

# Physicalist Materialism

## The Dying Throes of an Inadequate Paradigm

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### Introduction

Consciousness is not a fundamental in the worldview that has been the dominant paradigm of science for several centuries, and from that worldview consciousness arises, and can only arise, from physiology. There can be no continuity of consciousness; and consciousness cannot be nonlocal.

This conviction is dogma, and I use that word very precisely. Why? Because Physicalism/Materialism is a worldview that does not adhere to the actual data, and like all dogmas is antagonistic to the actual facts. Neuroscientists Jeffrey M. Schwartz, Mario Beauregard, and physicist Henry Stapp put it very well:

“Neuropsychological research on the neural basis of behavior generally posits that brain mechanisms will ultimately suffice to explain all psychologically described phenomena. This assumption stems from the idea that the brain is made up entirely of material particles and fields, and that all causal mechanisms relevant to neuroscience can therefore be formulated solely in terms of properties of these elements. Thus, terms having intrinsic mentalistic and/or experiential content (e.g., “feeling,” “knowing,” and “effort”) are not included as primary causal factors. This theoretical restriction is motivated primarily by ideas about the natural world that have been known to be fundamentally incorrect for more than three-quarters of a century.”<sup>1</sup>

I and many others have presented the experimental case, for nonlocal consciousness measured under the strictest and most rigorous of circumstances.<sup>2,3,4</sup> There are now almost a dozen standardized protocols being carried out in universities and institutions throughout the world, each of which has odds greater than one in a billion that the results could be chance.<sup>5</sup>

In contrast, as the research has become tighter and more meticulous what is notable about the criticism is its growing mediocrity.<sup>6,7</sup> And what is most interesting about that is that individuals of real accomplishment in other fields frequently reveal startling ignorance about matters involving consciousness, even though they take very public positions about it. I have twice been in public exchanges with Deniers and they have had to publicly admit they do not know the literature. Nowhere is this clearer than in the near death research where the technology of physiological monitoring has reached a level of sophistication that renders claims the NDE phenomenon is entirely physiological, the performance of a dying brain, antiquated and quaint. And yet such criticism of NDEs continues.

In *Science, God, and the Nature of Reality: Bias in Biomedical Research*, biomedical scientist Professor Sarah S. Knox of the University of West Virginia Medical School frames it this way:

“Since [critics contend] there is no plausible mechanism within a materialist frame of reference to explain them, paranormal phenomena can’t possibly be valid. This is the same reasoning that the learned men of Galileo’s day used when they refused to look in his telescope. This attitude is nowhere more evident than in the number of scientists who are willing to volunteer as “expert” commentators on television programs about paranormal phenomena, astonishingly undeterred and unembarrassed by their complete lack of knowledge concerning the existing experimental data. These “experts” smile condescendingly as they explain that the phenomena under discussion can be explained by chance occurrence, brain abnormality, etc., depending on the topic at hand. Since the belief that causality can only be found in matter reigns supreme, there doesn’t seem to be any requirement that these “experts” support their claims with actual data. They need only introduce the possibility that the same outcome might have been achieved through some other means, to convince their naïve audience that it is all ‘hocus pocus.’”<sup>8</sup>

So, is consciousness “fundamental and causal” as Max Planck asserted in 1931 in as public a manner as he could?<sup>9</sup> Is reality an “optical delusion” as Einstein saw it?<sup>10</sup> Is there continuity of consciousness before physical incarnation, continuing after corporeal death, suggesting that a nonlocal aspect of the self episodically manifests and incarnates another personality? I think those questions have been answered to varying degrees in the affirmative, and collectively affirm what Planck said.

Take the protocols for remote viewing, a technique for obtaining objectively verifiable sense impressions and knowingness about persons, places, events, or objects from which the viewer is shielded by time, space or both. I played a foundational role in creating these protocols, and I wish I could tell you that we saw what was coming, but we did not.

It turns out remote viewing is so functional and easy to learn it has transformed from a laboratory experiment into a hobby, like scuba diving. Thousands of practitioners routinely do what must now be several million remote viewing experiments, most done under the same double-or triple-blind conditions taken directly from the laboratories that created them back in the 1970s. A cadre of tens of thousands who keep meticulous statistics and experience sufficient success to stay interested across years. Remote viewing is now a kind of mental martial art with conferences, journals, and all the other accoutrements of any organized group activity.<sup>11</sup>

And yet materialism endures. It is the default meme of our culture because of psychological forces of which we are at best only dimly aware are driving us. Dan Kahan at Yale organized a team including George Washington Law School professor, Donald Braman, and University of Oklahoma Hank Jenkins-Smith. Their research goal was to understand the relationship of facts with beliefs. They found that “The cultural cognition of risk refers to the tendency of individuals to form risk perceptions that are congenial to their values.”

What did they mean by cultural cognition of risk? They defined it as the “tendency of individuals to fit their perceptions of risk and related factual beliefs to their shared moral evaluations of putatively dangerous activities. The cultural cognition thesis asserts that individuals are psychologically disposed to believe that behaviour they (and their peers) find honorable is socially beneficial, and behavior they find base socially detrimental.”<sup>12</sup>

This unconscious bias extends to such a point that, “... cultural cognition influences perceptions of credibility. Individuals more readily impute expert knowledge and trustworthiness to information sources whom they perceive as sharing their worldviews and deny the same to those whose worldviews they perceive as different from theirs.”<sup>13</sup>

The Kahan team's research shows that for a large number of people being accepted in your group and protecting your status by not going against the group consensus is more important than facts.<sup>14</sup> It is a fear response.

As Thomas Kuhn, perhaps the most influential historian and philosopher of science in the 20th century, points out, “The scientific enterprise as a whole does from time to time prove useful, opens up new territory, displays order, and tests long-accepted belief. Nevertheless, the individual engaged on a normal research problem *is almost never doing any one of these things* [emphasis Kuhn].”<sup>15</sup> He finds himself instead working from a different motivation, the desire to demonstrate that he is capable of solving a problem within the paradigm that no one has ever solved before, or has not solved as elegantly. “Scientists” Kuhn says, “normally [do not] aim to invent new theories, and they are often intolerant of those invented by others.”

So I think we know why materialism has continued past its sell by date. What I have begun to think about is how did consciousness get exiled from science in the first place? And why?

It certainly was not that way in the pre-Christian world. Thinking about consciousness and its role in physical reality could not have been more mainstream. The idea of nonlocal consciousness and that all life is interconnected and interdependent, and that space–time itself arises from consciousness, not consciousness from space–time, is not a new idea. Empedocles ( $\approx 493$ –430 BCE), considered one of the greatest pre-Socratic philosophers, put nonlocal consciousness this way, “The nature of God is a circle of which the center is everywhere and the circumference is nowhere.”<sup>16</sup>

Plato (429?–347 BCE) who founded the first institution of higher learning in the West, The Academy in Athens, explains his concept, “Do you not know also that although they (students) make use of the visible forms and reason about them, they are thinking not of these, but of the ideals which they resemble; not of the figures which they draw, but of the absolute square and the absolute diameter, and so on—the forms which they draw or make, and which have shadows and reflections in water of their own, are converted by them into images, but they are really seeking to behold the things themselves, which can only be seen with the eye of the mind?”<sup>17</sup> And he saw this nonlocal domain as informational in nature.

Even Aristotle, a physicalist but not a materialist, saw the information aspect of consciousness and recognized a form of nonlocal consciousness. “The knowledge of the soul admittedly contributes greatly to the advance of truth in general, and, above all, to our understanding of Nature, for the soul is in some sense the principle of animal life. Our aim is to grasp and understand, first its essential nature, and secondly its properties; of these some are taught to be affections proper to the soul itself, while others are considered to attach to the animal owing to the presence within it of soul.”<sup>18</sup>

And this worldview continued in the early Christian world. Plotinus (≈204 CE) and Augustine also saw consciousness as fundamental.<sup>19</sup>

In Eastern cultures, consciousness and a kind of proto-neuroscience were closely linked. The Yoga Sutras of Patanjali (≈500–200 BCE) expound upon the concept.

And it was not just theoretical; in both East and West it was espoused by philosophers and also put to practical use in healthcare.

Ayurvedic medicine dates back to India and the Indus Valley Civilization (3300–1300 BCE) and “is based on the belief that health and wellness depend on a delicate balance between the mind, body, and spirit.”<sup>20</sup>

Similarly, acupuncture, which dates back over 5000 years recognized it was manipulating consciousness as a part of the treatment. Although it is usually assumed that acupuncture developed in Asia, recent archeological evidence has established a much older Western example. In 1991 the frozen and extraordinarily intact body and kit of the “Iceman” Otzi, a Neolithic man dating back 5300 years, was found in the Italo-Austrian Alps. Forensic anthropologists brought in to examine the body found groups of lines and crosses tattooed into his skin. Unlike modern tattooing methods, the tattoos were not produced with needles but by means of fine incisions into which charcoal was rubbed so their location would forever be precisely sited.

Research revealed that, “Most of Ötzi’s tattoos are located on parts of his body that must have caused him pain during his lifetime due to degeneration or disease.” The tattoos were therefore primarily intended as therapeutic measures rather than as symbols. There is little doubt that the Iceman underwent pain-relieving treatment on multiple occasions.

“Astonishingly, many of the tattooed areas correspond to skin acupuncture lines ...”<sup>21</sup> And remember, this was 2000 years before acupuncture appeared in Asia.

Nonlocal consciousness was also explicitly put to use in the service of the state for planning purposes for millennia. The Egyptians, the Greeks, the Etruscans, the Romans all maintained institutions whose function was a to create a cadre of what today we would call remote viewers, often boys and girls, whose task was to provide the kind of practical guidance one can get from remote viewing. Oracles were honored. The oldest recorded double-blind remote viewing experiment we know of is to be found in the 46th chapter of the History of Herodotus, written in 440 BCE by Greek social observer Herodotus of Halicarnassus, (ca.484–425 BCE) considered the world’s first historian.

In his histories Herodotus recounts how a wily Lydian King, whose name to this day is associated with great wealth—Croesus (BCE 560–547)—carried out the first experiment in what today we would call anomalous perception, the ability to describe persons, places or events from which one is shielded by reason of time or space, or both.<sup>22</sup> Croesus had lost his son, and was in deep depression when his mourning was interrupted by the news that he might be attacked by the Persians. He wanted to consult an oracle to tell him what to do. But which one could he trust?

“The solution Croesus devised was both a blind protocol experiment and the first description of what today would be known as remote viewing. He sent out couriers to all the famous oracles of his day. To the Greek oracles he sent delegations to Delphi, to Abae in Phocis, to Dodona, to the oracle of Amphiaraus; to Trophonius; and another to Branchidae in Milesia. To Libya he sent another embassy to consult the oracle of Ammon-Ra at Siwah in the Libyan desert.

All of these messengers were given an identical task. “They were to keep count of the days from the time of their leaving Sardis, and, reckoning from that date, on the hundredth day they were to consult the oracles, and to inquire of them what Croesus the son of Alyattes, king of Lydia, was doing at that moment. The answers given them were to be taken down in writing, and brought back to him.”<sup>23</sup>

None of the replies survive except the most accurate one that of the oracle at Delphi which was recorded by Herodotus.<sup>24</sup>

Following their king’s instructions the Lydians waited until the 100th day. No sooner had they entered the sanctuary, even before they could ask their question the Pythoness, as, the entranced young woman within was known, answered it in hexameter verse:

But the number of sand I know, and the measure of drops in the ocean;  
The dumb man I understand, and I hear the speech of the speechless:  
And there hath come to my soul the smell of a strong-shelled tortoise  
Boiling in caldron of bronze, and the flesh of a lamb mingled with it;  
Under it bronze is laid, it hath bronze as a clothing upon it.

Even though it sounded like gibberish, the Lydian embassy faithfully wrote it down and set off for Sardis to report to Croesus.

Herodotus says, “When all the messengers had come back with the answers which they had received, Croesus undid the rolls, and read what was written in each. Only one approved itself to him, that of the Delphic oracle. This he had no sooner heard than he instantly made an act of adoration, and accepted it as true, declaring that the Delphic was the only really oracular shrine.”<sup>25</sup>

Croesus, in stipulating 100 days, had set up an experiment, one little different from the blind outbound remote viewing protocols used today.

Herodotus says, “He set himself to think what was most impossible for any one to conceive of his doing, and then, waiting till the day agreed on came, he acted as he had determined. He took a tortoise and a lamb, and cutting them in pieces with his own hands, boiled them both together in a brazen cauldron, covered over with a lid which was also of brass.”<sup>26</sup> It is a double-blind protocol, neither the young woman pythoness, nor the embassy knew the answer to the question, essentially identical to the protocols we would use today.

So philosophically, scientifically, governmentally, and medically consciousness was seen as fundamental. Why did all this change and the idea of consciousness become lost to science? The answer I think is a story of geopolitics, culture, and fear that led to consciousness and science parting ways.

It began with the formal establishment within the Roman Catholic church of the Inquisition—the word means to inquire—that was authorized by Pope Gregory IX in 1232 to combat heresy. Initially this meant the Cathars, but it would eventually extend into many aspects of medieval life. And from the beginning there were stories of torture and grisly death at the hands of the inquisitors. In 1252 Pope Innocent IV made what had been ad hoc institutional and authorized the establishment of torture chambers. Often this ended in publicly burning people alive for their beliefs. The cultural impact of this echoes down to the present day. The Inquisition has become a cultural meme associated with persecution, horror, torture and death.

The Inquisition had receded by the 14th century, but the emergence of the Protestant Reformation brought it back with a vengeance in 1542. And the Protestants, not to be outdone, had their own heresy trials and burnings. How many died across those medieval centuries? It turns out that is a hard answer to pin down.

In 2004 Sophie Arie, looking at just the Spanish variant, wrote in *The Guardian*, “Estimates of the number killed by the Spanish Inquisition, which Pope Sixtus IV authorised in a papal bull in 1478, have ranged from 30,000 to 300,000. Some historians are convinced that millions died.”<sup>27</sup>

But according to Professor Agostino Borromeo, a historian of Catholicism at the Sapienza University in Rome and curator of the 783-page volume released on 15 June 2016, only 1% of the 125,000 people tried by church tribunals as suspected heretics in Spain were executed.

“Other experts told journalists at the Vatican that many of the thousands of executions conventionally attributed to the church were in fact carried out by non-church tribunals.”<sup>28</sup>

Yale Historian William Graham Sumner, who held the first professorship in the U.S. in sociology spent a considerable time in the 19th century trying to work out an answer, and his research suggests that burning of heretics (which included a lot of women herbalists, and people whose views did not conform with those of ignorant village priests) became a customary practice in Europe beginning in the 12th century, and became a statutory punishment by the early 13th century.<sup>29</sup>

How many were actually tortured and burnt alive may be largely lost to history, but in terms of the question of science and consciousness, the numbers are not the important point. What does matter is that the persecution of individuals who varied from the accepted paradigm became a dominant theme in Western cultures; one that over the centuries struck profound fear in people's minds.

The element of consciousness in this drama takes center stage with the Council of Trent which ran from 1545 to 1563. Meeting in both Trento and Bologna, Italy, the Council held 25 plenary sessions that redefined in the strongest terms that the Church controlled all matters of the spirit—read consciousness. The nonlocal domain therefore became the province of the Roman Church. And driven by the Protestant Reformation, the Council became the vortex of the impulse to root out and punish heresy, which is to say anyone whose views offended the dominant paradigm defined by the Church.

The Council decreed that the Church controlled the ultimate interpretation of Scripture, as well as, the power of spirit (in modern terms read nonlocal consciousness).<sup>30</sup> “This configuration to Christ and to the Church, brought about by the Spirit, is indelible; it remains for ever in the Christian as a positive disposition for grace, a promise and guarantee of divine protection, and as a vocation to divine worship and to the service of the Church.”<sup>31</sup>

Armed with decrees of Council sessions and popes, the Inquisition was a wind to which the boat of science tacked, not for a few years, but from generation to generation across centuries.

I think what separated consciousness from science was fear. It was dangerous to delve into matters the Church claimed for itself; it could lead to humiliation, pain and even a gruesomely painful death. I think it cast a psychological pall over any inquiry that might put one in conflict with accepted orthodoxy about matters concerned with what the Church saw as spiritual doctrine. It influenced the careers of generations of scientists. The last man killed by the Inquisition was in Spain in 1826, a teacher named Cayetano Ripoli, who was garroted for teaching Deism to his class.<sup>32</sup>

And when it became clear to the scientific community that materialism and reductionism were very productive ways of exploring the universe, the need to consider consciousness as a factor in science withered. It is only now coming back into currency because fields such as quantum biology, resuscitation medicine, neuroscience, and even physics have reached a point where physicists realize that Planck was right. Consciousness is causal and fundamental. We are not there yet, but that is the trend direction.

### False Equivalences and the Mediocrity of Nonlocal Consciousness Research Criticism

The first time I encountered denierism was in 1981 at the annual meeting of the Parapsychological Association. I was sitting at a table with several people, talking about the magician Randi's attacks on Hal Puthoff, Russell Targ, and Ed May, the three physicists

running the government funded SRI remote viewing program. As we sat there talking, who should come over but Randi himself. He could not be mistaken. He affected massive white grey fluffy muttonchop sideburns, not seen since the 19<sup>th</sup> century, and a matching beard. His shirt was Robin's egg blue, his suit almost white. It was all very studied. Although very different in style, looking back on it, the effect was something like David Suchet as Hercule Poirot.

Without preamble Randi began by asking about my submarine experiment, Deep Quest, an experiment I had done a few years earlier, one that used remote viewing to locate an unknown wreck deep in the ocean on the seafloor and to establish that the nonlocal perception used in remote viewing is not electromagnetic. I began very earnestly to answer his question but realized he wasn't really interested, so I stopped. After a beat, he turned and asked the table what we thought of Hal and Russell. Several people made noncommittal remarks. He pivoted to me saying, "What do you think, Stephan?" His body language said "this is what I am interested in." It was all so odd I just looked at him and, in that moment, noticed a winking tiny red light in the side pocket of his jacket. He saw me seeing it and pulled his jacket closed, which made his pocket gape revealing a tape recorder. I was stunned to realize that we were being secretly recorded. I reached in his pocket and pulled it out. "What a nice machine," I said, pressing the buttons to make the tape rewind. When it got to the beginning and stopped, I pressed record and began to talk about the machine intermittently saying "testing, one...two...three" until I thought I had gone about as long as he had been sitting there. Then hit the play key to see that it had recorded my overdub. As this was happening, Randi was verbally tap dancing. "Oh, the switch is touchy. I wonder how that happened. I just got it." Looking around the faces at the table, he could see no one believed this. When I gave him back the tape recorder, he got up and left without a word.

My overwhelming sense of the experience was its theatrical shoddiness and lack of ethics. I didn't know much about "professional skeptics" but it was hard for me to believe anyone could take Randi seriously. Yet I had been hearing about him for years and knew people did. That sense of puzzlement over the mediocrity of denier criticism, and the media's and even much of science's acceptance of it, has stayed with me ever since, and been frequently reinforced by other examples. A couple of recent events have compelled me to think about the enduring mediocrity of denier criticism and the issue of false equivalences.

Recently on television I saw a pundit who had never been in the armed services, let alone combat, critique the observations about Afghanistan made by Colonel Jack Jacobs, a seasoned veteran and combat leader in the Viet Nam War who was awarded the Medal of Honor. That's a false equivalency. American media treat everything from political to scientific developments like a boxing match or a football game. A contact sport in which two warriors or two teams clash, and only one is left standing. So almost every interaction on a cable news talk show juxtaposes opposing points of view. As you have witnessed yourself, this results in absurd exchanges: a climate change denier Senator, who clearly has no idea what he is talking about, will be interviewed and treated as equally knowledgeable in a debate with a geophysicist who has spent the last 30 years researching the climate. It makes for ratings generating mano-a-mano, but it is intellectually bankrupt. This sports



battle format used by the media is fully understood by deniers, be they anti-evolutionists, climate change deniers, or consciousness deniers. It is one of their principal polemic tools used to create confusion and unclarity. The viewer, the reader, or the policy maker, is left not knowing what the real facts are.

Let's start in 1975 with a particularly notorious example. It will also serve to explain the difference between a skeptic and a denier. And you can judge their relative qualities for yourself.

Astronomer Dennis Rawlins, already famous for debunking the claims of polar explorers Richard Byrd and Robert Peary and demonstrating that Ronald Amundsen was the first man to reach either pole, decided to join a team headed by philosopher Paul Kurtz (the founder of the Committee to Scientifically Investigate the Claims of the Paranormal (CSICOP) to launch a frontal attack against presumptive "planetary influences" on human behavior. Also in this group were French investigators Michel and his wife (at the time) and research partner Françoise Gauquelin. Kurtz, and through him CSICOP had two main ways of presenting themselves: a journal called *The Humanist*, which Kurtz edited, and a book publisher Prometheus Books, which he founded.

Michel Gauquelin was a psychologist and statistician, and that was the foundation of his research. He used rigorous statistical tools to examine data in the context of astrological claims, and scrupulously reported the results. He and his wife were skeptics but they were driven by data, not belief. Over a series of publications covering several years they reported a small but statistically significant relationship between some planetary positions at the time of birth and later outstanding performance, most notably the position of Mars in a natal chart and later athletic prowess.<sup>33,34,35</sup>

In 1978, Michel Gauquelin wrote a paper critical of astrology that was published in *The Humanist*.<sup>36</sup> Out of the paper grew a book debunking traditional Western astrology's planetary effects, also written by Gauquelin.<sup>37</sup> It was published in 1979 by Kurtz' Prometheus Books.

But it was the small effect that Gauquelin had reported that did stand up that became intolerable to Kurtz and many in CSICOP. A kind of minor modern Galileo trial then occurred, including a threatened excommunication. Gauquelin was pressed to recant. He would not; the data would not let him

*The Humanist* group chose to focus their attack on the Gauquelins' statistics<sup>38</sup> but it soon became clear that Michel Gauquelin was the better statistician and the denier case collapsed. Undeterred, the group went on for round two, which involved an attempted Committee-sponsored replication of the "Mars effect" and a dispute over the interpretation of the data.

Rawlins, whose reputation was based on debunking the inaccurate, was appalled. He describes what happened next as a comedy of incompetence, bombast, and a commitment to denialism so powerful it overturned good sense and ethics, until the deniers

were thoroughly tarred by Rawlins (among others) for their unscientific disdain for experimental evidence and integrity

After furious public exchanges Rawlins publicly resigned from the group.<sup>39</sup> Shortly thereafter, he put the entire sorry tale on the record via a paper entitled, sTar baby, a play on Joel Chandler Harris' late 19th century Uncle Remus stories, where Br'er Rabbit, the Loki-like adventurer around whom many of the stories are built, attacks a tar baby and, each time he hits it he becomes more and more mired in the tar.<sup>40</sup> Rawlins was not the only member of the CSICOP founding team repelled by what was being done who also resigned.

Of those that left the former member who saw the skeptic denier distinction most clearly was the sociologist Marcello Truzzi who acted on his beliefs by first resigning and then, founding a new journal, *The Zetetic Scholar* (Zetetic from the Greek zētētikos, from zēteō to seek to proceed by inquiry) in which he decried what he called "pseudo-skepticism."<sup>41</sup>

In speaking about the Gauquelin matter in 1982, Truzzi wrote:

"The current evidence strongly indicates that (a) a Mars Correlation was validly found by the Gauquelins, (b) a correlation was found in several replications by the Gauquelins using different samples, (c) a similar correlation was found in replications conducted by Kurtz-Zelen-Abell (KZA) [in the CSICOP-sponsored research study]. In regard to a) and b) the key question concerns the validity of the Gauquelins' data. It has repeatedly been incorrectly stated that there is no way to check this data. Not only have the Gauquelins published all their data (so computations can easily be checked), they have kept all original records from the birth registries, and these have been made available to any serious researchers. In fact, the Gauquelins have urged critics to check this data."<sup>42</sup>

Later, when he was asked to say more about the events and his role, he defined what might be called the ethical skeptic's position:

"Originally I was invited to be a co-chairman of CSICOP by Paul Kurtz. I helped to write the bylaws and edited their journal. I found myself attacked by the Committee members and board, who considered me to be too soft on the paranormalists. My position was not to treat protoscientists as adversaries, but to look to the best of them and ask them for their best scientific evidence. I found that the Committee was much more interested in attacking the most publicly visible claimants such as *The National Enquirer*. The major interest of the Committee was not inquiry but to serve as an advocacy body, a public relations group for scientific orthodoxy. The Committee has made many mistakes. My main objection to the Committee, and the reason I chose to leave it, was that it was taking the public position that it represented the scientific community, serving as gatekeepers on maverick claims, whereas I felt they were simply unqualified to act as judge and jury when they were simply lawyers."<sup>43</sup>

New Zealand psychologist Richard Kammann, was the third person to resign. He chose to write and publish in the CSICOP publication, *The Skeptical Inquirer*, an exegetic

essay of the entire Gauquelin affair, “When the whole record is examined over five years, there is almost no instance in which merit wins out over self-serving bias,” he wrote.<sup>44</sup> His essay was undermined by a flurry of simultaneous misstatements.<sup>45</sup>

In 1982, Kammann wrote: “The bottom line is that an apology is owed the Gauquelins for the mistreatment of their data, and the aspersions cast on their authenticity. I don't wish to convey that I'm a believer, because I also have skeptical reservations about the Mars effect. What makes this claim suspect is the scientific perversity of the proposition that the location of Mars in the sky at the time a person is born has some effect on that person's athletic performance 30 or 40 years later.”<sup>46</sup>

More than a decade later Suitbert Ertel, a German researcher of the next generation, uninvolved with the bitter fight that had gone before, meticulously went back through this entire chapter of denierism (including a subsequent denier round in Paris, France) and confirmed by a variety of statistical analyses, both Kammann's and Truzzi's assessments.<sup>47</sup> Perhaps even more important was the graceless acknowledgement of Paul Kurtz who had begun it all: “It is time, to submit, to move to other more productive topics.”<sup>48</sup>

Now let's come forward to 2011. Cornell University psychology professor Daryl Bem carried out a presentiment study that produced “evidence that our physiology can anticipate unpredictable erotic or negative stimuli before they occur.”<sup>49</sup> He measured this through running a series of sessions, each about 20 minutes in length. Participants were told “...on each trial of the experiment, pictures of two curtains will appear on the screen side by side. One of them has a picture behind it; the other has a blank wall behind it. Your task is to click on the curtain that you feel has the picture behind it. The curtain will then open, permitting you to see if you selected the correct curtain. There will be 36 trials in all.

“Several of the pictures contain explicit erotic images (e.g., couples engaged in nonviolent but explicit consensual sexual acts). If you object to seeing such images, you should not participate in this experiment.”<sup>50</sup>

He published in *Cognitive Sciences* in 2012. Bem's presentiment study was not the first such study, or even one of the first dozen studies. But none before had been done by anyone of Bem's stature. He was a national figure in psychology and a senior professor at an Ivy League University. The study got picked up by *The New York Times*, which said, “One of psychology's most respected journals has agreed to publish a paper presenting what its author describes as strong evidence for extrasensory perception, the ability to sense future events.”<sup>51</sup> There ensued a barrage of denier criticism.

University of Amsterdam mathematical psychologist Eric-Jan Wagenmakers, and his team were the principal attackers. As with Gauquelin episode, they did so through Bem's statistical analysis protocol, arguing that Bem should have used a Bayesian analytical approach, which would have made his positive effect disappear. In making their case the Wagenmakers team particularly relied on the research of University of California Irvine, Department of Statistics, mathematician, and acknowledged Bayesian authority, Wesley Johnson.<sup>52</sup>

The Wagenmakers et al. paper elicited a published commentary from Bem, *with Johnson as co-author*, along with Jessica Utts, also in the UC Irvine department. The crux of the Bem, Johnson, Utts response: the denier arguments were based on an inaccurate and inappropriate interpretation of *Johnson's work*.<sup>53</sup>

And, finally, I want to take an example from the Near Death Experience research.

In August 2011, neuroscientist Dean Mobbs, of the British Medical Research Council, Cognition and Brain Sciences Unit, and Edinburgh University Senior Lecturer Caroline Watt published a paper in *Trends in Cognitive Sciences*, “There is nothing paranormal about near-death experiences: how neuroscience can explain seeing bright lights, meeting the dead, or being convinced you are one of them”. In the paper they presented an argument that concluded:

“Taken together, the scientific evidence suggests that all aspects of the near-death experience have a neurophysiological or psychological basis: the vivid pleasure frequently experienced in near-death experiences may be the result of fear-elicited opioid release, while the life review and REM components of the near-death experience could be attributed to the action of the locus coeruleus-noradrenaline system. Out-of-body experiences and feelings of disconnection with the physical body could arise because of a break-down in multisensory processes, and the bright lights and tunneling could be the result of a peripheral to fovea breakdown of the visual system through oxygen deprivation. A priori expectations, where the individual makes sense of the situation by believing they will experience the archetypal near-death experience package, may also play a crucial role.”<sup>54</sup>

Bruce Greyson, and Dutch cardiologist van Lommel were moved to write a response, also published in *Trends*. They began by noting that Caroline Watt, “acknowledged that they (she and Mobb) had avoided looking at any evidence for veridical out of body perception, resulting in their being unable to evaluate whether or not there was empirical evidence of anything paranormal about NDEs.”<sup>55</sup>

And they were correct. Indeed, Watt made just such an admission. An interview with Alex Tsakiris, on his radio program specializing in interviewing scientists, produced this exchange:<sup>56</sup>

**Alex Tsakiris:** “I’m saying your paper got traction even though there’s not a lot behind it. I’m saying you cited references incorrectly. And you referenced skeptics like Dr. Susan Blackmore who admits to not being current in the field.”

**Dr. Caroline Watt:** “As I said, it was intended to be a provocative piece. It’s not claiming to be balanced. The paper, if it wasn’t limited to two or three pages, I could have dealt more thoroughly with many different aspects because there’s more to near-death experiences than the dying brain hypothesis. It would have been a longer and more in-depth paper, but that wasn’t the paper that we wrote.”

Greyson et al in their response said of the Mobbs' and Watt's paper: "The near-death literature of the past four decades has moved beyond collection of anecdotes into rigorous scientific investigation. That investigation rightfully has included, and should continue to include, research into neurophysiological correlates of NDEs."<sup>57</sup>

Then they got to the nub of the denier/skeptic argument – that the debate has become a false equivalency. Scholars who propose materialist explanations, they said, "*need to respond to all relevant data, not just data supporting the a priori assumption that NDEs must be reducible to known neurophysiology. (emphasis added)* In suggesting that there may be some evidence of paranormal features in NDEs, we are not suggesting that those features are supernatural or beyond scientific investigation. They may be paranormal in the sense of being difficult to explain in terms of the currently prevailing reductionistic framework."<sup>58</sup>

Mobbs, by himself, replied to that exactly as Princeton Center for Advance Studies physicist Kuhn predicts happens in a paradigm crisis. First making an attempt to extend the materialist paradigm, "The valid conclusion propounded by Greyson and colleagues is that '[NDEs] should be studied by scientific methods, rather than dismissed without investigation', a conclusion that mirrors ours. Greyson and colleagues are to be congratulated for their highly respected research in documenting these experiences, yet in my view they, and others, have not provided any compelling evidence concerning NDEs that contradicts what we already know about the brain."<sup>59</sup>

"Greyson et al., also point out that '[NDEs] may be paranormal in the sense of being difficult to explain in terms of the currently prevailing reductionist framework'. The use of the word 'paranormal' in this context, however, is misleading. Indeed, using 'paranormal' in a non-standard way, whereas *the standard understanding of the term is to mean 'phenomena beyond scientific investigation', (emphasis added)*."<sup>60</sup>

There is a temptation to go on and on with this, offering one example after another, but these three from the recent past will do.

Science is by nature narrow and rigid, as it should be because the vast bulk of research could be practiced in no other way. However, normal science, as Thomas Kuhn defined it in his classic *The Structure of Scientific Revolutions*, always produces anomalies in the course of its work.<sup>61</sup> As it proceeds inevitably to reach its boundaries, the encounters with anomalies increases. Normal science, however, abhors anomalies since they are not tailored to the scheme by which it defines the universe. At first, then, anomalies are ignored on the assumption that subsequent normal science research will deal with them when either instrumentation or theory articulation or both are improved. If this does not happen, an attempt is made to extend the endangered theory in the hope that an extension of the paradigm's accepted propositions will bring the anomalies back into the fold.

In the beginning of a paradigm's lifespan better instrumentation or theory extension does eliminate most of the anomalies by making them conform; some, though, will not conform, no matter how artful the experiment or ingenious the development of the original premise. Most scientists are happy to leave these anomalies in a state of limbo, which is

why parapsychology is both science and non-science at one and the same time. Everyone knows anomalies are out there, lurking on the edges of the paradigm like hungry beasts around a campfire. But scientists assume, mostly correctly, that the majority of problems can still be contained within the paradigm, and so, for a time at least, normal science continues, and the paradigm provides a reasonably secure framework.

However, as normal-science research continues to get closer to the edge of the “known” it pushes so intensely and with such specific focus that its explorations produce just the opposite effect from that desired. Not only does such research fail to strengthen the paradigm, which was its original purpose, but it produces still more anomalies. Ironically, at the end of the paradigm’s lifespan, the better the instrumentation the more intractable the challenge presented by anomalies. When this happens, the science enters a state of crisis from which there is no turning back. This is the phase we are now entering, and why a non-fact based Denier movement has arisen.

As the British Society for Psychological Research puts it, opposition to this area of research is “often against its implications and not the quality of its evidence.”<sup>62</sup>

It is long past time that we recognize that just as with climate change and evolution denierism, the quality of the criticism aimed at nonlocal consciousness research is in false equivalency to the research itself.

### The Paradigm of Science is Changing to Include Consciousness

For most of the Judaea-Christian epoch of history the view of most of Western societies has been that we, humanity, were separate from the rest of creation and had dominion over the earth, as if it were an exploitable bank account left us by a rich uncle. As the Bible frames it, “And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.”<sup>63</sup> And in a sense we have had dominion and done a very poor job of it, as the impending collapse of the ecosystems of earth, air, and water make clear.

French philosopher Rene’ Descartes in 1637, writing, “Cogito ergo sum. (“I think, therefore I am.”)<sup>64</sup> set the tone of science when he said that only people can think, until Jane Goodall published her discoveries about chimpanzees in the Gombe Stream Reserve in Tanzania. It is worth noting that Goodall was so intimidated by the then conviction of science that only humans were capable of thought that she held back from publishing some of her insights for almost 20 years. She feared that she would be accused of anthropomorphizing the chimpanzees’ behaviour and derided for being unscientific.<sup>65</sup>

But slowly this is changing as science discovers that all the beings of earth are conscious and that we live in a matrix of consciousness in which all beings in the domain of consciousness are interconnected and interdependent. It is the more modern equivalent of a Copernican revolution. And what is particularly interesting about the emergence of this new paradigm incorporating consciousness is that it is not being driven only by

parapsychology, or even mostly. Instead, it is a worldview emerging as a result of research carried out across a spectrum of disciplines, from physics to fungal science.

You may already know about the late Koko, a female gorilla whose IQ was estimated to be between 75-95 (the average IQ in the United States is 98, with 34% of Americans between 98 and 85). Koko's anatomy did not allow her to speak, monkeys and apes lack the neural control over their vocal tract muscles necessary to properly form words, but she learned sign language and had a vocabulary of 1,000 words, and could understand 2,000 words of human speech.<sup>66</sup>

Or Bunny, a dog who learned to push buttons representing words and had a vocabulary of 92 words.<sup>67</sup> Or another dog, named Stella. And there are supposedly now other dogs who have learned to push an arrangement of buttons on the floor known as an alternative and augmentative communication (A.A.C.) device, the same as used to help nonverbal children to communicate without speaking.<sup>68</sup> Using the buttons they can create sentences requesting something or commenting on their feelings.

What surprises many who still talk of “dumb” animals is that this new line of research extends far beyond mammals like gorillas and dogs. Whether it is the cephalopods of the oceans – cuttlefish, octopuses, and squids<sup>69</sup> -- or the bees that are so essential to our own survival, we are beginning to realize that we are surrounded by beings of consciousness.

When I was a younger man, on one of my archaeological expeditions, this one in the Bahamas, we often moored Seaview, the 125 foot research vessel that was our homebase, just east of Riding Rock, a low limestone sliver of land with a single tree. Over the weeks I would dive down to the seafloor and sit next to the reef where an octopus lived tucked away in a space under some rocks. When I realized the octopus was there, I started out holding a fishing spear with a piece of fish on the end to tempt it to come out.

Over time I held the spear closer to the tip until in the end I just held the fish. The octopus, who I called George, although I never really knew if it was a male or a female, never bit me, but would come down over my hand and arm, and with one of its arms gently hold my arm. I will never forget the sense of its suckers on my wet suit and hand. George would not come out for any other diver, and clearly recognized me, although we all wore the same blue and grey wetsuits. Roland Anderson, a biologist at the Seattle Aquarium, formally tested this ability of octopuses to recognize and distinguish between humans. He dressed two humans in the blue aquarium staff uniforms. Just as I had, one person consistently fed the octopuses in the aquarium tank, while the other touched it with a “bristly stick.” Anderson reported that within a week without touching the two humans, looking at them through the water, most of the octopuses moved toward the feeder human and away from the irritator as soon as they came into view.<sup>70</sup>

Who knew that bees with their tiny brains could memorize flowers and also human faces, solve problems of arithmetic, and learn to use tools.<sup>71</sup> Until the last few years it was thought that social insects were governed only by instinct. It was all nothing more than innate behaviors. But recent research tells us something very different. As Princeton

Professor Lars Chittka explains, “Much of the workings of the bee’s mind can be understood only when one considers the natural challenges of the constantly changing market economy in which it must operate. The pressures of operating in this setting are often expressed in terms of physical performance. For example, a bee can carry its own body weight in nectar and or pollen; it may need to visit 1,000 flowers and fly 10 kilometres to fill its honey stomach only once; and 100 such trips may be required to generate a teaspoon of honey. Less appreciated are the mental efforts required along the way: in visiting 1,000 flowers, the bee has to work 1,000 floral ‘puzzle boxes’ whose mechanics can be as complicated as operating a lock and no two flowers species are quite alike in the mechanics that have to learned to gain access.”<sup>72</sup>

Similarly, Monarch butterflies with brains the size of the head of a straight pin somehow in their annual 2,500 mile migration from the U.S. and Canada to the forests of central Mexico where they hibernate, fly day by day from the same tree their parents flew to the next tree their parents stopped for the night. And if that tree falls or is cut down, the next generation will pick a new tree and their progeny will stop there as well.<sup>73</sup> How can they possibly even know which direction to fly, let alone identify one tree from another as they travel?

But if those examples of consciousness seem strange and hard to believe, consider this: plants think and remember. In the burgeoning field of plant neurobiology, a field that almost by definition seems unbelievably improbable, a theory known as the Cellular Basis of Consciousness (CBC theory) postulates that consciousness evolved with the very first cells, and all cellular life is endowed with consciousness.<sup>74</sup> One of the leading researchers in this work is Dr. Frantisek Baluska at the University of Bonn (Germany) department of plant cell biology. In response to a query from Salon.com Baluska wrote, “There are numerous definitions but the most simple and relevant is this: Consciousness is a feature of living systems allowing them awareness of their external and internal conditions.”<sup>75</sup>

Professor Stanislaw Karpinski from the Warsaw University of Life Sciences in Poland, led a team that explored the idea of plant consciousness and found plants “transmit information about light intensity and quality from leaf to leaf in a very similar way to our own nervous systems. These ‘electro-chemical signals’ are carried by cells that act as ‘nerves’ of the plants.” In the experiments Karpinski carried out his team showed that light shone on to one leaf caused the whole plant to respond. And the response, which took the form of light-induced chemical reactions in the leaves, continued in the dark.<sup>76</sup> This showed, they said, that the plant “remembered” the information encoded in light. “We shone the light only on the bottom of the plant and we observed changes in the upper part,” Karpinski told the BBC in an interview.<sup>77</sup>

Even fungi have a measure of consciousness and communicate in a definable language. British computer scientist, Andrew Adamatzky, Director of the Unconventional Computing Laboratory and Professor in Unconventional Computing at the Department of Computer Science and Creative Technology, University of the West of England, Bristol, United Kingdom, studied a variety of fungi and in his published paper reported,

“Fungi exhibit oscillations of extracellular electrical potential recorded via differential electrodes inserted into a substrate colonized by mycelium or directly into



sporocarps. We analysed electrical activity of ghost fungi (*Omphalotus nidiformis*), Enoki fungi (*Flammulina velutipes*), split gill fungi (*Schizophyllum commune*) and caterpillar fungi (*Cordyceps militaris*). The spiking characteristics are species specific: a spike duration varies from 1 to 21 h and an amplitude from 0.03 to 2.1 mV. We found that spikes are often clustered into trains. Assuming that spikes of electrical activity are used by fungi to communicate and process information in mycelium networks, we group spikes into words and provide a linguistic and information complexity analysis of the fungal spiking activity. We demonstrate that distributions of fungal word lengths match that of human languages. We also construct algorithmic and Liz-Zempel complexity hierarchies of fungal sentences and show that species *S. commune* generate the most complex sentences.<sup>78</sup>

This sort of story of consciousness being a reality for beings other than humans gets lost in the news because these reports are rarely placed in their proper context. If they were, perhaps people would recognize how important and powerful such research findings are. Why do I say this? Because these stories collectively are telling us we need to radically and fundamentally change our view of reality. All of this research is showing us we live in a matrix of consciousness, and that all life is interconnected and interdependent. Once one's mind opens to that view it becomes clear why new technologies must be developed that don't pollute, that cutting down the Amazon forest, for instance, has implications that affect the wellbeing of every creature on earth, including ourselves, and that all social policies must be designed with this matrix in mind. It is so simple to say, yet so profound in its implications.

This research also is changing the minds of scientists about what we mean by consciousness, and whether it is entirely physiologically based. How can a bee with a brain of less than two cubic millimetres,<sup>79</sup> learn to count or recognize a human face, and yet we know they can.<sup>80</sup> How can a Monarch butterfly whose brain has only a million neurons – the human brain has around 86 billion neurons -- possibly know about, let alone fly to, a specific tree? And yet Monarchs that have been tagged and tracked show they can and do.

As naturalist Dana Wilde points out, “Conventional depictions of cognitive capacity used to involve the physical size of a brain and the number of neurons in it. Neurons make up the biochemical circuitry of the mind. Each one is a treelike structure that moves sensory and other kinds of information around the nervous system. It receives information through its root, or dendrite, and sends it electrochemically up through its trunk, or axon, to twigs and branches that pass on the signals through synapses to other neurons.... But some researchers are starting to think that brain size, and specifically the number of neurons, doesn't exactly correlate to cognitive ability. Bees, it has been discovered, can learn to distinguish between images of human faces. Adult moths remember pain experienced as caterpillars. Individuals of some species of spiders show distinct personality types, including a kind of cobweb spider whose more aggressive females “participate more in colony defense and prey capture, while others are docile and engage more in brood care,” according to arachnologists Lena Grinsted and Jonathan Bacon. Butterflies — and all kinds of spiders and bugs, really — practice intricate mating behaviors involving odors we can't smell, wavelengths of light we can't see, and who knows what else that's invisible to us.”<sup>81</sup>

Perhaps most significantly of all it is becoming clearer and clearer that intelligence is not just physiologically based, that the matrix of consciousness is nonlocal.

In 1968, research physician Jean Barry of l'Institut Metapsychique in France carried out an experiment using Violet Tooth fungus cultures which had been cultivated under optimal conditions, a total of 195 dishes. There were 10 participants, each of whom carried out nine sessions expressing negative therapeutic intention. Their task was to inhibit the growth of the fungus cultures. To do this they concentrated for 15 min from a distance of about four feet (1.2 m) away, never touching the cultures. Of the 195 dishes 151 showed retarded growth.<sup>82</sup>

What makes this study particularly interesting is that whilst most Therapeutic Intention studies are focused on improving the health of the organism that is the target of the therapeutic intention, this early Barry study already recognized a very important distinction: therapeutic intention works both ways. Perhaps because it is something you could never formally test in humans, although it has a strong religious history involving curses, hexes, and “evil eyes”, it is not widely considered nor often discussed today, but a number of these simple organism studies have confirmed this two-way effect.” I pick the Barry study for that reason and because it is one of the first of what has become an entire body of research, and I will mention two others to emphasize this bi-directional point.

Carroll Nash of St. Joseph's College, Philadelphia carried out a particularly compelling study because it was so explicit in this regard. Nash's study involved bacterial colonies, cultured in common and then split into three independent subpopulations.<sup>83</sup> His purpose was to replicate earlier studies by nun and biochemist Sister Justa Smith<sup>84</sup> and nursing pioneer Dolores Krieger, who along with Dora Kunz would later develop the nonsectarian approach to therapeutic intent known as Therapeutic Touch.<sup>85</sup> Smith's studies had shown significant differences between treated and controls measuring changes in hemoglobin and enzyme activity, which were the focus of the expressed intention. But Nash had a second question. He asked, ‘Could intention alone not merely affect the cell colonies, but could it do so both positively and negatively when compared to controls?’ The results showed that it could, although positive intention produced a more significant result than negative intention.”<sup>86</sup>

But this matrix of consciousness nonlocal linkage was shown particularly dramatically in a study carried out by English biologist Rupert Sheldrake and Aimee Morgana. Morgana had an African Grey parrot, N'kisi who had a vocabulary, and she noticed that the parrot often seemed to respond to what she was thinking by vocalizing something in her thoughts. She approached Sheldrake about this, and they designed “a series of trials to test whether this apparent nonlocal linkage ability would be expressed in formal tests in which Aimée and the parrot were in different rooms, on different floors, under conditions in which the parrot could receive no sensory information from Aimée or from anyone else.

“During these trials, Aimée and the parrot were both videotaped continuously. At the beginning of each trial, Aimée opened a numbered sealed envelope containing a photograph, and then looked at it for two minutes. These photographs corresponded to a

prespecified list of key words in N’kisi’s vocabulary, and were selected and randomized in advance by a third party. We conducted a total of 147 two-minute trials. The recordings of N’kisi during these trials were transcribed blind by three independent transcribers. Their transcripts were generally in good agreement. Using a majority scoring method, in which at least two of the three transcribers were in agreement, N’kisi said one or more of the key words in 71 trials. He scored 23 hits: the key words he said corresponded to the target pictures. In a Randomized Permutation Analysis (RPA), there were as many or more hits than N’kisi actually scored in only 5 out of 20,000 random permutations, giving a p value of 5/20,000 or 0.00025. In a Bootstrap Resampling Analysis (BRA), only 4 out of 20,000 permutations equaled or exceeded N’kisi’s actual score ( $p \hat{=} 0.0002$ ). Both by the RPA and BRA, the mean number of hits expected by chance was 12, with a standard deviation of 3. N’kisi repeated key words more when they were hits than when they were misses. These findings are consistent with the hypothesis that N’kisi was reacting (through nonlocal linkage) to Aimée’s mental activity.”<sup>87</sup>

These studies and experiments spread across many disciplines, using different protocols, are often dismissed by physicalists who find the very idea of nonlocal consciousness, to quote American psychologists and physicalists James Alcock and Arthur Reber, to be “impossible.”<sup>88</sup> And yet this position, when the research is closely examined, is seen as a statement of ideology or belief, not a statement of science. What this research is telling us, I think, is that the comfortable materialism that has dominated science for many years, is slowly giving way to an acceptance of the matrix of consciousness, the recognition that not all aspects of consciousness are physiological, and that Max Planck was right when he said in 1931: “I regard consciousness as fundamental. I regard matter as derivative from consciousness. We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness.”<sup>89</sup>

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