence, the laws of nature responsible for the whole manifest universe. He whose awareness is not open to this field, what can the verses accomplish for him? Those who know this level of reality are established in evenness, wholeness of life.

Rig Ved I.164.39

The quotation indicates that the *Ved* represents the lively structure of "the transcendental field"--the field of pure consciousness, and that this level of life marks the origin for the functioning of nature itself. Being the "seed" of creation, the all-powerful starting point of the universe, the *Ved* promises tremendous benefit for life on earth if only it could be accessed properly. The quotation emphasizes that the fundamental criterion for entrance into this powerful realm of knowledge is being "open to this field," and knowing "this level of reality" through direct experience.

The direct experience of pure consciousness opens the door not only to a complete unfoldment of Vedic wisdom, but to the possibility of developing this wisdom, perhaps for the first time ever, in a *scientific* way. It is now possible for anyone to verify for himself that a nonvariable field of consciousness underlies all thoughts, emotions, sensory experience, and the entire field of action. And it is now possible to test the proclamations of the Vedic literature as scientific hypotheses. However, unlike testing hypotheses in most sciences, the result of testing hypotheses about the nature of pure consciousness using the procedures of Maharishi Vedic Science is that these very procedures systematically refine the physiology and elevate the quality of awareness of the practitioner.

For the remainder of this section, we will elaborate on the central points of Maharishi Vedic Science and its basic experiential tools--the Transcendental Meditation Program and the more advanced TM-Sidhi Program. We will see how repeated practice of these procedures results in a more highly evolved style of functioning of the physiology and of subjective awareness; these results are predicted by the *Ved*, reported by practitioners, and verified in a vast array of scientific studies measuring changes in physiological, psychological, and behavioral functioning of practitioners. We will see that eventually, the changes produced by these procedures lead to new, distinct *higher states of consciousness* in which the level of knowledge, experience, achievement, and fulfillment in life far exceeds the ordinary. These higher states of life, proclaimed in the *Ved*, were lived by the ancient seers of the *Ved*; this more evolved style of functioning enabled them to perceive the delicate structure of pure consciousness with exquisite clarity. Using Maharishi's explanations, we will describe some of the highlights of this structure as they saw it. We will see how this structure, having a dynamic character, can be seen as the original field of existence from which all life and all matter emerged. We will also briefly review recent research in quantum field theory which suggests that the view of modern physics concerning the origin and ultimate structure of the universe is very much in accord with the Vedic view--so much so that there is an actual mathematical correspondence between the fundamental resonant modes of the unified field, as described by quantum field theorists, and pure consciousness, as described in Maharishi Vedic Science. Finally, we will review the special significance of pure consciousness--as a wholeness from which and in which all existence unfolds--in the context of the foundations of mathematics and modern set theory.

A. Experiencing Pure Consciousness

We have seen that according to Maharishi Vedic Science, contact with the field of pure consciousness is the key to unlock the knowledge and practical benefits of the *Ved*. But what exactly *is* pure consciousness?

The Ground State of Consciousness Ordinarily, our consciousness is filled with sensory experiences, thoughts, and feelings of various kinds--in the words of the British philosopher John Locke [1961, II, i, 19], consciousness is "the perception of what passes in a man's own mind." But what is the nature of consciousness when it is not absorbed in a multitude of mental activities? If we could create a situation in which these experiences became less dominant in our awareness, in which thoughts and feelings could melt into stillness, and in which the mind could remain alert, then, at least in principle, it should be possible to discern consciousness by itself, the matrix in which these thoughts, feelings and sensory experiences subsist.

This common-sense approach to the study of consciousness is very much in the spirit of investigation in the sciences: One begins by studying the object in question in its simplest configuration. For instance, to study the structure of the atom, it was natural to begin by studying the simplest atom--the hydrogen atom--in its simplest state, in which its only electron is in its least excited, or *ground* state. The various excited states of the hydrogen atom and its interactions with other particles could then be understood on the basis of the knowledge of this simplest state.²

²L. Domash [1975] elaborates this analogy in a proposed physiological model of transcending. Domash suggests that TM is a technique that systematically de-excites the nervous system, lowering, as it were, the "mental temperature" while preserving conscious awareness. As a consequence, the nervous system undergoes a phase transition to a more highly ordered state, stabilized temporally and correlated spatially; this may, he suggests, result in high degree of ordering of the brain's billions of neurons; this effect in turn produces the subjective experience of pure consciousness. The suggested high degree of ordering of the brain is suggested in part by brain wave research on subjects practicing TM and by the extraordinary ordering exhibited in many nonliving systems when temperature is sufficiently decreased. Two well known examples of the latter are the phenomena of superfluidity and superconductivity. When the temperature of liquid helium is lowered to a few degrees above absolute zero, a portion of the fluid becomes a *superfluid*; the helium atoms in the superfluid begin to move "in step," i.e., coherently, behaving like a single macroscopic helium atom. This coherence produces surprising macroscopic effects: the helium can escape through containers by crawling up their sides; it exhibits zero resistance to flow and infinite capacity to conduct heat. Likewise,

Maharishi has applied this notion of the least excited state of a system to describe the process of experiencing pure consciousness. Ordinarily, like the hydrogen atom, the mind is in an *excited* state, i.e., absorbed in thoughts and sensory experience. The path to pure consciousness can be understood as a process in which transitions occur from excited states of the mind through less excited states to the *ground state of consciousness* which Maharishi identifies with pure consciousness.

The state of least excitation of consciousness is the silent basis of all thought and action. There the full potential of consciousness lies awake within itself, ready to be expressed. (Maharishi 1976, p. 138)

The logical possibility of gaining access to consciousness without an object has been recognized by various philosophers and researchers in various contexts throughout history, but there is disagreement about whether such principles could be successfully put into practice. For instance, Kant held that, while the existence of consciousness devoid of empirical content is *logically* necessary, the status of such a state is purely formal, fundamentally *noumenal*, and hence could not be experienced directly:

Now from empirical consciousness to pure consciousness a graduated transition is possible, the real in the former completely vanishing and a merely formal *a priori* consciousness of the manifold in space and time remaining. [1965, p. 201; B 208]

By contrast, for Hegel the *noumenon*, or thing-in-itself independent of perception, is nothing other than the transcendental self and is, of all things, most easily known:

Hence one can only read with surprise the perpetual remark [i.e., in Kant's work--P.C.] that we do not know the Thing-in-itself. On the contrary, there is nothing we can know so easily. [1830/1975, p. 72]

The German philosopher Husserl sought--and apparently directly experienced--the state of pure consciousness as the ultimate foundation for all possible knowledge. He used a method he called the *transcendental-phenomenological reduction* as a means to unfold a different state of experience he called *eidetic intuition* through which *transcendental ego* or *pure consciousness* is discovered. (See Edwards 1967, vol. 3, pp 96-98.)

Schelling, a German idealist in the tradition of Kant and Hegel, founded his entire philosophy on the experience of pure consciousness:

In us all dwells a secret, marvelous power to retire from the succession of time into our innermost Self, stripped of all that which was added from the outside, and there to perceive the Eternal under the form of unchangeability. This perception at first convinces us that anything at all *is* in the true sense, whereas everything else only *appears*... (See Schulte 1984, p. 49.)

The British social philosopher Edward Carpenter (1921) gives a clear account of his own experience of consciousness as it unfolds into pure consciousness:

The Man at last lets Thought go, he glides below it into the quiet feeling, the quiet sense of his own identity with the self of other things--of the universe. He glides past the feeling into the very identity itself, where a glorious all-conscious leaves no room for separate self-thoughts or emotions. He leans back in silence on that inner being and bars off for a time every thought, every movement of

certain metals such as lead can become superconductors at a few degrees above absolute zero. Superconductors also exhibit extraordinary macroscopic quantum effects: When a metal ring becomes a superconductor, a current generated in the metal will flow forever. Domash believes that the macroscopic quantum wave coherence observed in superconductors and superfluids is also at work in the interrelationships of neurons, accounting at least in part for the subjective experience of pure consciousness during TM.

the mind, every impulse to action, or whatever faintest degree may stand between him and That; and so there comes to him a sense of absolute repose, a consciousness of immense and universal power, such as completely transforms the world for him....This true Ego—this Self above and beyond the separate Me--to know it one must...become identified with it; and that is ultimately the only way of knowing it. (Quoted in Alexander et al 1990, p. 313.)

Finally, Thomas Taylor, a Neo-Platonist and the first American translator of Plato's works, in commenting on the three-in-one nature³ of Plato's *One* (called the *intelligible triad*) in the *Parmenides*, describes transcendence as follows:

He then who is able, by opening the greatest eye of the soul, to see that perfectly which subsists without separation, will behold the simplicity of the intelligible triad subsisting in a manner so transcendent as to be apprehended only by a superintellectual energy, and a deific union of the perceiver with this most arcane object of perception. (Taylor 1804, vol. 3, p. 162.)

Despite this evident awareness of the state of pure consciousness on the part of certain philosophers and psychologists in the Western tradition of knowledge, contemporary researchers—as we shall briefly discuss later in this section—have not made use of this simplest state of consciousness as a tool in their own research. One reason for this omission is, however, clear: While certain exceptional individuals in the philosophical tradition of the West have had the good fortune to discover inner pathways to the state of pure consciousness, they have been unable to bring forth a *systematic procedure* that would allow others to have the same experience in a repeatable and reliable manner.

The Transcendental Meditation Program Perhaps Maharishi Mahesh Yogi's single greatest contribution to mankind's study of the mind and consciousness has been his simple and effortless procedure for a direct experience of pure consciousness. This procedure is known as the *Transcendental Meditation Program* (TM) and has its origin in the *Ved*. This technique has been handed down through a carefully prescribed method of teaching from teacher to student for many thousands of years. Maharishi has trained teachers of TM around the world to make this technique available in every society; the same careful methods of teaching are used by these qualified TM teachers today to ensure the effectiveness of the practice.

During the practice of Transcendental Meditation, an individual effortlessly experiences a settling of thought activity and as the finest level of thinking is transcended, the meditator rests in a state of deep, yet highly wakeful, silence. The procedure is based on the principle that the mind naturally tends in the direction of greater charm, happiness, and fulfillment; during TM, the technique turns the attention inward and allows the mind to follow its own tendency for more fulfillment, at the same time maintaining wakefulness. Maharishi (1966, pp. 55-6) points out that the procedure is *automatic* and therefore a verifiable scientific procedure: anyone can experience the settled state of his own pure consciousness at any time and place, and begin to verify its nature for himself.⁴ The following is an anecdotal report of a fairly clear experience of the transcending process:

³Compare with Maharishi's description of the three-in-one nature of pure consciousness, discussed later in this section.

⁴Throughout his years of teaching, Maharishi has maintained that "anyone who is capable of thinking a thought" is capable of practising TM and experiencing pure consciousness. Wallace (1986, pp. 290-292) offers theoretical support for this proposition by observing that, although a full neurophysiological account of the mechanism by which TM and the TM Sidhi program produce their effects is still wanting, "we do know that there exist neural pathways and structures that are capable of being activated during the TM and TM-Sidhi program and that support the experience of the least excited state of consciousness, the simplest form of human awareness." Wallace concludes that "we all have the ability to produce the integrated physiological response seen during the TM and TM-Sidhi program because it is part of the genetic endowment of our nervous system."

I distinctly recall the day of instruction, my first clear experience of transcending. Following the instructions of the teacher without knowing what to expect, I began to drift down into deeper levels of relaxation, as if I were sinking into my chair. Then for some time, perhaps a minute or a few minutes, I experienced a silent, inner state of no thoughts, just pure awareness and nothing else; then again I became aware of my surroundings. It left me with a deep sense of ease, inner renewal and happiness. (Quoted in Alexander, *et al.* 1990, p. 312)

Transcendental Consciousness While it is true that those practising TM have a very pleasant subjective experience, Maharishi has emphasized in his teaching the genuine practical value of regular practice for the mind, body, and behavior. Maharishi often uses the relationship of a flower to the underlying colorless sap which takes the shape of all the expressed values of the flower (petals, leaves, stem) as an analogy for the nourishing value of TM for every area of individual endeavor; by enlivening the fundamental constituent of life--sap, in the case of the flower; pure consciousness, in the case of an individual--all expressions of life are nourished and perfected. Moreover, Maharishi predicted [1966] that the improvements to life through regular practice of meditation should be observable through scientific methods in the fields of physiology, psychology and sociology, to name a few; he went so far as to predict⁵ that the practice of TM, leading as it does to a state of deep physiological rest and simultaneous mental alertness, produces a fourth major state of consciousness--called *transcendental consciousness*--distinct from each of the other three commonly understood states of waking, dreaming and sleeping.

Maharishi's prediction was first verified using standard methods in physiology and brain research in a series of three papers (Wallace, 1970; Wallace, et al., 1971, 1972). Wallace (1986, p. 58) summarized the findings of these studies as follows:

[TM produces a state of]

- (a) deep rest as indicated by a marked and significant decrease in oxygen consumption and carbon dioxide elimination,
- (b) significant decreases in respiration rate, minute ventilation, and heart rate,
- (c) deep relaxation as indicated by a significant and sharp increase in skin resistance,
- (d) normal maintenance of critical physiological functions as indicated by stable arterial levels of partial pressure of oxygen and carbon dioxide, pH and blood pressure (blood pressures were quite low throughout the experiments),
- (e) significant decrease in arterial blood lactate, and
- (f) restful alertness as indicated by EEG changes showing an increase and spreading of alpha and theta wave activity to the more central and frontal areas of the brain.

⁵As is typically the case, Maharishi's prediction has its roots in the Vedas themselves which speak of the field beyond thought, contacted during meditation, as a fourth state of consciousness; one such reference to the Vedic literature that has been brought out by Maharishi is the following:

shivam shantam advaitam chaturtham manyante sahitam sa vigyeyah

The peaceful, the blissful, the undivided is thought to be the fourth; that is the Self. That is to be known.

The overall conclusion of the studies was that Transcendental Meditation produces a unique state of restful alertness indicative of a fourth major state of consciousness that is physiologically and biochemically unique.

Since Wallace's original work, hundreds of studies--observing increasing standards of rigor--have been conducted to study various aspects of changes in physiological and brain functioning during the practice of TM. Meta-analyses⁶ of studies on physiological functioning during TM show that the practitioner experiences a deep state of relaxation (measured by increase in basal skin resistance, decreases in respiration rates, decreases in plasma lactate and plasma cortisol levels); increased alertness (measured by increased blood flow to the brain and an increase in the *EEG index of restful alertness*, determined by slow alpha frequency power in the frontal cortex), and increased coherence of brain functioning (measured by EEG coherence).

Meditators report⁷ a variety of subjective experiences of this fourth state of consciousness ranging from a "deep sense of peace" and "inner silence" to "unbounded awareness" and "pure knowingness." Maharishi explains that the experience of pure consciousness will be more or less clear, depending on the level of flexibility and refinement of the practitioner's physiology and nervous system. Since the deep levels of rest gained during the practice have the effect of gradually removing the deeply rooted stresses which obstruct a clear experience of pure consciousness (MIU 1992), the clarity of experiences reported by meditators tends to increase over time. Moreover, studies have shown (Wallace 1993, pp. 34-43) that meditators with clear experiences of pure consciousness tend to exhibit more dramatic drops in metabolic rate, EEG coherence and other measures of orderly physiological functioning.

Qualities of Pure Consciousness Enlivened During Meditation The descriptive qualities used by meditators to depict clear experiences of pure consciousness correspond to qualities used in Maharishi Vedic Science to describe this state. This phenomenon is quite significant from a scientific point of view because it suggests that, while different minds are capable of widely differing subjective responses to various stimuli, the experience of pure consciousness seems to have a more universal and nonvariable character that admits a precise and verifiable description. As these qualities will play an important role in the work of this paper, we enumerate here some of the central qualities of pure consciousness brought out in Maharishi Vedic Science and often mentioned in descriptions given by meditators:

infinite silence Pure consciousness is first experienced as transcendental consciousness, beyond the finest level of thinking. As all sensory and mental activity cease in this experience, it is described as infinite silence.

perfect balance The experience of transcending brings with it the experience that all the different parts of life are becoming re-aligned and put in proper order.

simplicity Maharishi (1991b, p. 283) describes pure consciousness as the "simplest form of awareness." During TM, the mind effortlessly flows to more and more satisfying, refined levels of thinking until the ultimately simple, unencumbered state of consciousness--pure consciousness--opens to awareness.

freedom Individuals practising TM often express that during meditation, all the worries, concerns and pressures of daily living melt away and that, having tasted this freedom from boundaries, they find they are more competent to handle whatever challenges life holds for them. When pure consciousness is experienced by transcending the finest level of thinking, its nature as free from restriction and limitation can be clearly experienced.

⁶For a list of references for these meta-analyses, see (MIU 1992, pp. 6-7). See also *Collected Papers, Vol I-VI*.

⁷Anecdotal reports of this kind are familiar to the author in his experience instructing more than 200 students in the practice of TM.

unboundedness Maharishi [1978, p. 399] observes: "The state of least excitation of consciousness is...experienced as a state of unboundedness in which the mind is free from the boundaries or limitations of space, time, and particular experience."

unmanifest In TM, pure consciousness is experienced as lying beyond any specific object of perception. According to Maharishi the *manifest field of life*, comprised both of the outer objective world and the inner world of thoughts and feelings, is the realm of life that is constantly changing. Pure consciousness, beyond the finest level of manifest life, resides in the unmanifest. Maharishi also refers to the manifest field of life as the *relative* field of existence and the field of pure consciousness as the *absolute* field of existence. "Pure consciousness is the concrete experience of pure abstraction--the direct experience of the pure field of consciousness out of which all expressed values arise." (Maharishi 1981, p. 31)

fully awake within itself The experience of pure consciousness is a state of heightened alertness; the experiencer clearly experiences a state of consciousness, without any object of focus, awake to itself alone.

self-referral When all objects of conscious perception have faded away, consciousness remains by itself, awake to itself and itself alone. This quiet self-interaction is a state in which consciousness knows itself. In this state, the undiluted status of the knower as subject of experience is clearly experienced.

pure knowledge Pure knowledge is the knowledge that pure consciousness has of itself as it moves and transforms itself within itself. In Maharishi's words [1986, pp. 26-27]: "Pure knowledge is when consciousness has nothing other than itself in its structure, when the awareness is completely self-referral, when the awareness knows itself."

bliss Contact with pure consciousness is pleasant, even blissful. In Maharishi's words [1981, p. 31]: "Pure consciousness is experienced as the ocean of bliss inside, the infinite charm of one's own self moving inside itself."

The reader will notice that, although these qualities are said to be actual attributes of pure consciousness, we have phrased our discussion in terms of the subjective experience of this field. Maharishi explains that, unlike the process of gaining knowledge of the manifest world in which the knower and the object of knowledge appear separate, knowledge of pure consciousness is attained by *being* pure consciousness; at that level the *experience* of pure consciousness and the *reality* of pure consciousness are one. Maharishi expresses it in this way (1966, p. 295):

When the thought has been transcended and the mind reaches the transcendental state, it arrives at a state of suspension and silence and gains the full awareness of pure consciousness. This is a positive experience. Although it is not an experience of any outside object, it is an experience of its own kind where the experiencer is left by himself. This is the state of pure consciousness, the experience of pure Being. The experience of pure Being and the state of Being mean the same thing.

Moreover, Maharishi explains that because individual awareness becomes identified with pure consciousness during the practice of TM, the qualities inherent in pure consciousness become lively in the life of the individual. The basic principle involved is expressed in the following, sutra--often quoted by Maharishi--from the *Yog Sutras*, a part of the Vedic literature: *Vritti sarupyam itaratra* (*What you see, you become*). Enlivenment of these qualities of pure consciousness in individual awareness is ultimately responsible for the remarkable range of benefits that arise in the day-to-day lives of those regularly practising TM.

B. Pure Consciousness in Daily Living: Wholeness on the Move

Hundreds of studies conducted over the past two decades⁸ provide convincing evidence that repeated contact with pure consciousness has a revitalizing effect in every area of human concern. Many of these benefits can be traced directly to the physiological and EEG changes discussed above that occur during TM. For instance, the physiological parameters associated with the deep state of relaxation that occurs during meditation are linked to the numerous studies indicating improved resistance to stress and autonomic stability, maintenance of a relaxed style of physiological functioning, decreased anxiety, and reduced blood pressure (Wallace 1984, pp. 28-29)--all of which indicate a stronger, more evolved style of physiological functioning *during daily activity*. Similarly, indications of greater creativity, increased intelligence growth rate, increased fluid intelligence, and superior learning ability (Wallace 1984, pp. 31-38) can be traced to a large extent to the extraordinary coherence of brain functioning that occurs during TM (see MIU 1992, p. 8). Moreover, the observable improvements in these and other areas have been shown to be more significant in those who have practiced the technique over a greater span of time.

Maharishi explains that the broad range of positive effects from TM arise simply because pure consciousness is the most fundamental level of human life; enlivening this level of life nourishes each area of life just as enlivenment of sap in a flower will equally nourish all parts of the flower. According to Maharishi, living life in a state in which pure consciousness is maintained 24 hours a day is the natural state of human life; TM is a technique for restoring this natural condition by, on the one hand, removing obstacles--in the form of deep-rooted stresses that restrict the physiology in various ways--to a clear experience of pure consciousness, and, on the other hand, increasing familiarity with this fundamental field by repeated contact with it. Once this normal condition of life is realized, a new, fifth state of consciousness is established; we will discuss this, and still higher states of consciousness, in a later subsection. Maharishi explains this process of unfoldment as follows (Maharishi 1967, pp. 312-3):

Such perfect infusion of the Absolute into relativity takes place by degrees, through the regular practice of going to the Transcendent and coming back to the field of action in daily life. A balanced alternation of meditation and activity results in full realization. One analogy will make this clear: we dip a white cloth in a yellow dye and let it remain in the dye to be colored for a few minutes. Then we take it out and expose it to the sun till the color begins to fade. We repeat the same process, again putting the cloth into the sunlight till the color fades. Similarly, we meditate for about half an hour and follow this by coming out to act in practical life for about ten hours, by which time we begin to feel we are out of the influence of the morning meditation. We meditate again in the same way and again let the influence fade by coming out into practical life; we keep repeating the process of gaining the state of universal Being in transcendence...during meditation and of coming out to regain individuality in the field of relative existence. This allows more and more infusion of Being into the nature of the mind even when it is engaged in activity through the senses.

The Qualities of Pure Consciousness in Daily Life As we mentioned before, the benefits of TM for practical life can be understood as the natural consequence of enlivening the essential *qualities* of pure consciousness in individual life. We list several qualities, in addition to those mentioned earlier, that have been emphasized by Maharishi (1990c, 1992) and are especially relevant to the benefits typically experienced by meditators⁹:

perfect orderliness Contact with pure consciousness results in new, highly orderly styles of functioning of the brain (Wallace 1984, pp. 43-44, 60, 66-67), physiology (*Ibid.*, pp. 40-42, 55), personality (*Ibid.*,

⁸Most of these papers have been collected in the five-volume work *Collected Papers*. See (Wallace 1993, pp. 278-280) for a discussion of this work and complete references. See also (Wallace 1984) for a collection of brief descriptions of many of these studies conducted before 1984.

⁹For detailed discussions of scientific evidence of the enlivenment of these qualities, both during and after the practice of the TM and the TM-Sidhi program, see (Dillbeck 1988b; Maharishi 1977; Maharishi 1981, pp. 30-31; Wallace 1984, pp. 240-246).

pp. 45-47, 60-61) and behavior (*Ibid.*, pp. 48-50, 61-63).

purifying Regular practice of TM eliminates physiological imbalances; this fact is evidenced by purification of blood chemistry (Sharma 1993, pp. 186-188), reduced anxiety (see Orme-Johnson and Farrow, pp. 33, 35, 61, 62, 68, 71-78, 81, 84, 88-90), fewer illnesses (Wallace 1984, p. 103), melting of undesirable personality traits (*Ibid.*, pp. 60-63), and a spontaneous growth of higher moral reasoning (S. Nidich 1986).

integrating and harmonizing TM practitioners demonstrate growth of tolerance of others, adaptability, co-operation with co-workers, and a heightened orientation toward positive values (see MIU 1992, pp. 16, 19, for detailed references for these studies).

infinite creativity The practice of the TM technique has been found to increase the originality, flexibility, and fluency of creative thought (Travis 1979).

self-referral TM produces increased field independence (Dillbeck, Assimakis, Raimondi, Orme-Johnson, and Rowe 1986; Gelderloos, Lockie, and Chuttoorgoon 1987), a psychological measure of the degree to which an internal frame of reference can be maintained in the presence of outer stimuli. Cognitively, growth of the quality of self-referral is indicated by increased fluid intelligence (Dillbeck et al. 1986; Tjoa, 1975), pointing to an increased ability for the intellect to respond favorably to novelty.

self-sufficiency Self-sufficiency at the level of the physiology is indicated by the ability to "maintain a healthy, balanced style of functioning with reduced and even eliminated need for external interventions such as drugs and medical care." (Orme-Johnson 1988b, p. 187) Indications of physiological self-sufficiency developing in those practicing the TM program are found in improved health of the immune system (Farinelli, 1981), decreased need for medicines and non-prescribed drugs (Brooks and Scarano 1985), and decreased medical care utilization in all categories of disease (Orme-Johnson 1987). Psychological self-sufficiency means "the ability to maintain a confident, balanced, happy, productive frame of mind capable of providing for one's own needs without dependence on others." (*Ibid.*, p. 188) Indications of growth in this direction are found in increased field independence (Pelletier 1974) and cognitive self-sufficiency (Dillbeck 1982).

invincibility This term has been used by Maharishi in the present context to signify the ability to maintain a coherent style of physiological and psychological functioning in any environmental conditions. As a quality of the field of pure consciousness itself, Maharishi (1985, p. 65) explains the meaning of this quality as follows: "Invincibility is a unique property of the field of absolute pure existence or pure consciousness....Nothing can disturb or disrupt the perfect balance and absolute order of this field of pure existence since everything that exists is a part of its structure and an expression of its own self-interacting dynamics." This quality can be seen lively in the lives of meditators through field independence (Pelletier 1974), increased self-confidence and self-actualization, decreased incidence of disease and reversal of the aging process (see MIU 1992, p. 11-13 for a list of references).

infinite dynamism Research indicates dynamic brain functioning (Kobal et al., 1975) and functioning of different areas of the nervous system (Holt, Caruso and Riley, 1978; Banquet and Lesevre, 1980), increased information flow to the brain as measured by EEG coherence (Sheppard 1988), reduced biological aging (Wallace, Dillbeck, Jacobe, and Harrington 1982), faster reaction time (Cranson, 1988), and greater adaptability of mental orientation (Penner, et. al., 1974).

immortality Those practising the TM program show evidence of reversal of the aging process; in particular, all areas of physiological and psychological decline that are known to be correlated with the aging process show significant signs of reversal. These areas include blood pressure, cardiovascular efficiency, cerebral blood flow, vital capacity, auditory threshold and discrimination, near point vision, homeostatic recovery, EEG alpha power, serum cholesterol and hemaglobin concentrations, susceptibility to stress, behavioral rigidity, learning ability, memory, creativity, abstract reasoning,

intelligence, dichotic listening, reaction time, hypertension, immune system efficiency, insomnia and insufficient sleep, quality of sleep, and depression. (See Maharishi 1980, pp. 41-59, for a research review.)

all possibilities Research shows that those practicing the TM program exhibit less rigidity in thinking, more physiological adaptability and flexibility, and more satisfaction and enthusiasm for life (see MIU 1992, pp. 11-15, for a list of references). Here is a report given by one meditator concerning the enlightenment of this quality in his life: "Before, life seemed to be narrowing down like a funnel; now [after 7 months regular practice of TM] I'm looking out the other end, and the horizon expands and grows into possibilities I never dreamed existed. And wonder of wonders, I'm more and more capable of making use of all the increasing possibilities!" (SIMS, p. 43)

The Dynamics of Pure Consciousness in Daily Life Maharishi also explains that the benefits that come about through TM arise because of the fundamental tendency of pure consciousness, the ultimate wholeness of life, to move "where it is not." Wherever the richness and abundance of this field of life appears to be absent, pure consciousness flows, if allowed, to replenish these barren areas. Maharishi (1974c) describes this phenomenon as follows:

In wholeness itself is the starting point of its own move. The Absolute moves from where it is to where it is not; it moves to the relative....The move of the unbounded is an automatic, natural phenomenon occurring in accordance with its own nature....As we meditate, our experience of fullness growing in every phase of life is the result of the move of inner fullness on to the outer range of emptiness to make the empty fuller, bit by bit, day by day.

Maharishi explains further that this move of pure consciousness, deep within the conscious awareness of the individual, to nourish the relative existence--which is as if "nothing as compared to the vastness of fullness" (*ibid.*)--of individual life arises from a basic dynamic within the very structure of consciousness itself: Being wholeness, pure consciousness has within its nature both fullness and emptiness. The fullness of pure consciousness moves to its extreme opposite end, pure emptiness, pure nothingness, to raise it to the dignity of fullness. Likewise, the value of pure emptiness expands to the status of fullness. In Maharishi's words (1976, p. 148):

It is the nature of the Absolute to be transparent to itself--to be awake to itself. Awake in itself, it becomes aware that its own nature is composed of contrasting values: it is full because it is unbounded and empty because it is unmanifest. These contrasting values flow towards each other, maintaining the perfect balance that structures the eternal continuum of the Absolute. To maintain its own integrity, the Absolute keeps flowing within itself. This dynamism is at the basis of creation and provides the momentum for all progress.

As Maharishi's remarks indicate, not only does pure consciousness move to the relative field of existence when individual awareness becomes identified with it during TM, but, by its nature, pure consciousness is forever in a state of moving within itself, interacting with itself. And this fundamental dynamism at the core of life is responsible, according to Maharishi, for the progress and dynamism of manifest life. We will discuss this deep structure of pure consciousness and its relationship to the manifest universe in subsections I.4C and I.4D below.

The TM-Sidhi Program In 1976, Maharishi brought out an advanced procedure, the *TM-Sidhi Program*, to develop the ability of meditators to make direct use of these self-referral dynamics of pure consciousness. The Sanskrit term *sidhi* means "perfection." During the practice of the TM-Sidhi Program, an individual entertains various intentions, in the form of compact expressions called *sutras*, at the level of pure consciousness. The practice of each sutra is designed to develop optimal functioning, or perfection, of certain functions of the mind. Once the mind has entertained and then let go of a particular intention, the unlimited computing power of pure consciousness brings forth the fulfillment of the intention more or less clearly depending on the clarity of awareness at the time. According to Maharishi, during this practice, the individual makes use of the very

dynamics that underlie the unfoldment of the creation itself (Maharishi 1986, pp. 29-30), and therefore provides the basis for effortless fulfillment of desires in daily life. Research on individuals practising the TM-Sidhi Program has shown that brain wave coherence is even more extensive during this practice than during the practice of TM itself. Other studies show enhanced hearing sensitivity, increased mind-body coordination, purification of blood chemistry (e.g., heightened endocrine stability), and reduction of many of the physiological parameters correlated with biological aging--see (Wallace 1984, pp. 134-155) and (Wallace 1993).

C. Support of Nature and the Field Effects of Consciousness

Another kind of benefit from TM and the TM-Sidhi Program--which scientific investigators, at first, saw no obvious method of objectively testing--is typified by the following descriptions, taken from compilations of anecdotal reports:

I seem to be getting amazingly lucky in my career... (SIMS, p. 21)

I also can see that my actions are becoming more and more supported by nature, as my needs, desires, and ambitions are fulfilled at a smoothly, easily flowing pace. (SIMS, p. 25)

I have found that I have become more efficient in activity...and that somehow my responsibilities seem to arrange themselves so that they can be accomplished with very little doing. In this way activity has become more and more effortless while leading to greater accomplishment. (Maharishi 1976, p. 79)

In these reports, meditators express the belief that outer events seem to be working more in their favor, as if nature itself is granting some hidden support for their activities. This experience is both quite common¹⁰ and anticipated in Maharishi Vedic Science. In this fairly long section, we shall examine in some detail how the unfoldment of consciousness within an individual, through the TM and TM-Sidhi program, has a profound impact on the "external world" in a concrete and measurable way, and establishes a rapport between the life of the individual and the laws responsible for maintaining the universe as a whole. We will report on some well-documented phenomena illustrating this relationship and observe that the scientific requirement to account for such phenomena points to the absolute necessity for a new paradigm of human consciousness. We will argue that the most recent research in quantum physics sketches the landscape of such a new paradigm, and that Maharishi Vedic Science brings theoretical and practical substance to this glimpse of new possibilities.

Life in Accord with Natural Law According to Maharishi, the field of pure consciousness is universal in its character; it underlies the activity not only of thoughts, feelings, and sensations but *all* activities of the universe. Not only do the laws governing human thought, but indeed all the laws of nature, have their root and starting point in the field of pure consciousness. Thus, when individual awareness becomes identified with pure consciousness, the most fundamental level of nature's functioning becomes enlivened in the individual's life; the desires and thoughts that arise in such a mind naturally express nature's intention. And, as Maharishi points out, the all-powerful intelligence underlying nature's functioning, expressed as laws of nature, that is capable of effortlessly maintaining the unimaginable complexity of the entire universe without a problem is more than capable of bringing to fruition the desires and intentions of any individual. The only prerequisite for living such a *life supported by natural law* is that individual life be lived in accord with the laws of nature. The laws of nature are the pathways along which nature's mighty power flows; to take advantage of this flow of nature, one's life must move in step with nature, and this is accomplished simply by allowing individual awareness to become established at the level at which these laws begin to operate, the field of pure consciousness.

It must be pointed out, however, that, as effortless as this process of contacting pure consciousness and winning the support of natural law is, life has not been lived according to this principle for many thousands of

¹⁰I say this on the basis of instructing and advising hundreds of meditators since 1974.

years. Maharishi emphasizes that when one violates natural law, the result is suffering. This phenomenon is so commonplace in today's society that one tends to overlook the possibility of changing this pattern of living: Improper diet leads to short and long term illness; improper rest leads to fatigue and frustration during the day; improper behavior leads to inharmonious relations with others. In such cases, the laws of nature that maintain life in each of these areas are constantly being challenged; this effort against the stream of life wears down the physiology and the environment. On the other hand, bringing life in accord with natural law cannot be accomplished in any significant way merely by effort or will-power. Even if one were able to adjust one's diet, behavior, and living habits, still one cannot be entirely sure of what the proper diet, behavior and habits actually are; and even with this knowledge, the laws that govern the vast complex of human concerns must be innumerable and certainly beyond the ability of anyone to keep in mind at all times. As Maharishi [1980, p. 19] explains simply, "Hunting the laws of nature one by one, it would not be possible to fathom the unfathomable range of natural law, it would not be possible to know all the laws of nature."

Maharishi's simple solution to this dilemma, as we have said, is to bring awareness to that universal level where all the laws of nature begin to operate. Then, automatically, the impulses of thought and desire that arise in the mind accord with these laws, simply because individual awareness, by contact with pure consciousness, has become lively in the *total potential* of natural law, rather than being stuck in the more partial values of natural law on which, through old habit patterns, thought and action had been based previously.

Maharishi summarizes these points about living life in accord with natural law as follows (1986, pp. 97-98):

Through Transcendental Meditation, it is simple to open our awareness to this state of transcendence. Spontaneously, the conscious mind identifies itself with the self-referral unified field, the fountainhead of all the streams of activity in nature. As we gain more and more familiarity with that self-referral performance, our thoughts and actions spontaneously begin to be as orderly and evolutionary as all the activity of nature. This training is of supreme practical value for our lives. Through it we gain alliance with the totality of natural law in a spontaneous manner. We ensure that before we think and act, we are always supported by natural law, and life supported by natural law is spontaneously evolutionary and most orderly. We get ourselves out of that unfortunate situation which brings to us all kinds of difficulties, sicknesses, and suffering in life. All these negative values result from not knowing how to be spontaneously orderly and evolutionary, not knowing how to think and act according to the laws of nature.

The Maharishi Effect Winning the support of the laws of nature for one's own individual endeavors, however, is not the only consequence of contacting this universal field of pure consciousness, according to Maharishi. Maharishi also predicted that when an individual stirs this field of life--which stands as the source of all thinking and feeling in everyone--an influence will be felt even in those who are not meditating. Moreover, as early as 1960 Maharishi predicted that if 1% of a population in a city or province were practising TM, the impact of this influence on the rest of the population would be significant enough to measure. He suggested that crime and sickness would noticeably decrease and the quality of life would generally improve.

To explain how changes of this kind could occur, Maharishi has explained that various levels of organization in society function collectively in a manner analogous to the functioning of the parts and aspects of individual awareness. He explains that each of the basic levels of organization around which society is formed--family, corporation, city, state, nation, etc.--is governed by its own type of *collective consciousness*. It is a common experience that a family can exhibit either healthy or unhealthy behavior; a corporation can have a sense of team spirit or can be internally divided; a nation can be happy and peaceful or in upheaval. According to Maharishi, just as problems at the individual level arise from violation of natural law and such violation arises from behavior of individuals whose consciousness is not established in the "home of natural law," pure consciousness, so it is with the family, city and nation: The problems of society arise from behavior that violates natural law that in turn arises from a *collective* consciousness that is not established in the total potential of natural law. Indeed, just as accumulated stress in the individual nervous system gives rise to a

host of ills in individual life and prevents individual awareness from being established in the full potential of natural law, so *collective stress*, manifesting itself in a broad range of social ailments such as crime and corruption, keeps each grouping of society from living in accord with natural law. And, just as contact with pure consciousness produces highly coherent functioning of all the parts of individual life, so must a coherent style of functioning of the individuals forming the various levels of society result from contact with pure consciousness by sufficiently many individuals. (Maharishi 1976, pp. 121-123.)

In 1974, the first experimental evidence for Maharishi's sociological predictions was discovered. Borland and Landrith (1976) examined the crime rate--according to FBI statistics--of all mid-sized cities in the U.S. in the year 1972 that had 1% of their population practising TM; there were 11 such cities. These data were compared with the crime rates of 11 other cities, matched with the 1% cities precisely according to population demographics. The comparison revealed that whereas the control cities exhibited, on the average, an 8.3% increase in crime rate during that year--a figure that was representative of the crime rate for the U.S. as a whole--the 1% cities exhibited, on the average, an 8.2% *decrease* in crime during the same year; the crime rate effectively dropped 16.5%, evidently because of the fact that this small percentage of individuals were quietly practising TM each day. The researchers noted that the chance of these results occurring by chance was less than one in 1,000; in their work, they controlled for a wide range of alternative explanations as well (see Orme-Johnson & Dillbeck 1987 for a discussion). In honor of the originator of the 1% hypothesis, the phenomenon was named the *Maharishi Effect*.

The results of this study were replicated in several other studies, looking at the Cleveland and Kansas City metropolitan areas. Also, a long-range study comparing 1% cities to control cities was later carried out to control for possible short-range irregularities in crime statistics. As in the other studies, sustained and dramatic drops in the crime rate in the 1% cities were observed, and alternative explanations were accounted for. In addition, several studies have used causal analysis to determine whether observed results could be justifiably attributed to the 1% group or to some other unknown variable; indeed, a stable causal structure was found that supported the hypothesis of the Maharishi Effect. See (Orme-Johnson & Dillbeck 1987) for a review of these studies.

Superradiance As we mentioned before, in 1976 Maharishi brought out the more advanced TM-Sidhi Program during which the mind directly operates within the field of pure consciousness, introducing intentions in the form of sutras at this level to produce a wide variety of results. Because the TM-Sidhi Program produces an even higher degree of coherence in physiological functioning than TM by itself, Maharishi predicted that collective practice of the TM and TM-Sidhi Program would have an even greater impact in alleviating collective stress and producing coherence in collective consciousness. In order to arrive at a sufficiently precise formula to describe the degree to which this impact on collective consciousness would be increased, Maharishi made use of the phenomenon of *superradiance* as a model. In physics it is known that any given level of intensity of light that can be radiated by N atoms that are out of phase can equally well be radiated by \sqrt{N} atoms when they are in phase, as in a laser; this phenomenon is known as superradiance. Maharishi predicted, therefore, that the positive effects to any level of society in which 1% of the population is practising TM can be equally well achieved by the *square root* of 1% of the population collectively performing the TM and TM-Sidhi program. Moreover, to effect a phase transition in world consciousness, a group of 7,000--approximately the square root of 1% of the world's population--engaged in regular collective practice of the TM and TM-Sidhi Program is required. Maharishi's central focus over the past decade has been to establish at least one such group permanently.

Maharishi's prediction concerning his sociological superradiance effect has been put to the test more than 40 times by now, with extremely positive results. In the first of these studies lasting from October 8 through December 23, 1978, 1,400 experts in the TM and TM-Sidhi Program were sent in groups ranging from 30 to 400 to the world's major trouble spots (South Africa (Rhodesia and Zambia), Central America (Nicaragua, Honduras, Costa Rica, Guatemala, and El Salvador), and the Middle East (Iran, Syria, Cyprus and Israel)); the aim was to restore balance in these areas using the superradiance formula. An independent review board gathered and reviewed the predictions and relevant data. One of the overall results was that hostile activities

in all these areas dropped on the average by 16.7% with a high degree of statistical significance. Many who were present in these countries during this period were very surprised to see such an observable shift in the atmosphere after the experiment began; a typical remark was that the contrast was so great, "it was as if a switch had been pulled." (Wallace 1993, p. 159; see Orme-Johnson & Dillbeck 1987 for a overview of this study.)

Studies on the collective effects of the TM and TM-Sidhi Program have been carried out in the U.S., Holland, India, Puerto Rico and the Philippines with similar results. At the time of writing this article, the most recent study was conducted from June 7 through July 30, 1993 in Washington, D.C. in a highly public demonstration designed to motivate government or private corporations to fund a group of experts in the TM and TM-Sidhi Program to create a permanent atmosphere of coherence in the nation's capital. Prior to the demonstration, Washington D.C. had experienced a steady increase in violent crime during the previous 6 years at a rate of about 11% per year. Also, just prior to the demonstration, President Clinton's popularity and effectiveness had spiraled down to the lowest levels ever reached by any president in his first year in office; the following are typical remarks to be found in the leading media at that time:

Twenty weeks old, the Clinton presidency is setting records as the most mistake-prone in modern history. --*The New York Times*, June 5, 1993

[President Clinton] ended yet another week publicly apologizing for his mistakes. --*The Washington Post*, June 5, 1993

On June 5, the organizers of the demonstration registered a public three-fold prediction with an independent review board composed of 27 scientists from several universities and government departments. The three predictions were (a) a significant drop in violent crimes in the D. C. area, as compared to levels of crime in the previous 6 years; (b) less government gridlock; and (c) more appreciation and success of President Clinton, his administration, and Congress. From June 7 to July 30, the group of experts in TM and the TM-Sidhi Program assembled in D.C. expanded from 700 to 4,000, and the predicted results began to take place with increasing momentum as the weeks went by.

As for the first prediction, the preliminary¹¹ data indicate a 24% drop in violent crimes, as compared to the predicted level of crime for this two-month period. As for the other two predictions, according to several USA Today/CNN/Gallup polls, Clinton's approval rating soared during this two-month demonstration from an all-time low of 37% on June 5 and 6 to 54% by July 30. In this period, Clinton was the "most powerful individual" at the Group of Seven Summit in Tokyo (*Washington Post*, July 7); the U.S. and North Korea reached a compromise, avoiding a nuclear-arms inspection crisis; Iraq agreed to weapons monitoring, averting a potential international crisis; the U.S. and Belarus agreed to dismantle and destroy nuclear weapons still in the former Soviet republic; Democrats and Republicans worked together to revise Clinton's community development lending proposal, and the two parties settled some of their key differences on tax issues (commenting on this development, the House of Representatives Ways and Means Committee remarked, "Real progress is starting to take place").

The turn-around in the administration's effectiveness and popularity during this two-month period was repeatedly pointed out by the press; along these lines, a suggestive article by columnist Sally Quinn appeared in the *Washington Post* on July 18 in which she says,

The Clinton administration appears to have revived....Washington has relaxed. But such a swift reversal of political fortune is not easy to account for. [One] may logically wonder whether Clinton really turned things around, or if something else is going on.

¹¹At the time of writing this article, all relevant data have not yet been compiled and an official announcement by the independent review board concerning the results of the study are not due until January, 1994.

Quinn's comment raises an important point. While by now the *phenomenon* that group practice of the TM and TM-Sidhi program significantly uplifts the quality of life in society is well established, the *mechanism* by which this phenomenon occurs may seem somewhat mysterious, especially in light of present-day models of consciousness.

Contemporary Models of Consciousness Contemporary researchers have found the study of consciousness to be quite difficult to approach in the way that a nonspecialist might expect of a researcher. Endeavors to formulate a model that directly accounts for our mental life--our thought processes, process of learning and perceiving, desiring and intending, etc.--are beset by philosophical and methodological problems.¹² We devote this subsection to a brief survey of the traditional issues in the philosophy of consciousness and current attitudes in the scientific community towards these issues.

Philosophically, if one assumes that we are nonmaterial conscious beings "occupying" our bodies, then what sort of substance, if not physical, could we actually be? Presumably, this sort of substance is not observable by known instruments. And what is its connection to the body--how can something nonphysical causally affect something physical? If such a substance exists, its presence should offer additional explanatory power in our present theories of the brain and physiology; yet these fields of research get along fine without reference to supposed dynamics of a subjective substance.

Methodologically, there is the following problem: How can one systematically categorize and study mental events and behavior when they are not publicly observable? We are forced to rely on the subjective reports of individuals as they describe their private experience. But how can these reports be reliable when, as very often happens, two people may use the same terminology to describe very different experiences (one may experience a relief from chronic pain, another may be in love, and both may say, "I feel wonderful!") or use different terminology to describe the same experience ("I can't think clearly today" and "I've got an incredible migraine" may be two descriptions of the same state)? Indeed, how could anything more than a highly imprecise language *ever* be developed to describe experiences that by their nature can be observed by only one person?

What's more, many researchers point to the fact that proposed detailed theories of mind formulated by the many courageous psychologists who have braved these obstacles (Freud, Jung, Allport, and Rogers, for instance) have met with only partial success;¹³ this lack of success suggests that these theories do not accurately model the mind and that perhaps this lack of complete success is due to the very imprecise nature of the methodology.

These difficulties have led many researchers to focus their efforts along channels that are strictly objective and free of these fundamental problems. For this reason, although their research was in many cases originally motivated by questions concerning the nature of consciousness, their hypotheses and conclusions tend to omit any reference to conscious experience whatsoever. The main programs of research in this category are in the neurosciences, artificial intelligence (AI), cognitive psychology, and the behavioral sciences.

In the neurosciences, where tremendous progress has been made in understanding the functioning of the brain and nervous system, researchers proceed as if the various mental states that we experience are nothing other than the various states of the brain and nervous system (see Hooker 1981); on this view, just as our senses are not refined enough to discern that a shiny red apple is really a lattice of molecules, so our "inner perception" is unable to discern that a desire or memory is really just a complex pattern of neurons firing together with various chemical reactions.

¹²For an introduction to the contemporary philosophy of consciousness, see (Churchland 1984).

¹³See (Lindblom & Cohen 1979). Thorngate and Plouffe (1987, p. 79) comment: "The failure of the social sciences to produce many pragmatically important products would perhaps be tragic were it not for the fact that the world has survived, and will likely continue to survive, without them." See also (Orme-Johnson 1988) in which this topic is impressively elaborated.

The research program of artificial intelligence is intended to model human intelligence by computer programs. Since intelligence has so many functions, research programs attempt to imitate one or two of these functions at a time, such as perception, simple learning processes, and language recognition. They have found that their algorithms have become increasingly successful at replicating these functions without ever introducing into their programming a feature that would cause a computer to "be conscious." The conclusion that most AI specialists have come to is that conscious experience, though it seems to be present in human life, is inessential and will tend to emerge as an *epiphenomenon* (i.e. a phenomenon that occurs secondarily without any causal effects) in any sufficiently complex system, even possibly computers (see Dennett 1979). Many cognitive psychologists, attempting to map the functions of intelligence, adopt this same stance (see Fodor 1968 and Marcel & Bisiach 1988).

Finally, the behavioral sciences begin their study of mind from the assumption that the fruitfulness of such scientific inquiry is to be measured by its success in predicting and, to some extent, controlling human *behavior*. Their approach is to develop a theory on the basis of observed behaviors and environmental influences. Terms such as 'learning', 'desiring', and 'feeling' are not to be understood as referring to subjective, private states of mind but rather, at least as far as significant scientific inquiry is concerned, should be understood as certain dispositions to carry out certain sequences of behaviors (see Skinner 1938, 1971). From this perspective, the notion of 'being conscious' would generally be considered of little scientific interest, perhaps useful only as a term distinguishing the behaviors of individuals in sleep state, waking state, and recently departed.

Despite the unquestionable progress these research programs have made, and despite the evident philosophical problems that plague those who hold that there is a substantive subject of experience, many philosophers, psychologists, and non-scientists feel that conscious life consists of more than brain states, observable behaviors, and quixotic epiphenomena. Consider the following remarks by noted philosophers in the field:

...reference to consciousness [as phenomenal experience] in psychological science is demanded...since consciousness is a central (if not *the* central) aspect of mental life...Psychology without consciousness, without phenomenal experience or the personal level, may be biology or cybernetics, but it is not psychology. (Marcel 1988, p. 121.)

Clearly the fields [of psychology and neuropsychology] must remain intellectually incomplete unless they can explain how experiential terms like 'see', 'remember', 'guess', 'dream', 'image', and so on are understood and used by the entity whose behavior is being explained through mechanistic models. (Shallice 1988, pp. 307-308.)

Yet, all attempts to reinstate conscious subjective experience as a valid object of scientific study seem to fall with Occam's razor: Why postulate the existence of a subjective world filled with subjective notions from everyday language like 'desire', 'thought', and 'happiness' when these notions are fully explainable--at least in principle--in terms of a purely materialistic and/or mechanistic account that deals with only one world of entities, *physical entities*, rather than the two worlds of physical and mental entities? The only compelling answer from a scientific point of view would be, "There are phenomena that simply cannot be accounted for from a purely materialistic/mechanistic account." For instance, if we had rigorously obtained evidence demonstrating that subjective life continues after death or that minds can communicate even when separated by great distances, this evidence would warrant a serious reevaluation of current models of consciousness and the mind. However, although there are proponents of such research, most scientists do not feel it meets adequate standards of control and tend therefore to dismiss it (see Churchland 1984, p. 10).

On the other hand, the Maharishi Effect and superradiance phenomena described in previous subsections are very well documented and have no known theoretical explanation in terms of materialist/mechanistic models of consciousness; these phenomena alone warrant a rethinking of current models. Perhaps even more compelling is the frank admission by many research physicists in the past half-century that phenomena which reinstate the significant role of the conscious subject of experience in seemingly "objective" interactions are so

abundant, they actually constitute the very fabric of the universe in which we live; we turn our discussion to a short survey of recently emerging quantum theories in physics.

A New Paradigm: Quantum Mechanics and Unified Field Theories Nearly a hundred years ago, physicists observed that the fine particles which structure all matter do not behave in the same way the familiar objects of the macroscopic world do. Quantum mechanics tells us, for example, that, although experiments can be designed to *separately* determine the position or the momentum of an electron, it is impossible to specify with complete precision *both* of these quantities in a single experiment. What's more, the electron cannot be said to have a definite position or momentum until some observation of these properties is attempted. Quantum mechanics has demonstrated that, at least at small time and distance scales, the ideal of objective science--by which the scientist with all his subjective variability is removed from the arena of investigation as an objective observer--cannot be realized; the observer does something to the observed.

Responding to this striking discovery, many well known physicists have declared that consciousness must play a central role in any coherent theory of matter:

The doctrine that the world is made up of objects whose existence is independent of human consciousness turns out to be in conflict with quantum mechanics and with facts established by experiment. (Bernard D'Espagnat, quoted in Maharishi 1981, p. 88)

...the very study of the external world led to the conclusion that the content of the consciousness is an ultimate reality....physicists have found it impossible to give a satisfactory description of atomic phenomena without reference to the consciousness. (Eugene Wigner, quoted in Maharishi 1981, p. 89)

Moreover, research in the past quarter century in particle physics and quantum theory has demonstrated that at small time and distance scales, nature's functioning not only involves the observer in an essential way, but also tends to be more unified than was previously suspected. One line of research has been the attempt to classify the fundamental particles that constitute matter. Initially, the more that particle physicists searched for particles, the more particles were discovered, and the research program dedicated to locating a small handful of absolutely fundamental particles of which all others were composed seemed doomed to failure. By now, however, the "particle zoo" has been put in good order, classified either as nuclear particles known as *hadrons* (which in turn are composed of hidden constituents called *quarks*), or as typically lighter particles, like electrons and neutrinos, called *leptons*. An important advance in this research that has expanded the basic world-view of particle physicists resulted from the perspective offered by the highly successful theory of quantum fields in which classically conceived particles are understood as discrete excitations of their corresponding fields; from this perspective, electrons, for instance, are precipitations of the quantum electron field and quarks are precipitations of quark fields.

The theoretical predecessor to the study of such matter fields is *quantum electrodynamics*, the relativistic quantum theory of the electromagnetic field.¹⁴ Historically, field theorists attempted to use the techniques of this theory to account for the interactions due to the other three force fields. Perhaps the most familiar of these--and, ironically, the force that has proven the most intractable to a quantum field theoretic description--is gravity; Newton's work suggested that the attraction we observe between solid bodies is due to an invisible force field that has a measurable strength which diminishes rapidly as the distance between these bodies increases. Einstein developed a much more accurate theory of gravitation, known as his *general theory of relativity*, according to which the force of gravity is to be understood not as the result of an invisible field, but

¹⁴The electromagnetic field is responsible for virtually all that we see around us in the macroscopic world. Quantum electrodynamics (QED) is, to date, the most accurate, and, according to many the most successful, of all physical theories. On the one hand, it successfully integrates quantum theory with relativistic effects; on the other hand, it precisely accounts for experimental phenomena that remained quite mysterious classically, such as slight shifts in the energy levels of the hydrogen atom and slight variation in the predicted magnetic field carried by the electron.

rather as peculiarities in the "shape" or geometry of spacetime. As successful as Einstein's theory has been, it has nevertheless proven to be the most resistant to the methods of quantum field theory.

The other two force fields--the *strong force* (which holds together the nucleus of an atom), and the *weak force* (responsible for several types of particle decay, such as beta decay)--have proven more tractable to a quantum field theoretic account; success in this account has arisen from a research program to determine whether the fundamental force fields are expressions of just *one* fundamental field. The first breakthrough in this program was the work by Glashow, Weinberg, and Salam in the 1960's which demonstrated that, while the electromagnetic and weak forces appear, at classical time and distance scales, quite different (with extremely different sorts of messenger particles, for example), at a distance scale of 10^{-16} cm., the forces are identical; indeed their work showed that it is the result of *spontaneous symmetry breaking* that, at larger distance scales the behavior of these fields exhibit asymmetric behavior. Their work also resulted in a unification of apparently distinct matter fields--the charged lepton fields and the neutrino fields.

In the past 20 years, considerable effort has been directed toward producing a similar unification of the new "electroweak" force with the strong force, and ultimately, with gravity. One early observation was that if the strong force is to be unified with the electroweak force--for a "grand unified theory"--the unification must occur at a distance scale no larger than 10^{-29} cm; and superunification--in which all four forces would be seen as the expression of a single super-force--cannot occur at a distance scale larger than 10^{-33} cm (the *Planck scale*). Moreover, one of the extraordinary consequences of superunification would necessarily be that this single field would account not only for all force fields, but all matter fields as well, as a result of spontaneous "supersymmetry" breaking. At the time of this paper, it appears that the mathematical difficulties attendant upon constructing such theories requires the introduction of a concept partially developed by Gabrielle Veneziano in the late 1960's (and largely ignored by his contemporaries)--the concept that particles could be viewed not as point masses but as tiny closed curves (with diameter on the order of the Planck scale) called *strings*. More precisely, taking a quantum field theoretic approach, particles are to be understood as the resonant modes of a fundamental *superstring field*. With this new ingredient, some of the most challenging technical difficulties of earlier grand unified and super-unified theories (most notably, the renormalization problem) have been resolved (see Davies & Brown 1988). Thus, these days, the most compelling unified field theories are the so-called *superstring theories*.

Whatever new details of superstring theory emerge in the coming years, the theories developed so far are sufficient to draw the following conclusions about nature's basic structure (see Hagelin 1987):

1. At small time and distance scales, nature is more *unified*; the observed diversity of nature must be understood as excitations of a single, unified quantum field.
2. Unlike the more familiar electromagnetic field (at macroscopic scales), the unified field is highly *self-interacting* and *self-referral* (being a non-abelian gauge field). This means that, at the Planck scale, the presence of the field influences the behavior of the field.
3. The superstring represents the source of nature's functioning. All particles and forces emerge through a sequential process of spontaneous symmetry breaking. Moreover, the superstring represents the *total potential of natural law*, since, as Hagelin [1992b] remarks, "all the massive and massless string modes are fully enlivened as dynamical degrees of freedom at the Planck scale."
4. The superstring field is a field that is at once *infinitely dynamic*--as is evident from the "dynamical interaction of all the various fields appearing in the effectively low-energy theories derived from the superstring" (*ibid.*)--and *infinitely silent*--as evidenced by the "non-interacting nature of the fundamental string degrees of freedom" (*ibid.*).
5. The unified field must be endless both with respect to time (*immortality*)--because of time-translation invariance of the Lagrangian density--and space (*unbounded, omnipresent*)--because of the Poincaré invariance of the Lagrangian density.

6. The unified field is a field of *perfect orderliness* (reflected in its enormous range of symmetries) that is *harmonizing* and *integrating* (reflected by the fact that supersymmetry unifies the completely opposite values represented by the bose (force) and fermi (matter) fields).
7. The possibility of studying the unified field objectively as if it were "inert matter"--using the classical scientific paradigm that is already known to be inapplicable to quantum phenomena--is no longer even remotely tenable at the level of superunification. At the Planck scale, *there is only one thing*; whatever "observations" are made of the unified field, if possible at all, must be carried out *by the unified field*.

In the face of this 7th point, a scientist must either adopt the point of view, as many present-day field theorists do, that *no observations are possible* at the superunification scale; or he must adopt the point of view that perhaps the unified field, being the unified source of subjective as well as objective existence, is a state of *consciousness*, perhaps knowable by conscious beings through *subjective* technologies. The latter view has been pursued extensively by Hagelin [1987,1989] and leads to the conclusion that many of the fundamental properties of the superstring field are quite subjective in nature. Hagelin [1992b] has identified specific features that must be present in any superstring theory that correspond to such qualities as *fully awake within itself, nourishing, omniscience, pure knowledge, freedom, and even bliss*.

The reader will recall from our discussion earlier in this section that the properties mentioned above are among the fundamental qualities attributed to pure consciousness in Maharishi Vedic Science. Indeed, working closely with Maharishi, Hagelin [1992b] has found precise mathematical correlates to each of the fundamental qualities of pure consciousness. Moreover, the fundamental *dynamics* of pure consciousness, as it moves and interacts within itself, also find a surprisingly exact parallel in the structure of the Lagrangian of the unified field (we will discuss this correspondence further below).

Because of the striking and far-reaching parallels between the superstring according to modern physics and pure consciousness according to Maharishi Vedic Science, Hagelin [1987] argues that these fields are actually identical. It is highly unlikely, he argues, that there could be *two* such fundamental fields with this incredible range of qualities and dynamics. Thus, the field of life proclaimed by the ancient *Vedas*, and brought to the level of direct experience by the technologies of Maharishi Vedic Science, and the profoundly unifying "theory of everything" discovered by modern physics in the context of the superstring, appear to be one and the same. On this point, Maharishi makes the following interesting remarks (1986, pp.95-6):

Theories of physics are still developing, but today they are developed enough to indicate that the unified field of all the laws of nature is a self-referral, self-interacting reality at the unmanifest basis of creation. When the self-referral value of the unified field was discovered, we who had been practising the Transcendental Meditation and TM-Sidhi program immediately knew that the self-referral value of the unified field is transcendental consciousness. We experience that transcendental consciousness is the self-referral state of intelligence, the awareness which knows itself and nothing else. One's own transcendental consciousness, functioning within itself during the TM-Sidhi program, is the unified field functioning within itself. In the TM-Sidhi program, we practice that self-referral, self-interacting activity.

Indeed, once it becomes clear that this unified field of natural law is the field of pure consciousness, we can aptly describe Maharishi's Transcendental Meditation and TM-Sidhi program as the natural *technologies* of the unified field arising from profound knowledge of this field, much as today's sophisticated objective technologies can be traced to a deep knowledge of the electromagnetic field and Maxwell's equations. For this reason, these programs are often referred to as *Maharishi's technologies of the unified field*.

Emerging Solutions As the reader will recall, we began our survey of recent breakthroughs in modern physics in order to suggest that there is by now rather substantial evidence of the primary role of consciousness in the structure not only of our subjective experience, but of objective existence as well. The

strict division between subject and object, useful for development of classical theories, becomes untenable in the face of quantum phenomena and altogether meaningless at the Planck scale of nature. The strong correspondence between the qualities and dynamics of both the unified field according to modern physics and the field of pure consciousness according to the most ancient records of human experience, the *Ved*, provide a compelling case for the identity of these two fields. Moreover, this perspective on the nature of matter and consciousness provides us with a theoretical stronghold by which we can, on the one hand, begin to resolve the philosophical and methodological problems that have plagued the study of consciousness, and on the other hand, begin to provide an account for the Maharishi Effect and the superradiance phenomenon--a feat that appears to be quite beyond the reaches of current materialist/mechanistic models of consciousness that place consciousness in a secondary, noncausal role.¹⁵

Recall that the *philosophical* dilemma mentioned earlier was concerned with the possible relationship between a putative nonphysical subject of experience and the world of matter--how could the objective world be causally affected by nonphysical substance? This dilemma dissolves in the face of the contemporary understanding provided by modern physics. To see the relevant point, consider the following analogous "dilemma": "How can you say that there is any relationship between a physical object and *invisible matter fields*? How can you say that the dynamics of these supposed 'underlying realities' are actually the *cause* of what I observe in the objective world? Since no such field has ever been observed, and since I can explain the world around me without positing such imaginary entities, I may as well proceed as if they did not exist at all." As the reader will readily observe, these arguments fall limp in the face of quantum field theory. The fact is that the interactions of matter at a macroscopic scale are best understood in terms of invisible interactions of matter fields. The relationship between these apparently disparate realms of reality is that the ordinary realm of physical objects represents a particular level of excitation of the underlying, invisible realm of matter fields. Moreover, it is now known that a proper understanding of the ordinary "objective" world is simply *not possible* without positing these underlying dynamics.

Now to resolve the dilemma concerning subjective substance completely, we require just one more step in our logic: Since the subject/object division necessarily dissolves at the Planck scale, the scale of super-unification, the unified field is the source of both subjective and objective reality. What we experience as "subjective life," therefore, necessarily represents *excited states of the unified field*. Thus, the ultimate nature of one's own subjective life actually gives rise both to subjective and objective existence. The consequent relatedness of thinking, desiring, intending, and so forth, with objective events is no more mysterious than the relatedness of the behavior of molecules with the behavior of tissue in the growth of a human body: both have a common source in quantum fields and yet represent quite different expressions of this source that are nonetheless causally related. Likewise, subjective and objective existence represent causally related expressions of a single, original superstring field.

Next, let us recall the *methodological* problems raised earlier. The main difficulty in developing a theory of consciousness, as the argument goes, is that "conscious events" do not admit a reliable, systematic description amenable to scientific study. Different people report subjective experiences in different ways, and there is no conceivable way to make these subjective events public--and hence tractable to scientific study--except through unreliable subjective reporting.

In order to handle this methodological difficulty, let us first notice that there is a hidden assumption in the problem: It is assumed that a theory of consciousness is nothing other than a study of the vast range of possible contents and functions of consciousness. The methodological challenges of providing a reliable

¹⁵By these remarks we do not wish to deny the value of present-day models of consciousness. As we have said, the materialist/mechanistic models used by science today have proven useful for specialized research. Moreover, some of these models may prove flexible enough to accommodate the evident need to place pure consciousness in a central role in accounting for both mental and physical phenomena. Indeed, Maharishi often uses a computer model to describe the creative behavior of pure consciousness as it computes each possible activity in the universe; see (Lester 1987).

theory of learning, perception, intelligence growth, affective states, and so forth, based on subjective reports, do indeed seem insurmountable. But attempting to understand conscious experience in this way is, as physicist L. Domash [1975] aptly observes, very much like trying to understand the quantum mechanical behavior of particles through an analysis of complex macro-molecules in a high temperature environment (rather than beginning, as physicists did, with the simplest atom in its least excited state). In order to begin to formulate a theory of consciousness, the fundamental value of consciousness must be studied; this fundamental value is, as we have seen, the unified field in its least excited state. But how, one may ask, can this unified field and its resulting emergence as a multiplicity of subjective states be studied when objective science folds at the superunification scale? The key, we repeat, is that the unified field is the field of pure consciousness and can be contacted directly in its least excited state through systematic procedures that allow the excited states of consciousness to settle down and permit the unbounded nature of the unified field to be experienced directly. Because this process allows the mind to transcend its own subjective variability, it is at least conceivable that a systematic study of this field through such subjective technologies would be possible.

We have already seen that the subjective reports of meditators reveal a surprising consistency in their description of their experiences of the field of pure consciousness. We have also seen that these subjective technologies reliably produce a fourth state of consciousness in practitioners of every conceivable age, background, and occupation. The fact is that this subjective approach to the study of pure consciousness has a long history in the Vedic tradition; indeed, Maharishi Vedic Science is a modern treatment of this subjective approach that makes the subjective technologies and the theoretical findings of this study available throughout the world. Maharishi [1989, p. ii] remarks on the necessity for an approach of this kind to gain substantial and practically useful knowledge of the unified field of all the laws of nature:

The knowledge of the unified field has been discovered by modern science during just the last few years, but complete knowledge of the unified field has always been available the Vedic literature. Today quantum physics has glimpsed the details of the unified field...Credit must be given to modern science because its objective approach has now uncovered the reality of pure subjectivity. The world of scientists should know, however, that the objective approach comes to an end there. Many more discoveries may be made on the surface, relative levels of existence, but the goal of physics has been reached. Today the most advanced level of modern science needs a complete approach to investigation, which includes the other two values of knowledge--the value of the knower and the process of knowing. All three values are uncovered in their totality in Vedic Science. If progress is to continue, a shift is required from the science of only one category to a total science. Vedic Science is that total science. It uncovers the knowledge of the total potential of natural law in its completeness and brings human awareness in tune with those fine creative impulses that are engaged in transforming the field of intelligence into the field of matter.

Thus, the basic methodological difficulties that have posed serious obstacles to a viable theory of consciousness in the past are surmounted through the recognition that (1) the unified field represents the source of both subjective and objective existence, and (2) *subjective* technologies exist which, by allowing the mind to transcend the unreliable, variable state of the ordinary waking state of consciousness, permit effortless contact and direct, reliable knowledge of this universal field.

Hence, at least in principle, it is possible to study all questions of psychology using this timeless subjective approach. In practice, however, the descriptions of the dynamics of consciousness as described in the Vedic literature, although experientially accessible to individuals everywhere in the world through Maharishi's technologies, are not expressed in language familiar to scientists in the Western scientific tradition. Thus, a highly dynamic research program, of which the present paper constitutes a small part, involving scientists from dozens of disciplines, has developed in recent decades to create a workable interface between modern western science and Maharishi Vedic Science so that the valuable results, insights and practical knowledge of the latter can be better understood and made use of in western culture. In particular, psychologists and neuroscientists at Maharishi International University are currently engaged in projects that, using the approach of Maharishi Vedic Science, directly address many of the traditional research areas of modern psychology, such as learning, perception, and models of the mind. In the next subsection, we will outline the highlights of

the theory of consciousness according to Maharishi Vedic Science. Before doing so, let us finally consider how we might address the question of the mechanism underlying the Maharishi Effect and superradiance.

How can we explain the fact that a group of individuals, ranging in number from 100 to 7,000, performing some effortless mental activity (viz., the TM and TM-Sidhi program) seem to have a significant, observable, life-supporting impact on the society around them, even if those around them are not themselves engaged in these practices? The fact that such phenomena seem surprising in the first place may be primarily due to our commonly held belief that our "private mental life" takes place "inside" us and has no observable effects unless we choose to act on these "mental events." We have seen, however, that quantum mechanics has demonstrated otherwise; each act of perception has a tremendous impact--at least on the quantum mechanical level--upon the structure of the objects perceived. Simply by virtue of being conscious, we partake of a high degree of relatedness with the world around us--a relatedness of which we are for the most part unaware and about which we remain highly under-educated.

The perspective of Maharishi Vedic Science, as we have seen, is that fundamentally, pure consciousness is everywhere; it is the unbounded hidden source of our world. According to Maharishi, the all-pervasiveness of consciousness tends to be overlooked simply because individual awareness is *in a habit* of interacting only with the more excited states of consciousness--thoughts, desires, perceptions, etc. Once awareness settles to its least excited state, its universal, unbounded nature becomes apparent. Maharishi describes this level of consciousness as a field of *infinite correlation*: at this level, everything is clearly seen as related to everything else, and any impulse anywhere is felt everywhere. Thus, Maharishi explains, when this field of pure consciousness is stirred through group practice of the TM and TM-Sidhi program, that fundamental level of life, being at the root of every individual awareness, is stirred in *everyone*, not just those engaged in these practices. Moreover, when this enlivenment of pure consciousness is sufficiently profound (as in the case where several thousand individuals are practicing together), the resultant enlivenment of uplifting qualities of pure consciousness becomes more apparent on the ordinary level of day-to-day life. In the following quotation, Maharishi describes this process:

This transcendental level of nature's functioning is the level of infinite correlation. When the group awareness is brought in attunement with that level, then a very intensified influence of coherence radiates and a great richness is created. Infinite correlation is a quality of the transcendental level of nature's functioning from where orderliness governs the universe (Maharishi 1986, p. 75).

As yet, an account of these phenomena strictly in terms of current unified field theories (or other theories in physics) has not emerged, but the foregoing provides a direction for such an account. This direction has been pursued by Hagelin [1987] who suggests that, because none of the four forces appear to be likely candidates for the carriers of this propagating coherence, perhaps the phenomena can be accounted for on the basis of nonlocal effects of the unified field.

Whatever theoretical explanation finally does emerge, it should be clear that the perspective of Maharishi Vedic Science provides a much needed shift in paradigm concerning the nature of consciousness and its role in the dynamics of the universe. Physicists, like most people, have persisted in the classical view of consciousness, in which subject and object are strictly unrelated, even though quantum mechanics--and, in particular, superstring theories--call for a new perspective. This classical view has spawned philosophies and assumptions that attempt to explain away consciousness as insignificant, epiphenomenal, noncausal, and even nonexistent. Perhaps this obsolete world-view has survived as long as it has simply because there has not been a viable alternative to replace it. Maharishi Vedic Science offers a radically different perspective on the nature of consciousness that provides a new direction in accounting for quantum-mechanical phenomena and the effects of group practice of the TM and TM-Sidhi program that have no hope for adequate explanation along classical lines. The startling discovery by physicists of a completely unified field theory--that by its nature transcends the distinction between subject and object--has provided the much-needed link between the discoveries and methods of western science and the deep philosophy and practical wisdom of the subjective science of the *Ved*. This link, and consequent new paradigm, has begun a new wave of research in which the gaining of knowledge spontaneously results in bringing genuine mastery to the scientist over his domain of

research rather than mere intellectual familiarity.

Let us take stock of our discussion so far. Attempts to make sense of the reports of "support of nature" and the sociological effects of the TM and TM-Sidhi program naturally led us to evaluate current models of consciousness. The evident inability of these to account for the Maharishi Effect and superradiance phenomena, coupled with the advances in quantum field theory which locates a single field at the basis of all objective and subjective phenomena, led us to acknowledge the need for a new paradigm of consciousness that places it in a primary, causal role in our account of the dynamics of the universe. Resolving traditional objections to such an approach, we argued that Maharishi Vedic Science fulfills the requirement of such a new paradigm--accounting for new phenomena and interfacing with the most advanced theories of modern science--by giving full elaboration to the insight of modern physics that deep within the fabric of the universe there is a single field which, transcending the subject/object distinction, gives rise to the universe through its own self-interacting dynamics. In particular, we observed that Maharishi Vedic Science makes this insight a practical reality by providing subjective technologies to allow individual awareness to settle to the very source of subjectivity, the unified field or pure consciousness, and thereby bring forth into daily life--and into the lives of everyone in society--both the support of natural law and the wide range of life-supporting qualities of this original field of existence. We will now proceed to a discussion of the nature of pure consciousness according to Maharishi Vedic Science; the qualities and dynamics of this field--already discussed earlier in an introductory fashion--will provide us with a model of the ultimate nature of wholeness, a model that will be of central interest to us in our reformulation of the foundation of mathematics.

D. The unmanifest structure of pure consciousness

As we have seen, modern physics has located a single, dynamic, self-interacting field as the source of nature's functioning. We've seen that, although properties of this field can be deduced through careful reasoning about theoretical consequences, direct exploration of the hidden structure of this field appears to be quite beyond the scope of western scientific methodology as we know it, since it is impossible to exclude the subject of experience in such an investigation. We have also seen that the Vedic tradition of knowledge, revitalized in our time by Maharishi in the form of his Vedic Science, refers to this same field of existence as *pure consciousness*, and provides systematic subjective technologies to experience this field deep within one's own awareness. In this subsection we will describe the structure, qualities and dynamics of this field according to Maharishi Vedic Science; in the sequel, we will use these insights as guidelines as we attempt to build a foundation for mathematics whose structure will mirror that of nature's foundation. The central point that will be elaborated here is that pure consciousness is not merely a field of silence, as an initial experience of this field might lead one to believe; rather, it is simultaneously deeply silent and perpetually flowing within itself in a precisely sequential fashion. This flow gives rise to the *Ved* and the entire creation, remaining at all times connected to its original holistic value through all stages of expression. As Maharishi [1976, p. 148] remarks, "To maintain its own integrity, the Absolute keeps flowing within itself. This dynamism is at the basis of creation and provides the momentum for all progress." Maharishi Vedic Science is the systematic study of the structure of this simultaneously silent and flowing unmanifest source of creation.

The sprouting of samhita If the world is nothing but excited states of the unified field, pure consciousness, it is natural to wonder how these excited states arise in the first place. As we have seen, according to Maharishi Vedic Science, the first step in answering this question is to *experience* pure consciousness directly, in its state of least excitation at the source of thought. In the beginning days of contacting this field through the process of transcending, pure consciousness is experienced as deeply silent, peaceful, wakeful and unbounded. As the practice grows, a certain liveliness within this field begins to be discerned. According to Maharishi, this playfulness of this deepest level of one's awareness is the precursor to the grosser levels of excitations that we observe ordinarily as thoughts and feelings on the subjective level, and even the material world on the objective level. Moreover, this delicate activity occurring within pure consciousness itself has a precise, sequential structure that can be clearly cognized when awareness is sufficiently clear. To comprehend this deep structure underlying manifest life, we need to understand the origin of the first stirrings of this original field of existence. As we shall see, the unmanifest stirrings of this field turn out to be nothing other than the dynamics of the self-knowing of pure consciousness.

Maharishi describes the stages of unfoldment of this unmanifest activity as follows: The first truth about pure consciousness, which comes to be known in our first experience of transcending, is that pure consciousness *exists* (see Maharishi 1972, Lesson 8). The *nature* of this *pure existence* (*ibid.*) or *pure Being* (Maharishi 1966) is *pure wakefulness* (Maharishi 1972, Lesson 8, also describes this basic nature of pure existence as *pure intelligence*). Being pure wakefulness, pure existence must be awake to itself. Being awake to itself, pure existence automatically assumes the threefold role of observer, process of observation, and object of observation. Thus, the wakeful value of existence--pure intelligence--locates a three-in-one structure within pure existence. The three, known in Sanskrit as *rishi* (observer or knower), *devata* (process of observation or knowing), and *chhandas* (object of observation or knowledge), are nothing other than pure existence itself, playing various roles as it is awake to itself; thus, these three form a basic unity, called *samhita* (collectedness). Maharishi emphasizes that transformation of pure existence, pure *samhita*, into a three-in-one structure, *samhita* of *rishi*, *devata*, and *chhandas*, is brought about by the *intelligence* within pure existence as it evaluates its own structure:

The unbounded sea of intelligence quietly scans its own structure, and, maintaining its unified status, spontaneously recongnizes its own nature to be a combination of three values--the observer, the process of observation, and the observed;...and all the three together in their unifeid state--one singularity of pure intelligence analysing itself into three qualities, maintains them eternally in its unifeid state--*samhita* of *rishi*, *devata* and *chhandas*. (Maharishi 1992, pp. 20-21)

All possible transformations within pure consciousness Now since pure existence is *awake* to itself, Maharishi says that pure existence may be called *pure consciousness* (Maharishi 1972, Lesson 8); and because it is awake to *itself alone*, this pure consciousness is *self-referral* consciousness (Maharishi 1989, p. *i*). Also, as Maharishi goes on to observe, since each aspect of this three-in-one self-referral structure of pure consciousness is itself pure wakefulness, each component is awake to itself and to each of the others. Thus, *rishi* is awake to *samhita*, *devata* and *chhandas*; *devata* to *samhita*, *rishi*, and *chhandas*; and so forth. Now, just as being awake to itself as if transforms pure existence into a three-in-one structure, so the fact that each of *samhita*, *rishi*, *devata* and *chhandas* is awake to each of the others as if transforms each to new values; *rishi* being awake to *devata* transforms both *rishi* and *devata* into new values of *rishi* and *devata*, and likewise for the relationships between all four components of this three-in-one structure. Moreover, Maharishi explains that these transformed values of *samhita*, *rishi*, *devata*, and *chhandas*, being themselves pure wakefulness, are awake to themselves and each other and thereby give rise to further transformed values of these same principles. And the process continues *ad infinitum*, resulting in infinitely many--indeed, all possible--transformations of pure consciousness within itself.

Pure knowledge and its organizing power Maharishi explains further that this sequence of transformations of pure consciousness within itself is the process of pure consciousness knowing itself. This sequential flow of transformations of *samhita* creates the structure of *pure knowledge*--the knowledge of pure consciousness by pure consciousness eternally unfolding within itself. As Maharishi [1989, p. *i*] explains:

Pure knowledge is the state of awareness in which consciousness knows itself alone, when awareness is completely self-referral, when awareness has nothing other than itself in its structure. This state of pure knowledge, when knower, known, and process of knowing are in the self-referral state, is that all-powerful, immortal, infinite dynamism at the unmanifest basis of creation.

Now, any form of knowledge provides the knower with greater power to create and produce new results in his world; this power to create an influence is called by Maharishi--borrowing terminology from information theory--*organizing power*. Thus, according to Maharishi, this pure knowledge, constituting the most fundamental knowledge at the basis of creation, has infinite organizing power (see Wallace 1993, p. 220). The Sanskrit name for pure knowledge and its infinite organizing power is *Ved*.¹⁶ Thus the *Ved* is nothing

¹⁶The term 'Ved' has been used by various people to mean various things. According to Maharishi,

other than the sequential unfoldment of knowledge of pure consciousness within pure consciousness, and the infinite creative power inherent in that knowledge.

Constitution of the Universe and support of nature As we have seen, pure consciousness, by virtue of its nature as pure wakefulness, spontaneously unfolds as pure knowledge and the infinite organizing power at the basis for creation; for this reason, Maharishi has called this field the *prime administrator* of the universe [1976, p. 123], and the laws according to which all transformations of pure consciousness sequentially unfold collectively form the *Constitution of the Universe*:

All fields of creation are the diverse projections of self-referral consciousness, and, as they always maintain connectedness with their source, the entire field of diversity is the field of consciousness. That is why self-referral consciousness administering itself means the entire universe is administered by consciousness. (Maharishi 1992, p. 18)

The laws governing the self-interacting dynamics of the unified field can therefore be called the Constitution of the Universe--the eternal, non-changing basis of natural law and the ultimate source of the order and harmony displayed throughout creation. (Maharishi 1992, chart)

Since the laws governing the activity of the universe unfold within the self-interacting dynamics of consciousness, when individual awareness becomes established in this field, individual desires and intentions, based now on the the platform of cosmic intelligence, are effortlessly brought to fulfillment. The individual begins to display the infinite organizing power of cosmic intelligence in his individual activities. In the *Ved*, this infinite creative power is given the name *Brahm*; the *Rk Ved* says that when individual awareness is established in pure knowledge, *Brahm* becomes the "charioteer" of all activity. This phenomenon is the basis of the common experience of "support of nature" discussed earlier in Section I.4C.

Yatinam Brahma bhavati sarathih
--*Rk Ved* 1.158.6

For those who are established in the singularity of fully awake, self-referral consciousness, *Brahm*, the Creator--the infinite organizing power of natural law--becomes the charioteer of all activity.

Let us mention here that, as pure consciousness unfolds as pure knowledge, infinite organizing power, the Constitution of the Universe, and the charioteer of all activity, it reveals many of its fundamental qualities: *omniscience* (pure knowledge is the underlying structure of all knowledge); *infinite creativity* and *omnipotence* (infinite organizing power is unlimited in its power to create); *total potential of natural law* (being the Constitution of the Universe); and *bountiful* and *nourishing* (bringing to bear the unlimited organizing power of the *Ved* in the activities of individual life for those whose awareness is sufficiently awake to their own pure consciousness). Also, the dynamic unfoldment of creation from the concentrated potential of pure knowledge is the expression of the unlimited *bliss* of this field of existence, as Maharishi explains:

Absolute fulfillment is eternally available at the unmanifest basis of creation, Transcendental Consciousness—the Unified Field of Natural Law--where self-referral consciousness, eternally awake

however, the self-knowing dynamics of pure consciousness describe its own dynamics with the term '*Ved*'. In other words, the *Ved* itself proclaims itself to be nothing other than pure knowledge and the infinite organizing power inherent in this knowledge. The belief that the *Ved* is a set of books or that it constitutes some form of religion, as some have claimed, contradicts the only valid source of information on the *Ved*--the *Ved* itself. Maharishi remarks as follows:

The word '*Ved*' has been badly promoted to be a religion of some people in the Himalayas, out of sight and out of mind. *Ved* is a very, very good friend of us all. We say '*Ved*' because that is the word by which it likes to be called—'*Ved*'. *Ved* is pure knowledge, and pure knowledge is organizing power. (Quoted in Wallace 1993, p. 220)

within itself, is ever celebrating all possibilities, the unbounded eternal bliss of its own nature. (Maharishi 1991b, p. 283.)

Primordial sounds and the unfoldment of the Ved Maharishi explains further that this unmanifest sequence of transformations that occur within pure consciousness can be appreciated as sound frequencies, called *primordial sounds*, that collectively produce the fundamental *hum of creation*, available to experience only if awareness is evenly established in pure consciousness. The Sanskrit name for these basic sounds of creation is *shruti*, which Maharishi defines as "vibrancy of intelligence in the form of sound generated by the self-referral dynamics of consciousness" (quoted in Wallace 1993, p. 217). Thus the *Ved* is a sequentially unfolding sequence of sounds, or *script*, that give expression to the self-knowing of pure intelligence; in Maharishi words, the *Ved* is

...a beautiful, sequentially available script of nature in its own unmanifest state, eternally functioning within itself, and, on that basis of self-interaction, creating the whole universe and governing it. (Quoted in Wallace 1993, p. 218)

These primordial sounds, and the rules that govern their sequential unfoldment, collectively form a language, commonly known as *Vedic Sanskrit*, a language that Maharishi often refers to as the *language of nature* because the manifest expression of nature is nothing other than a precise expression of the unmanifest dynamic sequential behavior of this language. Maharishi explains that in the *Vedic* language "there is a perfect identity between the name and its corresponding form, the sound and the object" (quoted in Dillbeck 1989, p. 132). The *Ved*, flowing as it does in this language of nature, takes shape in ever larger packets of expression: syllables, *pads* or phrases (each composed of eight syllables), *richas* or verses (each composed of three *pads*), *sukts* or stanzas, and *mandals*. The *Ved*, composed of these packets of expression, naturally divides into four *Veds* collectively known as the *samhita* or *mantra* aspect of the *Ved*. Each *Ved* is itself the structure of total knowledge, unfolding in terms of one of the four values *samhita*, *rishi*, *devata*, or *chhandas*. The structure of total knowledge in terms of the *samhita* value is called *Rk Ved*; in terms of the *rishi* value, *Sam Ved*; in terms of the *devata* value, *Yajur Ved*; and in terms of the *chhandas* value, *Atharva Ved*. As further elaboration of the four *Veds*, there emerges a vast *Vedic* literature¹⁷ that expresses the totality of knowledge in terms of different qualities of the *Ved*. Thus, pure consciousness in its precise sequential unfoldment of the structure of its own self-knowledge, displays its qualities of being highly *discriminating* and *perfectly orderly*.

Maharishi's Apaurusheya Bhasya One of Maharishi's great contributions to the science of the *Ved* is his recognition of the fact that successively larger packets of expression that arise in the sequential unfoldment of the *Ved* serve as elaborations and commentaries on the earlier stages of expression. Thus, for example, the *Rk Ved* contains the totality of knowledge of the entire *Ved* in concentrated form; the entire *Ved* is to be thought of as an elaboration or commentary on *Rk Ved*. Likewise, *Rk Ved* is an elaboration of the structure of total knowledge found in the first *mandal* of *Rk Ved*; the first *mandal* of *Rk Ved* is an elaboration of the totality of knowledge contained in the first *sukt* (indeed, each of the 192 *sukts*¹⁸ of the first *mandal* successively elaborates the 192 syllables of the final eight *richas* of the first *sukt*); the final eight *richas* of the first *sukt*, composed of 24 *pads*, elaborate the 24 gaps between the syllables of the first *richa*; the 24 syllables comprising the first *richa* provides a three-fold elaboration of the first eight syllables comprising the first *pad* (the first *pad* is elaborated successively in terms of *rishi*, *devata*, and *chhandas*); and the first *pad* is an elaboration of the eight-fold structure of the first syllable of *Rk Ved*. Thus even the first *syllable* of the *Ved* embodies and reveals the structure of the totality of knowledge. Maharishi's realization that the *Ved* is its own commentary, successively elaborating earlier stages of its own unfoldment, is called Maharishi's *Apaurusheya*

¹⁷For a more complete introduction to the Vedic literature, see (Wallace, 1993).

¹⁸Part of Maharishi's great insight in this study was the recognition that there are indeed 192 *sukts*; the 191 *sukts*, which Maharishi calls the *manifest sukts*, were known to present-day Vedic scholars. The 192nd *sukt*, discovered by Maharishi and referred to by him as *avyakt*, or unmanifest, completes the total structure of the first *mandal* of *Rk Ved*.

Bhasya. The term `apaurusheya' means `uncreated'; according to Maharishi, no valid commentary on the *Ved* could be created by individuals, however highly evolved, because any such commentary would restrict the totality of the *Ved* to a particular angle or viewpoint. Rather, a valid could only be *uncreated*, arising within the *Ved* itself, elaborating upon itself within its own structure. Commenting on this basic structure of the *Ved*, Maharishi remarks:

The principal misunderstanding of the Vedas is that they are books or objects to be known or studied. The Vedas are *Apaurusheya*--that is, not created by individual minds, not even created by enlightened minds. (Quoted in Wallace 1993, p. 218)

This structure of pure knowledge has such perfect order that each successive verse is a commentary on the previous one. This natural and self-unfolding organization of the Mantras places the total potential of the Ved in its most compact form in its very first expression. (Quoted in Dillbeck 1989, p. 126)

The totality of knowledge in AK, the first syllable of Rk Ved Hence, as we mentioned earlier, the totality of knowledge, the entire range of dynamics of unfoldment of creation, can be found in the very first syllable of *Rk Ved*; this first syllable is **AK**. As Maharishi [1986b, p. 32] remarks:

The first syllable of the Ved expresses the first principle of nature's functioning which displays the self-interacting dynamics of the eternal continuum of the singularity of samhita, the unbounded sea of consciousness at the unmanifest basis of creation. From this first principle of nature's functioning the self-interacting dynamics of consciousness, all the laws of nature sequentially emerge.

According to Maharishi, the dynamics inherent in this syllable are given expression in the following verse (quoted earlier and repeated here for convenience):

*richo akshare parame vyoman
yasmin deva adhi vishve nisheduh
yas tanna veda kim richa karishyati
ya ittad vidus ta ime samasate*

The verses of the Ved exist in the collapse of fullness in the transcendental field, in which reside all the *devas*, the impulses of creative intelligence, the laws of nature responsible for the whole manifest universe. He whose awareness is not open to this field, what can the verses accomplish for him? Those who know this level of reality are established in evenness, wholeness of life.

Rig Ved I.164.39

Thus, the dynamics by which pure consciousness knows itself, emerge in the collapse (*kshara*) of fullness (**A**); in Maharishi's words: "The first syllable of *Rk Ved*, **AK**, expresses the dynamics of *akshara*--the `kshara of **A**' or collapse of infinity to its point value, which is the source of all the mechanics of self-interaction" (Maharishi 1985, p. 1).

As we observed earlier, the emergence of the qualities of pure consciousness in the individual life of the meditator is a direct consequence of the fundamental dynamics within consciousness itself. Fullness, seeing within itself its own opposite value, pure emptiness, moves to this contracted value within itself to lift it to its own dignity. We recall Maharishi's words:

Awake in itself, [pure consciousness] becomes aware that its own nature is composed of contrasting values: it is full because it is unbounded and empty because it is unmanifest. These contrasting values flow towards each other, maintaining the perfect balance that structures the eternal continuum of the Absolute. (Maharishi 1976, p. 148.)

Maharishi [1974a] explains that this fully expanded value of wholeness is embodied by the Sanskrit letter **A**, the first letter of the *Rk Ved*; pronunciation of this letter is done with the throat fully open, without stops or modifications of any kind. **A** also represents infinite silence. The fully contracted value of wholeness is embodied in the letter **K**, the second letter of the *Rk Ved*, pronounced with a fully closed throat--the ultimate value of "stop."

Maharishi explains further that in the move of the fully expanded value, **A**, to the fully contracted point value **K**, awareness of the move within pure intelligence happens when the point value **K** is reached; prior to the emergence of **K**, awareness of the move is not available. When **A** is stopped at **K**, then infinite dynamism is imparted to this point value **K** in preparation for the full unfoldment of the *Ved* and the creation.

It is in the experience of stop that we gain knowledge of the move. If we continue **A** we wouldn't know that it is moving. So the move which is the concentration of all principles is from the experience of stop....In **K** is the awakening of knowledge of move. This knowledge of move is that package of knowledge which is the fountainhead of all principles of knowledge and creation. (Maharishi 1974a)

We call attention to Maharishi's subtle observation expressed in this quotation because we will find that even this level of subtlety in the dynamics of wholeness will be mirrored in the dynamics at the foundation of mathematics, once we have made the suitable adjustments.

As a focal point of infinite dynamism, ready to burst into the diverse structure of knowledge and creation, **K** is a point of all possibilities, capable of flowing along any and all channels of creative expression:

Vedic Science identifies **K** as the point of all possibilities...from which the whole sequential progression of the *samhita* emerges simultaneously. This locates in **K** the infinite creative potential of nature that in one stroke can give expression to the infinite diversity of creation. (Maharishi 1986b)

Maharishi [1974a] explains that the next syllable, **NI**, of the first verse expands upon the theme of subsequent expression of this infinite dynamism. The letter **N** embodies *negation* and the letter **I**, *progression* or *continuation*. Thus, the stop introduced by **K** is negated and pure knowledge flows forth, "step by step, bit by bit":

The point value of **K** is in turn negated by **N** which expresses negation itself, and from this negation of the point emerges the sequential flow of the *Ved* which presents the sequential stages of manifestation of organizing power of natural law at the basis of creation. (Maharishi 1986b, p. 146)

Maharishi describes the subsequent flow of pure knowledge as "expansion of the point to infinity." Moreover, he explains that this fundamental dynamic--collapse of infinity to a point; expansion of point to infinity--occurs not just once but is the very theme of unfoldment of each syllable of the *Ved* and hence can be said to occur with infinite frequency. Because this process of collapse and expansion occurs with infinite frequency, both are said to occur at the same time, at every point in creation. Maharishi represents this simultaneous collapse and expansion with a straight line, indicating that the oscillation is so rapid that this infinite dynamism is to be understood as infinite silence as well--that in fact, this oscillation is actually a *continuum* of infinite silence and infinite dynamism. As we quoted before, the syllable **AK** "displays the self-interacting dynamics of the eternal continuum of the singularity" (Maharishi 1986b, p. 32).

*Collapse and expansion with infinite frequency
indicated by a straight line.*

Since **AK** is itself the structure of total knowledge--in highly compact form--the knowledge of **NI** and subsequent unfoldment is all contained in **AK**; in particular, all the subsequent dynamics of unfoldment, Maharishi explains, are to be found in seed form in the *gap* between **A** and **K**. To explain this phenomenon, Maharishi [1991a] uses our ordinary use of English as an analogy. In saying a phrase, like "When we say," once the word `when' has been uttered, there is a gap between `when' and `we'; in that gap, the pronunciation of the word `when' must dissolve into silence, certain dynamics must take place to form the word `we' out of this silence, and the intention of the speaker regarding the sentence he is in the process of saying must be maintained.¹⁹ Moreover, the utterance of `we', and indeed, the utterance of the entire sentence, is an expression of the hidden dynamics in the gap between `when' and `we'. The same kind of activity must take place between any two words in a sentence, and, by analogy, this same phenomenon occurs as one syllable dissolves into silence and the next emerges in the sequential unfoldment of the *Ved*. In particular, the unmanifest dynamism in the gap between **A** and **K**, being the dynamism at the root of the entire *Ved*, contains in seed form all transformations that will eventually unfold as the *Ved* and creation. Thus, the infinity of transformations that we described earlier, by which *samhita*, *rishi*, *devata*, and *chhandas* interacted in all possible ways, must be locatable in the collapse of **A** to **K**, unfolding within this gap. As Maharishi explains,

The whole range of knowledge is between the nothingness of **K** and the fullness of **A**. (Maharishi 1974a, Lesson 8)

[The] collapse of infinity to its point value...is the source of all the mechanics of self-interaction displayed in the sequential unfoldment of the Samhita. (Maharishi 1985, p.1)

Eightfold collapse Maharishi has elaborated at great length on the details of the dynamics of creation that can be located in the collapse of **A** to **K**. To introduce one such line of thought, let us first sketch a few more details of the manifestation of creation from the *Ved* according to Maharishi Vedic Science. Maharishi explains that as pure knowledge unfolds, it first "manifests as Primordial Sound and continues to expand into the structure of the *Rk Ved*" (Maharishi 1992, p. 25); these primordial sounds evolve into eight basic frequencies that eventually create "material particles giving rise to the auditory system (sense of hearing, etc.)" (*ibid.*). Maharishi calls these eight basic frequencies *eightfold prakriti* (or eight "limbs" of nature), the eight fundamental principles at the basis of the creative expression of nature, listed here in their order of unfoldment: *ahamkar* (ego), *buddhi* (intellect), *manas* (mind)--the three subjective principles--and from these emerge the five *tanmatras*, the subtle frequencies at the basis of sensory experience. When these fundamental frequencies gain objective expression, they become the five *mahabhutas*, *akash* (space), *vayu* (air), *agni* (fire), *jal* (water), and *prithivi* (earth). These cosmic principles then combine in all possible ways to produce material creation.

¹⁹The terminology for this value of "memory" persisting in the gap is called *smriti*. According to Maharishi, in the context of *Vedic* cognition, this value of memory is not on the level of the intellect but a basic function of the unmanifest field of pure consciousness itself. Maharishi [1980, p. 16] remarks, "Awareness is just memory. If I remember something, that thing is open to the awareness. *Smriti* means `memory.' So the aspect of Vedic literature that is called *Smriti* deals with the character of awareness. It is concerned with how the awareness could be such that when it is in terms of fluctuations or excitations it does not forget its unmanifest value. In other words, when the awareness is acting in terms of specific values of natural law, the non-specific general character of natural law is not out of awareness." See (Orme-Johnson 1988b) for references to studies that indicate growth of the value of *smriti* in the lives of those practicing the TM and TM Sidhi program. See also (Wallace 1993) for a discussion of *smriti* in terms of the functioning of the DNA.

Maharishi explains that these eight principles--the three subjective principles and the five tanmatras--are the expressions of the eight *mandals* lying between the first and tenth *mandals* of *Rk Ved* (the first representing totality of knowledge, the tenth representing the Self--pure consciousness realized as the underlying reality of manifestation). By Maharishi's *Apaurusheya Bhasya*, these in turn are elaborations of the eight syllables of the first *pad* (see our discussion above for more details) of the first *mandal*; likewise, these are expressions of an eight-fold structure in the gap between **A** and **K**. In analyzing this eightfold structure, Maharishi likens the collapse of **A** to **K** to a whirlpool, spiraling from its fullest value, **A**, to its point value, **K**. He explains that this whirlpool effect unfolds in eight stages corresponding to the eight limbs of prakriti, except in reverse order, beginning with the *tanmatra* corresponding to *prithivi*, through the other four *tanmatras*, and finally unfolding the three stages corresponding to *manas*, *buddhi*, and *ahamkar*. Moreover, this eight-stage unfoldment repeats itself in a threefold way--once in terms of *rishi*, once in terms of *devata*, and a third time in terms of *chhandas*; this three-stage unfoldment of the eight-fold collapse is elaborated in the $3 \times 8 = 24$ syllables of the first *richa*, composed of three *pads* each having eight syllables.

Working closely with Maharishi, quantum physicist John Hagelin has discovered a detailed mathematical correspondence between the Lagrangian of the superstring--the most compact mathematical expression describing the self-interacting dynamics of the unified field--at various levels of elaboration and the dynamics of unfoldment contained not just in the first 24 syllables described here, but in the entire first *sukt* consisting of these 24 syllables plus the 24 *pads* that elaborate the unmanifest structure of the gaps between these first 24 syllables. In the chart below, the top three sections display the 24 + 192 syllables of the first *sukt*. The eight stages of unfoldment, corresponding to *ahamkar*, *buddhi*, etc., are presented three times, indicating that they are elaborated in terms of *rishi*, *devata*, and *chhandas*. The three bottom sections of the chart present two levels of elaboration of the Lagrangian of the superstring--a 10-dimensional version and a four-dimensional version that turns out to be a more elaborate formalism. Note that the terms of these two levels of elaboration of the Lagrangian correspond precisely with the two stages of elaboration expressed in the syllables of the top three sections. involved:

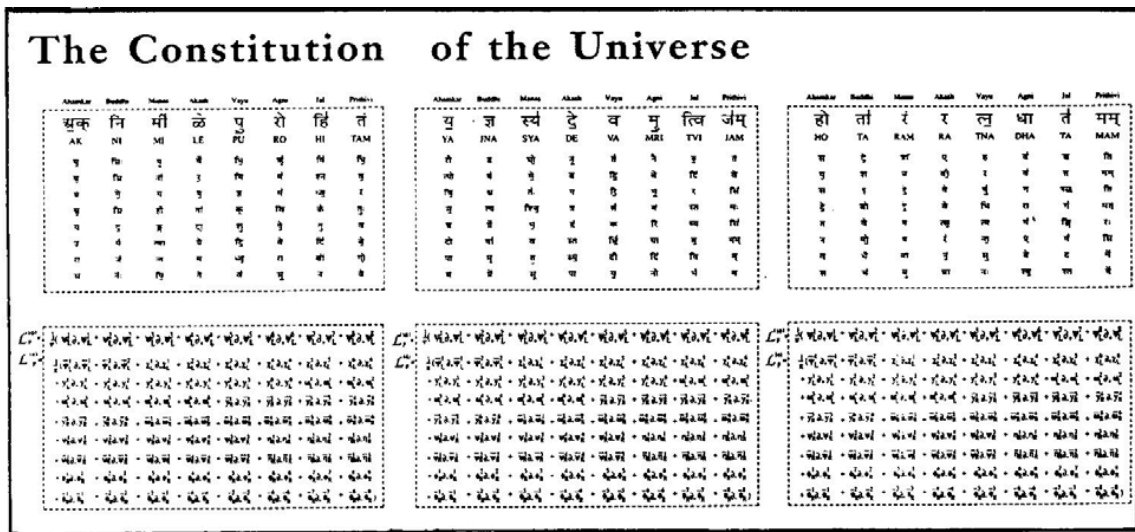


Figure 3 A mathematical correspondence between the Lagrangian of the superstring and the totality of knowledge in the first *sukt* of *Rk Ved*.

We include here Dr. Hagelin's description of the Lagrangian of the superstring and the correspondence to the first syllables of *Rk Ved*:

As with the structure of the Ved, the Lagrangian of the superstring can be seen in various stages of unfoldment. The most compact presentation of the string dynamics is provided by the ten-dimensional formulation of the heterotic string ($\Omega^{(10)}$). In addition to purely bosonic modes associated with the abstract space-time arena in which the string moves, the mathematics reveals precisely eight fundamental fermionic degrees of freedom intrinsic to the string itself--the unique solution allowed by mathematical and quantum-mechanical consistency of the theory. These eight fundamental modes of the string correspond, in Vedic terminology, to the eight Prakritis--the fundamental qualities of the unified field of consciousness. As in the structure of the Ved, these eight fundamental modes admit three interpretations corresponding to Rishi (observer quality), Devata (dynamism quality) and Chhandas (observed quality), consistent with the quantum-mechanical structure of the theory: (1) Each of the fields $\psi^{i=1..8}$ defines a particular perspective in abstract Hilbert space (Rishi), i.e. their eight eigenvectors form a basis in Hilbert space which can be used to expand and interpret any other state. (2) Each of the fields $\psi^{i=1..8}$ is an operator (Devata) which creates and destroys specific states in Hilbert space. (3) Each of the symbols $\psi^{i=1..8}$ also denotes a particular vibrational mode or state (Chhandas) in Hilbert space, created or destroyed by its corresponding operator. With these three interpretations afforded by the quantum principle, one obtains the identical $3 \times 8 = 24$ -fold structure corresponding to the first richa (verse of the Rk Ved).

The next stage in the sequential elaboration of the self-interacting dynamics of the unified field is found in the free-fermionic formulation of the string in four dimensions ($\Omega^{(4)}$). In this more expressed formalism, all bosonic degrees of freedom associated with the original, abstract space-time arena are fermionized, except for two right-moving and two left-moving coordinates needed to account for the four-dimensional structure of classical space-time geometry. This yields precisely 64 fermionic degrees of freedom intrinsic to the string itself...When these 64 string fields are interpreted with respect to Hilbert space, operators, and states, this gives $3 \times 64 = 192$ fundamental expressions of Natural Law at this level of description of the Constitution of the Universe--in precise correspondence with the first sukt of the Rik Ved. (Hagelin in Maharishi 1992, chart)

A goal of the present paper is to begin parallel research into a possible correspondence between these stages of unfoldment within pure consciousness and the stages of unfoldment of the universe of mathematics, after making certain adjustments in the initial assumptions underlying its construction. Our work so far provides such a correspondence to the first 24 syllables of *Rk Ved*, but we have not succeeded at this point in finding natural analogues to the succeeding 24 *pads* as Dr. Hagelin has in the domain of the superstring.

To place our discussion of this eightfold structure of pure consciousness in proper perspective, we turn to the following quotation from a central portion of the Vedic literature called the *Bhagavad-Gita*; here, Lord Krishna, embodying pure consciousness, the Absolute, in all its silent and dynamic phases, reveals to his pupil, Arjuna, the ultimate nature of reality. He first emphasizes this dynamic, eight-fold structure of His nature:

*bhumir apo 'n alo vayuh
kham mano buddhir
evaca ahamkara itiyam me
bhinna prakritir ashtadha*

Earth, water, fire, wind,
space, mind, intellect, and ego;
this is the eightfold
division of my nature.

(VII.4)

The Lord reveals further to Arjuna that this dynamic aspect of the Absolute is not the whole story of pure consciousness; the unmoving, pure *samhita* value of consciousness also has its own fundamental status in the structure of pure consciousness:

*apareyam itas tvanyam prakritim
viddhi me param jivabhutam*

This is my lower nature.
Know my other, higher,
transcendental nature, the Self.

(VII.5)

Indeed, Maharishi explains that the integrity of the wholeness within pure consciousness is maintained by the coexistence of the opposite values of infinite dynamism and infinite silence. This point is a restatement of Maharishi's point made earlier that every stage of the sequential structure of the Ved unfolds in the infinitely frequent oscillation between infinite silence and infinite dynamism.

Coexistence of infinite dynamism and infinite silence In the following quote, Maharishi elaborates on this point that both realities--infinite dynamism at the basis of infinite organizing power, and infinite silence by which pure existence remains ever the same--coexist simultaneously and constitute the structure of pure knowledge:

The structure of knowledge in its completeness, in its wholeness, is in the self-referring value of pure consciousness. In this self-referring field where the observer and the observed are the same, pure awareness knows itself, and in that region is the nature of pure knowledge. In that we see the seat of two kinds of structures of pure knowledge...We can conveniently say that one is the pure structure of knowledge and the other is the nature of it--just to distinguish them. The pure structure of knowledge is traditionally known as *Purusha*, and separate from that, yet imbedded in its structure, is the nature of knowledge, *Prakriti*. The whole structure of pure knowledge, and the localized structures of knowledge, are both available in their seed form, in which they are indistinguishable from each other, in the self-referring value of pure awareness. (Maharishi 1980, p. 77)

Commenting on verse V.15 of the *Gita*, Maharishi explains that it is by virtue of the infinitely silent attribute of pure consciousness that it remains forever uninvolved in its own infinitely dynamic, self-referral activity, and in this way it remains in eternal *freedom*. (In this passage, the term *gunas* refers to three basic qualities or aspects of *prakriti* in its functioning, manifest value; all activity of *prakriti* is said to be the work of the three *gunas*.)

The *gunas* are responsible for action and for everything in the field of relative existence, and the Lord, 'the all-pervading intelligence,' remains completely uninvolved. This is how It, the divine Intelligence, or He, the Lord, remains in eternal freedom. (Maharishi 1967, p. 354.)

The *integrative* and *harmonizing* quality of pure consciousness, by which both infinite silence and infinite dynamism are always simultaneously present in perfect balance in the structure of pure knowledge, guarantees that as the value of dynamism grows toward creative expression of the universe, the value of wholeness is never lost; the infinity of transformations of *rishi*, *devata*, and *chhandas* never take them out of the *samhita* value; they forever retain their connection to their source. Maharishi explains:

The reins of the diversifying universe are being held by the unifying quality at its basis. It is enlightening to see the diversifying phenomenon of the ever-evolving *rishi*, *devata*, and *chhandas* being held at their source, *samhita* (Maharishi 1992, p. 30)

All fields of creation are the diverse projections of self-referral consciousness, and, as they always maintain connectedness with their source, the entire field of diversity is the field of consciousness. That is why self-referral consciousness administering itself means the entire universe is administered by consciousness. (*ibid.*, p. 18)

The essential and ultimate constituent of creation is the absolute state of Being, or the state of pure consciousness. This absolute state of pure consciousness is of unmanifested nature, which is ever maintained by cosmic law. Pure consciousness, pure Being, is maintained always as pure consciousness and pure Being, and yet It is transformed into all the different forms and phenomena. Here is the cosmic law: one law which never allow absolute Being to change. Absolute Being remains absolute Being throughout, although it is found in changed forms at every level (Maharishi, 1966, p.9).

As we shall see in the next section, this attribute of pure consciousness, that it maintains its unbounded, infinitely silent status at every stage of its dynamic self-referral expression, is the basis of the development of higher states of consciousness; as we shall see, it is this attribute that is absent from the modes of experience available in ordinary waking state of consciousness.

The Ved present at every point, infinitely correlated with itself, invincible As every detail of creation is being maintained by the self-administering of pure consciousness, the *Ved* is present at every point in creation, and hence is *omnipresent*:

The Ved means knowledge, complete knowledge, inclusive of all life. The Ved is present at every point in creation; it is the underlying unified field of pure knowledge, of pure consciousness from which all diversity emerges. (Quoted in Wallace 1993, p. 213)

It has been said that Being is the ultimate reality of creation and that It is present in all strata of creation. It is present in all forms, words, smells, tastes and objects of touch; in everything experienced; in the senses of perception and organs of action; in all phenomena; in the doer and the work done; in all directions--north, south, east and west; in all times--past, present and future; It is uniformly present. It is present in front of man, behind him, to left and right of him, above him, below him and in him. Everywhere and in all circumstances Being, the essential constituent of creation, permeates everything. (Maharishi 1966, p. 29)

Moreover, as every stage of unfoldment of pure knowledge remains connected to *samhita*, the value of wholeness, and hence every phase of expression is itself the structure of total knowledge, Maharishi refers to pure consciousness as a field of *infinite correlation*, meaning that every bit of knowledge and information that is lively anywhere in this field is in fact lively everywhere:

This level of absolute pure consciousness underlies and interconnects all possible information. It is a field of infinite correlation in which an impulse anywhere is an impulse everywhere. (Maharishi 1976, p. 150)

Thus, while the self-referral dynamics of pure consciousness occur within the unmanifest, these dynamics are intimately related to every level of relative existence. In higher states of consciousness, as we shall see, individual awareness comes to appreciate the infinite value of pure consciousness within every grain of the manifest universe; this experience is possible because this is the way creation has been structured: the *Ved* is present at every point of creation, and there is no gap in communication between the most silent, pure, nonexpressed value aspect of pure consciousness and its most gross, dynamic expressed values.

Finally, let us mention that, because every bit of creation is infinitely correlated with the self-interacting dynamics of consciousness, it is impossible for any aspect of creation to be in conflict with, or be an enemy of, pure consciousness; this remarkable quality Maharishi calls *invincibility* for, enlivening this quality in individual or national consciousness serves as absolute protection from attack or invasion--no enemy can arise when one lives in an atmosphere charged with the most intimate value of one's own inner life:

Invincibility is a unique property of the field of absolute pure existence or pure consciousness....Nothing can disturb or disrupt the perfect balance and absolute order of this field of pure existence since everything that exists is a part of its structure and an expression of its own self-interacting dynamics. (Maharishi 1991b, p. 281)

To be really strong and really sovereign in one's own existence, one needs the strength of nature, the organizing power of nature. One needs the masterly skills through which nature governs the universe without a problem. That self-sufficiency and invincibility belonging to the unified field of all the laws of nature can easily be gained by any individual and any nation... (Maharishi 1986, p. 143)

Summary of qualities and dynamics of pure consciousness Throughout this introduction to Maharishi Vedic Science, we have alluded to the qualities and dynamics of pure consciousness. These were found expressed in the subjective experiences of transcendental consciousness (I.4A) and in the benefits in daily life reported by meditators and studied by researchers (I.4B). We mentioned in these sections that, according to Maharishi Vedic Science, these effects of Maharishi's subjective technologies are due to the enlivenment of the qualities and dynamics of pure consciousness. In other words, pure consciousness has a structure of its own with unique qualities and dynamics; contact with pure consciousness enlivens this structure in the individual (and in his society as well). We began to explore this unmanifest structure of pure consciousness (I.4C) first from the point of view of modern physics which describes it in terms of quantum field theory. Finally, in this section (I.4D), we have discussed these qualities and dynamics in some detail, using Maharishi Vedic Science to describe their first sprouting²⁰ within pure existence. These qualities and dynamics, which constitute the very structure of pure knowledge--the self-interacting dynamics of consciousness--will provide us with our main source of insight into the structure of wholeness that we would hope to find at the foundation of modern mathematics. For this reason, to facilitate easy reference, we briefly summarize our points concerning the qualities and dynamics of pure consciousness in a concise form:

²⁰Our discussion has emphasized the sprouting of these qualities as they emerge in the self-interacting dynamics of pure consciousness. It is also true that these qualities actually structure these dynamics; the qualities of pure consciousness create the structure of pure knowledge. This point is made in (Maharishi 1992) wherein each aspect of the Vedic literature is seen to be structured from specific combinations of these qualities.

Dynamics of pure consciousness

<p>(Existence) The first truth about pure consciousness is that it <i>exists</i>.</p> <p>(Nature) The nature of pure existence is pure wakefulness or pure intelligence.</p> <p>(Three-in-one structure) Being awake to itself, pure existence is conscious of itself and assumes the roles of <i>rishi</i> (knower), <i>devata</i> (process of knowing), and <i>chhandas</i> (that which is known). Put another way, the pure intelligence of pure existence distinguishes a three-in-one structure within pure existence, the <i>samhita</i> of <i>rishi</i>, <i>devata</i>, and <i>chhandas</i>.</p> <p>(All possible transformations) As each of <i>samhita</i>, <i>rishi</i>, <i>devata</i>, and <i>chhandas</i> is fully awake within itself, each is awake to each of the others. Being awake to each other transforms each. These transformed values of <i>samhita</i>, <i>rishi</i>, <i>devata</i>, and <i>chhandas</i> are themselves fully awake to themselves and each other, and the process of transformation continues. An infinity of transformations--all possible transformations--of pure consciousness emerge in this unfoldment.</p> <p>(Pure knowledge and infinite organizing power) These transformations of pure consciousness within itself constitute a sequential process by which pure consciousness knows itself. This sequential unfoldment is called pure knowledge. The <i>Ved</i> is pure knowledge together with the infinite organizing power contained within it. This organizing power gives rise to the whole creation and all the laws of nature.</p> <p>(Constitution of the Universe) The laws governing the sequential unfoldment of the <i>Ved</i> are known collectively as the Constitution of the Universe. The self-interacting dynamics of consciousness is the primary administrator of the universe.</p> <p>(Collapse of A to K) Pure knowledge emerges in the collapse of the infinitely expanded value of wholeness to the fully contracted point value of wholeness; fullness, infinite silence, embodied in A, the first letter of <i>Rk Ved</i>, collapses to emptiness, the point value, the point of all possibilities and infinite dynamism, embodied in the second letter of <i>Rk Ved</i>, K.</p>	<p>(Collapse and expansion with infinite frequency) In the unfoldment of pure knowledge, the point, embodied in K, expands to infinity. The process of collapse and expansion occurs with infinite frequency and is the theme of unfoldment of the <i>Ved</i> and all of creation.</p> <p>(Apaurusheya Bhasya) Maharishi's <i>Apaurusheya Bhasya</i> asserts that the <i>Ved</i> provides its own commentary on itself. The structure of total knowledge is found in its most concentrated form in A, and in successively more elaborated forms in AK, in the first <i>pad</i>, the first <i>richa</i>, the first <i>sukt</i>, and the first <i>mandal</i> of <i>Rk Ved</i>, and finally in its most elaborated form in the entire <i>Ved</i>.</p> <p>(Eightfold collapse) The collapse of A to K is like a whirlpool that contracts to a point in eight stages. These eight stages correspond to the five <i>tanmatras</i> and the three subjective principles--mind, intellect, and ego. These eight stages unfold from three perspectives: from the point of view of <i>rishi</i>, <i>devata</i>, and <i>chhandas</i>.</p> <p>(Coexistence of infinite silence and infinite dynamism) The fabric of pure knowledge is composed not only of infinite dynamism and the tendency to give rise to creation, but also infinite silence by which pure consciousness remains forever uninvolved in its creation. Prakriti unfolds within Purusha; pure consciousness is both pure <i>samhita</i> and <i>samhita</i> of <i>rishi</i>, <i>devata</i>, and <i>chhandas</i>.</p> <p>(Maintaining unity, wholeness) In its sequential unfoldment, the self-interacting dynamics of consciousness always remains infinitely correlated with its source, the <i>samhita</i> value of pure consciousness.</p> <p>(Present at every point in creation) The self-interacting dynamics of consciousness, the <i>Ved</i>, is unmanifest and present at each point in creation.</p>
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Qualities of Pure Consciousness²¹

<p><i>all possibilities</i> All activity begins from the field of pure consciousness; all laws of nature begin to operate from this level; the point K represents the point of all possibilities within this field.</p> <p><i>omniscience</i> The self-interacting dynamics of pure consciousness constitutes that pure knowledge on the basis of which all knowledge and existences arise. Knowing this level of life, all else is known.</p> <p><i>freedom</i> Remaining ever uninvolved in its own self-referral dynamics, pure consciousness is a state of eternal freedom.</p> <p><i>unmanifest</i> The self-referral dynamics of pure consciousness is the unseen government of nature; all manifest life is governed by these unmanifest dynamics.</p> <p><i>simplicity</i> Pure consciousness is known when that which is foreign to the nature of the knower drops away. "The simplest form of awareness is a state of perfect order, the ground state of all the laws of nature." (Maharishi 1991b, p. 283)</p> <p><i>omnipotence</i> Pure knowledge has infinite organizing power; in its sequential unfoldment, pure consciousness knows no limitation in its creative expression.</p> <p><i>total potential of natural law</i> The laws which govern the flow of pure consciousness form the Constitution of the Universe; the creation unfolds and is maintained in accordance with these laws.</p> <p><i>discriminating</i> The flow of pure consciousness within itself is not only highly dynamic and unrestricted, but precise and sequential in its unfoldment. Each stage of expression comes about methodically and with full awareness of all that has come before and all that is yet to come.</p> <p><i>fully awake within itself</i> Pure consciousness is, by its very nature, pure wakefulness.</p>	<p><i>infinite silence</i> The infinitely silent quality of pure consciousness is expressed in the first letter A of <i>R̥k̥ Ved</i>. This quality quietly nourishes the infinitely dynamic unfoldment of pure consciousness.</p> <p><i>infinite dynamism</i> Being awake to itself, pure consciousness undergoes an infinity of transformations within itself; the infinite organizing power inherent in these dynamics structures the infinite diversity of creation.</p> <p><i>pure knowledge</i> Being awake to itself, pure consciousness knows itself. This self-knowing--a sequential flow within the unmanifest--is called pure knowledge.</p> <p><i>infinite organizing power</i> "Knowledge has organizing power. Pure knowledge has infinite organizing power."</p> <p><i>evolutionary</i> The pure intelligence inherent in the infinite organizing power at the basis of creation directs life toward ever-increasing levels of progress and fulfillment.</p> <p><i>perfect orderliness</i> The laws governing the precise sequential flow of pure consciousness are at the basis of the orderly functioning observed in nature.</p> <p><i>self-sufficiency</i> Pure consciousness needs nothing outside itself for its existence, creative expression, and fulfillment. Creation unfolds and dissolves within pure consciousness.</p> <p><i>purifying</i> Enlivenment of pure consciousness--the ultimate reality of all manifest life--brings an end to unwanted tendencies that are foreign to life.</p> <p><i>infinite creativity</i> The infinite organizing power inherent in pure consciousness finds unrestricted expression in the unfoldment of creation.</p> <p><i>integrating</i> The wholeness of pure consciousness is maintained through the integral coexistence of opposite values, such as infinite dynamism and infinite silence.</p>	<p><i>harmonizing</i> The basis of harmony is enlivenment of the infinitely harmonizing quality of pure consciousness in which extreme opposite values are simultaneously lively without conflict.</p> <p><i>perfect balance</i> "The balance inherent in the eternal continuum of the unmanifest nature of the Absolute is reflected in the balance that nature maintains amidst the dynamism of evolutionary change." (Maharishi 1976, p. 148)</p> <p><i>bliss</i> The self-interacting dynamics of consciousness form the unmanifest structure of bliss; "...the Absolute ever celebrates its own nature within its unmanifest nonchanging Self." (Maharishi 1976 p. 146)</p> <p><i>self-referral</i> Pure consciousness, through all stages of unfoldment, is awake to itself; its nature and creation is therefore self-referral.</p> <p><i>unboundedness</i> All boundaries are structured in the boundless, unlimited value of pure consciousness.</p> <p><i>nowishing</i> All stages of expression activity of pure consciousness are nourished by the infinitely silent value of pure consciousness.</p> <p><i>immortality</i> Birth, death, and the field of change are the creative expression of pure consciousness; pure consciousness itself is an immortal field beyond the manifest field of change.</p> <p><i>omnipresence</i> The self-referral dynamics of consciousness are present at every point in creation.</p> <p><i>infinite correlation</i> Pure consciousness "is a field of infinite correlation in which an impulse anywhere is an impulse everywhere." (Maharishi 1976, p. 150)</p> <p><i>invincibility</i> Nothing can...disrupt the perfect balance...of this field...since everything is a part of its structure." (Maharishi 1991b p 281)</p>
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²¹This list of qualities, and its arrangement, is taken from a chart included in (Maharishi 1992).

E. Higher states of consciousness

In the previous section, we gave a fairly detailed description of the fundamental qualities and dynamics of the unmanifest structure of pure consciousness, according to Maharishi Vedic Science. We observed that this structure is actually the structure of consciousness knowing itself, the structure of pure knowledge. Let us also emphasize that, according to Maharishi Vedic Science, these truths concerning pure knowledge are *experiential realities*, as well as "objective" truths; this structure of pure knowledge has been experienced and described throughout history in every culture, presented by seers in the linguistic and cultural setting of their societies. Maharishi explains that this perception of the ultimate reality concerning the structure of existence is the birthright of everyone, but, in the present age, is rarely experienced because our present methods of education and culture do not teach the individual how to live in accord with natural law and avert the accumulation of stress and fatigue--factors which obstruct a clear perception of reality.

With Maharishi's large-scale re-introduction of Vedic technologies that systematically refine the physiology, it has become possible in this generation for large numbers of people to begin to experience the structure of pure knowledge--and establish their lives in fulfillment--as a day-to-day practical reality. We have already seen that the Transcendental Meditation and TM Sidhi program provides a wide range of practical benefits that are highly correlated with the unique state of mental and physiological functioning that arises during these practices. We have also mentioned the pioneering work of Dr. Keith Wallace who was the first to demonstrate that during these practices, individuals experience a fourth major state of consciousness, significantly different from waking, dreaming and sleeping states. According to Maharishi Vedic Science, with mounting supporting evidence emerging daily in physiological, psychological, neurophysiological, and sociological studies, the unique state of consciousness that arises during TM and the TM Sidhi program, eventually becomes, through repeated practice, a permanent feature of daily life that elevates the quality of life tremendously and opens the door to new dimensions of knowledge and fulfillment. Maharishi describes several higher stages of evolution, which he calls *higher states of consciousness*, that spontaneously unfold in the lives of those engaged in these Vedic technologies.²² In this section, we offer a brief discussion of these

²²These higher states of consciousness have also spontaneously unfolded, from time to time, in individuals who have been totally unaware of the technologies described in this paper; see, for example, (Alexander, *et al.* 1990), (Bucke 1969), and (Pearson *in press*). As we have already mentioned, Maharishi's subjective technologies at long last place these higher stages within the grasp of anyone who desires them, and, perhaps for the first time in history, makes possible a genuinely scientific study of this realm of growth and the underlying reality of the universe.

For later reference, we also mention here Maharishi's remarks concerning the following question: How long is the path to higher states of consciousness *without* a reliable technique for transcending? The answer that Maharishi gives is that such a path would be inconceivably long; although there may be a few individuals from time to time who find their way by accident, the field of relative existence is too vast to fathom on the basis of active life in this field without a systematic technique that can take one directly to the transcendental field. Such a path would require the aspirant to live life in accord with natural law without recourse to the home of all these laws, pure consciousness. The extreme difficulty involved is expressed in the following quotation in which Maharishi comments on a verse (IV.17) of the *Bhagavad-Gita*, in which Lord Krishna, embodying the Absolute, is describing to Arjuna the need for a technique to gain the fruit of all knowledge about the course of action in accord with natural law:

Every thought, word or act sets up waves of influence in the atmosphere. These waves travel through space and strike against everything in creation. Wherever they strike, they have some effect. The effect of a particular thought on any particular object cannot be known because of the diversity and vast extent of creation. This complexity goes beyond the possibility of comprehension. That is why the Lord says: 'Unfathomable is the course of action'....It will be interesting to observe closely how the Lord, having admitted that the course of action is unfathomable and having emphasized that it has to be understood, manages to steer a fine course between these opposing facts....The Lord adopts a mode of instruction whereby, without knowledge of the whole field of action, one can acquire every benefit that such knowledge

new stages of evolution—and describe how pure knowledge eventually comes to be lived on a day-to-day basis.

Maharishi explains that repeated contact with transcendental consciousness leads to three distinct higher stages of consciousness—*cosmic consciousness*, *refined cosmic consciousness*, and *unity consciousness*--which correspond to different degrees refinement of physiology and of "infusion" of the field of pure consciousness in our cognitive and perceptual machinery. We examine these states one by one.

Cosmic Consciousness With repeated experience of pure consciousness through regular meditation, this hidden level of life begins to become quite familiar. The profoundly deep rest that accompanies experience of pure consciousness has the effect of purifying and balancing the physiology so that obstacles to more sustained contact with this level are gradually removed. In Section I.4B, we quoted Maharishi's description of an analogy for this process involving the ancient method of dyeing a cloth. Recall that in this ancient method, a white cloth that is to be colored yellow, say, is dipped in a vat of yellow dye until the color saturates the material. The cloth is then allowed to dry in the sun for many hours. This extended exposure to the sun fades the cloth so that very little of the yellow color remains visible. The cloth is then immersed again in the dye, and again faded in the sun. In repeating this process, more and more of the yellow color remains after fading, until eventually the dye is colorfast. Here, the dye is analogous to pure consciousness and the cloth is analogous to the mind. Contact with pure consciousness during TM is like dipping the cloth in the dye: The mind becomes as if saturated with the qualities of pure consciousness. Placing the newly dyed cloth in the sun is like the process of daily activity: For the first few hours after meditation, the effect of having enlivened pure consciousness is evident in greater clarity, ease, efficiency, and so forth; eventually, though, the effect diminishes. Returning to pure consciousness through meditation, the mind again becomes imbued with pure consciousness, and waking activity tends again to wear away this effect, though a little bit more of this value of consciousness is retained. A point is eventually reached when the physiology has become so flexible and free of imbalance that the subjective experience of pure consciousness can no longer be overshadowed; all the qualities of pure consciousness are fully lived; pure consciousness has become, as if, "colorfast." When this state is established, it is called, in the language of Maharishi Vedic Science, *cosmic consciousness*.

Research²³ on individuals who report indications of growing cosmic consciousness reveals the emergence of a new style of physiological and psychological functioning. One study showed that individuals with sustained experiences of pure consciousness in daily activity and during sleep exhibited higher EEG coherence in the

could bestow. He brings to light the art of action whereby, without having to gain knowledge of action, one can enjoy the blessings which such knowledge would give....He therefore brings to light a technique by which the effects of knowledge will be gained without the necessity for gaining the knowledge. (Maharishi 1969, pp. 276-278.)

The technique referred to in this passage is elaborated more completely in Maharishi's commentary to verse II.45; he explains that such a technique allows the attention to transcend the "three *gunas*," the three fundamental components of relative existence whose interactions result in all manifest activity; indeed, Transcendental Meditation is such a technique. The conclusion is that attempting to gain mastery over the relative field of existence, and thereby rise to a higher state of consciousness, would involve a truly endless path through the unfathomable corridors of relative life.

We mention these points because they tell us something about the structure of creation for which we shall find an analogue in the structure of the universe of mathematics. In particular, the creation is designed so that, although individual life is designed to unfold to full enlightenment, one must choose this path of awakening to the self-referral dynamics of consciousness and adopt the appropriate procedures to move in this direction. While these procedures are natural to life, they must be learned, just as the ability to speak a language is natural but must also be learned.

²³See (Wallace, *et al.*, 1988) for a discussion of such research and a list of references. For a more complete list of references, see *Collected Papers*, volumes 2-4 (Chalmers, *et al.* 1991).

alpha and theta frequencies in the frontal and central areas of the brain than other subjects who were also long-time participants in the TM and TM-Sidhi program but whose experience of pure consciousness was less clear. (As we mentioned earlier, increases in EEG coherence suggest significant changes in the whole pattern of physiological and psychological functioning since it is highly correlated with creativity, concept learning, moral reasoning, IQ, and the H-reflex, to name a few. See (Wallace, *et al.*, 1988).)

The change on the subjective level can be summarized by saying that one's sense of self shifts from being identified with externals (job, wealth, status, friends, etc.) or with inner conditions (emotional or mental states, talents, abilities, self-image, etc.) to identification with the field of pure consciousness. When this shift takes place, one permanently lives the reality that one's essential nature, one's true identity, is unlimited, unbounded and immortal. The pure wakefulness of pure consciousness is a living reality 24 hours a day; the continuum of one's own consciousness remains unbroken by the changing states of waking, dreaming, and deep sleep; throughout these changing states, pure inner wakefulness persists as the basic inner reality of life. The fact that this one universal field of life, pure consciousness, is awake in every facet of individual life accounts for the name "cosmic"--or "all-inclusive"--consciousness.

Maharishi describes cosmic consciousness as a state in which pure consciousness is realized as separate from activity. Prior to cosmic consciousness, life is lived solely in the context of various excited states of consciousness--thinking, feeling, sensations, actions--and the least excited state of consciousness is known only as a special, separate experience apart from the day-to-day reality of life, in transcendental consciousness. In cosmic consciousness, this least excited state is never lost to awareness; it provides the silent, wakeful background to all experience. Maharishi explains:

After some time of alternating the fourth state [transcendental consciousness] with the other three, the nervous system becomes habituated to maintaining that state of awareness...Then that state of awareness is maintained even during waking, dreaming, and sleeping. All the jerks and jolts of activity during waking, the rest of the night, or the delusive nature of dreams, all this is not able to overthrow the reality of the fourth state of consciousness; it is forever maintained. (Quoted in Alexander *et al.* 1990, p. 315.)

Refined Cosmic Consciousness One feature of experience in cosmic consciousness that motivates growth to a yet higher stage of development is that it appears as though life has been divided into two realms: the Non-Self--the world of activity including both the environment and the world of thoughts and emotions--and the Self, the silence of unbounded pure consciousness. The gulf between these two fields of life is gradually bridged by growth of the "heart"--growth of the quality of love that naturally seeks to harmonize all differences. Maharishi explains that as the qualities of the heart grow, perception inevitably becomes more refined. The finer, sweeter, more delicate levels of people, places and one's world in general are appreciated and eventually begin to become the predominant value in all one's experience.

The concept of more refined levels of perception is not unfamiliar to anyone. An appreciation of fine art or of loved ones that spontaneously sees beyond faults or limitations provides us with a glimpse of the direction of this growth. From a more objective standpoint, modern physics, as we have seen, has established quite conclusively that the universe is structured in layers; the macroscopic scale of ordinary perception is pervaded by molecular, atomic, and subatomic layers; and all these are to be understood as excitations of abstract fields; and these in turn are resonant modes of a single superstring field. Thus, just as it is possible to experience, during meditation, ever finer levels of thought, less and less excited states of the thinking process, so, according to Maharishi Vedic Science, is it possible to perceive the finer levels of existence that pervade the surface of creation. When the finest relative level of existence is spontaneously appreciated in every grain of existence, even on the most superficial levels of creation, refined cosmic consciousness is established. In Maharishi's words:

When only the surface value of perception is open to our awareness, then the boundaries of the object are rigid and well-defined--the only qualities that are perceived are those which distinguish the object from the rest of the environment. However, when the unbounded awareness becomes established on

the level of conscious mind...then the perception naturally begins to appreciate deeper values of the object, until perception is so refined that the finest relative is capable of being spontaneously perceived on the gross, surface level. (Quoted in Alexander *et. al.* 1990, p. 319)

Unity Consciousness According to Maharishi, the desire of the heart that began to bridge the gap between Self and Non-Self and established individual awareness in the state of refined cosmic consciousness finds its ultimate fulfillment at this stage of development through a delicate impulse of knowledge that establishes the final stage of evolution.

When an individual is living refined cosmic consciousness, Maharishi explains, there is yet a difference between the infinite unbounded silence that one knows to be the Self and the delicate experience of the finest relative value of the environment; because of this difference, as rich and sumptuous as the outer field of life has become, it still remains Non-Self. Maharishi [1972, Lesson 23] says that bridging this last trace of a gap between Self and Non-Self occurs as an awakening of knowledge that this finest relative level of the object of perception is nothing other than the vibrant value of the Absolute Self. With this realization, each object is spontaneously perceived in terms of the infinite value of the Self. Although the boundaries on the surface remain by which one object can be distinguished from another, the predominant value of experience is unity between subject and object; every object is experienced in terms of the Self. Maharishi explains as follows:

...in that state, the ultimate value of the object, infinite and unmanifest, is made lively when the conscious mind, being lively in the unbounded value of awareness, falls on the object. The object is cognized in terms of the pure subjective value of unbounded, unmanifest awareness....In this unified state of consciousness, the experiencer and the object of experience have both been brought to the same level of infinite value, and this encompasses the entire phenomenon of perception and action as well. The gulf between the knower and the object of his knowing has been bridged....In this state, the full value of knowledge has been gained, and we can finally speak of complete knowledge. (Quoted in Alexander *et al.*, 1990, p. 323.)

Maharishi says that this final realization, this final "stroke of knowledge," occurs after refined cosmic consciousness has been lived for some time; simultaneous experience of the finest relative and pure unbounded consciousness for an extended time finally brings this recognition that everything--every object of perception, every thought, every wave of activity--is the Self in varying levels of excitation. Commenting on this final knowledge that establishes unity consciousness, Maharishi remarks:

Having gained [refined cosmic consciousness]...a man in time gains knowledge, through which he becomes free from any doubt or delusion. This is that state of 'supreme peace' where the heart rests in eternal contentment and the mind is filled with the Unity of life, where there is no trace of duality and therefore peace is abiding. (Maharishi 1967, p. 318)

The Nature of Knowledge According to Maharishi, unity consciousness, the seventh and ultimate stage of human development, is a state of life in which knowledge is complete and in which the very purpose of knowledge has been attained. To appreciate the significance of these points, we consider the nature and extent of knowledge according to Maharishi Vedic Science.

For Maharishi, all knowledge arises in the relatedness of knower, known, and process of knowing; when all three are present together, the result is knowledge. Knowledge may come about through hearing or seeing something (this would include perceptions of objects as well as activities such as reading a book or listening to a discussion); we may draw conclusions through intellectual analysis, making comparisons, or through analogies; we may also have perceptions related to our feelings, heart, or ego. In each of these processes, something comes to be known. What does in fact come to be known obviously depends on the state of the knower, the process of knowing, and the state of the object. In order to arrive at a reliable state of knowledge, knowledge that doesn't change and that can be used as the basis for successful action, these three components of knowledge need to be examined.

Certainly, *what* one is attempting to know and *how* one is attempting to arrive at this knowledge will, to a large extent, determine the knowledge that arises. One of Maharishi's important contributions to the theory of knowledge is his emphasis on the role of the *knower* in this process of gaining knowledge. What the knower gains when he directs attention to the object of knowledge depends crucially on the quality of consciousness available within the knower at the time. Certainly the knowledge that emerges in reading a book when one is drowsy is quite different from what emerges in a clear state of mind. An even more radical difference in the quality of knowledge is evident when one's state of consciousness changes; the knowledge that one has about one's bedroom simply ceases to exist when waking gives way to deep sleep.

Likewise, when one's level of awareness develops in growing from childhood to adulthood, the level of knowledge that one is capable of changes. This fact is well illustrated by the developmental stages described by Piaget; a well-known example of this phenomenon is presented in (Alexander *et al.*, 1990, p. 308): a four-year old child, when asked which of two containers holds more liquid, will invariably select the taller container even if it is so much thinner than the other that it actually holds a smaller volume. A typical (concrete operational) eight-year-old, however, will have no difficulty in making the correct choice of containers. The assessment by the four-year-old of the two containers of water is a level of partial knowledge that corresponds to his level of development.

Maharishi explains that the level of knowledge that arises in the knower depends on the level of consciousness of the knower, and that knowledge will be different in different states of consciousness:

We have seen that knowledge is different in different states of consciousness. This means that the quality of knowledge, the amount of knowledge, the truth and validity of knowledge, the actual *structure* of knowledge, depend upon the state of consciousness of the knower, or, in other words, upon the degree of creative intelligence that the knower exhibits...Whatever degree of creative intelligence is expressed by the knower, or whatever degree of creative intelligence *manifests* in the knower determines the value of knowledge. (Maharishi 1972, Lesson 32)

According to Maharishi, then, what keeps the knower from having the fullest value of knowledge available to him in the process of gaining knowledge is a level of consciousness that is restricted:

Knowledge comes through perception; but if the perceiver, the knower, is cluttered with so many things, then knowledge becomes cluttered by so many influences. If the knower is made more innocent--innocent meaning freer from boundaries, freer from the influence of localized values, freer from partialities--then the knowledge of an object will be gained in an impartial manner. Then the knower will be doing justice to the knowledge, and the knowledge will be doing justice to the knower, because the knowledge will be pure: it will be just, sincere, and free from any unreliability. But if the knower is filled with prejudices, inhibitions, boundaries, stresses, and restrictions, then the knowledge will be colored with all the background that the knower has. The knower will only do justice to the object of knowing, to the field of knowledge, if his mind is clear, pure, reliable, just and without prejudices. This situation can only exist when awareness is free from boundaries. (Maharishi 1972, Lesson 24, Questions from the Students)

According to Maharishi, the physiological basis for a restricted level of consciousness is the accumulated effect of stress and strain in the physiology; as we have seen, regular alternation of the fourth state of consciousness, through the TM and TM-Sidhi program, with ordinary waking activity gradually removes these obstacles in the physiology and establishes awareness in unbounded pure consciousness. When the unbounded value of consciousness is a permanent feature of one's day-to-day experience, the possibility of appreciating the unbounded value--the fullest possible value--of the object of knowledge finally arises:

The world is as we are. How an object is evaluated depends upon the degree to which the subject can appreciate; such knowledge is different in different states of consciousness; it depends on the level of consciousness of the subject. Only an individual established in unbounded awareness can appreciate the total value of the object at all levels...(Maharishi 1976, p. 152).

Historically, the quest for complete knowledge--knowledge that does not vary and that is completely reliable--inspired the scientific method. Since subjective variability was rightly seen to be an obstacle to gaining verifiable knowledge, western science excludes the subject as far as possible from the methodology of gaining knowledge. The result, Maharishi points out, has been a successful elimination of the unreliable variability of the subject, but a consequent focus on just one point of knowledge at a time. Therefore, knowledge has become fragmented; few of our greatest scientists have a unified vision of knowledge that could marshal the many unconnected threads of scientific research for the holistic upliftment of mankind and the planet. This lack of holistic vision shows itself in many of the life-threatening consequences that have arisen from the implementation of knowledge based on an incomplete vision or level of awareness: the invention of medical cures that produce unhealthy side effects, the emergence of environmentally unsafe technologies, and the creation of implements of war that seriously threaten the world's population, to name a few. The problem, according to Maharishi, is that, because the focus of the objective approach to knowledge has always been just one small point at a time, the knowledge has not been comprehensive enough to produce only life-nourishing effects:

The objective means focus on one particular level of enquiry only; and because no knowledge of a particular level in the relative field is comprehensive enough to throw light on the whole range of relative existence, no knowledge gained through scientific means will be total knowledge. (Maharishi 1972, Lesson 24, Questions from the Students)

The comprehensive quality of knowing, that appreciates a point of focus without losing the vision of wholeness of life, begins to be lived more and more fully as the unbounded value of consciousness begins to be lived simultaneously with the boundaries of day-to-day life. Maharishi explains that, before cosmic consciousness becomes established, the process of knowing has an overshadowing effect on the knower; the consciousness of the knower becomes absorbed in the object of knowledge and the unbounded value of consciousness is lost. Repeated experience of transcendental consciousness firmly establishes the unbounded value of the knower in the process of gaining knowledge so that the holistic, comprehensive value of knowing--namely, the unbounded value of pure consciousness--is never lost in the mechanics of gaining specialized knowledge. Maharishi explains that as consciousness continues to awaken, the dynamics within unbounded pure consciousness become increasingly familiar; eventually a time comes in which the knower recognizes that the transformations occurring within his own unbounded consciousness are the transformations governing the behavior of the world around him:

Any knowledge may be viewed as a qualified state of the knower. The phenomenon of gaining knowledge or experiencing is best understood when analyzed as consciousness identifying itself with the quality of the object and experiencing the object as the object is imprinted on the level of consciousness. The process of transcending step by step reduces the intensity of impression of the object, until the finest trace of impression fades away and the consciousness is left to itself completely identified with its own pure nature. This is transcendental consciousness, the self-referral state of consciousness.

Transcendental Meditation unfolds the knowledge of the finer levels of thought through direct experience until the finest qualified state is transcended and consciousness experiences its own self-referral unqualified state.

The practice of Transcendental Meditation provides an opportunity for consciousness to experience it qualified and unqualified status. The practice of the TM-Sidhi program provides an opportunity for consciousness to create qualified states from its unqualified state at will.

It is obvious that the transformation of unqualified pure consciousness into any qualified state must involve the activity of specific laws of nature. As consciousness becomes more and more clearly aware of the process of its own transformation, it becomes more and more familiar with the activities of specific laws of nature which govern this transformation [the self-interacting dynamics of pure consciousness]. As the practice advances, consciousness becomes more and more awake to details of

the activity of different laws of nature, until a state of full awakening is reached in which the diversified activity of the laws of nature does not overshadow the unified state of natural law and consciousness blossoms in its total potential. (Maharishi, quoted in Dillbeck 1989, p. 121.)

In unity consciousness, when the total value of the object is spontaneously perceived and appreciated, knowledge is nonvariable, not because any aspect of knowledge has been excluded, but because it is now complete; no level of appreciation of the object of knowledge has been missed by awareness; the absolute value of what is known has become lively in the knower's awareness. Finally, in unity consciousness, the world is known to be nothing other than the self-interacting dynamics of one's own consciousness. The unmanifest structure of pure consciousness that we described earlier characterizes the knowledge of the individual in unity consciousness; all transformations are the transformations of pure consciousness unfolding within itself and knowing itself; in that state, the knower, the process of knowing, and the object of knowledge are known to be nothing other than pure consciousness and are therefore appreciated in their original unified state; knowledge, for a man in unity consciousness, is the *samhita* of *rishi*, *devata*, and *chhandas*. As we have seen, from the perspective of modern physics, the world is nothing other than the dynamic display of a single quantum superfield, the superstring field; in unity consciousness, the reality glimpsed by modern physics, finally becomes a living reality.

Let us conclude by remarking that the educational path toward a level of consciousness in which complete knowledge is spontaneously available to the knower benefits the knower in a way that traditional western education has not. Maharishi innocently remarks that if one gains mastery of the science of physiology, one should as a consequence become very healthy; if one gains mastery of physics and the laws governing nature's interactions, one should be able to live life without making mistakes, without violating laws of nature. Of course educational methods in the West do not have such a holistic impact on the lives of students, but Maharishi's point brings to light an often overlooked issue concerning knowledge: What is the purpose of knowledge? According to Maharishi,

...the purpose, the goal of all knowing, is that a man should live in fulfillment. Knowledge as we have seen has a purpose: effectiveness of action for a profound value of achievement, for fulfillment. Knowledge has its goal in fulfillment. (Maharishi 1972, Lesson 32)

As one's life is cultured to live the level of life in which complete knowledge is spontaneously available, the benefit of all knowledge--that one knows how to live without violating natural law and without stepping out of the unbroken continuum and contentment of pure consciousness--gets structured into the fabric of daily living.

Because Maharishi Vedic Science provides the student of this science not only with the means to gain complete knowledge, but with the spontaneous ability to live the fruit of all knowledge, to fulfill the very purpose of knowledge, Maharishi refers to his Vedic Science as *supreme knowledge*.

In this section, we discussed the stages of development, in the form of higher states of consciousness, that unfold over time through the practice of the TM and TM-Sidhi program. We also discussed the possibility of rising to a state of consciousness in which complete knowledge of any object of knowing was spontaneously available. We mentioned that knowledge is structured in consciousness and is different in different states of consciousness, and that therefore knowledge that could be called complete could arise only in a state of consciousness that was not limited or restricted in any way. We conclude this section by taking stock of the level of knowledge available in each of the seven states of consciousness.

In deep sleep, of course, one is incapable of having perceptions or mental cognitions; no knowledge is available in this state of consciousness. In dream state, according to Maharishi, the knowledge that is gained has an illusory quality; it does not provide knowledge that is of a dependable value in waking state.²⁴ In the

²⁴We are making no comment here concerning the practice and possible value of *dream analysis*. Note however that analysis of dreams is not done in the dream state of consciousness; knowledge that one might

waking state of consciousness, the knowledge that one has of the ultimate reality, the unified field, remains on the surface, both subjectively and objectively; subjectively, the reality of pure consciousness as the state of least excitation at the source of thought is not known clearly; and only the surface value of objects is appreciated in this state. In transcendental consciousness, pure consciousness as pure subjectivity is experienced more or less clearly, but there is at this time no knowledge of "external objects" or environment. In cosmic consciousness, the reality of the subject as pure consciousness has become a living reality, but still only the surface value of the object of knowledge is appreciated. In refined cosmic consciousness, the impulse of the heart refines the quality of one's perception of the object of knowledge to the finest relative, though still the object of knowledge is not fully appreciated in terms of infinite, pure consciousness. Finally, in unity consciousness, the finest relative comes to be cognized as vibrant absolute, as the lively expression of one's own unbounded pure consciousness. In this state of consciousness, knowledge of the object is complete as every level of the object, including the infinite unbounded value, is open to awareness. In this state, all knowledge and all activity are known to be the self-interacting dynamics of one's own pure consciousness, the transformations of *rishi*, *devata*, and *chhandas* in their unified state.

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derive based on analysis of dreams would presumably develop during waking state.

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