

# Three Perspectives on “What the BLEEP Do We Know!?”

THE FILM *What the #\$\$! (BLEEP) Do We Know!?* has gained national attention and sparked a questioning of thorny assumptions such as: What is the nature of reality? Have science and consciousness at last become affable bedfellows? Will the scientific worldview more fully embrace the non-material world of mind?

Why in the bleep are we at the VIA Journal intrigued by the quantum impact of this film on the movie-going world? Precisely because it is our mission to engage our readers in provocative inquiry that leads to new insights. VIA is committed to a full-capacity, inside-out exploration of models that influence the fundamental quality of life for all beings on the planet.

So we were inspired by the film to invite three scientists recognized for being on the vanguard of their fields to share with our readers their points of view based on how they personally experienced *What the #\$\$! (Bleep) Do We Know!?* We hope you enjoy these different perspectives and that they inspire you to your own original thinking on the deep questions the film raises.

—Anita Rehker, Senior Editor



Marlee Matlin plays Amanda, the protagonist of the story.

*What the BLEEP Do We Know!?:*

# A Personal Perspective

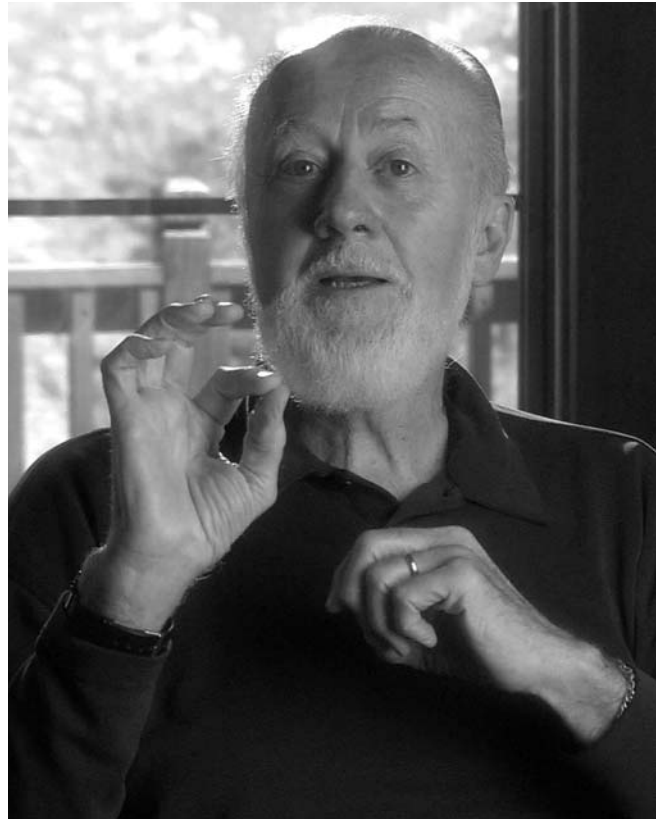
By William A. Tiller

LET US BE VERY CLEAR, the movie phenomenon *What the BLEEP Do We Know!?* is today touching the souls of the general U.S. public just as it did a decade or two ago when that same public reached out to buy—with their own out-of-pocket funds—alternative and complementary medical services to the tune of billions of dollars a year. Why? Because the conventional medical community was not adequately serving their needs. Once again, the public is expressing a deep internal knowing and need by its response to this movie, and it behooves our nation's professional and lay establishment to properly interpret such actions.

The movie highlights: (1) a specific human life story where the protagonist is entrained in a personal worldview—supported by almost all media communications—that she is almost powerless to change the perceived quality of her life; (2) a series of talking heads with considerable professional qualifications who espouse another viewpoint that can empower her; and, (3) a wonderful, artistic crafting of the blend between these two seemingly dichotomous viewpoints. In this brief article, I wish to provide my own personal experience and perspective on various aspects of this movie phenomenon.

## HOW THIS “TALKING HEAD” BECAME INVOLVED

About two to three years ago, I received a communication from some people in Washington state who wanted to make a documentary with a very strange title: *What the Bleep Do We Know!?*, and would I consent to participate by answering a series of questions of a scientific/metaphysical/spiritual nature



Stanford University Professor Emeritus William Tiller is featured in the docudrama.

based on my own longtime experience with such topics. Since I have been seriously studying these three topics for over 50 years and am deeply interested in helping the general public to personally explore such paths, I took this as another potential opportunity to “plant some seeds” in the consciousness of the general public.

So I said yes and we set a date for the filming. A month or so later about ten people showed up at my door in Payson, Arizona. I didn't know any of these young people, but I liked the “feel” of them. I invited them into our home and we proceeded to embark on about a six or seven hour video adventure. Most of that film footage is still “in the can,” but a small portion ended up in the movie.

I didn't know there would be a movie and, since most of such projects do not really materialize for a variety of reasons, I basically wished them well with their documentary efforts and emotionally detached from it, turning my attention to the next item on my to-do list. Imagine my surprise when, about two years later, this potential documentary had become a movie with professional actors (several of whom I was aware of and respected), and was actually about to be shown

in real movie theaters. When I had a chance to see the movie I thought that everyone had done a good job and that it was a worthwhile contribution to our human society. I felt there were some important details that were in error, but overall I was very pleased and impressed with the creative expression, the acting, the editing and the production of the movie. Some “seeds” had truly sprouted and showed promise of bearing useful fruit.

### **SOME PROS AND CONS OF THE MOVIE**

Everyone loves the beautiful pictures of the ice crystals provided by Dr. Masaru Emoto as serious *proof* that specific human intentions can affect the crystallization process for water in highly correlated and specific ways. These striking morphological changes seem to make it obvious that anyone following his experimental procedure can reproduce such results. This is incorrect for at least two reasons. Don’t get me wrong, there is obviously a correlation, but what are the reasons for the correlation?

As a world-class expert in the science of crystallization—one of my conventional science areas of expertise—I know that it is possible for one to produce this entire array of crystal morphologies by experimentally adjusting (1) the concentration and specific nature of the solute species (contaminants) present in the water; (2) the cooling rate of the water below its freezing point; and, (3) the actual supercooling of the water at which some heterogeneous catalytic particle present in the water actually *nucleates* the water to ice phase transition.

In Dr. Emoto’s experiments, item (3) was neither controlled nor measured, a necessary requirement to be fulfilled if one wanted to *prove* that it was the new factor of specific human intention that was causative.

After stating the above, I feel quite confident in also stating that Dr. Emoto probably unintentionally “conditioned” his experimental space to a higher electromagnetic (EM) gauge symmetry state than a normal space through his general intentions so that the “conditioned” experimental space became especially sensitive to specific intentions. (I provided abundant experimental evidence to show that this is possible in an article that appeared in *VIA*, Vol. 1 No. 4 2003, pp. 30-43). We can now experimentally measure the degree of elevation of a space above the normal electromagnetic gauge symmetry level so that, in the future, someone trying to reproduce Dr. Emoto’s results to prove that human intention was the causative factor involved could do so in a completely scientific and satisfactory manner.

My second main correctness-type of concern about the movie was an unintentional misrepresentation by several of the talking heads concerning quantum mechanics (QM) and, in its present form, what it is capable of telling us about any effects of human

consciousness upon the properties and processes operating at the physical level of reality.

As presently formulated, QM is a very precise mathematical theory whose domain of operation is four-dimensional spacetime, within the classical particle velocity limit of being less than or equal to the velocity of EM light ( $v \leq c$ ), and involving any of the four accepted fundamental forces: EM, gravity, the weak force and the strong force. This theory has been remarkably successful and accurate for particle physics, small atoms and photons. However, as currently formulated, it has absolutely *no* capability of predicting the behavior of any psychoenergetic process in nature. Anything involving human consciousness’ effects on physical reality—as metaphorized in the movie—requires an expansion of present day QM. The world has spent billions of dollars trying to use quantum electrodynamics (QED) in the military trying to mimic the remote viewing capabilities of some humans to see things far away. It has completely failed to do so. Explaining something like remote viewing or any other psychoenergetic phenomenon is completely beyond the capabilities of present day QM.

### **THE WONDERFUL WEIRDNESS OF QM**

Many of the talking heads extol the wonderful weirdness of QM as if that is what makes it a great theory. However, most professionals know that whatever theoretical model or reference frame (RF) one uses to predict the behavior of nature’s many expressions, there exist built-in constraints, assumptions and other limitations (associated with the model’s detailed mathematical formalism) for each such model or RF. A different RF choice always yields a different perspective for viewing nature, and the goal of a theorist is to find an RF wherein the experimental data is straightforward, understandable and relatively simple. Extolling QM weirdness may be great fun, but it really tells us that the present mathematical formulation of QM is badly in need of expansion.

### **SO WHAT’S THE PROBLEM WITH THE CURRENT ESTABLISHMENT SCIENCE?**

I have been avocationally investigating human inner self-management for almost 50 years and have performed serious experiments in the psychoenergetics area for about 35 years. My two books in this genre deal strongly with the importance of directed human intention, and the second specifically sets out to *prove* or *disprove* the unstated assumption establishment science firmly held for the past two centuries that “no human quality of consciousness, intention, emotion, mind or spirit can significantly influence a well-designed target experiment in physical reality.” We have robustly disproven this assumption; it is clearly false and is badly in need of correction. But how does one effectively do this?

When in 1970 I first began these psychoenergetics experimentations in my spare time at Stanford, I assumed that if I continued my highly expert conventional science studies—for which I was internationally recognized and respected—and in parallel performed careful psychoenergetics investigations, my scientific peers would read this second stream of papers with some degree of thoughtfulness and interest. Unfortunately, my initial assumption was quite naïve and, in fact, proved to be quite wrong! Just as in Galileo's time, the respected scientific establishment is not willing to "look through the telescope" at the data with a clear eye. This is a human sociological problem involving many causative factors. Let's consider some of them.

First, scientists are mostly just like normal folks but with much more specialized education and training. Thus, they also operate somewhat on a herd instinct, want security, and are not particularly courageous except in areas where they have a great deal of knowledge. Most of them are followers rather than leaders, quite subject to peer pressure, and very protective of their hard-won professional reputations which form their personal-power base. Most work very hard, are very busy keeping up with digesting all the important literature in their particular field of expertise, carrying out their personal research, finding the necessary funding to continue and expand their research, writing scientific papers and books, trying to get these published, making presentations at scientific meetings to their peers in order to sustain and enhance their professional reputations, and serving on professional, governmental and university committees. All these things, plus being a spouse and parent, are necessary activities in the life of a successful scientist in today's world. Most have no time left over for inner self-management activities unless prodded in this direction by their spouse, or having had some definitive, personal inner-life experiences. Most would feel tainted and reputation-threatened to be in any way connected to psychoenergetic research.

Second, top-ranked universities have a reputation to protect, so they vie for the best scholars, researchers, teachers and staff that their money and reputation and local environmental quality can buy. Sadly, in today's world most have become very sophisticated high tech training schools for industry and government. Their reputations attract high quality students and foundation, philanthropist and government money plus financial donations from a wide variety of alumni. They must afford to present a collective image to the world as a successful, leading-edge, establishment-type, creative organization in order to continue to attract such students and moneys. Maverick professors in the organization are tolerated so long as they "push the envelope" along fairly conventionally accepted paths. At present, most would feel reputation-

threatened and tainted by having psychoenergetics type of research occurring within the confines of their organization. Predictably, this attitude will change in the not too distant future.

Third, the major funding source for research in a nation is its government. In the U.S., after World War II, the government planted a great deal of seed corn types of research during the '50s and '60s. Political demands for practical payoffs from such research began in the mid to late '60s and, in the 1970s, government funding shifted more to practical applications of this seed corn research. By the 1980s, almost all university research was directed towards exploiting the new understandings of the '50s and '60s. This mode of research continued through the '90s and is still so today. No new seed-corn type of research has been funded since the early '60s, except for those few that appear to have advanced military use possibilities. The psychoenergetics research of the "remote viewing" type funded by various U.S. intelligence gathering agencies in the '70s and '80s at Stanford Research International is one of the few exceptions.

Fourth, most of the theological organizations in the U.S. professing to promote "inner-work" within their congregations actually preach secular religious dogmas designed to entrain their clientele to a fairly narrow view of theology and its role in the spiritual development of humanity. Although some types of biofeedback tools and inner self-management processes for human self-development have been available since the 1960s, the various religious organizations have not pushed to proceed along these lines of personal empowerment seemingly because they know—as does the U.S. government—that when the public becomes awake to the power within each of them they are not so easily controlled.

At the very least, with discrimination of these four causative factors, one can begin to see that there is no simple "fix" for this problem; however, with the present availability to publish one's data on the Internet and to self-publish one's books, editors of establishment journals and publishing companies can no longer completely block the dissemination of psychoenergetic science experimental and theoretical findings to the general public and interested scientists.

Before closing this section, it is important to point out that there appear to be three categories of scientific investigators when it comes to psychoenergetic phenomena: The largest number form category one. They are strongly entrained with the unstated assumption referred to earlier: the effect size of any psychoenergetic experiment must be unequivocally zero. Any presentation to them of such data with effect sizes greater than zero will cause their eyes to roll and glaze over just before their conscious brain shuts down. This type of behavior is labeled *the boggle effect*. Category two's scientists do not suffer *the boggle effect* so

long as the experimental effect sizes are *small*. However, this group suffers from the boggle response when the effect sizes are large. They are also entrained with the need for very careful controls and statistical design of experiments to wean out and discriminate small effect size results from the statistical noise zone of the experiment. Of course, this is a very important procedure that needs to be established for any new area of science seeking to establish credibility with the establishment scientists populating category one. The downside for category two is that they often become so entrained by their day-to-day protocols that they cannot mentally accept large effect size psychoenergetic results that do not seem to obey their carefully constructed protocol rules.

Category three, of which this author is one, never experiences the boggle response no matter how large the result and effect size of the psychoenergetic experiment being conducted. For them, key experimental protocols need to be such that the dominant physics principles operating in the experiment are sufficient to manifest data signal amplitudes of magnitude strongly above the noise (large effect sizes). This group subscribes to the substantial reality of the following reaction equation

**MASS ↔ ENERGY ↔ CONSCIOUSNESS**

operating in all psychoenergetic experiments. Their faith in the existence of such an equation is significantly larger than “a mustard seed,” and thus they seek to drive the equation from right to left. Such people think that the next main growth step for humanity is to do sufficient inner self-management work that we all drive our experimental reality and our manifest world in this way.

### THE ROLE OF THE GENERAL PUBLIC

It is time for the general public to awaken to the realization that we are all spirits having a physical experience as we ride the river of life together. It is time to recognize that we can individually become much, much more than we presently think we are by going within to experience and know our “source” via our disciplined progress in inner self-management. It is

time to recognize that all humans matter, that they can beneficially change themselves, their environment and our world. It is time to recognize that we are all *one*, and that “the God in me beholds the God in you.” Thus,

right action requires always choosing the right means to achieve the goals we desire in this physical experience because collectively—via our present thoughts, attitudes and actions—we are all co-creating the experiential future through which our “river of life” must pass. It is the time to be courageous, to let our inner light shine into our outer world and become what we were always intended to be: loving co-creators with that spiritual “source” within!

Today, the general public of all countries pay, via their taxes, for almost all scientific research done

in their nation. Therefore, in democratic societies, the general public is ultimately responsible for the sustaining of outdated paradigms by their scientific sector. When human consciousness has been experimentally shown to significantly influence the properties of, and processes in, inorganic, organic and living materials, it is time for the general public to require—even demand—that the scientific establishment develop a new reference frame for viewing nature that has the capability of quantitatively connecting *both* the seeming outer world aspects of nature and our seeming inner world aspects of nature. At least qualitatively, this is what the movie *What the Bleep Do We Know!?* attempted to connect. ▼



The film's protagonist becomes aware of what Tiller calls her own “self-management.”

*Book references available upon request.*

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#### William A. Tiller, Ph.D

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*What the BLEEP Do We Know!?:*

# A One-Dose Drug

By Milo Wolff

VIEW THIS FILM AS A ONE-DOSE DRUG. Indeed, for some it was habit-forming; we met several people coming back for a second injection. The main feature is an emotional appeal to a deep-seated need in many people to understand their own lives and the reason for their existence. Thus the theme of this film is to give viewers a hope that the science of either quantum mechanics or of neural networks may provide them with the answers they seek.

In my opinion, both of these avenues are illusions created in the typical fashion that academia has used for centuries to impress their disciples with high-sounding phrases and unprovable theories. It is a common practice among professors to create huge structures of theory based upon foundations of nothing when they think they cannot be caught.

Because of the apparent complexity of quantum mechanics—it is very mathematical in its present form—and the intricacy of neural networks—it is difficult to experiment on living human brains—these two topics were ideal for the film producers. Several experts (mostly professors, of course) were recruited as actors to voice the mysteries of their fields and suggest to the viewers that just a little more knowledge and effort might provide answers to the goals of life.

The film is entertaining and uses elegant screen techniques to illustrate common concepts of neural networks and quantum theory. Striking artistic drawings of magnified networks of neurons in the brain zoom in and out stimulating the imagination while offering hope that the meaning of life may be found in the structure of the brain itself. Lights flash through the elaborate jungle of brain networks each time an expert suggests a possible answer. Blackboards are filled with imaginary mathematical symbols. A rabbit from the tale of *Alice in Wonderland* is enlisted to help the professors. He suggests that the rabbit hole into which Alice fell and entered into Wonderland might be the path to discovery. In the last scene the rabbit asks, “Which hole would you like to enter?”

The present interpretation of quantum waves, which implies a built-in uncertainty in our lives, is

used to simultaneously dazzle the viewer and offer hope that a clever mind can tear away the veil of uncertainty and find a path to happiness.

It would be amiss for this reviewer not to point out that quantum mechanics is no longer complex and confusing. The mysteries in the film were due to the old mistaken assumption that atomistic matter is composed of discrete particles. Instead, experimental evidence shows that Nature has built a *Wave Structure of Matter* (WSM) in the *space* around us. The quantum wave universe is very simple—only two rules in fact. It is a new perspective of the physical world: Each part of matter—you and I, the galaxy—is connected to a universe of an all-pervading wave *space*. We exist in a sea of quantum waves.

We don't easily notice the space wave medium because our survival and evolution as an animal species depends on our ability to fight with other animals seeking food, and to compete for mates that produce children—skills not closely related to the quantum space medium. However, sensing quantum waves is not as helpful to the survival of our personal genes as recognizing apples we can eat and avoiding tigers that want to eat us. Lacking personal experience of quantum waves, early scientists chose to imagine that the electron is a discrete “particle,” like a bullet or a grain of sand. Serious thinkers such as William Clifford, Albert Einstein, Paul Dirac, Erwin Schroedinger, and Ernst Mach realized that the human analogies were wrong. Professors have hardly noticed. But let me be honest, even though the *Wave Structure of Matter* (WSM) is the truth of reality, the answers to the puzzles of life are still hidden, however true the path may be. ▼

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#### Milo Wolff, Ph.D.

Professor Milo Wolff, whose many works can be found within modern scientific literature, is a researcher in physics and astronomy, the originator of the theory of Wave Structure of Matter, which simply and elegantly describes and explains all of the major problems of physics, and has worked for MIT, NASA, the U.N., and various universities in Indonesia, Singapore, China, Sri-Lanka, France, Ethiopia and Pakistan. Contact the author at [milo.wolff@quantummatter.com](mailto:milo.wolff@quantummatter.com)



# What the BLEEP Do We Know!?: An Encounter with a Six-Foot Rabbit

By Thomas Brophy



WHAT THE BLEEP STARTS OUT WITH A BANG, the Big Bang, and sets out delivering blows toward our worldview from there. A mix of drama and documentary, *What the BLEEP* inter-edits several scientists/intellectuals and Ramtha—a channeled spiritual teacher—describing the strangeness of quantum mechanical theory and its relevance to our self-concepts and our world. For the drama portion of the mix, heroine Amanda (Marlee Matlin) experiences and begins to transcend frustrations of relationship, self-image and self-realization.

In 1995 I met *What the BLEEP* producer-director William Arntz in Boulder, Colorado. He was in the process of completing the sale of his successful Autosystems software company to Platinum Technologies. I was interviewing for a job, and to my surprise, early in the interview Arntz wanted to discuss my interest in esoteric spiritual traditions, and further he mentioned his own such interests. Afterwards, to my continuing astonishment, that part of my background appeared to be considered a plus, not a negative, and he forwarded me on to Platinum headquarters in Chicago for more interviews. Even then he mentioned his hope to at some point get back to his interest in film production.

When *What the BLEEP* came out I was keen to see the result of this uniquely integrative man's effort. My attempt to write an objective review, though, encountered a minor dilemma of familiarity. As well as having been impressed by Arntz, I had dined with, enjoyed the company of, or worked alongside more than three of the scientists featured in the film. So, to gain some objectivity, I asked six friends what they experienced from the film.

## SIX FRIENDS

One friend is a palm reader and Wiccan practitioner. She enjoyed the show immensely, and though the scientific details went over her head, she believed the show was presenting scientific proof of the efficacy of the magic and psychism that she uses in her work. She saw the scientists as a little dry, vague and unclear, but figured they must have said something interesting that verified her experience of the world. To her, the extensive biochemical animations in the film seemed disjointed from the point of the film. But the emphasis on emotions as the essence of spirituality—Ramtha says, "We are emotions, emotions are us,"—she felt was excellent.

My outlaw biker friend loved it too, to the extent he admits liking



Illustrations by Trish Weber Hall

anything. There is nothing criminal about this friend mind you—he is only an “outlaw” in spirit and sentiment. He loved the bits of the film that dismissed organized religions as a hindrance, seeing verification of his anti-authoritarian approach to the world. He saw the scientists as recognized authorities and their dismissal of the materialist paradigm as feeding his belief in the central importance of personal power. He especially liked the sexual power issues brought out by the character Amanda, and generally enjoyed watching the lovely Amanda, sound or no sound.

Another friend is a Naval officer and devout Christian. She was turned off by attacks on organized religion. Though the religion-bashings are a small part of the film, she experienced them as over-general and unfair. She was intrigued by the scientists’ quotes about the nature of reality, but was not clear on what they were really getting at. She thought the film was emphasizing sexuality and emotionality as the basis of spirituality, and felt that was off base.

A friend who is a professor of applied math and an accomplished judo wrestler was intrigued by the scientists but questioned whether they are really top authorities in their fields. He disagreed with some points they were making, saying they didn’t present evidence for those conclusions. He enjoyed the organized religion bashing immensely. He saw the extensive sequences of psycho-neuro-anatomical biochemistry as reinforcing his view that we are fundamentally only biochemistry.

This friend agrees with skeptic Michael Shermer, who wrote in *Scientific American*, “The death of the body—the disintegration of DNA and neurons that store my personal information—spell the end of the soul..” and anyone who believes in any existence beyond the material body suffers from, “hallucinations of preternatural beings.” This friend liked what he saw in the film, seeing the extensive time spent on amusing biochemistry animations as indicating that our emotions are completely chemical and mechanical processes. Thus he saw the quantum physicists’ quotes that seemed to indicate the contrary as disjointed from the rest of the film, and wrong.

Another friend is a Greenpeace coordinator and former hippie. He absolutely loved the organized religion bashing. He saw spirituality in the film represented as essentially emotional-relationship based, and liked that. He saw the scientists as verifying this view and saw the film as indicating that a systems approach to physics is finally in the process of proving these sentiments as physical reality.

One friend is an accomplished former anthropologist turned independent corporate consultant. She has an amazing skill for understanding organizations and making small adjustments that vastly improve their functioning. She is the only friend who happens to know all the other five friends. She wanted to see what

the film would do for us, how it might make our society work better.

She enjoyed the apparent intent of the filmmakers and the energy of the production. She found the organized religion-bashing to be gratuitous, even if perhaps deserved, and not necessary to get the intent of the film across. She noted that the film was indicating the importance of spirituality, and thus

simplistic religion-bashing seemed dissociative in light of the historical entwinement and complicated relationship of spiritual traditions with organized religions. But, since that was a small part of the film, in her opinion it didn’t detract too much. She was also concerned about the extensive use of channeled information, via Ramtha, in the film. This friend acknowledges that the better channelers can provide a positive experience for some spiritual seekers. But she believes a more directly integral approach to spiritual development is to try to embody our spirituality directly rather than bring in disembodied entities. The channeling approach, she thinks, can yield a tendency toward spiritual authoritarianism—the same source of the problem with organized religions that Ramtha decries.

She similarly saw the role of the physicists as problematic. She resonated with the point that quantum theory reveals the nature of matter as so fundamentally strange that it can open an expanded cognitive window through which to appreciate the mysteries of a participatory universe. But, as always thinking about the broader effect of the film, she questioned the use of physicists to deliver this message. Viewed from other perspectives, like our math teacher friend, other viewers of the film might see it as saying that mathematical quantum theory now can explain away mysteries of consciousness, mind and spirit by the simple physics of scurrying atoms.

This friend questioned the implication that emotions are the essence of all spirituality. She certainly finds problem with reducing everything to physicality, but emotionality may be just one step further up the spiral waves of spirituality that will go inclusively beyond emotionality to mentality, and perhaps to theurgical or teleological awareness.

By now, regular *Vision In Action* readers will have realized that my “friends” are a bit like Jimmy







Stewart's six-foot rabbit buddy in the film/play *Harvey*. Though they do not exist "out there," they were definitely in the theater with me and are quite real as the Spiral Dynamical memes, holarchical-hierarchical adaptive intelligences or value spheres of my own psyche. Each sequential meme transcends and then re-includes the lower ones, operating on them in a growing spiral of awareness. Actually, those six are the 2nd to 7th memes. The first primitive survival meme was there too, but he was too busy munching popcorn to comment on the film.

So, if I try to operate on all those six views together to arrive at a meta-review of *What the BLEEP*, I would be concerned with the global impact of this film: Will it help to push forward a healthy leading edge of sociocultural evolution?

### **SO WHAT OF THIS QUANTUM STUFF?**

Firstly, let's consider a core concept of the film: the meaning and interpretation of modern quantum physics.

Sir Arthur Eddington once opined, "Religion first became possible for a reasonable man in the year 1926." The founder of modern astrophysics, Eddington was referring to the general acceptance of quantum theory as the accurate new physics supplanting classical physics as a result of international conferences that took place in 1926. The

weirdness of quantum mechanics, in Eddington's view, re-opened the deterministic clockwork world of classical physics to a non-deterministic creative universe – once again allowing a role for metaphysics, even to a "reasonable" fully rational man.

Many of the giants of modern physics who birthed quantum theory in the early part of the last century came to voice similar opinions about its meaning. Prince Louis De Broglie, in 1925, showed that the wave-particle duality, known to apply to light, applies to matter as well. Later, De Broglie supported the ideas of integral philosopher Henri Bergson, "Let us add that

this increased body [modern science] awaits a supplement of the soul and that the *mechanism demands a mysticism.*" Wolfgang Pauli, an equally eminent quantum physicist of the time, came to co-author a book with psychologist Carl Jung titled *Synchronicity: An Acausal Connecting Principle*, based on the global connectivity found in quantum theory.

Niels Bohr, the most influential quantum theorist, was asked to address a conference of logical positivist philosophers. The positivists assumed Bohr would support their empiricist philosophy and reject any role for metaphysics. Bohr opined otherwise, saying modern physics allows that there may be a perfectly good role for metaphysics. When Bohr was knighted, he chose for his coat of arms the yin-yang symbolizing the unitary interplay of spirit and matter.

Erwin Schrodinger, creator of the workhorse equation of quantum theory, wrote a profound book in 1944, *What Is Life?* Schrodinger concluded, almost heretically, "We are here obviously faced with events whose regular and lawful unfolding is guided by a 'mechanism' entirely different from the 'probability mechanism' of physics... we must be prepared to find it [biology] working in a manner that cannot be reduced to the ordinary laws of physics." It is quantum theory that allows for the possibility of this "something new" that is beyond physics, beyond quantum theory, involved with life. In a 1991 foreword to *What Is Life?*, prominent physicist Roger Penrose wrote that [this book is] still blindly ignored by a disconcertingly large proportion of people who should know better. He asks: How often do we still hear that quantum effects can have little relevance in the study of biology?

The great minds that created quantum theory more than 75 years ago came to essentially the same sentiments that we hear from the physicists featured in the film *What the BLEEP*. Yet they still sound radical because the ideas are not universally or even significantly held by the majority of working scientists today.

In summary, these ideas are as follows: Quantum theory, now shown to be essentially correct, proves that the physical/material world does not evolve deterministically as a classical-physics world would have evolved. There must be, quantum theory shows, something weirdly non-local connecting all matter across space and time, and/or something acausal (without material cause) that affects events, and/or something creative involved in the functioning of matter; or all three. Quantum theory opens up these possibilities, the possibility of metaphysics, but it does not explain them, does not explain metaphysics.

So why is this profundity not generally acknowledged? One key reason is as indicated by Penrose: a belief that quantum strangeness applies only to the very small and has no relevance to large things like biology.

## QUANTUM BRAIN?

Reporting in the February 2000 issue of the respected journal *Physical Review*, physicist Max Tegmark claimed to prove that quantum mechanics could not have relevance to brain processes. Quantum theory proves that very small things cannot exist in arbitrarily precise states of measure such as location and velocity. This imprecision of existence is called a “superposition of states.” These coherent states are said to “decohere” into an exact state when an object interacts with other objects. At the instant of interaction, physicists surmise, the system behaves classically as described by Newton’s equation. So if all parts interact very often, the whole system behaves classically. If not, it may behave quantum mechanically.

This relates to human consciousness as follows: The brain is the locus of thinking. The matter of the brain involved in thinking exists in ever-shifting superposed quantum states. If the decoherence times are long, then possibly quantum superposition could relate to a mechanism for free will and other aspects of consciousness.

Hameroff, working with Penrose and others, identified specific structures in the brain—microtubules—that, they argue, could be the quantum superposed culprits. Microtubule proteins have two natural structural states similar to how a warped sheet of metal can rest easily bowed in or out. Penrose says that a protein in a superposition of both structural states is a sort of tiny gravitational blister in space-time. Collapse of these superposed non-local gravitational quantum state blisters, Penrose and Hameroff emphasize, is like making a decision, at least much more so than is classical determinism. So Tegmark set about to calculate whether the superposed quantum states in brain processes decohere so quickly that the brain must be classical, or not. His calculated decoherence times are shorter than a billionth of a picosecond, eighteen orders shorter than the one hundredth of a second it is believed it takes us to think anything. Therefore, Tegmark’s model states that thought must be entirely classical and cannot be quantum mechanical. Thus *Science Magazine* reported, “Cold Numbers Unmake the Quantum Mind,” and other international scientific press

triumphantly reported the death of the quantum brain.

In *What the BLEEP* Hameroff is shown only briefly shooting basketballs and noting the strangeness and importance of quantum theory. Yet he is the scientist in the film working most directly to address the regressive mindset of most scientists, undaunted by 78 years of philosophical utterings. Hameroff and colleagues, working doggedly for more than two years rebutting numerous dismissive “peer reviews,” finally got an article published in the same journal showing that Tegmark’s “proof” of the impossibility of the quantum brain was severely flawed, and that indeed some sort of quantum brain is mathematically and physically plausible. But this time there were no triumphant international press reports. Most working scientists continue to think that something like Tegmark’s idea must apply.

*What the BLEEP* would have been served by much more inclusion of the Hameroff et al. work. As quantum theory opens the possibility of metaphysics but does not offer the metaphysics itself, the transformation sought is a psychological one and will not be brought about by physics arguments. If the untransformed believe that their physics has proved that transformation is impossible, demonstration of falsity of the proof can help re-open the door to transformation. But a claim that the physics is the transformation leads to a regressive concept of a physically determined material universe.

Bohr once wrote, “Those who are not shocked when they first come across quantum theory cannot possibly have understood it.” I didn’t feel that shock clearly from *What the BLEEP*. If we did, we would not get any impression that quantum theory might explain a given spiritual or metaphysical tradition; all quantum theory can do is not disprove them.

When a friend first wrote to me about the film and the scientists featured, I was curious about the title, wondering if a more specific title had been the original intent. When followers of a spiritual tradition, teacher or channeler first hear about the “New Physics” they often hear confirmation of their belief system. Given the characters featured in this film, as with all profound thinkers, when one interacts directly with them we often find they don’t say what we expected at all, and separately they sometimes say things radically different from the other characters.

In fact, *What the BLEEP* co-director Mark Vincent said this about the evolution of the film, “We read the





books, we thought we knew this stuff, we thought we knew what these people were going to say, but when we started the interviews, what they actually said was extraordinarily different. And we realized how much we didn't know.... We cut the interviews down to six hours, then three, then an hour and a half. Then we wrote the story around that."

### AN INTEGRAL FILM?

A Sufi teacher I know says the intricate designs on traditional Persian rugs all contain the same symbolism. A central "garden" is enclosed by stylized intricate "walls," the intricacy representing 125,000 "doors." These stand for 125,000 individuals of history who have transformed to a deep awareness, each one creating another "door into the garden" of psychospiritual transformation. Could *What the BLEEP* become another door, opening a new way of transformation for some and leading a new genre of integral film?

I applaud the intent of the producers because I think that is what they were trying to do. But as Fritjof Capra's transformatively intended 1990 *Mindwalk* may have hampered itself with overemphasis on possibly flawed eco-systems-science, *What the BLEEP* may hamper itself by the appearance of suggesting that physics explains the consciousness, along with overemphasis on an emotional-sexual stage of transformation. As the film opens with the Big Bang, it does vault the mind out to cosmic and in to microcosmic realms, and that helps. But the really

important role of connecting micro-quantum to macro-biology wasn't developed. And the physics of the Big Bang or the physics of quantum theory, no matter how radical, don't themselves create the psychospiritual transformation that is the door into the garden. *What the BLEEP* is tugging on the wall though, and it may help pave the way for more truly integral films to come. But then again, what the bleep do I know? ▼

Article and book references available upon request.

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