

An End to Upside Down Thinking

By Mark Gober

Contents

Preface:	A framework to consider while reading this book	XV
Section I:	Introduction	1
Chapter 1:	Introducing the Author and the Book's Contents	3
Section II:	Laying the Foundation	25
Chapter 2:	The Unproven Assumption: "The Brain Creates Consciousness"	27
Chapter 3:	Quantum, Relativistic Chaos: Proven and Accepted Science that Defies Common Sense	43
Section III:	Wizard-like Abilities? Scientific Evidence	59
Chapter 4:	Remote Viewing: Sensing from a Distant Location	61
Chapter 5:	Telepathy: Mind-to -Mind Communication	77
Chapter 6:	Precognition: Knowing the Future Before it Happens	91
Chapter 7:	Animals: Psychic Abilities	103
Chapter 8:	Psychokinesis: Mind Impacting Physical Matter	113
Section IV:	Surviving Death? Scientific Evidence	125
Chapter 9:	Near-Death Experiences: Lucid Memories with Impaired or No Brain Function	127
Chapter 10:	Communications with the Deceased: Planned and Spontaneous	155
Chapter 11:	Lives Beyond This One: Young Children Who Remember Previous Lives	169
Section V:	How Can This Be, and What Does It Mean?	181
Chapter 12:	Could Mainstream Science Be So Wrong?	183
Chapter 13:	What Are the Implications for Every Day Life?	201
Acknowledgements		243
Glossary		247
Endnotes		251
Bibliography		273
About the Author		293

CHAPTER 12 - Could Mainstream Science Be So Wrong?

At this point, you may have questions about the material presented thus far. My responses to these hypothetical questions are as follows.

You've covered a lot. Before you give thoughts on whether any of the phenomena are real, can you quickly summarize?

We began by setting the stage and laying the foundation. We established that the origin of consciousness is an open question. Materialists assume that the brain produces consciousness, but have no idea how it happens. An emerging, alternative perspective is that the brain is more like a filtering mechanism for a broader consciousness that exists outside the physical body. The brain is simply a self-localization of consciousness. If we regard consciousness as more fundamental than matter (rather than the reverse), then "paranormal" phenomena are completely normal. To test these ideas, we looked at the relationship between brain activity and the intensity of the conscious experience. If materialism is correct that the brain produces consciousness, we might expect increased brain activity during periods of heightened awareness.

However, we find the opposite. Participants in a study who took psychedelics exhibited reduced brain activity relative to people who were given a placebo. But those who took psychedelics had hyper-real experiences. Similarly, people who have near-death experiences typically have little or no brain functioning and yet they recall lucid memories. These findings make sense if we view the brain as a filter of consciousness: When the brain is less active, the filter is less strong, which allows for a broader spectrum of consciousness to be received. Similarly, in a phenomenon called "terminal lucidity," patients with impaired brains and disorders such as Alzheimer's disease suddenly become completely lucid shortly before dying. Other people with impaired brains (e.g., savants) somehow have extraordinary, seemingly superhuman, mental capabilities.

Elementary animals retain memories even when substantial portions of their brains are removed, rotated, or even replaced. And memories and preferences seem to be transmitted via nonbrain organ donation. All of these examples put into question the view that consciousness comes from the brain.

We then looked at quantum physics, which teaches us that there is proven science that defies common sense - the universe is interconnected ("entanglement"); the act of observing impacts the physical world; matter isn't solid, and we aren't sure what it is; time is relative and may not always work from past to present to future; and space is similarly relative rather than fixed.

We also learned that minuscule changes in initial conditions can have a big impact on final outcomes (nonlinear dynamics and chaos theory). On the whole, we learned that we live in a counterintuitive universe, so we shouldn't be surprised that counterintuitive phenomena are real.

With these concepts in our back pockets, we explored the evidence for psychic abilities, all of which suggest that consciousness is not localized to the brain. We began by examining remote viewing, the ability to see at a distance using One's mind alone. We reviewed the governments Stargate Project in which remote viewers used the technique to find a lost, downed plane in an African jungle, among other achievements. Statistical review suggested that remote viewing is real, and even skeptics conceded this.

Studies at Princeton further verified the remote viewing results. Remote viewing has even been used by researcher Stephan A. Schwartz to identify archaeological sites. We then looked at evidence for telepathy in multiple areas: the ganzfeld experiment, dreams, the sense of being stared at, telephone telepathy, telepathy among twins, and autistic savants.

Next, we examined ways in which the body appears to know the future before the mind does: the skin, brain, eyes, and heart all react to the future before the future is known. Some people have dreams of the future before the future happens. And precognition might occur before calamities as warnings. We saw that psychic abilities might not be limited to humans.

For example, some animals know when their owners are coming home (when the owners mentally *decide* to come home). We also learned that horses might be telepathic, that lost animals can miraculously find their owners great distances away, that they can predict natural disasters, that they know when people will die, and that they can impact the behavior of random number generators with their mental intentions.

In the section's final chapter, we looked at human psychokinesis – the ability to affect matter with the mind. Studies at Princeton University and the Global Consciousness Project show that people's minds have a small, but statistically significant impact on the pattern of randomly generated 0's and 1's. Large-scale psychokinesis has been reported. There are many credible reports that spoons have been bent by the mind alone.

Dr. William Tiller, former head of the Material Sciences department at Stanford University, has run studies suggesting that the mind can influence the pH of water and even the development of larvae. Certain energy healers have been studied by scientists. Results suggest that the mind can be used to save cells exposed to radiation. In another case, an energy healer killed cancer cells using his mind.

If consciousness isn't localized to the body, as the above results suggest, then it is conceivable that consciousness survives physical death. We examined the scientific evidence around this idea. NDEs during clinical death (cardiac arrest) - i.e., when the brain is "off" - make us question whether consciousness depends on the brain. The notion that NDEs are hallucinations is difficult to explain if the brain is "off" during the time of highly lucid mental processes. Physiological theories for NDEs struggle to explain all of the elements of NDEs. We also saw that some blind individuals are able to see during their NDEs. Furthermore, shared-death experiences (similar to NDEs) occur in otherwise healthy bystanders.

They further suggest that we can't simply claim that NDEs occur as an artifact of a dying brain. Similarly, people have NDE-like experiences when they think they are going to die (fear-death experiences). We then examined after-death communications. Case studies of talented mediums dating back to the 1800's suggest that communications with the deceased do occur. The Windbridge Research Center's recent, controlled studies further suggest that some mediums are real. And in other well-documented cases, the dead spontaneously communicate with the living.

Some people have deathbed visions before they die in which deceased relatives visit them. Professors at the University of Virginia have spent more than 50 years studying 2,500-plus children who claim to remember previous lives. The children recall specific details that are in some cases historically verified. Sometimes they speak foreign languages they never learned. Sometimes the children have birthmarks or physical deformities that correspond to wounds from the previous person's death.

Is any of this real? Could it really be true that consciousness doesn't come from the brain?

A requirement I hold for myself is that my conclusions should be based on evidence rather than belief. I don't believe in "believing in." Rather, my personal approach is more along the lines of: "Based on the evidence I've seen, I am pointed toward a certain viewpoint that is most likely to be true - even though that viewpoint could change with the introduction of new evidence."

With that preface, I'll point you to two quotations that resonate.

In a 2015 *Scientific American* article, Dr. Michael Shermer, the founder of the Skeptics Society, talked about the need for theories to have a "convergence of evidence from multiple lines of inquiry" rather than "the occasional anomaly." ¹⁾

Jeffrey Mishlove, PhD, summarizes another approach: "Evidence should be considered like a bundle of sticks. Each individual stick might be easily broken, but, when tied together into a bundle, they are as strong as steel." ²⁾

As I see it, the information presented in this book represents a "convergence of evidence from multiple lines of inquiry" and can be likened to a bundle of sticks rather than just an "occasional anomaly." The evidence points us in the direction of mysterious, nonphysical influences in our reality. In our exploration, we have seen *far* more than "the occasional anomaly." One could attempt to poke holes in any individual area of study, but to disprove *all* of them becomes difficult.

Here's how I think about it. If we look at any individual study or account in this book - which, as you'll recall, is just a summary - we could assume that one of four basic things is happening among the researchers:

1. They are lying.
2. They are delusional (i.e., they are wrong, but mistakenly think they are right).
3. They are using bad scientific or statistical methods (i.e., they are incompetent).
4. They are correct.

Of course, it is possible that some evidence could fall into numbers 1, 2, or 3. But in order to believe that, one would need to provide actual evidence to suggest fraud, delusion, or incompetence. Those are serious accusations. To claim (without evidence) that the investigators must have made it all up is a baseless, unscientific claim. As stated by philosopher Henry Sidgwick in 1882, "We have done all that we can when the critic has nothing left to allege except that the investigator is in the trick. But when he has nothing else left to allege he will allege that." ³⁾

Unless there is some combination of mass fraud, mass delusion, and mass incompetence across all of the various independent scientists over many decades of study—and I have not seen evidence that this occurred in every anomalous example provided—it seems likely that at least one phenomenon described in this book falls into category #4.

And if *even one* of the phenomena falls into category #4, then we truly are on the brink of the next scientific revolution—a “Copernican-scale revolution,” as Dr. Tiller suggests. I would further contend that if one of the phenomena is real, the odds that others are real increase tremendously because of their interrelatedness.

Others have approached the data similarly. Even back in 1957, the empirical evidence was so great that Professor Hans Eysenck, chairman of the Psychology Department at the University of London, stated: “Unless there is a gigantic conspiracy involving some thirty University departments all over the world, and several hundred highly respected scientists in various fields, many of them originally hostile to the claims of psychical researchers, the only conclusion the unbiased observer can come to must be that there does exist a small number of people who obtain knowledge existing in other people’s minds, or in the outer world, by means as yet unknown to science.”⁴⁾

Apparently, Eysenck found it hard to believe that such a conspiracy existed. And today we have much more evidence than he had in 1957. I tend to agree with his sentiments.

And recall the quotation from Dr. Jessica Utts, 2016 president of the American Statistical Association, who wrote in a government-commissioned study in 1995:

Using the standards applied to any other area of science, it is concluded that psychic functioning has been well established. The statistical results of the studies examined are far beyond what is expected by chance. Arguments that these results could be due to methodological flaws in the experiments are soundly refuted. Effects of similar magnitude to those found in government-sponsored research . . . have been replicated at a number of laboratories across the world. Such consistency cannot be readily explained by claims of flaws or fraud.... This is a robust effect that, were it not in such an unusual domain, would no longer be questioned by science as a real phenomenon. No one who has examined all of the data across laboratories, taken as a collective whole, has been able to suggest methodological or statistical problems to explain the ever-increasing and consistent results to date.⁵⁾

And perhaps even more significant is that skeptic Ray Hyman, professor emeritus of psychology at the University of Oregon, was also asked to opine on the same data. Recall his concession that he and Dr. Utts: “Agree on many [other] points. We both agree that the experiments [being assessed] were free of methodological weaknesses that plagued . . . the early research. We also agree that the...experiments appear to be free of the more obvious and better known flaws that can invalidate the results of parapsychological investigations. We agree that the effect sizes reported . . . are too large and consistent to be dismissed as statistical flukes.”⁶⁾

More recently, in 2011, Patrizio Tressoldi conducted a meta-analysis of studies on psychic phenomena to test whether the “extraordinary claims” have the “extraordinary evidence” required to show that they are real. His conclusion, as published in his article from *Frontiers in Psychology*: “If results analysed with both frequentist and Bayesian statistical approaches from more than 200 studies conducted by different researchers with more than 6000 participants in total and three different experimental protocols are not considered ‘extraordinary,’ or at least ‘sufficient’ to suggest that the human mind may have quantum-like properties, what standards can possibly apply?”⁷⁾

Dr. Ed Kelly sums up the situation: “Indeed, we predict with high confidence that future generations of historians, sociologists, and philosophers of science will make a good living one day trying to explain why it took so long for scientists in general to accept [these phenomena].”⁸⁾

In light of all this, my conclusion is that at least some of the topics discussed in this book are likely to be real and that all of them “deserve serious study” (to quote Carl Sagan). That means real attention from the mainstream. No more sweeping these concepts under the rug; no more ignoring the anomalies because they are inconvenient or because someone doesn’t want them to be true; no more fear of ridicule for questioning mainstream paradigms; but rather, true, honest exploration to uncover what’s real and what’s not—through an examination of evidence and data.

Would more data help make the case?

Certainly, additional research is needed, and more data can’t hurt. But one could argue that in some cases we already have enough evidence. Instead of proving that the phenomena are real, we might want to be focusing on understanding how they work.

Along these lines, Dr. Utts stated in her 1995 government-commissioned report: “It is recommended that future experiments focus on understanding how this phenomenon works, and on how to make it as useful as possible. There is little benefit to continuing experiments designed to offer proof, since there is little more to be offered to anyone who does not accept the current collection of data.”⁹⁾

Similarly, Dr. Robert Jahn, former dean of engineering at Princeton University, said of his nearly 30 years of results from the PEAR lab: "If people don't believe us after all the results we've produced, then they never will." ¹⁰⁾

How could there be so much data that I never knew about? Why isn't this information talked about more often?

The topics are taboo. In today's Western society, there is a cultural bias against them. Some scientists are even afraid to talk about them.

Psychiatrist Brian Weiss, MD, summarizes the situation well: "It is only the reluctance to tell others about psychic occurrences that makes them seem rare. And the more highly trained are the most reluctant to share." ¹¹⁾ He continues: "I understood why these highly trained professionals remained in the closet. I was one of them. We could not deny our own experiences and senses. Yet our training was in many ways diametrically opposite to the information, experiences, and beliefs we had accumulated. So we remained quiet." ¹²⁾

Psychologist Dr. Imants Baruss and cognitive neuroscientist Dr. Julia Mossbridge see the same issue (repeating from chapter 1 because it is so significant): "As a result of studying anomalous phenomena or challenging materialism, scientists may have been ridiculed for doing their work, been prohibited from supervising student theses, been unable to obtain funding from traditional funding sources, been unable to get papers published in mainstream journals, had their teachings censored, been barred from promotions, and been threatened with removal of tenured positions. Students have reported being afraid to be associated with research into anomalous phenomena for fear of jeopardizing their academic careers. Other students have reported explicit reprisals for questioning materialism, and so on." ¹³⁾

Brenda Dunne of Princeton's PEAR lab echoes these sentiments: "We submitted our data for review to very good journals . . . but no one would review it. We have been very open with our data. But how do you get peer review when you don't have peers?" ¹⁴⁾

Dunne and her colleagues published an article in 2007 that explicitly makes this point: "The . . . [RNG study on psychokinesis] . . . was originally submitted to various segments of the *Physical Review* spectrum of journals in the hope of engaging more members of the physics community in similar research efforts. It was rejected, without any technical reviews, over a series of editorial appeals, on the ideological grounds that it was an 'inappropriate' topic for that scholarly venue. It was subsequently dismissed a priori by the editorial board of *Foundations of Physics*. Ultimately, it was published intact by [the *Journal of Scientific Exploration*], and has been widely referenced since its appearance." ¹⁵⁾

When dealing in this controversial domain, even being a Nobel Prize winner doesn't seem to help. For example, Nobel laureate Brian Josephson states:

My transition into believing that mind has to be taken seriously as an entity in its own right proved also to be a transition into an environment that was hostile where previously it had been very supportive. The scientific community has its own belief systems that it is dangerous to challenge.... Being a Nobel Laureate protects one from the worst pressures, but not from the curiosities such as this letter relating to a conference to which I had previously been given an invitation and even been asked how long I wished to speak:

It has come to my attention that one of your principal research interests is the paranormal.... In my view, it would not be appropriate for someone with such research interests to attend a scientific conference.

I learned from subsequent correspondences that it was feared that my very presence at the meeting might damage the career prospects of students who attended, even if I did not touch on the paranormal in my talk. ... More seriously, my interest in such matters seems to have led to the harassment of students working with me, even in regard to projects not related to the paranormal.... My original assumption that scientists, being intelligent people, would have the ability to view experimental evidence and theoretical arguments objectively has been severely challenged." ¹⁶⁾

This dynamic is not new, however. Researcher William Crookes reported facing similar resistance to his work on paranormal phenomena, and this was back in the 1800s!" ¹⁷⁾

Why are so many articles on these phenomena (such as Wikipedia articles) so negative?

A number of organizations are openly hostile to claims of the paranormal. One has to wonder if their sentiments have played a role on Wikipedia and elsewhere.

One such organization is the Committee for Skeptical Inquiry (CSI). CSI's Lee Nisbet, who holds a PhD in philosophy, said of paranormal phenomena: "We feel it is the duty of the scientific community to show that these beliefs are utterly screwball." One of CSI's former co-chairs of its "Committee for the Scientific Investigation of Claims of the Paranormal" resigned because he felt that "they sought to debunk rather than scientifically examine."¹⁸⁾

Dr. Rupert Sheldrake has been a target of criticism from skeptics and speculates that a group called "Guerrilla Skepticism" is contributing to negativity around the paranormal on Wikipedia. As Dr. Sheldrake states in his blog post *Wikipedia Under Threat*:

Wikipedia is a Wonderful invention. But precisely because it's so trusted and convenient, people with their own agendas keep trying to take it over. Editing wars are common.... Everyone knows that there are opposing views on politics and religion, and many people recognise a biased account when they see it. But in the realm of science, things are different. Most people have no scientific expertise and believe that science is objective. Their trust is now being abused systematically by a highly motivated group of activists called Guerrilla Skepticism on Wikipedia.

Skepticism is a normal, healthy attitude of doubt. Unfortunately it can also be used as a weapon to attack opponents. In scientific and medical contexts, organized skepticism is a crusade to propagate scientific materialism.... Most materialists believe that the mind is nothing more than the physical activity of the brain, psychic phenomena are illusory, and complementary and alternative medical systems are fraudulent, or at best produce placebo effects.... Several advocacy organizations promote this materialist ideology in the media and in educational institutions. The largest and best-funded is the Committee for Skeptical Inquiry (CSI), which publishes *The Skeptical Inquirer* magazine. The Guerrilla Skeptics have carried the crusading zeal of organized skepticism into the realm of Wikipedia, and use it as a soapbox to propagate their beliefs.

This summer... a commando squad of skeptics captured the Wikipedia page about me. They have occupied and controlled it ever since, rewriting my biography with as much negative bias as possible, to the point of defamation. . . The Guerrilla Skeptics are well trained, highly motivated, have an ideological agenda, and operate in teams, contrary to Wikipedia rules. The mastermind behind this organization is Susan Gerbik. She explains how her teams work in a training video. She now has over 90 guerrillas operating in 17 different languages. The teams are coordinated through secret Facebook pages. They check the credentials of new recruits to avoid infiltration. Their aim is to control information, and Ms. Gerbik glories in the power that she and her warriors wield. They have already seized control of many Wikipedia pages, deleted entries on subjects they disapprove of, and boosted the biographies of atheists.

As the Guerrilla Skeptics have demonstrated, Wikipedia can easily be subverted by determined groups of activists, despite its Well-intentioned policies and mediation procedures. Perhaps one solution would be for experienced editors to visit the talk pages of sites where editing wars are taking place, rather like UN Peacekeeping Forces, and try to re-establish a neutral point of view. But this would not help in cases where there are no editors to oppose the Guerrilla Skeptics, or where they have been silenced.

If nothing is done, Wikipedia will lose its credibility, and its financial backers will withdraw their support. I hope the noble aims of Wikipedia will prevail."¹⁹⁾

If what Dr. Sheldrake describes is truly happening, then we might (in part) understand why the reality of the "paranormal" has struggled to gain momentum. The casual researcher doesn't have time to dig into the details. If you Google a topic and the first thing that comes up is a Wikipedia article saying it's fraudulent, you might stop your search then and there.

Why do you think so many scientists resist or reject the ideas discussed in this book?

This book exposes paradoxes and anomalies. As Dr. Dean Radin comments, paradoxes and anomalies have a way of evoking resistance from those holding onto conventionally held beliefs:

Paradoxes are extremely important because they point out logical contradictions in assumptions. The first cousins of paradoxes are anomalies, those unexplained oddities that crop up now and again in science. Like paradoxes, anomalies are useful for revealing possible gaps in prevailing theories. Sometimes the gaps and contradictions are resolved peacefully and the old theories are shown to accommodate the oddities after all. But that is not always the case, so paradoxes and anomalies are not much liked by scientists who have built their careers on conventional theories. Anomalies present annoying challenges to established ways of thinking and because theories tend

to take on a life of their own, no theory is going to lie down and die without putting up a strenuous fight.“²⁰⁾

Additionally, maybe some scientists simply prefer to avoid phenomena they don't understand. Dr. Ian Stevenson references a telling quote from a University of Virginia pediatrician who examined controversial maternal impressions cases in 1890 (discussed in chapter 11). After becoming aware of growing skepticism around him, the researcher said: “Thinking men came to doubt the truth of those things which they could not understand?”²¹⁾

The evidence provided in this book implies that many brilliant scientists are wrong in their theories. How could that be?

Yes, this book implies that they are very wrong about certain things, but that shouldn't take away from their brilliance in other areas.

If we were to look back at the leading scientists of several hundred years ago, we could find reasons to poke at their lack of sophistication and call them “clueless” relative to what we now know. For example, in 1772 the father of modern chemistry, Antoine Lavoisier, and his fellow academics examined reports of “stones falling from the sky.” They concluded, “Stones cannot fall from the sky because there are no stones in the sky!”²²⁾ Those “stones” were later discovered to be meteorites. Science then began to accept that stones can fall from the sky. Lavoisier was a pioneer in science in some ways, but clearly he was not right about everything.

I wonder what society 200 years in the future will say about the 2018 mainstream scientific community. Will they laugh at how primitive we were? Will they scoff at the notion that we were so ignorant to assume that “the brain creates consciousness”?

Also, we should acknowledge that the topics discussed in this book are multidisciplinary. Think about how many different areas of science have been covered: physics, neuroscience, cardiology, biology, chemistry, etc. Herein lies a serious problem in science: scientists specialize in their areas of expertise and are often uncomfortable or unfamiliar with subject matter outside of those areas. Scientists can indeed be very brilliant in their specific areas of expertise, but might know very little about other areas. That can lead to errors or gaps when trying to build unifying theories.

For example, some prominent physicists rarely, if ever, talk about consciousness. Most physicists think that consciousness has no interaction with the physical world, so they view it as a topic for psychology and philosophy. Consciousness is not their area of expertise.

Consider physicist Neil deGrasse Tyson's *New York Times* bestseller *Death by Black Hole: And Other Cosmic Quandaries*—the index of that book does not even include the word “consciousness.” Recall that he comments, “I wonder whether there really is no such thing as consciousness at all.”²³⁾ The same goes for physicist Brian Greene's books *The Hidden Reality* and *The Fabric of the Cosmos*. Recall that Dr. Stephen Hawking said, “I get uneasy when people, especially theoretical physicists, talk about consciousness,”²⁴⁾ further proclaiming “philosophy is dead?”²⁵⁾

The list could go on and on. These men are recognized as some of the greatest minds in the world, and yet they're leaving out a potentially fundamental piece of the puzzle: consciousness.

By the same token, neuroscientists, psychologists, and biologists don't often account for quantum mechanics. Instead, they tend to operate under classical, Newtonian paradigms that only give an approximation for reality. Ignoring the quantum reality can lead to significant mistakes.

It is therefore possible that the lack of interdisciplinary integration has led to significant oversights in science.

Finally, many prominent scientists simply aren't taking the time to look at the data. For example, physicist Lawrence Krauss states: “I don't have the time or inclination to investigate something that is highly likely to be wrong.”²⁶⁾ So perhaps the mainstream scientific belief in materialism keeps scientists from researching the topics discussed in this book. They don't want to spend their time on something they deem impossible.

If the ideas discussed in this book are real, we would need to radically alter science. What's your view on that?

Isn't that what science is all about: refining our theories when we learn of new data? We know how little we know. We know, for example, that 96 percent of the universe is made of hypothetical “dark matter” and “dark energy.” We should expect that our theories will change, given how little we know. Therefore, we should be open to the possibility of new ideas. That's not to say we should accept every theory we come across, but we should be open to scientifically exploring new ideas.

I'm *not* suggesting that if materialism is proven wrong (or incomplete), that we should just throw it out. We can thank materialism for many technological and medical advances from which we now benefit. The alternative theories discussed in this book simply suggest that materialism is a special case of a broader picture of reality. So we would need to recontextualize, rather than redo, all that we know.

Let's assume that consciousness isn't produced by the brain. Let's assume that "somehow" the brain accesses consciousness from outside the body. You don't explain a mechanism for how this could happen. You tell us about strange things that occur with no explanation of how they occur. How does the brain interact with consciousness?

The short answer is: I don't know.

But there is no requirement that one must know how a phenomenon works in order to accept that it *does* exist. Dr. Julie Beischel and her colleagues make this point in their 2015 journal article on mediums. The authors explain that mediums appear to obtain nonchance information about the deceased, but they cannot explain how mediums do it.

Beischel et al. remind us that there are many areas of science for which we do not know the cause, but which we accept as being real: Causes are "currently unknown or not fully understood for numerous (1) ubiquitous human experiences (e.g., yawning, dreaming, and blushing); (2) diseases and conditions (e.g., multiple sclerosis, lupus, rheumatoid arthritis, Parkinson's disease, eczema, psoriasis, glaucoma, and fibromyalgia); and (3) medications (e.g., certain drugs that treat Parkinson's [pramipexole], cancer [procarbazine], malaria [halofantrine], and epilepsy [levetiracetam]; the antibiotics clofazimine and pentamidine; and many psycho-tropic drugs (e.g., [lithium]) which continue to exist, be experienced, be widely prescribed, and be worthy of scientific study even in the absence of a known mechanism."²⁷⁾

Dr. Larry Dossey further comments: "In science, we often know *that* something works before we have a clue about *how* it works.... Explanations often come later" [emphasis in original].

There is no question that further study is needed to understand how it all works. But that won't happen until the mainstream decides that these areas are worthy of study.

Some emerging theories around consciousness are developing, however. One theory comes from prominent Oxford mathematical physicist Roger Penrose and University of Arizona anesthesiologist Dr. Stuart Hameroff. In the 1990s they initially proposed, and still support, a "microtubules" theory. The two represent a unique combination of skill sets across disciplines: Penrose from the mathematics/physics lens, and Hameroff from the psychology/medicine lens. As they summarize it, their microtubules theory says: "That consciousness depends on biologically 'orchestrated' quantum computations in collections of microtubules within brain neurons [and] that these quantum computations correlate with and regulate neuronal activity?"²⁹⁾

Furthermore, Dr. Hameroff posits: "Let's say the heart stops beating, the blood stops flowing; the microtubules lose their quantum state. But the quantum information, which is in the microtubules isn't destroyed, it can't be destroyed, it just distributes and dissipates to the universe at large. If the patient is resuscitated, revived, this quantum information can go back into the microtubules and the patient says 'I had a near—death experience'. If they're not revived, and the patient dies, then it's possible that this quantum information can exist outside the body, perhaps indefinitely."³⁰⁾

The fact that Roger Penrose's name is connected with the microtubules theory is particularly significant. He is a world—renowned mathematician and physicist who has collaborated (and coauthored books) with Stephen Hawking. Penrose's work is credited for piquing Hawking's interest in black holes and general relativity.³¹⁾ However, Penrose's foray into consciousness caused a rift between him and Hawking, as profiled in the May 2017 *Nautilus* article, *Roger Penrose on Why Consciousness Does Not Compute: the emperor of physics defends his controversial theory of mind.*³²⁾

Would more funding help?

I think so. But not everyone agrees with that stance.

For example, California Institute of Technology physicist Sean Carroll writes in a 2008 blog post: "I would put the probability that some sort of [psychic] phenomenon will turn out to be real at something (substantially) less than a billion to one. We can compare this to the well-established success of particle physics and quantum field theory. The total budget for high-energy physics worldwide is probably a few billion dollars per year. So I would be very happy to support research into [psychic phenomena] at the level of a few dollars per year. Heck, I'd even be willing to go as high as *twenty* dollars per year, just to be safe"³³⁾ [emphasis in original].

In light of Dr. Carroll's comments, it's perhaps not surprising to hear that these phenomena are not well-funded. As Dr. Gary Schwartz says about his research on anomalies of consciousness: "Even in the best of economic times, conventional funding sources—such as the National Science Foundation or the National Institutes of Health (both of which have funded my mainstream research in the past)—are not open to supporting this challenging and controversial research." ³⁴)

Dr. Dean Radin similarly states that this field "threatens the very core of assumptions of science, and it is not easy raising funds to challenge a powerful status quo." ³⁵)

What if large foundations such as the Bill & Melinda Gates Foundation donated even a fraction of their billions of dollars to consciousness-related studies? Wouldn't it be worthwhile for us to more fully explore the nature of our existence? The implications could transform society. Now seems like the time for philanthropic organizations to recognize that we are on the brink of the next scientific revolution. It won't happen without the appropriate funding.

What role can younger generations play in furthering the exploration of these topics?

Nobel Prize-winning physicist Max Planck noted: "A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die." ³⁶)

As crude as it sounds, Planck makes an astute observation. Over time, some of the scientists most opposed to the ideas discussed in this book will no longer be living. They have good reason to want to hold on to their theories—by accepting a new paradigm they would have to admit that they were wrong. Some people are unwilling to take such an ego hit.

And what we are dealing with here are challenges to ideas regarded as *fact*. So the task is even more difficult. As stated by astrophysicist Bernard Haisch: "Modern Western science regards consciousness as an epiphenomenon that cannot be anything but a by-product of the neurology and biochemistry of the brain.... While this perspective is viewed within modern science as a fact, it is in reality far stronger than a mere fact: it is a dogma. Facts can be overturned by evidence, whereas dogma is impervious to evidence." ³⁷)

It is incumbent upon younger generations to further the exploration of these topics as the "old guard" loses its grip on science.

Endnotes Chapter 12

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