Paranormal, the Final Frontier

By

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I know, I know, its "space the final frontier" right? Well I say, why limit ourselves? Space is just one part of the vast frontier left to be explored by science. That frontier I speak of is the paranormal, but before you roll your eyes and quit reading let's have a clear definition of the term paranormal. The definition as presented in the Encarta World English Dictionary, North American Edition is: *"**impossible to explain scientifically: unable to be explained or understood in terms of scientific knowledge"***. Unable to explain scientifically, hmmm…. Just 100 years ago, which is a flash in the pan of human existence; there was a whole plethora of things that would have fallen under this definition.

There are several examples of these "ex-paranormal" subjects such as the concept of flight, space travel, causes of disease (bacteria and viruses) and DNA. DNA… the science of all life. I believe this is an appropriate place to start our exploration before venturing into the paranormal. Let's start with the century's old question of what makes a human a human, a plant a plant, a dog a dog, etc. Since the beginning of human history this has been a question that has puzzled scientists, theologians and philosophers alike. There was an absence of any definitive scientific knowledge so by definition this concept would be considered paranormal. It was not until the discovery of Deoxyribonucleic acid (DNA) which resulted from the works of several scientists from 1869 to 1957. In 1952, building off the earlier works of scientists, such as Friedrich Miescher, Phoebus Laverne, William Astberry and Frederick Griffith; Alfred Hershey and

Martha Chase in the Hershey-Chase Experiment showed that DNA is the genetic material of theT2 phage (viruses). In an influential presentation in 1957, Francis Crick laid out the “Central Dogma” of molecular biology, which foretold the relationship between DNA, RNA, and proteins, and articulated the "adaptor hypothesis". Final confirmation of the replication mechanism that was implied by the double-helical structure followed in 1958 through the Meselson-Stahl experiment. Further work by Crick and coworkers showed that the genetic code was based on non-overlapping triplets of bases, called codons, allowing Har Goband Khorana, Robert W. Holley and Marshall Warren Nirenberg to decipher the genetic code. These findings represented the birth of molecular biology and our modern understanding of the genetic code (the genesis of life). Wow! After millennia of deliberation and postulation, in less than 100 years we uncovered this miraculous secret of life. I went through the time-line on this incredible discovery to demonstrate that all great scientific discoveries are not derived from the work of just one individual or group. They are derived from years of research by several individuals and groups built upon the ideas and research of those that came before. Now that we have briefly explored this incredible discovery of life, what about death? The frontier of the paranormal may contain these secrets. These secrets that expand from right in your own living room at home to the far reaches of the universe. So, what the heck am I talking about? Let’s start looking at this frontier through the prism of an old tried and true TV show, Star Trek.

Anyone that knows me is aware that I am a Star Trek “nerd”. Since I was 4 years old I have been a fan of the show and the movies in all its incarnations. However, as I grew older my reasons for my devotion to the show evolved. As a child I thought, like most kids, that the space battles, cool aliens and space ships were awesome. The older I got I started to have a realization of just how grounded in reality or at least scientific theory the show was. Many ideas the show presented in

its storylines have solid base in scientific principal. Warp field technology, anti-matter reactors, phasers, scanners and transporter technology are all rooted in real scientific theory and principles. Many of these technologies are currently being explored, researched and developed by scientist today. A lot of the ideas presented in the original series have already come to pass just 40 years later. My cell phone bears a striking resemblance to the communicator that Captain Kirk used to whip out and asked to be beamed up every week. While Star Trek presented itself as exploring space (the final frontier), it also delved into other frontiers that transcend space. The other frontiers I speak of are time and dimensions.

The original series episode "Mirror, Mirror" dealt with an energy surge causing Kirk and the rest of his landing party being shifted into a parallel dimension. Everyone that existed in our dimension also existed in the other. The only difference was that events in the alternate universe had taken a decidedly different path from ours. People that were good in ours were evil in the other, political and social evolution had also transpired along a different path than our dimension. This theory has been explored in several other episodes such as "Tholian Web" from the original series, "In a Mirror, Darkly" from Star Trek- Enterprise and "Time Squared" from Star Trek- The Next Generation. Well that's just crazy science fiction, right? Maybe not.

The **many-worlds interpretation** or **MWI** (also known as *relative state formulation*, *theory of the universal wave function*, *parallel universes*, *many-universes interpretation* or *many worlds*), is an interpretation of quantum mechanics. Many-worlds denies the objective reality of wave function collapse, instead explaining the subjective appearance of wave function collapse with the mechanism of quantum decoherence. Quantum decoherence is the mechanism by which quantum systems interact with their environments to exhibit probabilistically additive behavior.

Quantum decoherence gives the *appearance* of wave function collapse. Wave function collapse is one of two processes by which quantum systems apparently evolve according to the laws of quantum mechanics. Many-worlds claims to resolve all the “paradoxes” of quantum theory since every possible outcome to every event defines or exists in its own "history" or "world". In layman's terms, this means that there is a very large, perhaps infinite, number of universes and that everything that could possibly happen in our universe (but doesn't) does happen in some other universes.

Proponents argue that MWI reconciles how we can perceive non-deterministic events (such as random radioactive decay) with the deterministic equations of quantum physics. Prior to many worlds this had been viewed as a single "world-line". Many-worlds rather views it as a many-branched tree where every possible branch or outcome of history is realized.

The *relative state* formulation is due to Hugh Everett, an American physicist, who formulated it in 1957. Later, this formulation was popularized in the 1960s and '70s and renamed *many worlds* by Bryce Seligman Dewitt, a theoretical physicist who worked at the Institute for Advance Study, the University of North Carolina at Chapel Hill and the University of Texas at Austin. The decoherence approach to interpreting quantum theory has been further explored and developed becoming quite popular among physicists. MWI is one of many multiverse hypotheses in physics and philosophy. It is currently considered a mainstream interpretation along with the other decoherence interpretation. Many worlds is often referred to as a theory, rather than just an interpretation, by those who propose that many worlds can make testable predictions such as David Deutsch, who is a physicist at the University of Oxford and author of *The Fabric of Reality,* or is falsifiable (such as Everett) or that all the other, non-MWI, are

inconsistent, illogical or unscientific in their handling of measurements; Everett argued that his formulation was a meta-theory, since it made statements about other interpretations of quantum theory and that it was the "only completely coherent approach to explaining both the contents of quantum mechanics and the appearance of the world".

The many worlds interpretation offers the possibility of deriving the probability interpretation of quantum mechanics from other assumptions. In fact, this was first done by Everett and DeWitt in the 1950s, but the old argument was criticized on philosophical grounds. In a September 2007 conference David Wallace; the Director of the Isaac Newton Institute for Mathematical Sciences in Cambridge and master of the Churchill College, Cambridge; reports on a proof by Deutsch and himself of the Born Rule (the law of quantum mechanics which gives the probability that a measurement on a quantum system will yield a given result) which is derived from “Everettian” assumptions. This article has been reported in the press as support for parallel universes. The many-worlds interpretation is DeWitt's popularization of Everett's work, which had referred to the combined observer-object system as being split by an observation, each split corresponding to the different or multiple possible outcomes of an observation. These splits generate a possible tree. Subsequently DeWitt introduced the term "world" to describe a complete measurement history of an observer, which corresponds roughly to a single branch of that tree. *Splitting* in this sense, is hardly new or even quantum mechanical. The idea of a cosmos of complete alternative histories had already been used in the theory of probability since the mid 1930s.

Under the many-worlds interpretation, the Schrodinger equation, which describes how the quantum state of a physical system changes in time, always applies. An observation or measurement of an object by an observer is modeled by applying the wave equation to the entire system comprising

the observer *and* the object. One consequence is that every observation can be thought of as causing the combined observer-object's wave function to change into a quantum layering of two or more non-interacting branches, or split into many "worlds". Since many observation-like events have happened, and are constantly happening, there are an enormous and growing number of concurrently existing states.

If a system is composed of two or more subsystems, the system's state will be a layering of products of the subsystems' states. Once these subsystems interact, their states are no longer independent. Each product of subsystem states in the overall superposition evolves over time independently of other products. The subsystems states have become correlated or entangled and it becomes impossible to consider them independent of one another. In Everett's terminology each subsystem state was now *correlated* with its *relative state*, since each subsystem must now be considered relative to the other subsystems with which it has interacted.

The entanglement of the sub systems can be explained through String theory which is a still-developing mathematical approach to theoretical physics, whose original building blocks are one-dimensional extended objects called strings. Unlike the point particles in quantum field theories, strings interact in a way that is almost uniquely specified by mathematical self-consistency, forming an apparently valid quantum theory of gravity. String theory is of interest to many physicists because of the mathematics involved, and because of the large number of forms that the theories can take. String theory strongly suggests that space-time has eleven dimensions, as opposed to the usual three space and one time, but the theory can easily describe universes with four observable space time dimensions as well.

Whew! I don't know about you but my head hurts now! While a lot of this is still theory, it is grounded in solid scientific principles. The research is there, and as mentioned earlier in our discussion of the discovery of DNA, it was done by several scientists over several years all building off what the others had brought to the table in their discoveries. There are a couple of other scientists who have done work in this field and arrived at similar conclusions that were not mentioned above that you may be familiar with- Stephen F. Hawking and Albert Einstein. This theory could also be used to develop faster than light space travel or even worm hole technology that would allow us to explore the universe. So after reading all this scientific mumbo jumbo you are probably wondering what all this has to do with the paranormal. Maybe nothing and then again, maybe everything.

In Star Trek, the alternate dimensions were accessed by an energy surge at a defined frequency. Frequency may be the key. I like to think about this theory using the following analogy. Picture your brain as a radio. Now picture our world, dimension or reality; whichever you prefer; as a radio broadcast you are tuned in to. You are totally unaware; there are literally hundreds of other radio signals going through the air at any given time. You cannot see, hear, touch, taste or smell any other signals other than the one you are tuned into on your radio. The hundreds of other radio stations would represent the other potential dimensions that you do not have access to. Your whole reality revolves around the broadcast that your radio (brain) is receiving. 98% of the time the reception is just fine and you have no realization of any other reality than that of your radio station. But occasionally, if environmental conditions are right, you will get a "bleed through" of one of these other radio signals (dimensions). Most of the time they are not clear and distorted but are recognizable as another signal similar to your own. Having no knowledge that any other signals (dimensions) exist, you would consider this "bleed through" as paranormal

because it is outside of the norm of your reality. Now let me drop the proverbial bomb (or photon torpedo if you will) and suggest that *all* paranormal activity may be explained by a dimensional "bleed through". Everything from ghosts to UFO's to crypto zoology could be the result of an occasional environmental condition that allows us to briefly access another dimensional reality. Are ghosts, beings from another dimension? This could possibly explain why most eyewitness and recorded accounts of apparitions usually describe them as transparent or not fully formed. When we access this alternate dimension, our tuning is not quite in sync or on the same frequency with the "apparition", like a static radio signal, and as a result we don't get a clear signal (much the same way as Captain Kirk appeared in "Tholian Web" as he was shifting in and out between dimensions). Now let's take this one step further and explore the concept of death as it relates to this theory.

In previous articles I have written about the theory of the Law of the Conservation of Energy as it relates to paranormal phenomenon. To summarize, matter or energy is not created or destroyed but merely changes form. The theory behind this suggests that when we die, our energy is either changed to another form or is trapped by an environmental condition in the vicinity. What if this energy changes from one dimension to another? The energy or soul of the deceased may reside in another dimensional existence that occasionally "bleeds through" into our dimension. The key to understanding either one of these points of view is to discover the environmental condition that is the catalyst for this intersection of dimensions.

As a paranormal investigator you should be open to and explore all the possibilities, not just what is presented in this article. Just as these other great scientific discoveries occurred by the work of many scientists over many years, the answers to the paranormal can only be discovered

the same way. So the next time you catch an apparition on a photograph or the FLIR thermal camera you have to consider something. Is this dust, light reflection, mist or a being that resides on another dimensional existence? Or maybe in the spirit of Star Trek can you make the proclamation – He's dead, Jim.