

## SENSORS, FILTERS, AND THE SOURCE OF REALITY

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**In an attempt to sharpen and deepen conceptualization of the “Source” component introduced in the  $M^s/M^*$  representations, and to provide a complementary epistemological perspective on the mind/matter dialogue, we subsequently included the concept of consciousness “filters” in another metaphorical schematic of the information exchange process between mind and its environment. The following article concludes with specific suggestions for relax-**

**ing or tuning these filters to enhance the flow of information across the consciousness/source interface, in a manner quite foreign to contemporary scientific methodology, but quite consistent with ancient and enduring metaphysical and spiritual traditions. Corresponding specific recipes for applications to health care practices could readily be posed.**

**Abstract**

The failure of contemporary scientific theory to correlate and explicate anomalous consciousness-related physical phenomena may trace to inadequate comprehension of the process of information exchange between the mind and its ultimate source. Elevation of the subjective capacities of consciousness to complementary status with the more objective physical senses, along with recognition of the bi-directional capabilities of both categories, allows establishment of resonant channels of communication between the mind and its source environment that can exceed conventional expectations. In this manner, order can be introduced into random-

nicity, and self-consistent realities can be extracted from transcendent chaos. The key elements in tuning these channels to amplify such information creation are the physiological and psychological filters imposed upon them, some of which can be enhanced or altered by conscious or unconscious attention. Specifically, such attitudinal tactics as openness to alternative perspectives, utilization of transdisciplinary metaphors, self-sacrificial resonance, tolerance of uncertainty, and replacement of dualistic rigor by mental complementarity can enable experiential realities that are responsive to intention, desire, or need, to an extent consistent with prevailing empirical evidence.

. . . Celestial light,  
Shine inward, and the mind through all her powers  
Irradiate, there plant eyes, all mist from thence  
Purge and disperse, that I may see and tell  
Of things invisible to mortal sight.

John Milton<sup>200</sup>**INTRODUCTION**

At birth, that tiny portion of the boundless, timeless spirit of all existence that defines our personal identity takes residence for one mortal span in a physical corpus we call the human body, which is given to us to experience, explore, and influence a sensible surround we call the world. That corpus, like the spacecraft and submersible vehicles with which we explore the physical environments of space and sea, has locomotive and manipulative capacities, and is equipped with an array of physiological sensors that can acquire specific forms of information about the environment in which it is functioning. It also possesses a neurological grid and control center, called the brain, which can be trained to interpret the signals generated by these sensors, and to activate therefrom appropriate responses. It is primarily *via* these channels of experience and response that we endeavor to infer, either intuitively or analytically, composite functional models of our world and of ourselves on which to base our subsequent behavior.

The biophysical architectures and the neurological and biochemical processes by which these sensors and channels execute their respective functions have been broadly and deeply studied, and are sufficiently well understood that their maintenance, protection, healing, and enhancement can be profitably practiced, but considerably less insight has been achieved regarding their roles in establishing the subjective qualities of life. It is well recognized that these physiological sensors have limited ranges of sensitivity, and thus ignore major segments of their corresponding stimulation spectra. Human eyes perceive only the narrow band of electromagnetic radiation from 400 to 700 nanometers in wavelength, and are oblivious to the much more extensive infrared and ultraviolet domains that border it. Our ears respond only to a similarly narrow range of acoustic frequencies, beyond which lie imperceptible infrasonic and ultrasonic realms of the same form of physical oscillations. Our taste, smell, and sense of touch likewise are sensitive only to tiny portions of their potential physical or chemical informants. While we have become technically adept at artificially extending these ranges of information access *via* a host of optical, electrical, and mechanical devices, our brains must then translate their outputs into extrapolations of our physiological sensitivities to effectuate their utility. We also have developed an armamentarium of equipment to amplify and refine the incoming signals for both the natural and artificially extended sensory capacities: telescopes, microscopes, hearing aids, photographic facilities, radio

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and television technologies, seismographs, *etc.* While all serve to enhance our experience of the physical world, here again our brains must execute additional steps of recognition and logic if we are to benefit from them.

More salient to our thesis here, however, is the acknowledgment that other, more subtle mechanisms for acquisition of information, such as intuition, instinct, inspiration, and various other psychical modalities, also can enhance the flux of incoming information. Although commonly experienced, these channels involve less readily identifiable sensors and therefore are less susceptible to orderly reasoning, and they are correspondingly less respected and utilized in modern scientific practice, traditional education, and contemporary social activity. In the extreme materialistic view, this imbalance extends to total dismissal of these subtler capacities, thus restricting experience to the five primary sensory capabilities and their technological extensions alone. Consequently, the inferred models of reality are limited to those substances, processes, and sources of information that constitute conventional contemporary science.

In this paper we ally ourselves with the sharply contrary position that there exists a much deeper and more extensive source of reality, which is largely insulated from direct human experience, representation, or even comprehension. It is a domain that has long been posited and contemplated by metaphysicians and theologians, Jungian and Jamesian psychologists, philosophers of science, and a few contemporary progressive theoretical physicists, all struggling to grasp and to represent its essence and its function. A variety of provincial labels have been applied, such as “Tao,” “Qi,” “prana,” “void,” “Akashic record,” “Unus Mundi,” “unknowable substratum,” “terra incognita,” “archetypal field,” “hidden order,” “aboriginal sensible muchness,” “implicate order,” “zero-point vacuum,” “ontic (or ontological) level,” “undivided timeless primordial reality,” among many others, none of which fully captures the sublimely elusive nature of this domain. In earlier papers we called it the “subliminal seed regime,”<sup>32,33</sup> but for our present purposes we shall henceforth refer to it simply as the “Source.”<sup>§</sup>

In similar spirit, we also reject the popular presumption that all modes of human information processing are completely executed within the physiological brain, and that all experiential sensations are epiphenomena of the biophysical and biochemical states thereof. Rather, we shall regard the brain as a neurologically localized utility that serves a much more extended “mind,” or “psyche,” or “consciousness,” that far transcends the brain in its capacity, range, endurance, and subtlety of operation, and that is far more sophisticated than a mere antenna for information acquisition, or a silo for its storage. In fact, we shall contend that it is the ultimate organizing principle of the uni-

verse, creating reality through its ongoing dialogue with the unstructured potentiality of the Source. In short, we ascribe to the assertion of Arthur Eddington nearly a century ago.

Not once in the dim past, but continuously, by conscious mind is the miracle of the Creation wrought.<sup>81</sup>

By whatever names we label these two ultimate poles of the information dialogue, it is our contention that the highly selective group of experiential channels based in our five primary senses allows only very limited communication between them, so that *via* these narrow, cloudy windows in our Source-faring capsule consciousness can obtain only petty glimpses of the grand complexity and scope of its ultimate environment. Like the fabled blind men examining the elephant, our experience of the world and of ourselves is severely circumscribed by our observational inadequacies, yet it is on the basis of these shallow specifications that we presume to construct correspondingly limited models of our environment and of our cogent minds. Worse yet, these impoverished models, their concepts and terminology, are then allowed to constrict further our channels of incoming information, by constraining our experiential data, their interpretations, and our responses to conform to such authoritarian constructs of “reality” and the expectations they engender. This composite dilution of experience we shall henceforth refer to as “filters.” (Figure 1 displays one of several possible geometrical representations of this conceptual situation.)

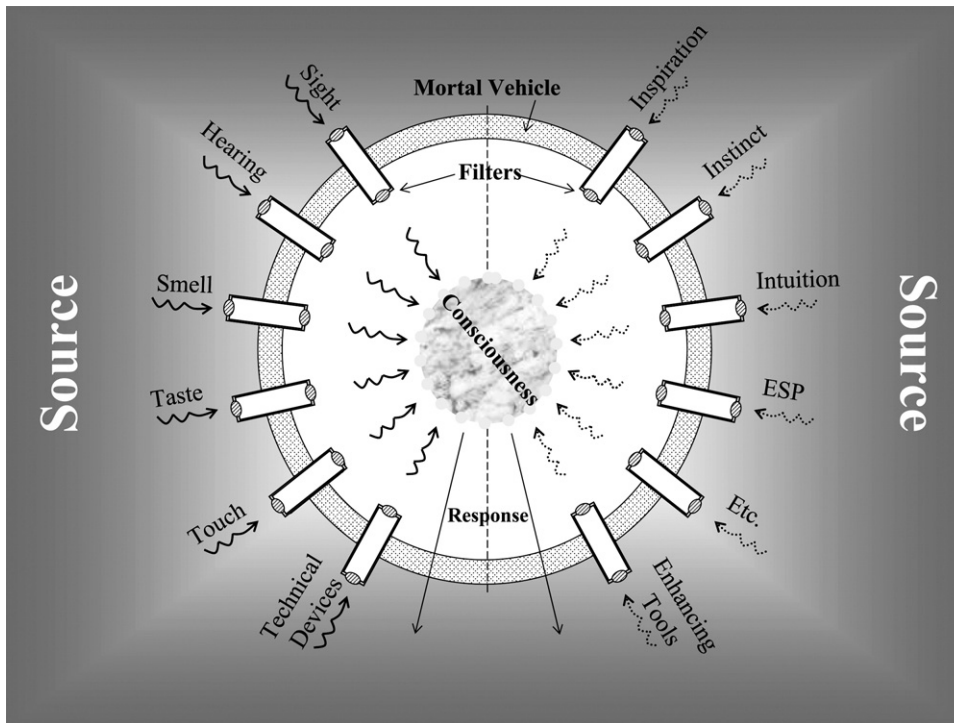
Beyond these major premises, we shall here propose three additional radical propositions, which if better understood and implemented, could bring us toward a more profound comprehension, representation, and utilization of this cosmic sea of existence in which our mortal Source-ship is traveling, and of its navigating consciousness:

1. The subjective “soft” channels of information acquisition mentioned above, severely neglected in contemporary science, should be elevated to comparable status with the more commonly trusted, objective, “hard” channels of sight, sound, touch, taste, and smell.
2. Both categories of channels have “two-way” capabilities, *i.e.*, they can pass information into the Source, as well as extract information from it. Thus, although the Source is heavily shrouded from consciousness, it nonetheless may be influenced by it. Indeed, it may engage in a dynamic dialogue with it.
3. The filters restricting both categories of channels and both directions of information flux are not necessarily static or passive. Some are “tunable,” either autonomically or deliberately, to the extent that our prevailing expectations, attitudes, purposes, needs, desires, and reference contexts themselves can be altered, thereby yielding broader and deeper access to experiences and influences that are otherwise occluded.

In the following sections we shall explore each of these propositions a bit further.

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§This assortment of contexts, labels, or models, should not be regarded as mutually exclusive or hierarchical; nor are they isomorphic to one another. Rather, they represent different perspectives on the same basic search, and hence should be respected as collectively complementary. Where they reinforce one another, or display common features, this may indicate some degree of basic insight. Where they disagree on details, testable hypotheses may present themselves.



**Figure 1.** Schematic cartoon of information exchange between Consciousness and its Source: On the left, five physiological sensory channels, conditioned by various physical, psychological, and cultural filters, acquire limited information from the Source, and transmit it to the Consciousness for organization into palpable experience and reaction thereto. On the right, other less well-comprehended subjective channels, also conditioned by pertinent attitudinal filters, supplement the information flux with an assortment of intuitive, instinctive, and inspirational sensations that may also influence the Consciousness response.

### SCIENTIFIC SUBJECTIVITY

The elevation of subjective concepts and correlates to equivalent operational status with objectively definable properties in future scientific methodology has been proposed in several of our prior technical and philosophical publications, most notably throughout the text of *Margins of Reality*<sup>2</sup> and in the essay “Science of the Subjective,”<sup>31</sup> the abstract of which serves to summarize our position:

Over the greater portion of its long scholarly history, the particular form of human observation, reasoning, and technical deployment we properly term ‘science’ has relied at least as much on subjective experience and inspiration as it has on objective experiments and theories. Only over the past few centuries has subjectivity been progressively excluded from the practice of science, leaving an essentially secular analytical paradigm. Quite recently, however, a compounding constellation of newly inexplicable physical evidence, coupled with a growing scholarly interest in the nature and capability of human consciousness, are beginning to suggest that this sterilization of science may have been excessive and could ultimately limit its epistemological reach and cultural relevance. In particular, an array of demonstrable consciousness-related anomalous physical phenomena, a persistent pattern of biological and medical anomalies, systematic studies of mind/brain relationships and the mechanics of human creativity, and a burgeoning

catalogue of human factors effects within contemporary information processing technologies, all display empirical correlations with subjective aspects that greatly complicate, and in many cases preclude, their comprehension on strictly objective grounds. However, any disciplined re-admission of subjective elements into rigorous scientific methodology will hinge on the precision with which they can be defined, measured, and represented, and on the resilience of established scientific techniques to their inclusion. For example, any neo-subjective science, while retaining the logical rigor, empirical/theoretical dialogue, and cultural purpose of its rigidly objective predecessor, would have the following requirements: acknowledgment of a proactive role for human consciousness; more explicit and profound use of interdisciplinary metaphors; more generous interpretations of measurability, replicability, and resonance; a reduction of ontological aspirations; and an overarching teleological causality. Most importantly, the subjective and objective aspects of this holistic science would have to stand in mutually respectful and constructive complementarity to one another if the composite discipline were to fulfill itself and its role in society.

Without repeating the detailed arguments presented in that essay, we would note only that this premise is essential to the invocation of the other propositions developed below. We also might note that despite their less secure catalogue of empirical

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evidence, access to these less tangible sources of information also has been abetted by a variety of man-made devices. Some of these have been carried forward from ancient mystical traditions, including for example dowsing rods, crystal balls, tarot cards, rune stones, I-Ching oracles, *etc.*, all purported to enable and enhance information access via these subtler channels. More contemporary technological versions, usually based on random physical processes, include the array of electronic, mechanical, optical, fluid dynamic, and nuclear random event generators (REGs) now commonly utilized in laboratory and field research to display and correlate consciousness-related physical anomalies.<sup>51</sup> As with the enhancers of the conventional sensory channels, however, all of these strategies also require a cognitive overlay to interpret and benefit from the additional information they provide.

## TWO-WAY CHANNELS

That the information derived from the Source by any of our limited sensory channels is utilized by our human consciousness and its physical corpus is beyond doubt. That there is also a reverse flow of information from our mind and body to this environment is a more complex and controversial issue. Clearly, when we decide to do something of a physical nature, *e.g.*, to clap our hands, drive a car, write a book, or compose a song, our physical, cultural, or social environment is affected in some way. How much of this influence is direct physical interaction and how much is achieved by subtler subjective means is debatable, but for either form it is even less clear to what extent the deeper Source underlying the perceived environment participates in, or is modified by, this outgoing direction of information flux.

Some insight into these questions might be derived by reflecting on the role of resonance in the more conventional sensory mechanics of incoming information acquisition. Taking hearing as perhaps the simplest example, we do not merely respond to the passage of sound waves traveling down our ear ducts. Rather, some portion of those incident waves is reflected by the eardrums, thereby establishing standing wave patterns in the ducts that stimulate the drum membranes to sympathetic mechanical vibrations. These, in turn, activate the auditory neurophysiology to transmit messages to the brain for its interpretation, *via* a corresponding pattern of standing electromagnetic waves in this segment of the channel. In other words, the ear canal, the eardrum, and the auditory neurophysiology comprise a complex acoustical/mechanical/electromagnetic resonator that is stimulated by the incoming sound signals from the environment.

In such a model, there is an inescapable byproduct that is usually ignored as negligible, namely those portions of the outgoing reflected oscillations that re-emerge from the ear aperture back into the external environment. To be sure, this entails only a tiny fraction of the energy consumed in the ear stimulation, but therein lies a mechanism for informing the environment of what the ear canal, the ear drum, and the pursuant neurophysiology, including the brain, are doing, for they are all part of one composite resonant system, the oscillations of which are available for interpretation and use by both the brain on one end, and by the environment on the other.

Similar, albeit more elaborate resonant structures can be described for the eyes, mouth, nose, and tactile sensors that stim-

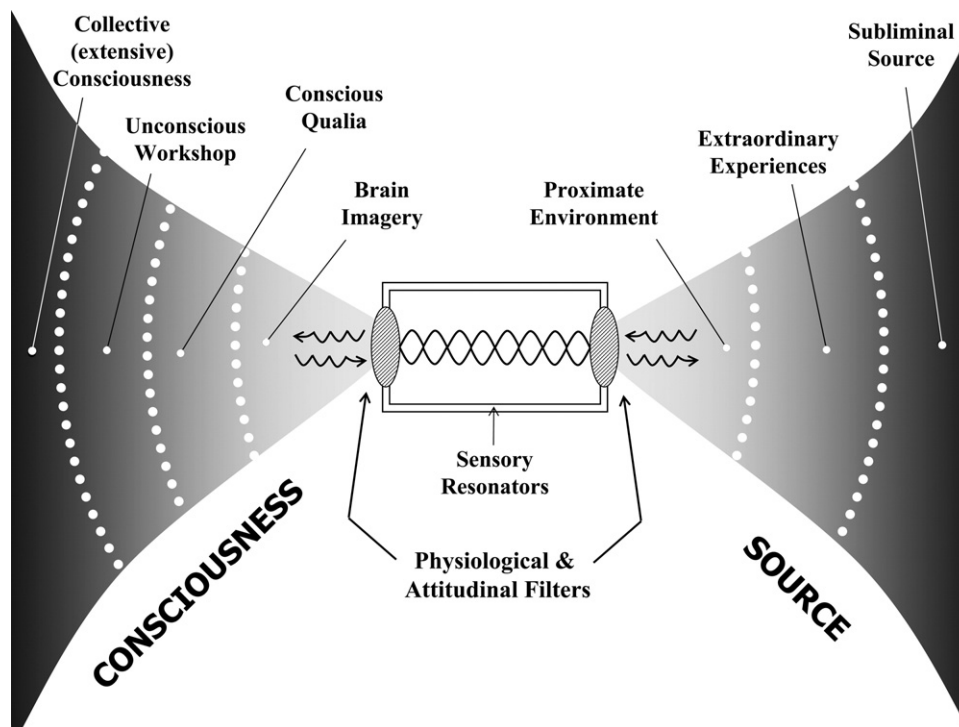
ulate all manner of organic, neuronal, skeletal, and soft-tissue responses, some small portions of which are also reflected in the outgoing signals. For the eye, it is the retina that provides the two-way interface between the resonant optical cavity and the visual cortex of the brain. The resonating configurations attending the nose, mouth, and tactile skin are somewhat more subtle and complex, and utilize a broader selection of mechanical, electromagnetic, and chemical stimuli, but each of these also inherently provides re-emergent information fluxes that couple the environment and the sensing complexes into bonded resonant systems. In fact, these latter three present more explicit means of environmental influence via their normal respiratory, transpiratory, and thermal efflux cycles.<sup>5</sup>

So far, we have not yet invoked any of the subtler forms of information acquisition included in the previous section. The requisite system for two-way communication is already in place using only physical and physiological components and processes. But if we now expand our portfolio of communication channels beyond the primary materialistic modalities to include the various subtler passages of intuition, inspiration, instinct, or the array of consciousness-related anomalous information channels long researched in our laboratory and elsewhere, we may more broadly extend the same resonant holistic system metaphor. While the specific mechanics of these incoming and outgoing information carriers and the receptors thereof are less well understood, the role of resonance in such interactions, although less tangibly defined, is impressionistically quite evident, and may well be more significant than for the physical channels. Indeed, the establishment of such resonant states between the subjective experience of a living participant and its pertinent physical and emotional environment is one of the essential functions of all spiritual practices, creative enterprises, healing efforts, and, in our context, the scientific generation of such phenomena.

What then do such resonant channel models predicate? Clearly, the individual effect sizes are very tiny: a few phonons re-emerging from an ear or a few photons from an eye; some faint biophotonic mechanism<sup>201</sup> or chemical radiation from the body; or some microscopic flux of anomalous information riding on an unspecified subjective carrier, each attempting to inform the world about the information being processed in a small portion of the brain or psyche at the other end of that particular system. Ah, but how many ears, and eyes, and mouths, and brains, and psyches, of how many living creatures equipped with such capabilities are resonating their instruments, at their own particular frequencies, at any given moment? And what is the global concatenation of this grand cacophony of information radiations upon the world? And to what extent does that condition not only affect the proximate tangible environment,

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§Our list of physiological sensors does not extend to other proprioceptors, such as those associated with body orientation, movement, sensitivity to gravitational or magnetic fields, *etc.*, since their inclusion would add little to the essential bi-directional concept, and would needlessly complicate the specific illustrations. Nor have we attempted to specify the role of the brain/mind interface in such complex resonance systems.



**Figure 2.** Schematic cartoon of the resonating sensory systems: Consciousness exchanges information with the Source *via* filtered sensory oscillators, each resonating within its particular physiological or psychical complex. From the information thus acquired, it assembles experiences, the subtlety and profundity of which depend on the depth and breadth of the information interpenetration. From relatively narrow and shallow penetrations it infers a model of its physical environment, but this is only a limited, emergent expression of the full potentiality of the ultimate Source. Deeper incursions, however achieved, can yield more profound and extraordinary experiences, probably first processed in the unconscious mind. The most extreme penetrations can precipitate extensive, collective psychical events, and may yield more ontological glimpses of the Source itself. By the converse routes, consciousness also employs the sensory resonators to contribute information to the Source, thereby affecting it, and hence the palpable environment and all subtler experiences derived from it. Personal realities may thereby be responsive to individual and collective intentions, desires, and needs, to a degree determined by the intimacy of the consciousness/source coupling.

but also the ineffable Source from which it derives? Perhaps this imagery is akin to that William James had in mind when he referred to this mind/environment colloquy as “the blooming, buzzing confusion.”<sup>202</sup> In any case, we now have in hand a conceptual model that can employ either hard physical or soft psychical elements not only to enable ongoing two-way communication and influence between mind and matter, but also to establish a subtle network of awareness and interdependence among all of the participating minds and substances, thereby elevating the consciousness component of the information dialogue from an individual to a collective level that may merit capitalization of the term, as well. Perhaps even more importantly, we may have the mechanism for individual and collective Consciousness to imprint itself on the universal Source. (Figure 2 offers one schematic representation of the Source/Consciousness resonant sensory system concept just proposed.)

At this point we might attempt to estimate quantitatively the amount of information of all physical and psychical forms currently permeating our environment, that has been processed through the various resonant channels just proposed. We shall eschew that ambitious effort in favor of simply noting that any and all information that is actually extracted from the Source *via*

the consciousness sensory systems is subject to such resonant reflections, and thereby couples these two ultimate entities to some small degree. What portion of this coupling is materialistically brain-based in character, what portion is psychically based in the subtler modalities, how these two genres complement and inform one another, and how the consciousness employs its brain utility in all of this, remain major issues. But direct physical processes for consciousness to influence the evolution of its Source of reality seem to exist.

We shall also pass over the multitude of possible secondary loops that connect our minds to the environment, other than to acknowledge that when we receive information through one or more of the sensory channels, mental processing may dictate a response that returns information to the environment in some other modality. When danger intrudes, I may run, resist, or perspire; when my dog nudges me, I may speak kindly to him, pat him affectionately, or take him for a walk; when I hear great music, I may smile, sigh, or even sing along. In all cases, my reactions are returning some information to the environment, and these indirect couplings, like the more direct resonances within the individual sensory channels, greatly proliferate the grand Consciousness/Source dialogue.

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## FILTER TUNING

We have already noted the severe physiological restrictions imposed by our sensory equipment on the quality and quantity of information we can extract from the Source. Some of these can be improved by selective training or genetic aptitudes that favor particular modes of information acquisition, such as the enhanced sensitivities of accomplished or gifted musicians to particular tonalities; the capacities of great artists, designers, or organizers to grasp designs and patterns; or the abilities of superstar athletes to react to critical aspects of their games more rapidly and accurately than their competitors. Most of us will also concede that our prevailing subjective states of mind can color the way we perceive any events and respond to them; both are clearly conditioned by our purposes, expectations, moods, prejudices, and attitudes. Beyond these short-term sensitivities, various longer-lived cultural and psychological filters operate as well. As an extreme example, it has been reported that some pre-Columbian Native Americans literally could not see the large sailing vessels of the first European explorers to broach their shores because they had no cultural precedent for such an event or object, and no appropriate words in their vocabulary. Thus, in their context of reality, such things simply did not exist.

This blindness to items that are inconsistent with expectations has been demonstrated repeatedly under rigorous scientific conditions. A number of studies in perceptual psychology have established that people engaged in structured activities typically do not see unexpected, or even bizarre events that may intrude, even though these are clearly visible to uninvolved observers.<sup>203</sup> Many of these derive from the classic Bruner and Postman experiments in perceptual psychology, wherein subjects presented with pictures of playing cards at rapid intervals consistently misperceived incongruent cards having mismatched suits and colors.<sup>204</sup> The implausible, frequently symbolic or mystical imagery that characterizes dreams, meditations, hallucinations, and other altered or visionary states of awareness are probably attributable to the suspension or alteration of the sensory filters we have cultivated for use in our ordinary waking state. Outside the realm of human experience, it is evident that many other creatures, despite utilizing sensory equipment similar to our own, respond substantially differently to given environmental situations, depending on the behavioral heritages and enculturation that have tuned their own filters to particular functional purposes.

What we wish to pursue here, however, is a more proactive form of filter tuning wherein a particular physical perception, its inferred conceptualization, the patterns of conscious and unconscious response it stimulates, and the corresponding environmental reactions it induces may be altered more deliberately. This is the sort of process the celebrated Cherokee medicine man, Rolling Thunder, alluded to when he cryptically summarized his apparent ability to manipulate external events as “there’s an attitude you can take.”<sup>205</sup> We also confront it in the mystifying efficacy of the placebo, or in the demonstrable improvements in physical strength and control derivable from martial arts protocols. The deliberate use of hallucinogenic substances to alter patterns of awareness and allow access to alternative realities also has extensive cultural precedents throughout recorded history.

Our particular point here is that at whatever level and by whatever practice they may be invoked, such tuning techniques may condition both directions of the two-way information traffic discussed in the previous section, *i.e.*, not only may they alter the quantity and quality of the information reaching the consciousness from its source environment, but also, *via* the resonant reflection processes or indirect response mechanisms just proposed, they may condition the information transmitted to the latter from the former as well. Thus, the holistic information loop of vital conversation between the two is to this extent responsive to the consciousness filters we choose to impose, and it is to these that we must turn to seek practical benefits from our composite model. The benefits we seek, of course, are better understanding of the Consciousness/Source dialogue, leading to its more effective utilization in our daily lives.

At this point the reader might reasonably anticipate some cookbook recipe for tuning the filters of consciousness to achieve more incisive penetration into its Source environment, thereby extracting from it an expanded range of information and experience and/or altering it in some observable way. Unfortunately, our 25 years of laboratory work have persuaded us that this aspiration is not so neatly obtainable, given the fundamentally unspecifiable natures of both the Consciousness and the Source. Although our minds acquire information in an inherently subjective fashion, in our Western culture they have been cultivated to conceptualize and express their experience and activity primarily *via* precise, “this, not that,” objective discriminations, largely neglecting the intangible subjective dimensions that can blur those distinctions. In contrast, the Source exists as a sea of ineffable, complexly intertwined potentialities that are rooted in irreducible uncertainty that defies objective specification. Thus, the same impedance mismatch that limits our interactions with the Source also encumbers our efforts to devise and describe means for controlling the filtering process to enhance our access to it. Hence, rather than a step-by-step recipe, we can offer only an assortment of empirical insights and derived speculations that may seem to some of our precise scientific colleagues to be rather vague and esoteric, and to some of our more intuitive colleagues too mechanistic and constrained. A similar disclaimer must pertain to any effort to specify the subjective strategies actually employed by the participants in our experiments in generating the anomalies results that have stimulated these theoretical musings. These tactics are typically so intuitive and personal that they defy any attempts at generalization. We therefore must leave it to our readers to create their own recipes from these raw ingredients, with no assurances of effectiveness or replicability from one application to the next.

Within these caveats, five features strike us as being essential to any proactive filter-tuning strategy:

1. the acceptance of the possibility of alternative realities;
2. the generous utilization of conceptual metaphors by which to access them;
3. the achievement of resonance, in both its objective and subjective senses;
4. the tolerance of uncertainty as a *sine qua non* in any creative interaction between consciousness and the Source;

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5. the replacement of conceptual duality by complementarity as the fundamental dynamic for the construction of reality.

In the remainder of this paper we shall strive to communicate our own sense of the essence of these ingredients, insofar as they can be linguistically represented.

### 1) Alternative realities: The power of perspective

It is the theory which decides what we can observe.  
Albert Einstein<sup>206</sup>

The initial requisite for any proactive form of consciousness filter tuning is the recognition that the reality one is experiencing is only one possible expression of the full spectrum of potential realities available from the Source. Only with this conviction in place is it possible to suspend or de-prioritize the particular perspective being deployed, to allow activation of other options. Under ordinary circumstances, however, we usually are so pre-occupied with translating our experiences into objective descriptions that we fail to acknowledge at a conscious level the fundamentally subjective nature of those experiences and the accessibility of alternative representations of them. Rather, such alternatives are assigned probabilities via an unconscious mental algorithm that incorporates such factors as past experience, expectation, desire, or fear, along with the immediate purpose or intention. As these unconscious calculations converge on the interpretation that seems most likely within the prevailing perspective, an appropriate filter is thereby imposed. Typically, it is only at this point that the attribution of experiential meaning shifts to a conscious level.

Among the many unconscious factors that contribute to such mental sorting, the prevailing values of our culture play powerful, albeit subtle, roles. The primary objectives of most socialization and educational processes are the encouragement of individual beliefs and behavior that are consistent with the values and purposes of the collective, so that our personal worldviews align with the perspectives of the particular socio-cultural milieu, peer groups, or professional hierarchies in which we are immersed. Each of these dispenses its own conceptual vocabulary and priorities to bias the weighting factors in our unconscious mental calculations toward those representations of experience that are most consistent with the established beliefs and goals of that system, thereby reinforcing the coherence of its collective structure. Any “thinking outside the box” undermines the system’s control over individual experience and action and is discouraged *via* stern social sanctions of rejection or exclusion from group membership. For humans, as well as for other social animals, such treatment is usually sufficiently painful to enforce conformity to the “appropriate” information processing strategies and consequent behavior. Eventually, these constraints become so internalized and automated that most alternative perspectives, and their associated reactions, are not even recognized. In extreme cases, they can engender a variety of physical and emotional pathologies, including neuroses, psychoses, or muscular armoring<sup>207</sup> that can further limit or distort responses to stimuli. Given such cultural obedience training, the deployment of other interpretations, *i.e.*, other consciousness

filters, requires a strong act of will, plus an acceptance of the psychological consequences of deviating from the security of the collective belief system. As a result, the rules governing the creation of reality are recognized as mutable, rather than absolute, a realization that initially can be emotionally discomfiting. But this is the inescapable price if we are to purchase the ability to extract from the potentiality of the Source a physical actuality that reacts to our conscious intentions.

In this processing, the organizing mind may apply a wide variety of conceptual filters to the boundless, undifferentiated potentiality that is the Source, whereby the emergence of countless corresponding realities are possible, perhaps reminiscent of the “many worlds” concept of some physical theorists. When the probing mind articulates an intention; *e.g.* “Let there be X,” that intention is automatically associated with a sense of its meaning within any given frame of reference. A sequence of discriminations is then initiated whereby X is successively distinguished from all associations that that mind regards as clearly not-X. Even with these eliminations, however, an assortment of potential associations with X still remains, each of which has some probability of pertinence in the prevailing reference frame, thereby constituting a kind of subjective probability distribution. As each of these possibilities is considered and rejected, the definition of X becomes more precise and the mind moves from a state of uncertainty, where its sense of control is tenuous, to one where it feels more comfortable, with an experience that seems more orderly and predictable. With the continued reduction in uncertainty, the residual interpretational possibilities that survive this elimination process take on increasingly higher likelihoods of being meaningful information, and the variance of the distribution of meanings narrows. One familiar example of this process might be the systematic solving of a crossword puzzle, where more than one word can fit a designated set of squares for which the clue is intentionally ambiguous.

Since most of the critical early distinctions that establish and maintain the frame of reference guiding the selection process take place at a non-conscious level, the conscious mind is rarely exposed to the less probable options. It makes its choices only among those alternatives that seem more likely within that frame of reference, where habitual, enculturated definitions of reality already have been well established. But if a different context of meaning is invoked, the distribution function of possibilities shifts to some degree, depending on how radically that alternative deviates from the conventional one. In a reference frame comprising a major change of perspective, the most likely outcome could well be out in the tails of the standard mind-set distribution; conversely, the most likely events in the latter context could be quite unlikely in the former. In other words, alteration of the prevailing context of meaning to one where an ostensibly lower probability option becomes dominant is essential for effecting significant change in one’s reality.

As a particularly simple example of such an exchange of reality, consider the well-known Necker cube visual illusion. In this case, confronted by two equally likely perspectives, the mind finds itself in a superposition of states, shifting back and forth between the two available possibilities as it tries to determine which is the “correct” image. In such a delicately balanced situation, the slightest subjective bias toward one interpretation or

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the other can shift the equilibrium. Once this happens, the discriminatory function takes over and decides on “this, not that,” and a “reality” is established. In this example, where the initial probabilities are essentially equal, the process could equally well have converged on the alternative reality. In more complex situations where the competing interpretations have very different probabilities, however, opting for the less likely interpretation requires a more substantial shift of perspective, which, when achieved, engenders a correspondingly larger change in the information patterns propagating between the mind and its environment. This may well be the controlling factor in limiting the scale of anomalous effects that characterize the laboratory-based studies, where for successful achievement the human participant must attempt from the outset to set aside the scientific “impossibility” of the assigned task and to invoke a reference frame in which the probability of the anomalous accomplishment is optimized.

It is interesting to note that, in contrast to our Judeo-Christian-scientific tradition, some cultures actually encourage the exploration of alternative interpretations of experience as a strategy for developing self-awareness and deeper understanding of the relationship between the individual and the environment. For example, certain Native American and East Asian traditions maintain that one cannot fully understand an experience until it has been considered from at least seven different points of view.<sup>208</sup> In this sense, the terminology “alternative reality” might better be replaced by “extended reality,” which also befits our particular application of this concept. While we shall not attempt to describe here the various strategies deployed by such societies in this process, nor to provide an anthropological/sociological critique of their effectiveness, their applications within their own cultural contexts confirm that our narrower Western approach to the interpretation of experience is not the only option.

## 2) The magic of metaphor

I will open my mouth in parables,  
I will utter things hidden since the creation of the world.  
Psalms 78:21<sup>209</sup>

Note that throughout this paper we have resorted to metaphor several times, invoking the familiar properties of “space capsules,” “distribution functions,” “crossword puzzles,” “Necker cubes,” *etc.*, in an attempt to clarify the intended meanings of potentially unclear abstract concepts. Metaphor is, in fact, a powerful technique for resolving or utilizing ambiguity in order to convey subtle nuances of meaning or to express otherwise ineffable experience. It stimulates the associative capabilities of the mind, *vis-à-vis* its discriminatory techniques that attempt to minimize uncertainty by assigning names, categories, and functions to subjective experience in order to reduce it to more precise objective description. Discrimination, the tool of logic, presents the consciousness with sequences of “either/or” decisions that inevitably lead to a dualistic view of reality; association, the tool of creativity, raises awareness of possible connections between apparently disparate interpretations and allows the consciousness to move beyond duality in representing its

experience. Metaphor thus encourages the mind to pay more attention to the similarities among various interpretational options than to their differences, and thereby empowers rather than reduces the uncertainty, as discussed more fully below. (This is the essence of the so-called Law of Similarity that played a central role in the ancient practice of alchemy.)

In this spirit, let us return to a quantum mechanical metaphor we introduced in previous publications,<sup>2,10</sup> wherein we spoke of reality as the product of the interaction of consciousness with its environment. In that representation we intentionally defined consciousness very loosely, “to subsume all categories of human experience . . . including those commonly termed ‘conscious,’ ‘subconscious,’ ‘superconscious,’ or ‘unconscious,’ without presumption of specific psychological or physiological mechanisms.” Our similarly comprehensive definition of environment included “all circumstances and influences affecting the consciousness that it perceives to be separate from itself, including, as appropriate, its own physical corpus and its physical habitat, as well as all intangible psychological, social, and historical influences that bear upon it.” Thus, reality was regarded as the product of a consciousness/environment interface that was intrinsically subjective and situation-specific, so that the Source could only be perceived through the prevailing filters of consciousness, much like the shadows in Plato’s cave.<sup>210</sup>

In applying this quantum mechanical metaphor, we also had occasion to define a “consciousness atom,” using a set of spherical “consciousness coordinates” labeled “range,” “attitude,” and “orientation,” which proved useful in representing various states of consciousness. For our purposes here, we can identify “range” with the emotional intensity, “attitude” with the point of view, and “orientation” with the context prevailing in a given interaction of consciousness with the extended environment of its Source. Alteration of these subjective coordinates of the mind can affect the quality of the experience by fine-tuning the resonant channels of the physical and psychical senses through which the consciousness observes and interprets the stimuli imposing on it.

As an exercise in exploring this tactic, consider the word “green” (since cognitive scientists, philosophers of science, and theoretical physicists are fond of using color as an example of a quale). Note how the consciousness coordinates adjust to the following associations: green light; green thumb; greenhouse, greenhorn; Greenpeace; green about the gills; Green Man; green with envy; greenbacks; Green Bay Packers; wearin’ o’ the green, *etc.* The concept of “greenness” thus extends a range of metaphorical implications and associated subjective meanings that go well beyond the standard physical definition of light with a wavelength of approximately 520 nanometers. There is no single “correct” meaning, nor is there anything that precludes conscious deployment of any of the many possible meanings to color one’s desired reality.

This multivalent ambiguity is the essence of art, of poetry, and perhaps most ubiquitously, of humor. Virtually all jokes, cartoons, and whimsy utilize metaphor in some form, to poke fun at our foibles, fads, and follies, in a friendly, unthreatening fashion that encourages fresh attention and releases creativity. Consciousness invokes such attitudinal lubricant to facilitate adjustment of its contextual filters, thus enhancing the propagation of

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the incoming information from the environment. In so doing, the reflection of information back into the environment is also enhanced, and in this way the mind's intention, or any other of its subjective priorities, can be imposed on the Source, and hence on the reality constructed from it.

While PEAR has never pursued any systematic study of the subjective strategies employed by its experimental operators, it has been evident from personal communications and casual observations that metaphorical techniques are commonly deployed. These have included frank anthropomorphism, *i.e.*, attributing living qualities to the experimental devices; linguistic association, *via* creation of lists of words free-associated with the intentions currently being asserted; or visual association of the feedback displays with images of living processes, such as perceiving a high-intention cumulative deviation trace as a bird or plane taking off into the air, or a low-intention trace as that of a fish diving into the depths. Remote perception percipients have described their tactics in metaphors as well, such as staring at a blank screen waiting for a movie to begin. In both classes of experiment metaphor appears to be an effective technique for shifting the perceived context of the task at hand from one that seems impossible to one where it is an attainable, even if unlikely, possibility.

### 3) The role of resonance

It's Love that makes the world go round.  
W.S. Gilbert, *Iolanthe*, Act II<sup>211</sup>

One of the most powerful and commonly employed metaphors to link the world of objective, physical events with the world of subjective, emotional experience is that of "resonance." Examples of resonant oscillatory interactions abound in all manner of mechanical, electrical, optical, and chemical systems, and characteristically entail substantial departures in behavior from those of their separate components. The signal-to-noise ratio and sharp selectivities of conventional communications systems, musical instruments, and lasers of all types; the destructive oscillations of aerospace vehicles and of the Tacoma Narrows bridge; the microscale interactions that bind atoms into molecules; and the pulsations of stars and galaxies; all are critically dependent on various forms of internal and external resonance. But the conceptual nomenclature is equally apt in capturing the subjective essence of interpersonal bonds between lovers, siblings, parents and children, and friends; of hyper-productive relationships between individuals and their household, computational, artistic, athletic, or automotive equipment; or even of the intensive personal associations with particular social purposes, projects, or missions. In all these contexts, the emergent resonant experiences, products, or performances can significantly exceed those achieved by the individual partners acting alone.

It is not unreasonable, therefore, that our attempts to represent and to enhance the interactions of Consciousness with its environmental Source would similarly benefit from the establishment of some form of resonance between them. The problem, of course, is the identification of some common conceptual platform on which these two apparently disparate entities may

join effectively in a resonant dialogue. Our suggestion is that the requisite exchange may draw on the wealth of potential information resident in the complex, chaotic uncertainty of the Source, in concert with the extensive repertoire of potential interpretations or meanings which the mind may contribute.

Resorting again to our quantum mechanical metaphor, it was there suggested that just as the binding energy of a physical molecule derives from the indistinguishability of the two participating valence electrons, in a similar fashion the anomalous experiences that can occur among people who are "on the same wavelength," or who are engaged in resonant human/machine interactions, also may derive from the surrender of distinct individual identities in favor of a more complex "molecular" composite. For our purposes here, we propose further extension of this analogy to the establishment of resonant oscillations of experience between the potential information chambers of the mind and of the Source.

To develop this proposition a bit further, we might note that any experience of emotional resonance is closely associated with the perceived meaningfulness or importance of the interaction. It is the visceral feeling that shifts the filters of consciousness from those of passive, objective observation to ones of proactive, subjective participation, and this participatory immersion in the experience modifies its perceived reality. This immersion may be enhanced by progressive elimination of the specific discriminations that distinguish Self from not-Self, until the Consciousness approaches pure experience, a state the Zen masters refer to as "samadhi." Such a state is ineffable by definition, but those who have known it, and the traditions that have cultivated it, maintain that it is the ultimate reality. Some have described it as the sense of being immersed in the unmanifest potential of the universe where everything and anything is possible. Clearly, this is a very different perspective of reality than that experienced through the usual filters of perception, and its achievement may elude most of us. But many of us have experienced more modest forms of subjective resonance, such as being in love, or Buber's "I and Thou" relationship,<sup>212</sup> where two previously independent "I's" comprise a shared "We" that can change the perception and interpretation of reality. In essence, in altering its definition of Self, consciousness attains propitious reference frames for modifying the information dialogue with its environment, and thereby enhances its ability to alter the probabilities of physical events.

This "I/Thou" connection is frequently mentioned by PEAR's successful operators, many of whom seem to develop intimate emotional relationships with the experimental devices, akin to those felt in other forms of intense human/machine interactions, *e.g.* with a musical instrument, automobile, or athletic equipment. One particularly touching expression of this occurred when the random mechanical cascade apparatus, known to its friends and operators as "Murphy," had to be shut down for repairs and one of the operators sent it a personal get-well card. Such resonance effects also manifest in the remote perception experiments in instances where the assigned target holds a strong personal attraction for the participants, or where the percipient and agent are personally involved, and our methods of analysis have taken explicit precautions to preclude sensory information leakage from such causes.

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#### 4) The use of uncertainty

The more alternatives there are, the more uncertain the outcome. The more uncertainty, the greater the potential for information transmission.

Lachman *et al.*<sup>213</sup>

It is the ethic of virtually all scientific investigation to strive for precision: precision of measurement; precision of analysis; sharpness of conceptualization and interpretation; maximization of the “signal-to-noise” ratio. Yet, in the particular scientific context we are addressing here, this otherwise commendable zeal for precision of technique and its corresponding refinement of interpretation and prediction, paradoxically can become a double-edged scholarly sword. Not only have we accumulated extensive empirical evidence testifying that excessive rigor in experimental design and analysis tends to reduce, rather than to enhance consciousness-related anomalous effects, but there are also strong indications that uncertainty itself may be a critical component in the generation of the anomalous phenomena. We attempted to demonstrate a particular example of this empirical enigma in considerable detail, and to explore its broader implications for anomalies experiments in the article entitled “Information and Uncertainty in Remote Perception Research.”<sup>8</sup> There we concluded that in anomalies research, as in any expression of human creativity, it is essential to establish a balance between rigor and flexibility, discipline and innovation, precision and ambiguity, if one is to navigate between the Scylla of sterility and the Charybdis of chaos.

It appears that the narrow channel that separates these complementary extremes follows an epistemological uncertainty principle similar to that which Heisenberg introduced as limiting the precision of observation of conjugate physical properties, such as momentum and position or energy and time. It is also relevant to note that one technical representation of the Source domain, namely the “zero-point field” that is postulated to permeate the universe with vast energetic potentiality, ultimately derives from the imposition of this same uncertainty principle on atomic-scale harmonic oscillators. In other words, both the objective physical world and the subjective creative processes of consciousness seem to be constrained, and enabled, by the same intrinsic ambiguity.

Uncertainty inescapably characterizes the interface where the two complementary coordinate systems of mind and matter overlap, creating the interpenetration from which reality emerges. In any given interaction, each of these partners enters in a state where information is still only potential, waiting for consciousness to select a frame of reference within which to address the Source, impose appropriate subjective and objective filters, and thereby actualize it as an experience. This done, the event can be labeled and communicated, but in so doing any alternative perspective is dismissed, and with it any information that perspective might have conveyed. It is only in the prior phase of unresolved uncertainty, at the margins of reality, that consciousness has provisional access not only to those realities with which it is familiar, but also to the vaster uncertainty that constitutes the ultimate Source. Progressive modification of these filters with each new application further complicates the task and, given the intrinsic uncertainty that attends any chosen

frame of reference, it is inevitable that all determinations of reality are inherently probabilistic. It is not surprising, therefore, that replicable results in anomalies research remain so elusive.

Notwithstanding, many experienced PEAR operators have come not only to recognize and accept this inherent uncertainty, but to utilize it in their data-generating tactics. They speak of avoiding personal attachment to the outcome of any particular trial or run, preferring instead to “flow” with the indeterminacy itself. Or as one operator expressed it, “. . .when it goes where I want, I flow with it. When it doesn’t, I try to break the flow and give it a chance to get back in resonance with me.” Successful percipients in the remote perception experiments likewise recognize that any valid information they may acquire about their targets is convected on a background of uncertainty and possible misinformation, to which they should maintain an attitude of “high indifference.”

#### 5) The case for conceptual complementarity

Contraria sunt complementa

Coat of Arms of Niels Bohr<sup>214</sup>

Niels Bohr first proposed that the celebrated and perplexing wave/particle dualities appearing in atomic-scale physical interactions could be rationalized only by regarding these two modes of behavior not as contradictory, but as “complementary,” in the sense that each displayed a legitimate aspect of the interaction, and both were necessary to specify it completely. And it was Bohr himself who subsequently offered a sweeping generalization of this physical complementarity principle into much broader philosophical and cultural dimensions: “. . . the nature of our consciousness,” he asserted, “brings about a complementary relationship, in all domains of knowledge, between the analysis of a concept and its immediate application.”<sup>215</sup> This huge extrapolation was fully supported by Bohr’s colleagues Heisenberg and Pauli, and in their philosophical writings all three of them invoked numerous metaphors to illustrate this generic relationship.<sup>216</sup>

The magnitude of revision in conceptual and operational perspective predicated by this radical proposition should not be undervalued. Until that time, virtually all Western thought, including physics and metaphysics, had been dominated by Cartesian duality and was largely content with absolute and polar measures. Classical philosophy spoke of the dialectic tension between thesis and antithesis; theological discourse divided the world into domains of good and evil, spirit and matter; and this polarization of reality was reflected in most common conceptualizations as well. In this cultured mindset, the “mind/body problem” remained at least as intractable as the “wave/particle duality.” Then, from the world of hard scientific formalism, came this radical proposition that some of these sharp dichotomies should be replaced by more subtle and sophisticated complementarities, wherein arbitrary proportions of superficially disparate properties might profitably be combined to deal with given situations. Despite its counterintuitive character, considerable theoretical elegance, as well as pragmatic benefit, in modeling both the physical world and cultural attitudes was obtained thereby. We suggest that extension of this principle into the yet more challenging domain of consciousness mechanics can prove to be similarly beneficial.

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Following this lead, we extend our metaphorical license to propose that many of the filters of consciousness that we have been addressing here also may be complementary to one another in this more general sense. Grouped in appropriate pairs, such attitudes and perspectives entail the same orthogonal irreducibility, yet can provide the same conceptual reinforcement as the conjugate physical quantities, and can serve similarly to define the operational spaces of consciousness. It may well be that this relationship also pertains to the essence of the mind/matter interface itself, and to all of the modes of interaction between consciousness and its environment. The primary benefit of a complementary approach to the filter-tuning process is that the consciousness conjugates need not be competitive characteristics, but can be combined in arbitrary proportions as befits a given situation. Participation in an experience does not preclude observation of it, nor do subjectivity and objectivity stand in contradiction to one another. In fact, once the uncertainty injunction that rules out precise simultaneous specification is accepted, it may actually help to define the optimal balance between any pair of consciousness conjugates. Our research strategy has attempted to exploit this complementarity by encouraging all PEAR staff members to serve as operators and by treating all operators as co-experimenters, thus blending the perspectives of objective assessment and subjective immersion in a hands-on experience of how the filters of perception can alter the reality being experienced.

Given our extensive musings elsewhere about the complementarity of consciousness in a variety of contexts,<sup>2,27,205</sup> we shall here add only two other examples that are particularly pertinent to the purpose of this paper: the complementarity of intentionality and resonance, and that of Consciousness and Source themselves. Intentionality and resonance both are essential for determining the nature of an experience, although the former is explicitly proactive and the latter intrinsically responsive. Intention imposes the filter through which the experience will be interpreted; resonance enhances the consciousness participation in the experience. Asserting an intention is essential for limiting the potential information to a given context, but it is the subjective immersion in the interaction that modifies the consciousness coordinates and thereby the meaning of the resultant information. By establishing an appropriate balance between these two conjugate states of mind, the corresponding uncertainty becomes available as a medium wherein the probabilities of possible interpretations may be altered to manifest the desired reality.

The ultimate pair of complementary conjugates, of course, is that of Consciousness itself and the ineffable Source in which it is immersed, and with which it intersects to generate all manner of experience. Despite their vast disparity of character and function, it is they who comprise the universe of life, and they who are the parents of all reality.

## SUMMARY

On the basis of a quarter century of laboratory and field experimentation on consciousness-correlated physical anomalies, extensive informal personal discussions with our operators and other colleagues, and a number of previous attempts to pose conceptual models consistent with the empirical results, we have

offered here another metaphorical perspective on those aspects of the mind/matter dialogue that may underlie its anomalous manifestations. Like its predecessors, this model deviates from causal physical logic, which may actually be the culprit in the anomalous appearance of such phenomena, in favor of a more generic comprehensive approach to the creation of tangible reality. More specifically, we have proposed that the normal physiological sensory channels that provide our material brains with information about our physical environment are routinely supplemented by various subjective modalities that inform a more extended, less physicalistic consciousness. Both of these categories are posited to have two-way capabilities, *i.e.*, they comprise direct resonant couplings between the mind and its environment, as well as stimulate a variety of indirect responses, all of which are capable of transmitting information in either direction. We also have proposed that our palpable physical surround is an emergent property of a much vaster intangible reservoir of potential information, which we have labeled the Source, and that the emergence is enabled by the resonant coupling of this Source with its cosmic complement, the organizing Consciousness. Finally, we have suggested that the intensity of that resonance is limited by the physiological and mental filters imposed upon our objective and subjective sensory channels by various physical, cultural, and emotional factors.

We then turned to explore possible means of relaxation or tuning of those filters to enhance the resonant dialogue between Consciousness and the Source, thereby allowing richer experiences to unfold, and providing some insight into the nature of the Source itself and of the extensive Consciousness. Possible strategies for such pro-active filter tuning, while inherently difficult to specify and communicate, were suggested to entail a constellation of counter-conventional attitudes and beliefs. These include openness to alternative interpretations of experience; invocation of interdisciplinary metaphors by which to express and reify those alternatives; surrender to resonance with those realities and thereby to their Source; recognition and acceptance of uncertainty as an intrinsic characteristic of both the Source and the Consciousness, and thus as an essential ingredient in the creation of any reality; and relinquishment of "either/or" mental duality in favor of creative complementarity of concepts, especially those of intention and resonance, and of Consciousness and the Source themselves.

These are not trivial alterations of our attitude toward the establishment of reality, and collectively they appear to be at fundamental odds with the conventional scientific tenets of objectivity, replicability, falsifiability, quantifiability, causality, and determinism. Certainly, they are not the usual attributes drilled into young scholars aspiring to standard scientific careers. But they are consistent with, indeed impelled by, the accumulated research evidence that has repeatedly verified the existence of mind/matter phenomena that refuse to be accommodated by the traditional assumptions, and they have proven to be productive, indeed necessary, expansions of scientific attitude for their systematic study. Most especially, as it becomes increasingly apparent that physical reality can be objectively affected by subjective factors that usually are disregarded in the prevailing scientific paradigm, it becomes correspondingly imperative that these be acknowledged and formalized if the study of such anomalies, and indeed of Consciousness itself, is to be brought to both rigorous and productive research. The most direct

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means for such acknowledgment would seem to be the generalization of what heretofore have been regarded as the objective scientific principles to more comprehensive forms that explicitly include attitudinal factors, and thus can apply to these elusive, subjectively correlated, but nonetheless profound and powerful phenomena.<sup>31</sup>

In pursuing this transition, it may be reassuring to recall that while the prevailing secular premises of contemporary Western science are relatively recent in the history of human thought, they nonetheless have their roots in medieval alchemy wherein the consciousness of the practitioner was accepted as a proactive agent in the study of nature. Indeed, Francis Bacon, Isaac Newton, and most of the other original architects of the scientific method all were

practicing alchemists who clearly respected the role of consciousness in the generation of physical and chemical phenomena.<sup>2</sup> The subsequent gradual rejection of subjectivity in science was driven by an increasing desire for predictive certainty, but it came at the cost of excluding the observing mind from the process under observation. Now, in much the same fashion that the augmentation of our observational capabilities through more sensitive instrumentation forced extensions of the classical view of a mechanistic universe into relativistic and quantum formulations, major refinements of our contemporary information-processing tools are forcing us to reinvite the subjective aspects of information into the workshop of science, and thereby to recover the baby we threw out with the bath water more than three centuries ago.