The Next Truth

Where Science and Myth Meet

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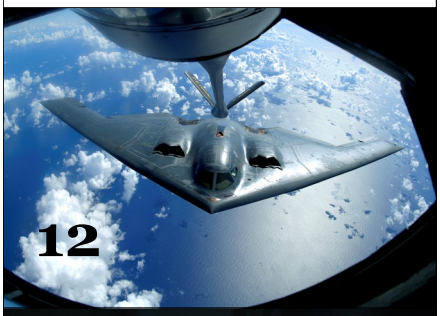

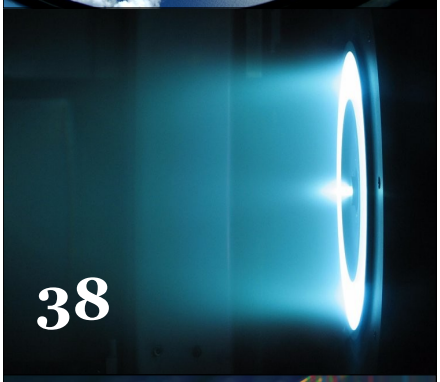

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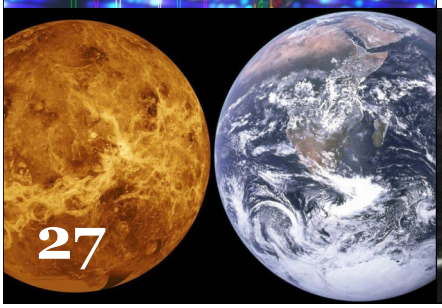
E-mail: info@nexttruth.com

Website: http://nexttruth.com/

Skype: live:marian1919



The Next Truth

Where Science and Myth Meet

BEFORE THE BIG BANG?

Walking up to the globe of the CERN (European Organization for Nuclear Research) in July 2017, set a crazy quest for me in any understanding within the origin of evolution and with that the Universe … with tense curiosity… I went back and the story began…

Once upon a time … a little spot, smaller than the dot at the end of a sentence, was hovering through the universe.

This charged particle could have sparked the production of every other particle it encountered, not to mention every galaxy, solar system, planet, and … our species.

That tiny spot exploded in a place being pitch black.

It exploded into an almost inaudible illuminating flash of everything!

https://www.amazon.com

NASA astronauts Bob Behnken and Doug Hurley are training to fly on SpaceX's Crew Dragon Demo-2 mission.

Targeted Date: **June**
Mission: **Commercial Crew SpaceX Demonstration Mission 2 (Crewed)**

For more information: **www.go.nasa.gov**

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Date: **7 - 8 June, 2019**
Location: The Globe of Science and Innovation, **Geneva, Switzerland**

For more information: **www.sharing-knowledge.org**

Newport UFO and Paranormal Conference 2019

Date and Time: **Sun, 9 June 2019, 09:00 – 17:00 BST**
Location: **Newport South Wales, UK, Lysaghts Institute**

Tickets: **£32.57 – £43.23**
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Taurus Monthly Horoscope
2019 predictions
Www.cafeastrology.com

Scientists must be free to speak

Scientists must be free to learn, to speak and to challenge anything new and to fail. WAIT, WHAT? NO! Yes, scientist must have the freedom to fail an experiment or two in the same way you did in school failing that particular math or literature test. But as I have once said to a close friend of mine, who is a scientist, ***"you can only fail when you give up before even trying".***

So, even a failed hypothesis teaches us something. The best way I can explain that is through my own adventures as a science journalist working in the midst of scientists from all over the world and from varied institutes.

As I started writing as a science journalist several years ago, and yes, you may start laughing right now but I was scared, really scared! I was scared of these super intellectuals with their big brains, their big books, their big, unfamiliar words and titles I had never hear off before. But as conversations and interviews with these brilliant scientists from the CERN, the Max Planck Institute, SETI, the University of Harvard, Oxford, Warwick, Colorado Springs just to give you some examples, unfolded, I quickly learned that these brilliant scientists were nervous, even afraid to talk to me. Maybe even thinking; "Oh my god, she is going to misinterpret everything I say, rip me apart before I am truly death and in the process my research!"

This idea bothered me immensely. Knowing that many of our scientists are writing down their best ideas and then hide it away in the most remote drawer they can find because it is too "farfetched". I felt I had to do something with this. So, I set aside my fear for this feeling of failing and started talking to these scientists via e.g Skype and email...no talk about complex research findings or computer data from new experiments.

It took me a long time before I gained the trust of some these genius minds after all, I am a science journalist. The words of a journalist have a tremendous power... my words are power which can spit out venom or can inspire a nation and invite people to the wonderland of science. Slowly it became understood that I also came from this world in where you are constantly under attack, and that I had personally felt the outrage of being put away in this labeled cube. I was extremely surprised by the many responses I received of which the content ranged from; *"Shit, I have killed my laptop!"*... *"Today I let the laser device explode :("* ... *"The weather is foggy at the airport."* But besides talking about the everyday things, some of them told me about the ideas they had in their field of work. And I was amazed about their open-minded theories, their creativity in critical thinking and the advanced ideas they had...have! I asked myself, could I be a voice for those who were being silenced by this fear of failing. One week later The Next Truth magazine was born and I set goal to use it as a new platform to give scientist and citizen scientists the change to talk about the importance of advanced theories and experiments in new science.

I am of the opinion that it is critical, absolutely critical, that our scientists are free to undertake their work, free to collaborate with other scientists, free to speak to the media and free to speak to the public.

Scientists must be free to explore unconventional or controversial topics. They must be free to challenge the thinking of the day and to feel free to present uncomfortable or inconvenient truths, because that's how scientists push boundaries and pushing boundaries is, after all, what science is all about.

Contributors

DESY (Hamburg, Germany)

The Research Centre DESY (Deutsches Elektronen-Synchrotron) is one of the world's leading accelerator centres. Researchers use the large-scale facilities at DESY to explore the microcosm in all its variety – from the interactions of tiny elementary particles and the behaviour of new types of nano-materials to bio-molecular processes that are essential to life. The facilities generate the world's most intense X- ray light, accelerate particles to record energies and open completely new windows onto the universe. That makes DESY not only a magnet for more than 3000 guest researchers from over 40 countries every year, but also a coveted partner for national and international cooperation's. www.desy.de

Marc Wittmann Ph.D. (Freiburg, Germany)

Dr. Marc Wittmann, Ph.D., is a research fellow at the Institute for Frontier Areas in Psychology and Mental Health in Freiburg, Germany and received his Ph.D. at the Institute of Medical Psychology, University of Munich. He studied psychology and philosophy at the Universities of Fribourg, Switzerland, and Munich, Germany. From 2000 to 2004 he was head of the Generation Research Program, Bad Tölz, University of Munich. Between 2004 to 2009 Dr. Wittmann was a research fellow in the department of psychiatry at the University of California, San Diego. https://sites.google.com/site/webmarcwittmann

Seth Shostak (San Francisco Bay Area)

Dr. Shostak have developed an interest in extraterrestrial life at the tender age of ten, when he first picked up a book about the Solar System. This innocent beginning eventually led to a degree in radio astronomy, and now, as an Senior Astronomer, Dr. Shostak is an enthusiastic participant in the Institute's SETI observing programs. He's co-authored a college textbook on astrobiology, has written three trade books on SETI and has published more than 400 popular articles on science including regular contributions to NBC News MACH. https://www.seti.org/our-scientists/seth-shostak

William John Murray (UK)

Physics professor and Ph.D. Bill Murray is an Edinburgh-born researcher. His involvement at CERN includes understanding the interactions and properties of the Higgs boson using the ATLAS detector at the LHC. He also searches for new physics, especially dark matter. Dr. Murray was the ATLAS Higgs convener from 2009 until 2011, physics coordinator from 2012 until 2014, and was right in the center of the Higgs discovery in July 2012. Most of his career, Dr. Murray was a researcher at RAL, in Oxfordshire and in 2013 became a professor at Warwick University, where he now teaches half time. A physics degree also lead Dr. Bill Murray to a Ph.D. position in Cambridge on the OPAL experiment at CERN. http://delphiwww.cern.ch/

Dr. Steve Taylor (Manchester, England)

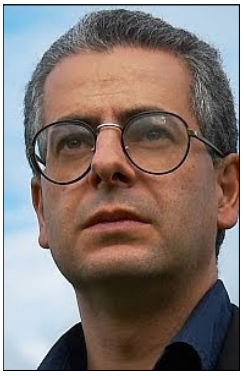
Steve Taylor is a senior lecturer in psychology at Leeds Beckett University, UK, and teaches mainly on the Psychology and Society course. He is the Module Leader for Consciousness Studies and Positive Psychology, the current chair of the Transpersonal Psychology Section of the British Psychological Society. Dr. Taylor is a widely published and well known author of several best-selling books on psychology, spirituality and self-development. His latest book is; Spiritual Science: Why Science Needs Spirituality to Make Sense of the World. **www.stevenmtaylor.com**

Lynn Kathleen Russell (Lethbridge, Alberta)

Lynn researched 2500 near-death experiences for Dr. Jeffery Long. Lynn's spiritual knowledge inspired her to write the book; „The Wonder of You: What the Near-Death Experience Tells You About Yourself". The second edition is expected out later in 2019 and is covering a very wide range of experiences, including her own. Lynn is a workshops facilitator and gives talks on the subject in where she uses science to show participants the magnificent spiritual beings we are. **www.amazon.com**

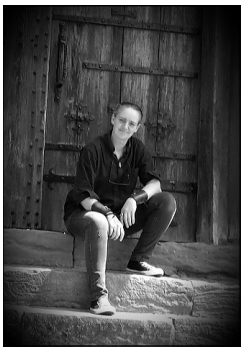
Glenn Croston (San Diego)

Dr. Glenn Croston is a PhD biologist, author, researcher and biotech entrepreneur with 24+ years of experience moving drugs forward from concept to clinic. He is the author of 75 Green Businesses and Starting Up Green, giving green entrepreneurs everything they need to start and grow a successful venture, and The Real Story of Risk, exploring the psychology that shapes how we see or fail to see the myriad risks in the world around us. Dr. Croston received a BS in Biology from UC Davis, and a PhD from UC San Diego in 1993, and enjoys risks including jogging on the beach, spending time with loved ones, yoga, painting, and working for a better world. **www.infixionbio.com**



Nick Pope (Tucson, Usa)

Author, journalist and TV personality Nick Pope used to investigate UFOs and other mysteries for the British government, and is the world's leading expert on UFOs, the unexplained and conspiracy theories. Nick used to run the British Government's UFO project. From 1991 to 1994 he researched and investigated UFOs, alien abductions, crop circles and other strange phenomena, leading the media to call him the real Fox Mulder. **www.nickpope.net/index.html**



Maria Anna van Driel (Germany)

Maria Anna is the owner and founder of The Next Truth magazine, an investigative science journalist, columnist, foreign correspondent, ghost writer. She has a MA in ancient Alchemy, a BA in Metaphysics and a BS in Theoretical Physics. Her interest includes among others Mythology, Medieval and (pre) Egyptian Symbolism, Quantum-, Optical-, Particle-, and Astroparticle Physics. Maria Anna finds always the time to write new articles while having a nice chat with her (future) contributors. **www.nexttruth.com**

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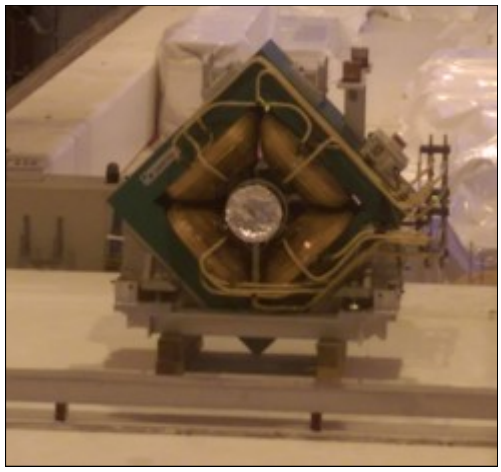
Death Finds a Way or Mud
Chapter 7, "Aaron"

By William John Murray

"Well, I don't see why you think you can do anything". It was rare for Mike to speak, but he had put down his tablet to look up at is sister with defiance. Elly had been telling him of her urge to go to the Rutherford Lab, and talk to Aaron Stevens. He had been with Dad at the Sandoñana that night, and she just wanted to learn as much as she could about what had happened to Dad. He could tell her more. "I just want to understand what happened. I'd like to get a picture of his last hours…its maybe not pretty but I want to know the truth." She did not want to tell anyone what Lola had said, not yet. Maybe she would if she was really sure, if she believed it. "Right you are, copper"; Mike turned back to his game. Elly sighed, and set her laptop. Finding a phone number for the lab was easy, but what would she say to a secretary? Maybe it would work, but she kept googling.



Aaron's numbers turned up soon enough, on a press release put out a couple of years before – something about a breakthrough in accelerated amino acid recombination through high-dose radiation. Old, but it might work. She saved the number and headed for the front door. "Bye mum; I'm just going to get some stuff for lunch" she said loudly, outside the lounge door. There was a muffled "thanks" from within and she headed down the road. She was wondering what exactly to say to Aaron, and eventually decided a straightforward approach must be best. She rounded the corner and cut through a lane between the leafy, detached, houses that lead towards the one-stop. At the far end was a little bench, where she sat in the autumn sun and made the call. "Hello, Aaron Stevens" came the reply, and she launched into a little speech she had prepared. It wasn't difficult to persuade him; Aaron seemed to welcome the idea of her visit, and they fixed an appointment for three o-clock the same day. The lab was a little isolated, but she was determined, and the taxi fare would just have to be paid. Elly turned for home, then remembered her excuse and went into the one-stop for some bread and sliced ham.

Three o-clock brought the taxi to the gate, where a guard in a grey suit asked her name and who she was visiting. He spoke into an intercom, and then directed them through to R2, but the taxi driver already knew the way. As they drew up Aaron emerged. He was tall and angular, his light brown hair curly and unkempt. About fifteen minutes later they stood on a walkway on the side of an old dusty hall the size of a large aircraft hangar. A yellow and black gantry crane was against the ceiling, and bright lights illuminated a strange collection of concrete and aluminium structures, dominated by a backbone 10 feet high and 10 feet wide running most of the way down the centre of the hall from the left. Elly had never been in here before and it struck her as weird, maybe beautiful, but most likely the left over villain's lair from some forgotten Bond film. Aaron didn't stop to admire the view, but led the way through a series of walkways onto the spine itself and then down to the end. This was marked by a concrete castle.

"Here", he explained, "this is where the magic happens. This is the target station itself; protons rush beneath our feet forty times a second to collide with a heavy metal block. That's what makes the neutrons - spallation it's called. And they go every direction. The assembly in front of you is dismantled with the crane to change the targets, and our experiments are built right into the structure. They need a really high dose to accelerate the process, and this is the only way "That's the beauty of it. The old experiments were trying to use sparks, and temperature control, and searching for the right chemical soup, but ›››

your dad had the real breakthrough. Low-energy neutrons - and lots of them. Heat affects all the molecules. If you warm the soup up so that one bond starts to be unstable then all the weaker bonds are already breaking down. A bath of neutrons randomly hits molecules and breaks one bond and leaves the neighbouring molecule untouched. That's what allows all these different amino acids to interact. Just when they are in a stable form - bang a neutron hits the molecule and breaks a random bond." "It's a brilliant idea, but the cookery, its still a long tedious trudge. Experimenting with mixes, temperatures, and the other key, temperature gradients. You see a key for life is organization, and organization does not happen by random chance. It needs to be nudged. But having temperature gradients in one direction and differing concentrations across the gel the gradients can drive organization. And of course, just like Mary Shelly said, we need the electrical spark. It takes about a month, but we are speeding up a billion years into that month."

Elly didn't mind the mansplaining. She had heard all this at dinner many times, as her Dad lived through the frustrations or excitements of the day. She did want to see for herself. But more importantly - she rightly guessed it would relax Aaron. And what he said next was completely new to her. "The key ingredient is mud", he went on, "well, clay hydrogels. Luo's group in Cornell University hit upon them back in 2013, and used them to synthesize proteins, with the voids in the clay acting as cell walls. Of course they started from DNA, and they only got as far as protein manufacture - but it's a crucial link." "'We have gone so much further....and without adding DNA. Self replication is the Holy Grail, that's what everyone is chasing. Once molecules can self-replicate anything, really anything is possible. And that's what we have achieved. We tried many, many things, and in a sense we just stumbled over a magic set.

You cook 1000 batches at once, and 999 show nothing, but in one vial the symptoms were clear - circular patterns. Something spreading from a point, it had to be. Elly couldn't believe her ears.

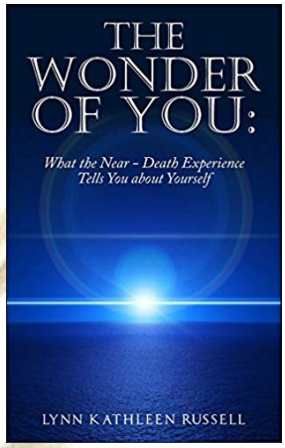
"So you have really seen it…artificial life?" "Yes, with my own eyes. On a good sample you do not need analysis to see it – it's just obvious" "Can you show me a sample?" "I can show you photos if you like. But for safety reasons we have to destroy the samples. We don't know the properties of what is in there; we don't have the containment facilities in case there was an escape. We don't even have a licence to work with living tissue, so as soon as we see evidence we have to destroy it. The next stage is to get approval and build a secure cleanroom where we can keep them alive longer."

Suddenly Elly had doubts: "But how do you know it's really something new? Couldn't it be contaminants growing in the vessel?" "Impossible. We heat treat the ingredients to very high temperature for a long period before we start completely denaturing any DNA. Then we make several nearly identical vials. They all get the same treatment - except that for all but one vial one step or component is left out: the heating, the irradiation, one of the chemicals. We call those the 'n-'tests. And the 'n-1' tests never show any sign of life. The results are really unambiguous" "This is just incredible…when do you expect to have the new cleanroom?" Aaron looked down. "Well, we need approval to work with living tissue and of course the funding. That's what your father hoped to get after showing the result at the Santander meeting. But worse: I don't know the complete mixture. He stumbled across a key ingredient six months ago, but has been so worried about competitors he told no-one what it was. " He broke off. "I'm sorry, I have said too much. Come on we should go."

■ ■ ■

Contributors BookShelf

Dr. Marc Wittmann
www.amazon.com



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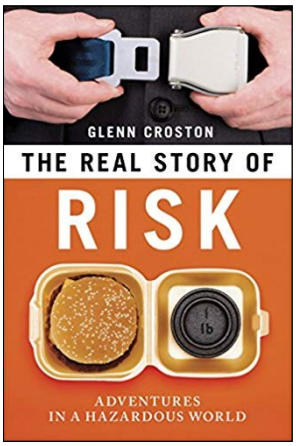

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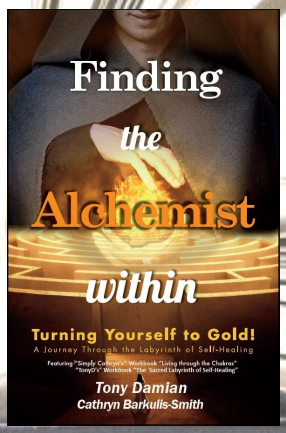

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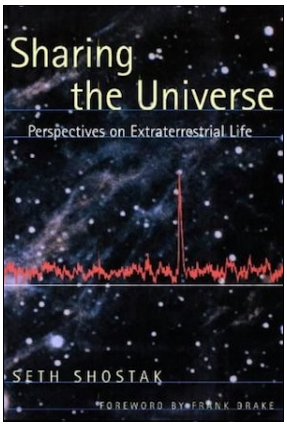

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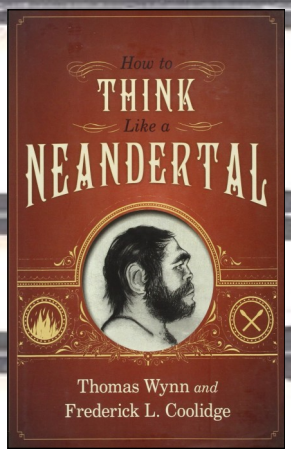

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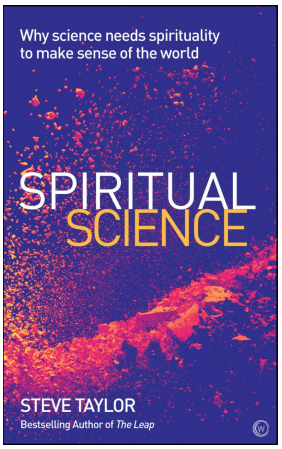

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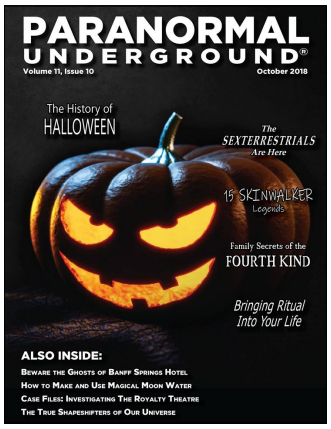

Paranormal Underground
www.magcloud.com

Beyond Conspiracy Theories With Nick Pope (Part II)

Nick Pope (born 19 September 1965) was an employee at the British Government's Ministry of Defense (MoD) from 1985 to 2006. His postings included being assigned to the Joint Operations Center during the Persian Gulf War, where he was a briefer in the Air Force Operations Room.

Nick is a conspiracy theory skeptic. While he thinks that challenging the government's position on issues is an important part of any free, open and democratic society, he believes that many conspiracy theories arise from a lack of critical thinking, and a poor knowledge of the way in which government works. He's particularly concerned when conspiracy theories are used as justification for anti-Semitic views, or have fueled the anger of people with mental health issues.

By Nick Pope**, http://www.nickpope.net/index.html**

Contradictory Conspiracy Theories

In The Next Truth issue of April 2019 I mentioned earlier the work of Dr. Karen Douglas at University of Kent, who found that those people who believed Osama bin Laden was already dead before the US raid that purportedly killed him were also more likely to believe that he's still alive. This may seem counter-intuitive, if not downright absurd, but it's symptomatic of a wider issue with some conspiracy theories, where mutually-contradictory theories are put forward for what's alleged to be going on. The chemtrail conspiracy is a good example, with some people believing the aim of this supposed chemical spraying campaign is to alter the weather, while others think it's aimed at behavior modification, or that it's part of a campaign to poison people, as part of a mass-extermination plan. Clearly, even if chemtrails were real, most conspiracy theory belief about them would be false. We see the same with 9/11 conspiracy theories: some people believe it was an "inside job", some people believe America "looked the other way", some people believe aircraft hit the Twin Towers, while other people (the so-called "no-planers") think the aircraft seen hitting the buildings were holograms and that the buildings were brought down by a controlled demolition (or, at the extreme end of the belief spectrum, some sort of anti-gravity weapon). In situations like this, the proponents of more extreme beliefs are often accused of being shills, infiltrating the so-called "Truth Movement" and discrediting it by making overly ridiculous claims.

Close, But No Cigar

Few conspiracy theories are without some element of half-truth or ambiguity. There are apparently reasonable points that, at first, give one pause for thought. The CIA, for example, was aware of 9/11 hijackers Khalid al Mihdhar and Nawaf al Hazmi, but didn't put them on the State Department's TIPOFF watchlist, or inform the FBI. Does this mean that the authorities knew 9/11 was going to happen but "looked the other way"? In fact, such failings are not uncommon, and in most cases are the result of factors such as overwork, information overload and – critically – poor intelligence-sharing between different agencies. On this latter point, inter-agency rivalry, mistrust and even antipathy is much more common than the public (who often view government as a single entity) are generally aware. To these factors can be added the tendency of people entrusted with classified or sensitive information to be overly-protective (particularly in situations where a key concern is to avoid compromising a sensitive source), to the

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extent that it becomes useless – the intelligence isn't actionable. So using the Khalid al Mihdhar and Nawaf al Hazmi example, what may look suspicious to the layperson is immediately recognizable as standard practice to those of us with a background in government/intelligence.

Conspiracy Theories and Science

Related to the above are arguments that may initially seem scientific, but on closer examination (which often doesn't happen) aren't. Again, 9/11 provides a nice example. Conspiracy theorists point out that aviation fuel doesn't burn at a high enough temperature to melt steel. Therefore, they argue, aircraft alone, slamming into the Twin Towers, couldn't have brought the buildings down. This opens the door to speculation about a controlled demolition. While the argument might initially sound reasonable, more careful consideration leads us to the answer: steel loses its structural integrity at a much lower temperature. This, plus gravity, was more than enough to bring down the buildings. A basic understanding of science would result in a more informed debate about many conspiracy theories. The chemtrail conspiracy is a good example of this. Undeniably, there have been government/military attempts to modify the weather. Operation Popeye (cloud seeding during the Vietnam War, aimed at making it rain on the Ho Chi Minh trail, thus bogging down the main Vietcong supply route) is a well-documented example of this. So, if chemtrails are real, it's scientifically plausible that they have something to do with weather control or even climate change. However, researching crop spraying and seeing how low the aircraft have to fly for the spray to have a discernible effect on the crops should – even for believers in chemtrails – eliminate the idea that they have anything to do with poisoning people or modifying their behaviour. You couldn't target a spray with any degree of accuracy from the heights at which it's alleged chemtrails are discharged (commercial aircraft cruising height of around 35,000 feet), and any chemicals sprayed from such heights would have a negligible effect on anyone at ground level. In any case, the economy of scale argument could be brought into play – why not simply put chemical into the water supply? Surely even the New World Order would choose a cheaper and easier strategy if one was available! The point is, applying science can eliminate some aspects of a conspiracy theory and result in a more focused debate on that part which remains.

Open Minds UFO Radio & TV Oct. 23th 2018, Nick gives his unique perspective a being one of the few who has worked on a government sponsored UFO research program.
www.openminds

Conspiracy Theories – The Good

Some conspiracy theories turn out to be true, and while governments don't lie as often as many people seem to think, they constantly dissemble and spin. Accordingly, a healthy skepticism in respect of what we're told by government (and the authorities more generally) is actually a very good thing, and is a healthy indicator of a modern, open, democratic society. More generally, it's good in terms of critical thinking. So it's right to doubt and challenge what we're told by those in power, and to ask searching questions if something doesn't look or feel right. But there's a danger in going too far and in assuming that because one conspiracy theory is true, most or all of them are (The few academic studies done into this suggest that if you believe in one conspiracy theory, you're more likely to believe in others). As ever, the trick is to get the balance right. As the old saying goes, it's good to have an open mind, but not so open that your brain falls out.

With this in mind, it would be a good thing (and would help a more informed debate) if conspiracy theorists and skeptics could find some common ground in terms of a conspiracy theory that turned out to be true. Interestingly, one that's often cited as true (that the Nazis started the Reichstag fire to discredit the communists and consolidate their power) is the subject of more debate between historians than most people realize. Conversely, few people on either side of ›››

the debate are familiar with one of the best documented conspiracy theories in recent years, i.e. the fact that senior figures in the Northern Ireland Office, the Royal Ulster Constabulary and the Catholic Church knew (or strongly suspected) who was responsible for the bombings in Claudy, County Londonderry, in 1972 (attacks in which nine people died), and that actively conspired to cover it up, because the alleged perpetuator was a Catholic priest. The Northern Ireland Police Ombudsman's 2010 report into the bombing and the subsequent events found that this conspiracy almost certainly took place, and their conclusion was widely reported by the mainstream media – including the BBC. The review of the original investigation into the Claudy bombings makes interesting reading for those interested in conspiracy theories (on whichever side of the debate) because of what it tells us about inquiries in modern times. When wrongdoing (including conspiracy – even if it's only a conspiracy of silence) is found, it's generally exposed, with criticisms being made. The Hutton Inquiry (into the apparent suicide of government weapons inspector Dr. David Kelly) is seen by some as a whitewash, and itself part of a conspiracy to cover up what really happened. But if people use this to imply that all official inquiries are going to give the government an easy ride and support the party line, they're mistaken. The Saville Report (into the Bloody Sunday shootings) was extremely critical of the Army and concluded that a soldier fired the first shot. Charles Haddon-Cave QC's report into the fatal crash of an RAF Nimrod aircraft in Afghanistan in 2006 contains damning criticisms of the MoD and defense contractors. The ongoing Iraq Inquiry chaired by Sir John Chilcot is likely to contain robust criticisms of various government figures in relation to the Iraq War, though it's unlikely to support the conspiracy theory that "we went to war on a lie" – i.e. that Saddam Hussein had weapons of mass destruction.

Again, all this should be required reading for conspiracy theorists and conspiracy theory skeptics alike, as it's a useful template for how the authorities respond when things go catastrophically wrong.

Conspiracy Theories – The Bad and the Ugly

There's a dark side to some conspiracy theories. The irony is that while they can sometimes be healthy in terms of encouraging critical thinking, they can also be extremely unhealthy, in terms of people believing unsubstantiated rumors simply because they accord with their (generally anti-Establishment) worldview. Far more worrying, however, are three other factors.

Firstly, some conspiracy theories, particularly those involving a 'New World Order', imply that the world is secretly run by a small group of families and corporations – a sort of 'shadow government'. In relation to such ideas, one often hears the phrase "conspiracy of international bankers" or "small group of families who secretly rule the world". Often, such wording is used to mask anti-Semitism. The accusation of anti-Semitism is often met with the defense that those involved are only against "Zionism", but have nothing against Jewish people more generally. In some cases this is true, and on a related issue it's a dangerous situation where any criticism of the Government of Israel is automatically labeled as being anti-Semitic. But in other cases the defense about being anti-Zionist sounds like a convenient 'get out', not a million miles away from the cliché about the racist who begins an argument with a phrase "Don't get me wrong, I've got black friends". Even if not motivated by racism, such views make it easier for racism to take root. At a UFO conference held in Leeds in 2011, for example, a question from the floor turned into a lengthy comment which included the sentiment that Hollywood was "run by the Jews". Significant numbers of audience members (and even some of the other speakers on the panel) seemed to be nodding in agreement, and only one person in the audience was courageous enough to take the individual concerned to task.

Secondly, medical conspiracies (e.g. those surrounding Swine flu) can be dangerous. Many people believe that certain diseases were bio-engineered deliberately, and that they – and/or the associated vaccination programmes – are part of a conspiracy to exterminate large numbers of people, to bring the world population down to a more manageable/sustainable level and – perhaps – to bring about a New World Order. If people who are ill with such diseases use conspiracy websites to inform their decisions, as opposed to seeking medical advice, the consequences could be fatal. As a practical illustration of this, I once saw a father post a question about vaccinations for his baby on the Facebook wall of a conspiracy theorist who had recently ›››

expressed the view that a false flag alien invasion would be staged at the closing ceremony of the London Olympics.

The third – and possibly least commented upon – area where conspiracy theories can be dangerous relates to the feelings of rage and powerlessness that they can engender. With certain personality types, this runs the risk of making them feel they have no stake in the democratic system, and no conventional way for their voice to be heard. Though the situation is not clear-cut, there are very strong indications that John Patrick Bedell (who opened fire on Pentagon police officers in 2010 and was subsequently shot dead) was motivated in part by 9/11 conspiracy theories, and that Jared Lee Loughner (who killed six people in Tucson in 2011) was obsessed with conspiracy theories on 9/11, the New World Order and Mayan prophesies apparently suggesting that the world would end in 2012.

This is a controversial area and one on which experts in psychopathology are best-placed to comment. One could doubtless argue that such people would always find something to latch onto, that tips them overthe edge. But at the very least, we must be mindful of the negative effects that conspiracy theories can have on individuals, and indeed on groups of people. The think-tank Demos, for example, has done some interesting research into the link between conspiracy theories and extremism.

Heads I Win, Tails You Lose

There's an interesting aspect of some conspiracy theories that's worth knowing if one is to truly understand the mindset of some conspiracy theorists. On one level it looks like a cheap trick, but on another level it offers a useful insight into the conspiracy theory universe. Again, the supposed false flag alien invasion at the 2012 Olympic Games is the perfect example. If it happened, self-evidently proponents of such a theory would have been proved correct and would have claimed credit. But when it didn't happen, the 'get out' was that those involved prematurely exposed the New World Order's plan and thus forced them to back down. In this case and in others, conspiracy theorists can actually take credit for what, in reality, is nothing more than a failed prediction.

National Differences

As a British citizen who now lives in the United States, the issue of national differences in conspiracy theories is of particular interest to me. It's noticeable that a number of US conspiracy theories (e.g. those about the Sandy Hook school shootings and the Boston Marathon bombings) revolve around the central premise that the intention is to create an environment where the government will be able to declare martial law and "take away our guns", thus overturning the right to bear arms that's enshrined in the Second Amendment to the United States Constitution. Interestingly, proponents of such theories seldom cite what might initially sound like a ›››

compelling argument, i.e. the fact that a school shooting in Scotland (the 1996 Dunblane school massacre) did lead to extensive gun control in the UK. However, even if this was to be cited as a precedent for how governments can clamp down on private gun ownership, it would be based on a misunderstanding of the fundamental differences in US and UK public attitudes to firearms, and on a failure to appreciate the unique protections afforded by the Second Amendment. Such factors must be borne in mind when looking at conspiracy theories regarding mass shootings – arguably one of the most prevalent types of conspiracy theory in modern day America.

A Testable Hypothesis

Belief in conspiracy theories clearly has a number of root causes, including mistrust of government, feelings of personal disempowerment, and lack of knowledge of the way in which government, the military and the intelligence agencies work. It seems to me that much of this is testable. On the knowledge of government point in particular, where answers are either right or wrong, it would be possible to conduct double blind experiments which could score someone's believe in various conspiracy theories and their knowledge of officialdom, to see if there's a relationship. I've discussed this with at least one academic (and have drawn up some questions for a study) but I believe further work in this area would be fruitful.

Conclusion

As I pointed out previously, belief in conspiracy theories has been the subject of comparatively little academic study. Exceptions include the aforementioned Demos work on conspiracy theories and extremism, Cambridge University's Conspiracy and Democracy project, led by Sir Richard Evans, and a March 2015 conference on conspiracy theories organized by Professor Joseph Uscinski at University of Miami.

However, given the profound impact conspiracy theories can have on people's beliefs and actions, more work is needed, and while I support academic research into this subject, I believe we need to be more inclusive. A wider conversation on the subject needs to take place, involving not just social scientists and academics, but the media and – critically – conspiracy theorists themselves. It's this latter engagement that will prove most difficult (because of conspiracy theorists' mistaken perception that conspiracy theory skeptics are Establishment debunkers), but is essential for any proper understanding of the subject. It seems to me that a greater understanding of the conspiracy theory community and their mindset is a prerequisite to such engagement. In this respect, blanket dismissal of such people as crazies is singularly unhelpful.

Conspiracy theories are an important part of contemporary belief. In our globalized society, with its 24/7 media coverage, conspiracy theories start almost immediately after newsworthy disasters, high-profile deaths, and mass-shootings. They then spread rapidly, in our increasingly interconnected world. Even if most popularly-held conspiracy theories are demonstrably false, dismissing conspiracy theory culture in its wider sense would be to throw out the baby with the bathwater. Rather, we should be asking why people believe such things, and what this tells us, not just about the individuals concerned, but about 21st Century society and culture as a whole.

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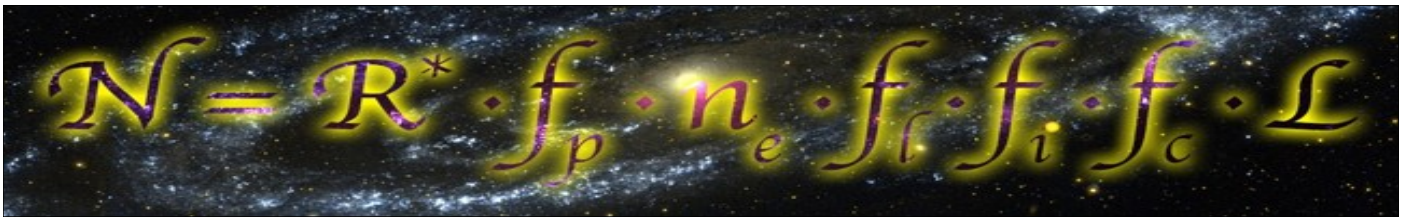
What Do You Mean With Evolution?



By Maria Anna van Driel, www.nexttruth.com

We tend to think that evolution is a smooth line of changes in the characteristics of a species over several generations and relies on the process of natural selection. This, by the majority, accepted theory of an almost vivid and detailed description of human ascent from a tiny, one-celled monad is so convincing that one could almost believe science has seen the microscopic amoeba turn into a man with their own eyes. But does the theory of evolution merit a fanatical support, which would silence all opposing ideas?

Within every human being are 46 chromosomes containing an estimated 100,000 genes, each one of which is able to affect in some way the size, color, texture, or quality of the individual. The assumption is that these genes, which provide the inherited characteristics we get from our ancestors, occasionally become affected by unusual pairing, chemical damage, or other influences, causing them to produce an unusual change (mutation) in one of the offspring. I wonder if the 2 billion-year-old nuclear reactor in Gabon, West Africa, called the Oklo fossil reactors, could have had any influence on some of Mother Nature's creations and started a new line, or lines, of species as they first fired themselves up.

However, scientists like Darwin, conceded that most mutants are recessive and degenerative; therefore, they would actually be eliminated by natural selection rather than effect any significant improvement in the organism.

The theory of evolution on the other hand is based on the idea that all species are related and by natural selection, first formulated in Darwin's book "On the Origin of Species" in 1859, and speaks of a process by which organisms change over time as a result of changes in heritable physical or behavioral traits.

In biology, evolution is the change in the characteristics of a species over several generations and relies on the process of natural selection. Natural selection can change a species in small ways, causing a population to change color or size over the course of several generations. This is called "microevolution" but natural selection is capable of much more. Given enough time and enough accumulated changes, natural selection can create entirely new species. It can turn dinosaurs into birds, amphibious mammals into whales and the ancestors of apes into humans. Indeed, understanding evolution is important and helps us solve biological problems that impact our lives.

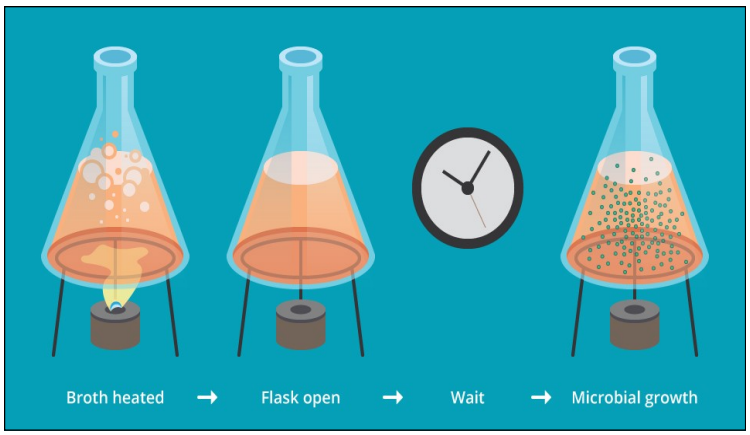
But leaving aside the exquisite complexity of biologically evolved organisms, it does seem to be true that the Earth creates less complexity than its human inhabitants and should evolution, as it is known by many, be a ridiculous improbability. How does the evolutionist explain the existence of that first one-celled animal from which all life forms supposedly evolved?

For many years the medieval idea of spontaneous generation was the accepted explanation what is supposing the production of living organisms from non-living matter, as inferred from the apparent appearance of life in some supposedly sterile environments. According to Webster, spontaneous generation is "the generation of living from nonliving matter from the belief that organisms found in putrid organic matter arose spontaneously from it." Simply stated, this means that under the proper conditions of temperature, time, place, etc., decaying matter simply turns into organic life.

The first serious attack on the idea of spontaneous generation was made in 1668 by Francesco Redi, an Italian physician and poet. ›››

Nice try Redi but a waste of time because this simplistic idea kept dominating scientific thinking until, in 1846, Louis Pasteur completely shattered the theory by his experiments and exposed the whole concept as utter foolishness. Many scientists saw Redi's "deathblow" to this theory of spontaneous generation by proving by experiments that life comes only from previous life, as a perfect window of opportunity to explore the origin of the human species further.

Over time, Charles Darwin became almost universally thought of as the father of evolution but it was a British naturalist, explorer, geographer, anthropologist, and biologist who had written the revolutionary idea of evolution by natural selection entirely independently of Charles Darwin. Although the theory what was proposed by Charles Darwin in "On the Origin of Species" in 1859, Alfred Russel Wallace should be as famous as Charles Darwin for discovering that species "evolve" but his name became overshadowed by Darwin's. Alfred Russel Wallace played an important, even pivotal, role in discovering and developing the theory of natural selection.



The universe <u>had</u> to cool down in order to give birth to life as we know it today.

Wallace, unlike Darwin, took one step further outside the box of, for that period in time, accepted science by saying that the human soul is not the product of evolution. Still, let us not only judge Alfred Wallace by the impossible standard of competing with Darwinian immortality. Judged on his own merits, he had an impressive career and left a substantial legacy. Most problematic for scientists like Darwin was Wallace's belief that while this natural experimentation shaped the body – there was something divine about the mind, the soul. Such spiritualism was too loopy for rationalists. But Wallace integrated his radical politics, deep spirituality, bold ingenuity, and admirable nobility. So, in the summer of 1865 Wallace began investigating spiritualism, possibly at the urging of his older sister Fanny Sims, who had been involved with it for some time.

After reviewing the literature on the topic and attempting to test the phenomena he witnessed at séances and came to accept that the belief was connected to a natural reality. For the rest of his life, he remained convinced that at least some séance phenomena were genuine, no matter how many accusations of fraud sceptics made or how much evidence of trickery was produced. And even these two gentlemen did not agree on some points in their search for the origin of the human species, the two opponents had a point. Evolution was subversive. On November 7, 1913, Wallace died at the age of 90.

155 years after the publication of the theory of evolution, science picked it up again in 2013/14. A group of scientists came together in a lab and used a powerful laser to re-create what might have been the original spark of life on Earth. They zapped clay and a chemical soup with the laser to simulate the energy of a speeding asteroid smashing into the planet. They ended up creating what can be considered crucial pieces of the building blocks of life. Unfortunately, their findings did not entirely prove that this is how life started on Earth about 4 billion years ago but the experiment does bolster the long-held theory in evolution.

May I suggest to you a theory what speaks of an evolution that has the prospect of being rejected with the same speed as I am writing it? Imagine a, slightly different to ours, solar system just beyond the borders of our own universe. This solar-system has a bright star what provides the required heat for subatomic particles to emerge which in turn create the basics for atoms after they bound. Also, planets, moons and even black holes can be found in this, by us, unseen solar-system containing to us strange life forms. Let us also imagine that the borders of our universe are not a straight line which science can calculate but is presenting itself as a wobbly and moving X -point…better known as a wormhole or EPR.

This alien solar-system swirling in a neighborly

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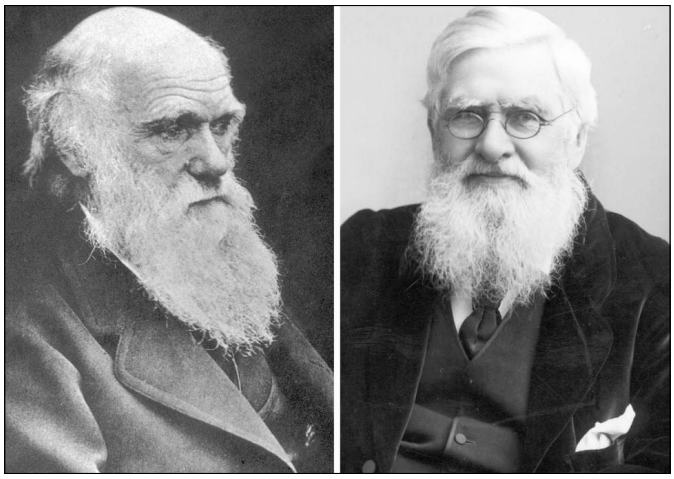
universe contains the same basic building-blocks as can be found in our universe but are slightly different in, for instance, their spin and energy charge and/or density.

All these extraterrestrial subatomic particles are starting to accelerate when being vacuumed into the mouth of a black hole and pressed more and more together as they are entering the narrow tunnel of this wormhole behind the black hole what in turn is creating a tremendous heat. Hum, think of 200 human beings who all want to exit, or enter, a room at the same time but this room has only one entry and it is not bigger then 2 meters wide. This large crowd is using all kinds of maneuvers as it tries to squeeze itself through this narrow entrance in order to enter, or exit, the room what is creating friction, chaos and aggression which in turn create heat.



(Left) Charles Robert Darwin; a naturalist and biologist, known for his theory of evolution and the process of natural selection.
(12 Feb. 1809 - 19 April, 1882)

(Right) Alfred Russel Wallace: a British naturalist, explorer, geographer, anthropologist, and biologist
(8 Jan. 1823 – 7 Nov. 1913)

By means of the friction, in this theory this occurs by the spin of the particles when they meet instead of collide, a strange kind of heat is created and when a particle is more aggressive (electrical charged) then its fellow particle, it could produce a kind of sequence in uncountable little illuminated explosions (EM-Photons?).´

Keeping in mind that this is still a hypothetical proposition, this inaudible explosion can be a plausible answer to what we see happening on the other side of the wormhole (white hole) and gave this galactic event the name Red –Shift or maybe even…the Big Bang.

Now like those 200 screaming and yelling human beings trying to squeeze themselves through that narrow doorway, subatomic particles possessing different spins, speed, weight, are acting in a similar manner when putting together in a closed jar. Unscrew the lid and… BOOM! The only question in this event is; what caused the particles to spin in the first place? The friction…the explosion of this particle cocktail…is tachyon created by the spin of the known particles? Or did life sprang up spontaneously from no previous life and thus contradicts with the basic law of nature that forms the foundation of the entire theory? Is there truly a, yet unknown to science, spooky particle what inhabits our universe having a tremendous impact on our evolution?

Are we ourselves this alien life form we so desperately trying to contact?

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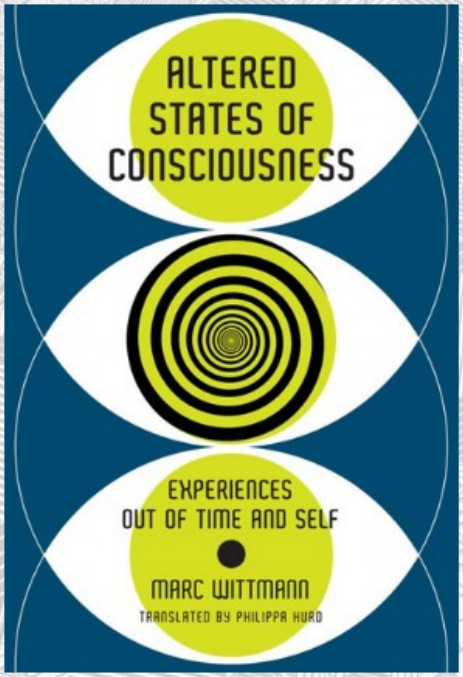

Marc Wittmann

What altered states of consciousness can tell us about the mystery of consciousness?

Dr. Wittmann, PhD, is a research fellow at the Institute for Frontier Areas of Psychology and Mental Health in Freiburg and takes us through the brain science of time perception with clarity and insight. He covers new approaches to the issue from psychological, neuroscience, and clinical studies with a good emphasis on newer imaging studies that implicate brain regions. Dr. Wittmann considers the emergence of the self in waking life and dreams; how our sense of time is distorted by extreme situations ranging from terror to mystical enlightenment; the experience of the moment; and the loss of time and self in such disorders as depression, schizophrenia, and epilepsy.

https://mitpress.mit.edu/books/altered-states-consciousness

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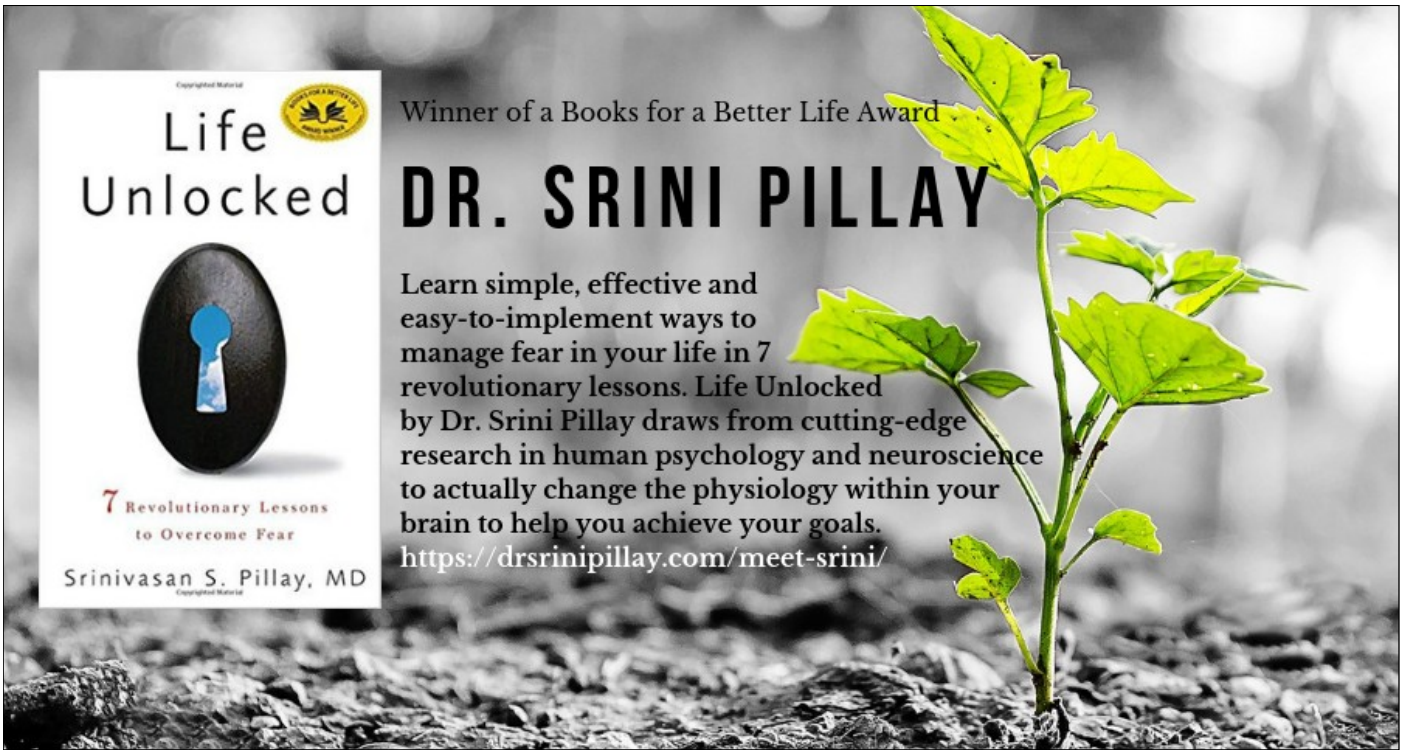

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https://drsrinipillay.com/meet-srini/

What Is Time and How Do We Perceive it?
Time-Researcher Dr. Marc Wittmann Weighs In

By Maria Anna van Driel

In the issue of December 2018 The Next Truth had the privilege to interview neuroscientist Dr. Srini Pillay in where he spoke about PSI effects and brain-to-brain communication. Associate Professor Dr. Brian A. Sharpless, PhD (clinical psychology) addressed our perception of reality in the issues of March and April (2019) by addressing an array of several sleep disorders like Sleep Paralysis and the Exploding Head Syndrome. But this foggy state of reality or better said; the agreement in where we experiencing an idealistic or notional idea of 'things', has another ingredient... Time.

Do we perceive 'time' as it actually exists or is our brain deceiving us for what is real and what is not? Did our brain found a technique to slow down and speed up time? Dr. Wittmann or "Time researcher" as he would like to call himself, has investigated the question of how we as humans sense time all of his professional career. After studying psychology and philosophy at the Universities of Fribourg (Switzerland) and Munich (Germany), he did his Ph.D. at the Medical School, University of Munich, where he studied how patients with brain injuries perceive time.

For five years Dr. Wittmann worked as research fellow at the Department of Psychiatry, University of California San Diego, conducting brain imaging research in healthy individuals and patients. Since 2009 he is employed at the Institute for Frontier Areas of Psychology and Mental Health where he has broadened his approach considerably by assessing different altered states of consciousness.

For more information about Dr. M. Wittmann:
https://sites.google.com/site/webmarcwittmann/Home

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Welcome Dr. Wittmann, I appreciate the time you took for letting us peer into your career and some of your theories and research within the complexity of what time is and how we perceive this phenomenon by looking at it from a Neuro-psychological and Philosophical point of view.

Dr. Marc C. Wittmann, PhD is a senior researcher at the Institute for Frontier Areas of Psychology and Mental Health (IGPP) Freiburg, Germany
http://www.igpp.de/allg/welcome_EN.htm

You are well known within the community of IGPP. But for those people who don't know about your background, can you tell us a little about yourself? Who is Dr. Marc Christoph Wittmann?

Dr. Wittmann; This is one of the unanswerable questions: Who are you? We are many selves. Ask 10 different people who know me well and they will give you 11 answers. When speaking of my professional self, however, I would say that an important way to define what "I am" is that I am not a specialist of any method. I am not particularly skilled in any specific area of expertise: say, scripting a program, analyzing data with statistical methods, running fMRI or EEG studies, etc. I do all these things, of course. But they do not define what I am. That explains also why I studied philosophy, why in my daily work I use philosophical concepts to develop a new empirical study or why I try to integrate individual studies ›››

into a larger conceptual whole. I know so many smart students who know "every" technical detail about their experimental method and have developed into renown researchers. However, some of them started to work on the detailed theory of their mentor and just continue to this day, repeating the same methods to explore the same theory until they retire … I am more a generalist who is interested in the big questions of time, consciousness, free will, and self. Starting from there I select the methods and cooperate with other like-minded researchers to explore possible answers that would constitute a break-through in our understanding of humanity.

Q: Your areas of focus are Psychology and Philosophy. What inspired you to step into the science of psychology?

Dr. Wittmann: I started to study philosophy as a major at first, and psychology as a minor. I loved to delve into the classics of philosophy like Wittgenstein or Nietzsche or read about the philosophy of mind. However, I got fascinated by the possibility in psychology to empirically test ideas and concepts and not just think about them. For me these are the two sides of the same coin, conceptual thinking including ancient wisdom such as from Buddhist Psychology and at the same time working hands on with technology such as when recording brain activity while people see, hear, or think about something.

Q: You're both lecturing and conducting research at the Institute for Frontier Areas of Psychology and Mental Health in Freiburg, Germany. Which research projects are currently running at the institute and can people get involved in these projects?

Dr. Wittmann: Using methods from the natural sciences, social sciences, and the humanities, the IGPP investigates the frontier areas of what we understand about ourselves and the world. That's basic research. We have also clinical psychologists specialized in counselling people who have had extraordinary experiences that they cannot integrate into the regular world view. These can be experiences of precognition in a dream or in a sudden realization while being awake which turned out to be correct. Some of the work being conducted can be found online on our institute's webpage:

http://www.igpp.de/allg/welcome_EN.htm

My own current work specializes on altered states of consciousness in order to explore what constitutes time, space, self, the dimensions of consciousness. For example, a safe and quick way to induce altered states is through using the ganzfeld technique where subjects have goggles over their eyes and see a homogenous, colored light and at the same time listen to a waterfall over headphones. With this reduced stimulation/ environment, hallucinations can appear and people fall easily into states of consciousness which otherwise can only be achieved after years of meditation practice.

The largest study I am conducting is an EU-sponsored study where we are developing a Virtual Reality environment to have patients with psychiatric disorders experience states of flow. Patients with depression often complain that they feel "stuck in time", time is not "moving on", the future is "blocked". Through dynamic game-like environments we want to induce states of flow which are positively experienced and thereby reducing negatively felt rumination. One can see: this project is again all about time. From basic research on altered states of consciousness to applied research where we try to help people immerse in favorable feeling states, which hopefully can be generalized into everyday life.

Q: What is time?

Dr. Wittmann: I could give a quick answer: ask a physicist. Because it is the field of physics that tries to ask the question of "what is time?". Only, you will not get a consistent answer. Ask different physicists, and you will get completely different answers. Some leading physicists deny the existence of time altogether, others try to find ›››

a way of how to reconcile the physics of time with the subjective experience of temporal passage, of duration, of the sense of a past, present, and future. For me as a human being time is an undeniable entity which will eventually lead to my personal death.

In my research, most interesting are experiences of "timelessness" as can happen in heightened emotional states, under the influence of psychedelics, as reports of near-death experiences, during meditation and in many more non-ordinary situations So, experienced time is malleable, can come to a standstill or speed up. That is what I am interested in: what are the factors influencing subjective time. How is subjective time associated with processes in the brain? *I will give a rough sketch of an answer below.*

Time passes us in slow motion or dramatically speeding up in a fight-and-flight situation and opens a possibility in reacting adequately to a situation which is significant for survival.

Q: In your book "Altered States of Consciousness" you take us through the brain science of time perception with clarity and insight, and show how experiences that disturb or widen our everyday understanding of the self can help solve the mystery of consciousness. What made you write this book? What can people learn from your book?

Dr. Wittmann: During extreme, non-ordinary states of consciousness we are confronted with the borders of what we can understand. Many of such states have features that are ineffable; we cannot talk or write about what was experienced. Even a genius writer such as Dostojewski who had auras preceding his epileptic seizures was not able to fully express was he felt, even he stumbled on writing about timelessness, eternal bliss, feeling the presence of god. Nowadays, open-minded scientists try to systematically capture what people with these epileptic auras experience and which areas of the brain are involved (the anterior insular cortex).

During altered states of consciousness the sense of self and of time can be extremely distorted. We can phenomenologically analyze different experiences and compare them between different individuals and between different types of states (such as comparing deep meditative and psychedelic states); we can investigate what happens in the brain during these states and again compare brain processes in response to different methods of inducing altered states of consciousness. This research might inform us about what consciousness is (yet one of the big mysteries). Moreover, one can embed these findings, without being a reductionist, into many contexts of spirituality, mysticism, healing, and paranormal experiences.

Q: Googling your book "Felt Time" via Amazon and MIT press, we read that you explore the riddles of subjective time, explaining our perception of time by drawing on the latest insights from psychology and neuroscience. In the introduction of the Amazon version you make the comment, "We are time". What precisely do you mean with that?

Dr. Wittmann: The sense of time and the sense of self are intricately related. When we become aware of ourselves, i.e. during waiting situations, we sense the passage of time. When we are in a state of flow during activities we are immersed in (while doing sports, playing music, watching an entertaining movie, scripting a program, etc.) we hardly sense ourselves and time passes by quickly. That is, in our everyday experience the senses of time and self are modulated together.

My physiological research (recordings from the brain and body) has shown how the insular cortex, the primary interoceptive cortex which integrates bodily signals, is involved when people have to judge duration in the range of several seconds. One can infer from these findings that the experience of the bodily self, which in turn is the basis of the emotional and conscious self (within the context of the embodiment concept), lies at the core of the experience of the passage of time at each present moment. That's why one can say: "We are time". ›››

Q: Reading the many articles you wrote on your blog of Psychology Today I stumbled over your article "The Matrix Effect; why time slows down in dangerous situations". Can you give us some insight in what this "Matrix Effect" is you are speaking of?

Dr. Wittmann: The term "Matrix Effect" stems from the movie "The Matrix". The movie is famous for the fighting scenes where the protagonists (among them the actors Keanu Reeves and Lawrence Fishburne) during their fights experience everything passing in slow motion. Even bullets pass so slowly that the heroes can move in time to avoid being hit by them. Such slow motion effects are actually quite common.

Many people have told me their stories and I myself had one in a near-accident situation. They happen in typical fight-and-flight situations. Nowadays, in our motorized societies reports stem from accidents or near-accidents with cars (one person told me a story with a bike accident). One answer to why this happens is that in a typical fight-and-flight situation the organism, in order to react adequately and in time to a situation which is important for survival, speeds up dramatically. Because internally motor processes and thoughts speed up, externally the world, relatively speaking, passes by in slow motion. As a consequence of the world slows down relatively to me, I have more time to make the right decisions and movements

A question from the general public:

Extraordinary as it sound but some people can grab a bullet, which is fired at them, from the air. How do these people perceive time? Is there a technique that is used by the brain to slow down this very high speed?

Dr. Wittmann: I have heard such reports before. It is difficult to verify them though. To actually be able to grab a bullet seems less likely than to being able to have the feeling of having avoided being hit by a bullet. Why is that? The motor system cannot react that quickly. At least on the experiental side it is possible to have the (potentially illusory) feeling that one has moved out of the line of fire at the right moment as the external world slows down due to the Matrix effect.

Q: Time and PSI effects are mind dazzling puzzles to solve. Many scientists have tried and are still trying to find an answer to these phenomena's. When science finds the evidence for the existence of both, what will be the next step for this? How and for what will science use the new understood knowledge?

Dr: Wittmann: That's of course an unanswerable question. Because we don't know what the next truth will look like. We can imagine something. But think of the fact that we may have an experience we can only interpret within a PSI context. Most people who have had such experiences say that it happened to them and that they cannot control these phenomena. To answer your question, we would have to know what actually will be discovered. Can we willfully control PSI effects?

There are techniques such as Remote Viewing with which individuals claim that they can perceive spatially distant events at the present moment or foresee future events by means not explained by conventional information transfer (as PSI effect). This would be an example of a controlled method for PSI effects. But even then information is often vague or statistically significant only over many trials.

Together with Max Müller and Laura Müller, two trained remote viewers, we performed such a study. Viewers in our study who were guided by Max and Laura were able to detect a target in 14 out of 36 trials, where a detection rate of 6 targets would have been achieved by chance. In another study, Laura and Max guided further more experienced viewers and managed to predict 38 out of 48 future stock market values. Nevertheless, we did not become rich because the 10 (larger) losses averaged out the 38 (smaller) wins.

Again, this shows, and this complements other findings from study groups round the world, that remote viewing might work, but that it is difficult to use it in a reliable way. That is, from our momentary perspective which is "before the next truth", we can only speculate about how this truth might influence us. Or we can work hard on finding the next truth, the big paradigm shift.

■ ■ ■

The Thing We Fear More Than Death

Dr. Glenn Croston is a PhD biologist and the author of multiple books exploring ourselves and our world. Humans are about the most interesting thing around, in his opinion, even if our actions are hard to understand. But by understanding our actions, and ourselves, we can better manage our actions and our role in the world around us. "Why predators are responsible for our fear of public speaking" is the question biologist Dr. Glenn Croston discusses in his article from an evolutionary perspective. Dr. Croston's article is a quick summary of his book "The Real Story of Risk: Adventures in a Hazardous World" in which he examines the many facets of our hazardous modern environment that we only dimly perceive. Going all the way back to our roots as humans, and back again, Dr. Croston arrived with fresh insight into how we got here and where we might be going. For more information about Dr. G. Croston's book; **www.amazon.com**

Dr. G. Croston is a PhD biologist and the author of the book; "The Real Story of Risk"

By Glenn Croston Ph.D. **www.glenncroston.com**

Surveys about our fears commonly show fear of public speaking at the top of the list. Our fear of standing up in front of a group and talking is so great that we fear it more than death, in surveys at least. On one hand I understand, having sweated myself about getting up in front of a group. On the other hand, it seems odd that we're so afraid — what are we afraid of, anyway? What do we think will happen to us? We're unlikely to suffer any real or lasting harm — or are we? The answer seems to lie in our remote past, in our evolution as social animals.

Humans evolved over the last few million years in a world filled with risks like large predators and starvation. Based on the fossil evidence of predator attacks on our human ancestors (as described in the book *Man the Hunted* written by Robert Sussman and Donna Hart), and on predation rates on large primates today, early humans were probably commonly hunted by a wealth of large predators. One common defense to predation displayed by primates and other animals is to live in groups. In a group, other group members can alert each other to predators and help to fight them off. The advantages of living in a group probably are the reason why early humans and other large primates evolved to be social, and why we are still social today.

Humans were not the largest, fastest, or fiercest animal — early humans survived by their wits and their ability to collaborate. Those that worked together well, helping others in their group, probably survived and passed on traits that contributed to social behavior. Failure to be a part of the social group, getting kicked out, probably spelled doom for early humans. Anything that threatens our status in our social group, like the threat of ostracism, feels like a very great risk to us.

"Ostracism appears to occur in all social animals that have been observed in nature," said Kip Williams, a professor of psychological sciences at Purdue who has studied ostracism. "To my knowledge, in the animal kingdom, ostracism is not only a form of social death, it also results in death. The animal is unable to protect itself against predators, cannot garner enough food, etc., and usually dies within a short period of time," said Williams.

The fear is not just about public speaking, but is also faced my many others who are faced with getting in front of a crowd and performing like athletes, actors, and musicians. As a social psychologist, teacher, and a sufferer of social anxiety, Dr. Signe Dayhoff suffered through ›››

intense fear of public speaking every time he got up to teach a class. "My tongue stuck to the roof of my dry mouth and I couldn't swallow, I blushed, sweated and trembled," he said. Eventually it got so bad that it interfered in his ability to do his job. Getting help, he found he could deal with the situation better. "As I recovered 12 years ago, using cognitive-behavior therapy, patience, persistence, and practice, I found that nearly 20 million individuals at any one time suffer from some form of social anxiety. They fear being negatively evaluated in anything they do; fear being rejected; fear being abandoned."

When faced with standing up in front of a group, we break into a sweat because we are afraid of rejection. And at a primal level, the fear is so great because we are not merely afraid of being embarrassed, or judged. We are afraid of being rejected from the social group, ostracized and left to defend ourselves all on our own. We fear ostracism still so much today it seems, fearing it more than death, because not so long ago getting kicked out of the group probably really was a death sentence.

■ ■ ■

This article originally appeared at
www.PsychologyToday.com

Why Our Galaxy Probably isn't Full of Alien Civilizations Killed off by Climate Change

By Dr. Seth Shosatk, **www.sethshostak.com**

Could it be that climate change is a universal menace?

A recent article in Forbes addresses the idea that the galaxy might be strewn with extinct alien civilizations, burned to a crisp by ferocious planetary warming. The idea is certainly intriguing, and has obvious relevance as a cautionary tale for us. But could it be true?

The article doesn't say these hypothetical societies died out thanks to an alien fondness for SUVs. Instead, the aliens are hypothesized to be the victims of a natural process — the aging of their home star — coupled with the bad luck of having no planet similar to Venus in their solar system.

This may sound puzzling, but the reasoning is straightforward. It's an established fact that stars get hotter as they age (unlike humans). The sun, for example, shines by fusing hydrogen into helium in its hellish core. Six hundred tons of hydrogen are fused per second. But this process reduces the number of particles in the sun's deep interior. That reduces the gas pressure, causing Sol to collapse a bit under its own weight. The collapse raises the pressure, and the particles respond by moving faster — which is to say, they get hotter. So, with time, the Sun heats up and gets brighter.

This isn't something you're likely to notice. Day to day, the sun's brightness increases by about 0.00000000003 percent. Obviously, there's no hurry to buy a new pair of Ray-Bans. But over the long haul, this slow brightening, and accompanying increased energy output, will wreak havoc on Earth's biosphere.

The unlovely details were worked out by Penn State planetary scientist James Kasting, who determined years ago that the sun's warming will eventually evaporate our oceans, dumping enormous quantities of water vapor into the atmosphere. Water vapor is a highly potent greenhouse gas, which causes yet more heating. Earth will be toast (without the bread part).

"If extraterrestrials are out there, odds are they're too clever to have been blindsided by global warming run amok."

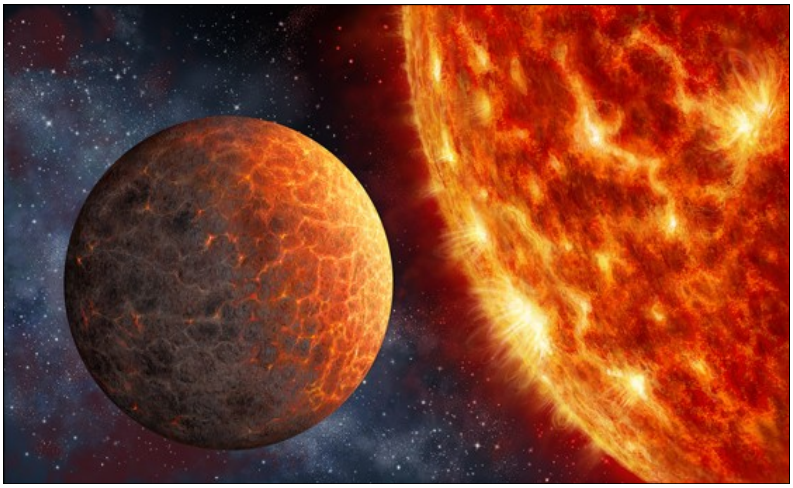
This unpleasant turn of events isn't up for debate. We know it will happen, although there's some uncertainty about exactly when you'll have to kiss the oceans goodbye, not to mention all your plant and animal friends. Maybe in a billion years or so.

According to the article, this inexorable heating — something that eventually happens in every solar system — might catch alien societies by surprise if they don't have a cousin of Venus to study.

Venus is an example of what happens to a planet when its host star is too nearby or too hot. The second rock from the sun was once a kinder, gentler, wetter world, you see. But because it's closer to the sun than Earth is, its oceans dried out long ago, and today the temperature on Venus is a sweaty 900 degrees F. It's a palpable example, right there in the sky, of what wanton global warming can do.

You might liken it to the stocks used to punish petty criminals in the 18th century. They served as a public warning to encourage responsible behavior. A Venus look-alike in a solar system of ›››

might serve a similar function — clueing in aliens about a fate that might befall their own planet. If not, then perhaps there could be a lot broiled and braised extraterrestrial societies out there.



Did planetary warming kill off alien societies throughout the galaxy?

Bummer, yes, but I doubt it's a major concern for any alien intelligence. As noted, the time scale for the sun's brightening is on the order of a billion years, and for most stars even longer. And that suggests that this particular problem may not be high on any aliens' list of worries. Stephen Kane, the University of California astronomer upon whose work the Forbes article is based, says we can expect some serious temperature oscillations much sooner.

"Slight changes in planetary orbits with time will have a much larger effect on shorter timescales than the gradually growing brightness of the star," he says.

"If a civilization can adjust to these orbital changes, then it should have no problem adjusting to the long timescale changes of the star, and could even potentially move to another planet and terraform it."

And if there isn't any nearby planet to fill the bill, it's pretty straightforward to construct a bunch of artificial habitats in cooler, more distant orbits. Undoubtedly, there are many ways that alien societies might tank. But this one seems improbable. If our cosmic confreres are advanced enough to be our intellectual peers (or better), they're clever enough to see the dangers of a star growing old, and do something about it.

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Albert Einstein

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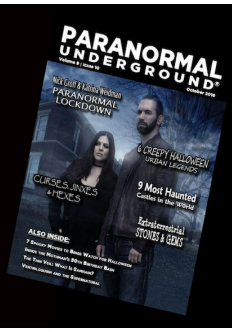

Paranormal Research York (PRY)

Kevin Spindloe – Business Development/Team Medium
07920 826980

Clare Bryant – Business Development/ Team Researcher
07534 402620

Terri Spindloe – Event Manager
07722 836904

Email: paranormalresearchyork@hotmail.com
Website: https://paranormalresearchyork.co.uk/

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A Rebuttal: Near-Death Experiences are Real

About the author; originally, Lynn's journey into a deeper understanding of Near-Death-Experiences began when she volunteered to do the research for Dr. Jeffery Long's book, which is mentioned in this article. In the process, she became thrilled by the information coming back and when the project with Dr. Long was completed, she continued to research on her own until she had torn apart 2500 death experiences. Since that time, Lynn has continued learning and exploring and has written a book, *The Wonder of You: What the Near-Death Experience Tells You About Yourself*. The second edition, with added information will be expected out later in 2019. In addition, Lynn has also maintained a high interest in science for about 45 years. She has just completed a book on the spiritual science and gives talks and workshops in these areas.

By Lynn K. Russell, www.amazon.com

Science is a search for understanding of everything in the universe, animate or inanimate. As artists are driven to create, scientists need to prove, as close as possible, that something is as it seems. Guesses and anecdotal reports are strongly shunned in exchange for repeated testing that gets the same results every time. If different outcomes occur, then there is something wrong with the data and the mistakes need to be found and corrected.

Doubt and questions are the chicken soup of science and through peer reviews the research is constantly questioned. Rightfully so, otherwise how would we know what has been put forward is correct? The world is overflowing with pseudo-science, conclusions given without the appropriate research and a peer review to establish it is correct. Sincere responses to this process verify the findings and hold the researcher accountable. Questions also assist in putting things into perspective and separate fact from imaginings.

With that understanding in mind, I would like to dispute some of the scientific conclusions published regarding near-death experiences. With respect, these doubters push us to find definitive ways to illustrate the reality of the experience. Please note that the information mentioned here is not based on anecdotal reports and is verifiable.

It is truly unfortunate that Dr. Moody chose to use the word 'near' in his identification of these experiences. That small word has injected over forty years of doubt into what these people report happened to them. One man said that whoever called the experience 'near-death experiences,' never had one. There is nothing halfway or 'near' about it, dying is quite absolute whether we return or not.

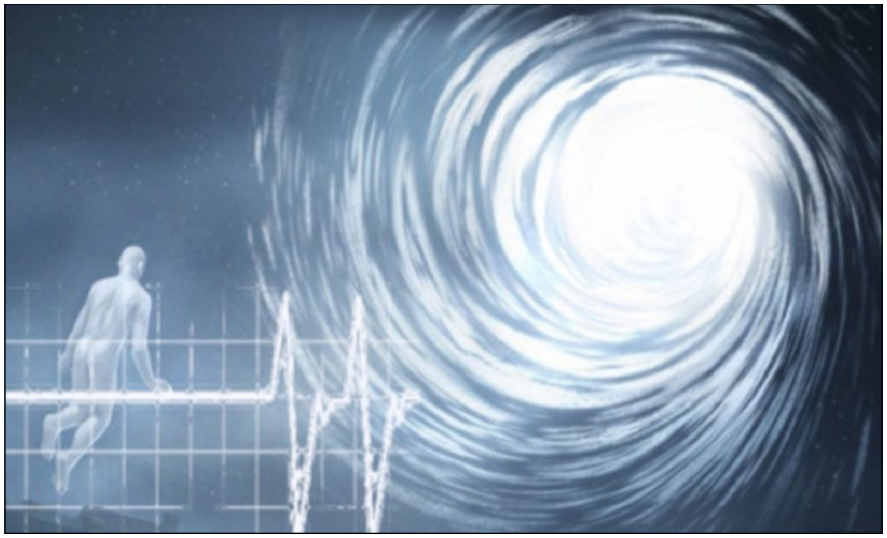
Dr. Wilder Penfield was the first to expose the brains of epileptic patients while they were awake and prod their brains to discover where their seizures occurred. Unexpectedly, he found that when he nudged the frontal cortex his patients recalled vivid memories from their past. Skeptics of the (near) death experience have used Penfield's work as an explanation of an element of the (near) death experience, known as the life review.

Dr. Susan Blackmore, a British psychologist, has said the experiences were the result of the neurons in the brain losing blood flow and it breaking down. Dr. Kevin Nelson, a researcher at the University of Kentucky supported Blackmore and added they could be hallucinations that happened during the dying process.

Dr. Tom S Troscianko and Blackmore speculated in a paper they wrote together that the effects of sound on the brain could cause the tunnel. ›››

The Doppler Effect is a change in sound a vehicle makes as it passes. As it approaches, the sound is higher and as it goes by the sound instantly changes to a lower tone. Dr. Karl Jensen reproduced one aspect from the accounts of death when he gave his patients the drug Ketamine and brought on an OBE (Out of Body Experience). While OBEs are one aspect of the NDE, they are not death.

During my talks I'm often asked what the difference is between an OBE and an NDE. Those having an OBE are very much alive. Their organs are functioning and while they are out of their bodies, they primarily stay at the Earthly plane. Those who have had an NDE are dead. They have stopped breathing, the heart has stopped and the organs, including the brain, are beginning to shut down. Ketamine equals the effect provided by magic mushrooms, LSD, DMT, and other hallucinogens.



An article by Charles Q Choi in Scientific America, September 12, 2011, listed all the above explanations and added sleep paralysis as a common state that occurs when the person is halfway between being awake and asleep. Choi also mentioned dopamine, a natural chemical in the brain that can bring the feeling of euphoria. The suggestion is that it could be released when the brain is breaking down.

What surprised me by these 'scientific' attempts to debunk the death experience is that while these ideas are just theories, they are presented as though they are proven facts. Where are the repeated tests to prove their hypothesis, or respect for the peer review that differs from their own? Each of the above might explain one aspect of what happens at death but the total event is much more profound and intricate. If we bundled all these suppositions together, and assume theyare correct, we would still be left with a very minor part of what is reported. They only speak to what happens at the very beginning of the experience and only scratch the surface.

To prove the reality of the death experience using science is almost as difficult as catching a thought in flight, but it can be done as shown at the end of this article. They may never be accepted by the scientific community. However, there has been some amazing work done with remarkable results.

It is not possible for the medical profession to specifically announce when death occurs. A death certificate may be signed with a time noted, but the organs of the body break down at different times. The brainstem continues to have some electrical activity from one-half hour to three-quarters of an hour after the heart stops. To add to the confusion, there are those being kept alive with machines. Are these people still alive or truly dead?

Although I don't agree with the doctor's explanation, I understand why they think as they do. Normally, when a person dies in a medical facility, a crash cart is there to revive them within minutes. There is not enough time to judge if the experience resulted from the breaking down of the brain, the medicines the patient was given, a hallucination, or actual death.

However, there are numerous medically recorded deaths experiences that point to the authenticity of these experiences that are being ignored by doubters. Many deaths have lasted hours before the patients' returned to this life. Resuscitation had been unsuccessful, and the body was sent to the morgue only to return to life many hours later. It is not unusual for these individuals to return in a state of complete rigor mortis. Although the time of rigor mortis to set in varies, it takes approximately four hours after death for rigor to even begin and another nine or ten for the body to become totally rigid. Each of these cases where medically recorded as they had ›››

died and returned within the hospital. Some people report coming back so rigid and cold they are unable to get the mortician's attention because they can't move. One man returned and heard two men talking right beside him. When he was unable to move to get their attention, he forced his eyes to move and one of the men noticed.

A woman's body was being identified by her brother-in-law when she returned. She could hear their conversation but was unable to let them know she was alive. The relative saw tears running from her eyes and asked the mortician if dead people cried and the attendant jumped into action.

One case lasted twenty-nine hours and every minute was recorded. The man was in the navy and while diving a poison coral he became embedded in his foot. His shipmates got him to medical help where he died. For reasons we don't understand the doctor had an EEG (electroencephalogram) on the man and went away leaving it running. Twenty-nine hours later the patient sat up and returned to life with the EEG still attached and running.

The length of time of these peoples' deaths makes it clear they cannot be the result of drugs, the brain breaking down, or hallucinations. Their duration is too long for that to be the case. Nor were they the result of sleep paralysis. They were wide awake and conscious enough to know what was going on around them.

Jeffery Long, MD, offers nine lines of evidence in his book*, Evidence of the Afterlife: The Science of Near-Death Experiences*. Here we condense the list to the main points. Those who died during an operation returned with information that was not possible for them to know under normal circumstances. Their hearts had stopped, they were not breathing, and blood was not going to the brain. Yet, they are able to give detailed explanations of what was done, which persons did what, and those who came and went from the room. Plus, while the medical teams were working to resuscitate them, the patients knew what the medical staff where thinking, and even some personal issues in the lives of those in the room.

Dr. Long explains NDE-rs returned with previously unknown information about their own families and events that happened before they were born.

They could identify deceased people from pictures they had never seen before and knew personal information about others that was not possible for them to know.

Small children under the age of five have the same elements in their experiences as adults. This is verified by Dr. PMH Atwater's research of thousands of children much too young to have been influenced by external environments.

Dr. Kenneth Ring is known for his work with near-death experiences and blind people. In 1999 he and Sharon Cooper collaborated in the book, *Mindsight.* They tell of interviews done with thirty-one blind people who had returned from death. In every case, these people reported not only that they were able to see, but they could describe details beyond expectations. The same is true for those who are deaf.

Dr. Michael Sabom, a cardiologist in Atlanta, Georgia, interviewed one hundred patients who died during heart operations. Not all of them had memories during their deaths. Of those who did, sixty-one percent were able to describe in detail exactly what happened around the room and the efforts to revive them while they were medically dead. For those who wonder about the other thirty-nine percent, it is not stated what happened to them, but it is not unusual for them to wander around the hospital or to visit a loved one while the resuscitation is taking place.

Some return with talents and abilities they didn't have before death. Without training they may suddenly be a musical virtuoso or a math whiz, when before they had no interest in these areas. Another strange aspect present upon returning is their intelligence is frequently much higher than before their death. Still others return either cured of the illness that killed them, or they heal at an alarmingly fast rate.

Both NDERF and IANDS are excellent websites that boast a huge selection of well-documented and scientific studies on death experiences as well as other excellent information offered for serious seekers.

We need to step away from the spooky stories of ghosts and goblins that have entertained us for centuries and step into reality. The death experience is a medical condition and does not belong with the paranormal. ›››

No, evil spirits will not take over your life. No, a deceased soul will not attach itself to an unborn baby. And, no, those who returned from death have not been taken over by 'walk-ins' or other spirits. These stories have built up since the time when vampires and the walking dead were thought to be real. Possibly the reputation of witches smoldering concoctions derived from the tribal chiefs and their potions for treating illness. Humans may have insatiable curiosity, but we also have equally great imaginations. It is up to us to know the difference.

What does occur during the death experience? First, we need to understand that no two deaths are alike. They are not wrapped in a one-size-fits-all package and are as different as humans are from one another. Because we each take an active role in creating the type of death we have, including the negative ones. That may seem a bit confusing, but there is a simple explanation.

In this life, all we have are our thoughts, our conscious awareness. Sure, we have bodies and emotions too, but our thoughts dictate our choices which in turn decree the life we will know. Our outlook also affects our wellness. These are well documented facts. David Chalmers suggests that consciousness is a fundamental element of the universe.

Repeated scientific tests on the brain have found that the brain gets a signal anywhere from four to ten seconds before we even know what we are going to react to. The obvious question is; where is that signal coming from? Are we in some way connected to that universal consciousness?

The study of death experiences suggests that when we die, we take that same conscious awareness with us. And, it continues doing what it has always done, provide the choices we make.

A serious, in-depth study needs to be conducted by those who can be impartial and without prejudice. This research should include every person who has died and returned, no matter how long they were gone, and whether they remember a life after death or not. It needs to include the doubters' explanations including the length of time they were gone, what medications they received, and any unexplained information they returned with. It should also include what differences are between those who return with a memory of an afterlife and those with no memory? What of their mental state before their death? And what information have they returned with that they should not normally have? And, just for good measure what personality differences did they return with?

Only when a thorough and serious examination of death has been conducted will we truly have a clear idea if these experiences are caused by outside influences or are real.

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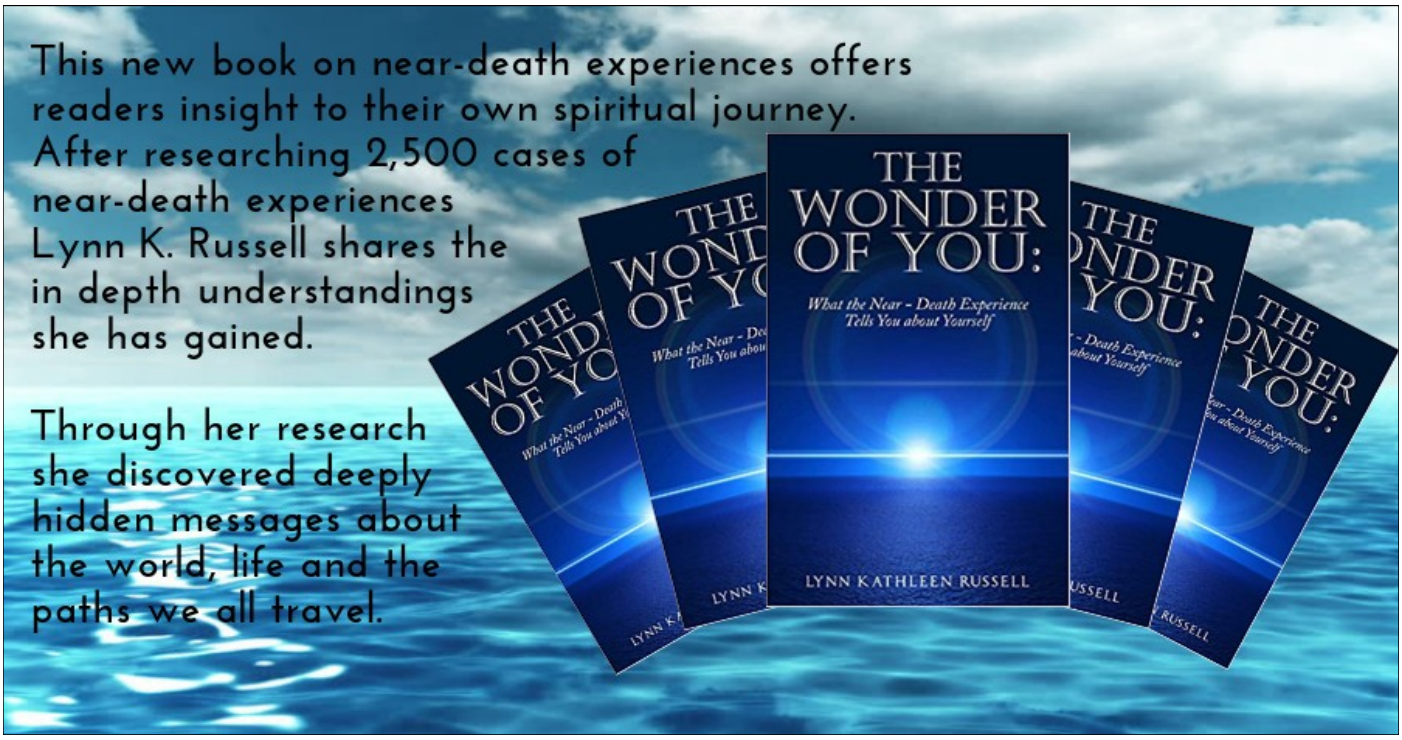

Keeping our Accounts open with Reality

Dr. Steve Taylor is a senior lecturer in psychology at Leeds Beckett University, UK, and the author of several best-selling books on psychology, spirituality and self-devolpment. He is the Module Leader for Consciousness Studies and Positive Psychology.

One of Dr. Taylor's research interests is 'awakening experiences', moments when our normal awareness intensifies and we feel a sense of connection and meaning. What causes these experiences? Is it possible to control them? His research shows that many awakening experiences are triggered by intense psychological turmoil, such as depression and loss. Dr. Taylor's work also examines the sources of psychological suffering - why is it that human beings find it so difficult to be contented?

Dr. Taylor's journal articles have been published in over 40 academic journals, magazines and newspapers, including The Journal of Humanistic Psychology, The Journal of Consciousness Studies and The Journal of Transpersonal Psychology. His work has been featured widely in the media in the UK, including The Daily Mail, The Daily Express, on BBC Breakfast, BBC World TV, Radio 4 and 5, and in The Guardian and The Independent.

In his book "Making Time" details his ideas and research on time perception; "Out of the Darkness" details his research on the transformational after-effects of facing turmoil and trauma. Other books include "The Fall, Waking From Sleep and Back to Sanity". His latest books in the U.S. is "Spiritual Science and "The Leap". Dr. Steve Taylor's books have been published in 19 languages.

For more information about Dr. Steve Taylor:
www.stevenmtaylor.com

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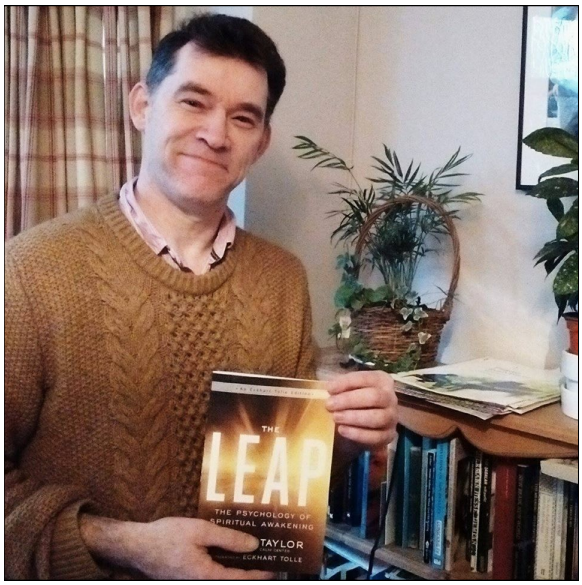


After researching mystical experiences and interviewing people who claim to have had them, psychologist Steve Taylor found that spiritual awakening is far from uncommon.
www.amazon.co.uk

Are Scientists Right to be Skeptical About ESP?

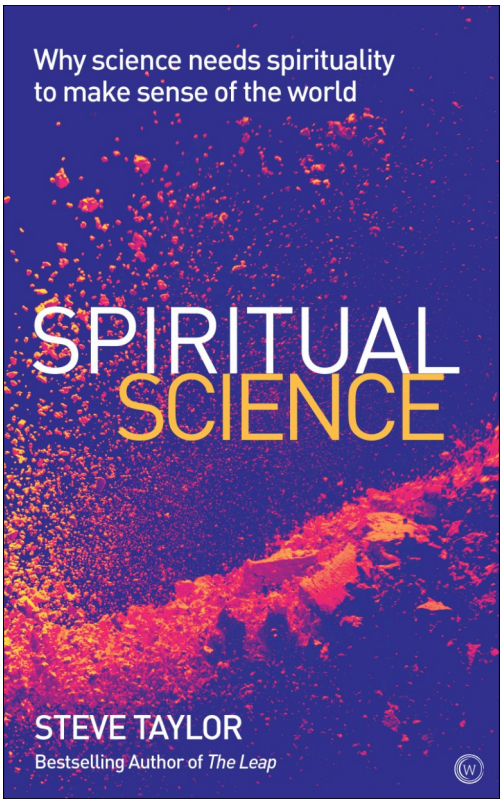
By Dr. Steven Taylor,
www.psychologytoday.com

Recently I wrote an article called 'Do Psychic Phenomena Exist?' in which I expressed an open-minded attitude to telepathy and pre-cognition. I expected that the article would attract negative responses from skeptical readers, but on the contrary, all of the comments and responses were supportive, from people who believed that telepathy and pre-cognition are real, and expressed frustration that mainstream scientists and psychologists often reject them out of hand.

This has led me think more deeply about the reasons why some scientists, and psychologists in particular, are often hostile towards the possible existence of psychic phenomena. Interestingly, it appears that psychologists are more skeptical about ESP than other scientists and academics. In one survey of 1,100 university professors, ›››

almost half as few psychologists believed that ESP is a 'recognised fact or a likely possibility' as other academics such as natural scientists and arts and humanities professors.

Why should psychologists be more resistant to the possibility of ESP? A skeptic might argue that this is because psychologists are more familiar with the workings of the human mind and so better able to understand how people can delude themselves into believing in paranormal phenomena. However, as someone who is open-minded about the possibility of ESP, I would suggest that this may be related to psychology's status as a science. There has been a long debate about whether psychology genuinely is a 'science', and some 'hard' natural scientists have been reluctant to accept it as such. Perhaps as a result, psychologists have traditionally been keen to assert their scientific credentials, partly by zealously refusing to admit 'unscientific' phenomena such as telepathy or pre-cognition into their domain. At least subconsciously, they may fear that this would undermine psychology's scientific credentials further.



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Does ESP Contravene the Laws of Physics?

Psychologists, and skeptics in general, often call upon the 'hard' sciences to support the argument that ESP is impossible. They sometimes say that telepathy and pre-cognition cannot exist because they contravene the laws of physics. However, as I commented in my last blog, this is not a valid argument. It may apply to classical Newtonian physics, but that was superseded many decades ago.

In relation to pre-cognition, concepts in modern physics such as four dimensional space-time and 'backwards causation' (or retro-causation) suggest that our common sense notion that time flows forward - from the past, through the present to the future - may be naïve.

Crazy though it might sound, inside the smallest particles of matter, cause and effect can be reversed so that event can literally take place before its cause. Noting this phenomenon, the physicist Pascual Jordan, one of the pioneers of quantum physics, remarked that: 'This has enormous implications for psychology and parapsychology, since such reversal of the cause-and-effect sequence are proved possible and philosophically valid.' (In my last blog, I also mentioned the phenomenon of 'entanglement' in quantum physics, which is compatible with the idea of telepathy.)

In view of these phenomena, it's not surprising that other physicists have been open-minded about the possibility of pre-cognition and telepathy. Although unconvinced by some of the experimental evidence for telepathy available during his life time, even Einstein was aware that it was not possible to reject it on the basis that they had no place in science. As he remarked, 'We have no right to rule out a priori the possibility of telepathy. For that the foundations of our science are too uncertain and incomplete.'

The Problem of Replication

If you're not particularly knowledgeable about parapsychology, you might be surprised to learn that scientific tests of psychic phenomena frequently do yield positive results. Recent examples have been Daryl Bem's experiments with pre-cognition in 2011, and their successful replications over the last three years. Honorton and Ferrari analysed the results of 309 'forced choice' precognition experiments published between 1935 and 1977, involving more than 50,000 participants. They found a highly significant success rate, which far outweighed any possible bias due to selective reporting. A meta-analysis of more recent presentiment experiments (between 1978 and 2010) found an even more significant positive result.

Replication is a very important part of the scientific process. Research findings can't be seen ›››

as valid unless they are successfully replicated by other researchers. Skeptical psychologists sometimes complain that, even if ESP experiments do yield significant positive results, this means little, because often the experiments can't be reliably replicated. Skeptics sometimes claim to be waiting for investigators to design an experiment which is completely predictable and can be replicated with a high success rate.

This is understandable, but it may be unrealistic and unfair. In every area of science, replication is a thorny issue. In other areas, research is often given tacit acceptance without repeated successful replication. In fact, in a lot of cases, replication is never even attempted, and when it is, there isn't usually a 'one strike and you're out' policy. One unsuccessful replication does not invalidate the original research findings. Across the whole of science, rates of successful replications are relatively low. According to one 1994 survey, the success rate for replication across all social and physical sciences was only 41 percent. In other words, it appears that the replication criteria applied to ESP experiments are unduly harsh.

"Here I will explain my reasons for believing that some "paranormal" phenomena are genuine, in particular, telepathy and pre-cognition, since these are the ones I feel there is most evidence for, and the ones I have experienced myself." From the article; *Do Psychic Phenomena Exist?* **www.psychologytoday.com**

Another important point here is that psychic phenomena are not, by their nature, completely constant or reliable. Testing for telepathy or pre-cognition is not comparable to testing 'standard' psychological phenomena or processes such as attention, perception or memory. If they exist, psychic 'abilities' vary from person to person. In some people, they don't appear to exist all, whereas others may possess them to a high degree. Psychic abilities may also be situational; even with a person who normally demonstrates them to a high degree; there may be some circumstances when they fail, or example, when they are nervous or stressed. In this sense, you could compare ESP abilities to creative abilities like painting or writing poetry.

Some people have very little ability in these areas, perhaps none at all. Some people might be able to do them passably, and some people, perhaps the smallest group, are very skilled in them. And whether people do demonstrate their creative abilities is situational. Even a very skilled creative person may not be able to demonstrate his or her creativity in an uncongenial environment, in which they feel uneasy. Both ESP and creative abilities worked best in states of calm and relaxation.

As a result, it's not surprising that sometimes ESP experiments are not successfully replicated. To expect otherwise would be like expecting all human beings to reliably demonstrate poetic abilities in laboratory experiments.

The Enlightenment Project

In my last blog, I mentioned two reasons why some scientists may be reluctant to accept the existence of telepathy and pre-cognition, because many of us have a need for 'narrative cohesion', for a complete and coherent framework to explain our existence and the world we live in; and because some of us may also feel that to be able to explain the world gives us a sense of control and power.

I also believe that some psychologists and skeptics make the 'category error' of associating phenomena such as telepathy and pre-cognition with 'irrational' phenomena such as fundamentalist religion, witchcraft, tarot cards and fortune-telling. Many scientists and intellectuals see themselves as a part of a historical 'enlightenment project' whose aim is to overcome superstition and irrationality.

The 'enlightenment' was originally a process of liberation from the hegemony of the church and monarchy, replacing dogma and myth with scientific knowledge. ›››

There is no doubt that this project has been massively beneficial to the human race, medicine, technology, freedom from social and intellectual oppression, a more truer and more evidence-based concept of reality. But the problem is that many of those who identify themselves with laudable project have a blanket opposition to the 'irrational', ignoring the massive distinctions between the hosts of different phenomena which don't appear to make sense according to their paradigm of reality.

The philosopher Ken Wilber's concept of a 'pre/trans fallacy' can be applied here. Fundamentalist religion can be categorized as a 'pre-rational' phenomenon, since it wilfully ignores the evidence of science (with respect to evolution and the origins of the universe, for example) and clings to a mythic view of reality. But phenomena such as telepathy and pre-cognition – for which there is some empirical evidence and which do accord with some interpretations of quantum physics and theories of consciousness, are better seen as 'trans-rational.' That is, they aren't related to ignorance or superstition, but to unknown phenomena or forces which are, at least at present, beyond the limits of our awareness. They are not beneath us, but beyond us. But materialists fall victim to the 'fallacy' of interpreting the 'trans-rational' as 'pre-rational', because of the superficial similarities between the two.

In fact, skeptics who rigidly hold to their particular paradigm of reality may have become their own enemies. Their reluctance to consider evidence against their beliefs, and to be open to the possibility that there must be more phenomena in existence than we are aware of, is in itself irrational. It has more in common with the dogmatism of religious fundamentalists than the curious, open-minded approach which scientists should ideally follow.

Perhaps the most irrational approach is to assume that human beings have an objective and complete awareness of reality, and that there are no natural laws or phenomena or forces beyond those we can presently detect or conceive of. There is no reason why psychology cannot be 'scientific' at the same time as accepting this.

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DARPA, Defense Sciences Office (DSO)

Major C. David Lewis, USAF

Major C. David Lewis joined DARPA as a program manager in the Defense Sciences Office (DSO) in January 2018. Trained as an officer and physicist, Maj. Lewis is interested in applying the forefront of fundamental physics in unique ways to DoD challenges using the disciplines of quantum mechanics, space and plasmas, and gravitational physics.

Prior to his appointment at DARPA, Maj. Lewis served as an assistant professor of physics at the Air Force Institute of Technology (AFIT) in the applied physics program. There he taught core Ph.D. and M.S. physics courses, served as student division chief, and helped oversee the successful graduation of more than 60 officers and civilians. Maj Lewis has also had assignments to Joint Special Operations Command (JSOC), the Defense Threat Reduction Agency (DTRA), and the Air Force Research Laboratory's (AFRL) Sensors Directorate.

His experience includes work in directed energy, offensive countering weapons of mass destruction (CWMD) technologies, hypersonics, quantum algorithms, electronic warfare, and special programs.

Major Lewis graduated with a Bachelor of Science in physics and a Bachelor of Arts in chemistry from Duke University in 2005. He completed his Doctor of Philosophy degree in physics at the Air Force Institute of Technology in 2011.

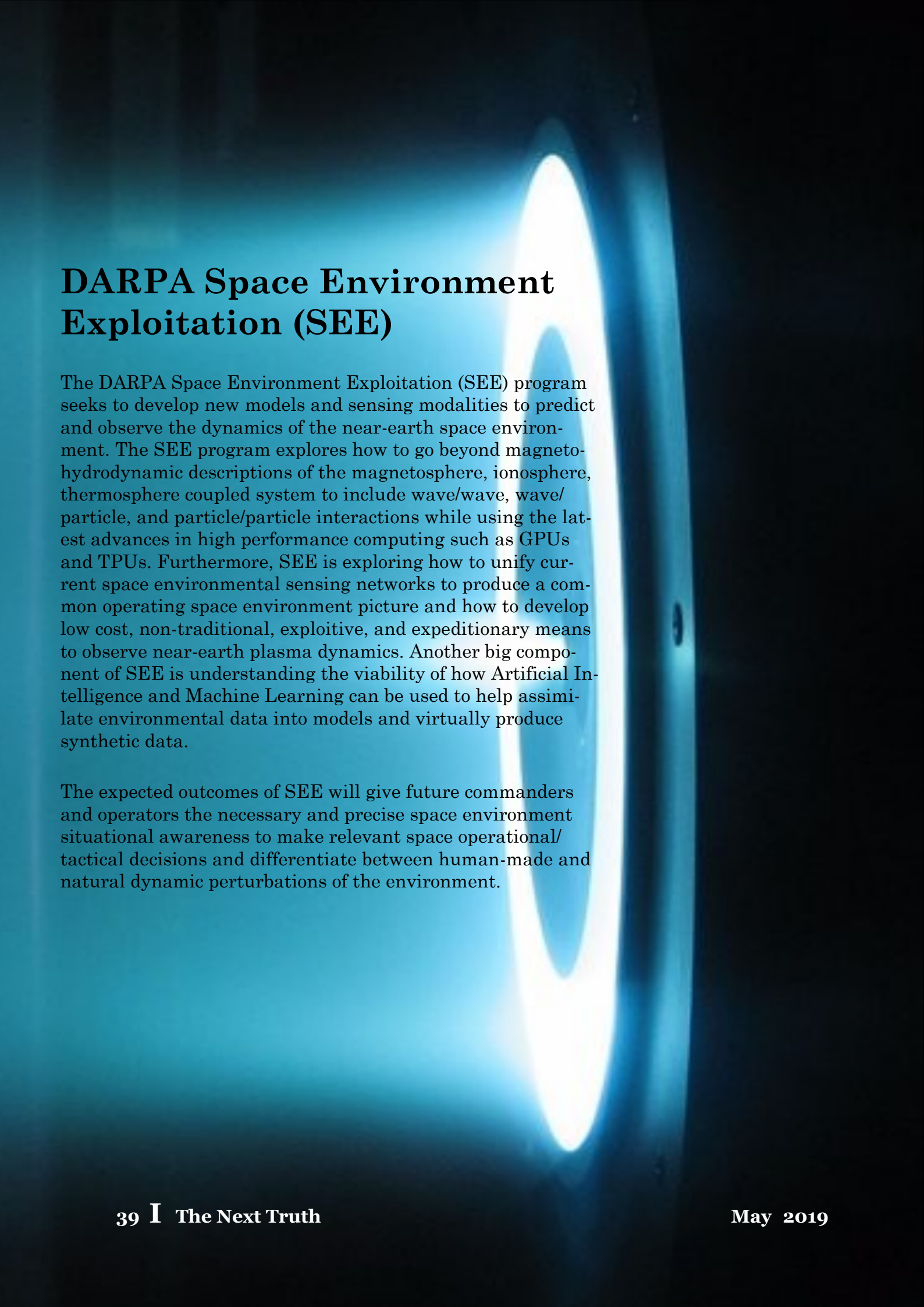
About DARPA

For 60 years, DARPA has held to a singular and enduring mission: to make pivotal investments in breakthrough technologies for national security.

DARPA explicitly reaches for transformational change instead of incremental advances. But it does not perform its engineering alchemy in isolation. It works within an innovation ecosystem that includes academic, corporate and governmental partners, with a constant focus on the Nation's military Services, which work with DARPA to create new strategic opportunities and novel tactical options.

DARPA goes to great lengths to identify, recruit and support excellent program managers—extraordinary individuals who are at the top of their fields and are hungry for the opportunity to push the limits of their disciplines. These leaders, who are at the very heart of DARPA's history of success, come from academia, industry and government agencies for limited stints, generally three to five years.

For more information about DARPA; **www.darpa.mil**



DARPA Space Environment Exploitation (SEE)

The DARPA Space Environment Exploitation (SEE) program seeks to develop new models and sensing modalities to predict and observe the dynamics of the near-earth space environment. The SEE program explores how to go beyond magneto-hydrodynamic descriptions of the magnetosphere, ionosphere, thermosphere coupled system to include wave/wave, wave/particle, and particle/particle interactions while using the latest advances in high performance computing such as GPUs and TPUs. Furthermore, SEE is exploring how to unify current space environmental sensing networks to produce a common operating space environment picture and how to develop low cost, non-traditional, exploitive, and expeditionary means to observe near-earth plasma dynamics. Another big component of SEE is understanding the viability of how Artificial Intelligence and Machine Learning can be used to help assimilate environmental data into models and virtually produce synthetic data.

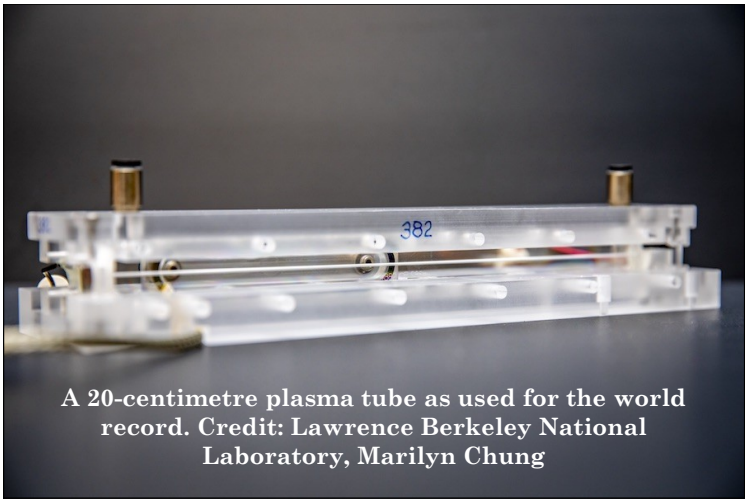
The expected outcomes of SEE will give future commanders and operators the necessary and precise space environment situational awareness to make relevant space operational/tactical decisions and differentiate between human-made and natural dynamic perturbations of the environment.

Laser drill leads to world record in plasma acceleration

DESY Press Release, 25-2-2019, **www.desy.de**

Novel concept marks milestone for future applications of compact particle accelerators

Using a laser to drill through a plasma, scientists working at the Lawrence Berkeley National Laboratory in the US have set a new world record for plasma accelerators: In a plasma tube only 20 centimeters long, the scientists accelerated electrons to an energy of 7.8 billion electron volts (GeV), a value for which today's most advanced conventional particle accelerators require hundreds of metres. The team led by Wim Leemans, then head of the Berkeley Lab Laser Accelerator (BELLA) Center and now Accelerator Director at DESY, presents the novel concept in the journal *Physical Review Letters*. A plasma is a gas in which the molecules have been stripped of their electrons, creating a mix of positively charged molecules and negatively charged electrons.



A 20-centimetre plasma tube as used for the world record. Credit: Lawrence Berkeley National Laboratory, Marilyn Chung

"The development of stable plasma acceleration with energies near 10 GeV is a milestone on the route from the lab to first applications," said Leemans, who plans to improve the method further at DESY. "We have developed a new concept in the toolbox, and together with other concepts for acceleration, beam stability and beam control existing at DESY, this will allow for compact electron sources."

Particle accelerators are indispensable tools in many areas, from science to industry and medicine. Conventional accelerators use radio waves to push bunches of electrically charged particles. like electrons forward faster and faster. The technique is very advanced and produces high-quality particle beams, but high energies require a lot of space and money. Laser plasma acceleration is a completely different concept. It uses an intense, high-energy laser pulse that ploughs through a plasma. Like a speedboat on a lake, the laser pulse creates waves in its wake. The electrons can ride these plasma waves like a wakeboard surfer rides the waves in the wake of a boat

Plasma waves can accelerate particles hundreds of times stronger than the best conventional accelerators. Although numerous challenges remain to be solved, the technique promises cheaper, dramatically smaller accelerators and novel applications.

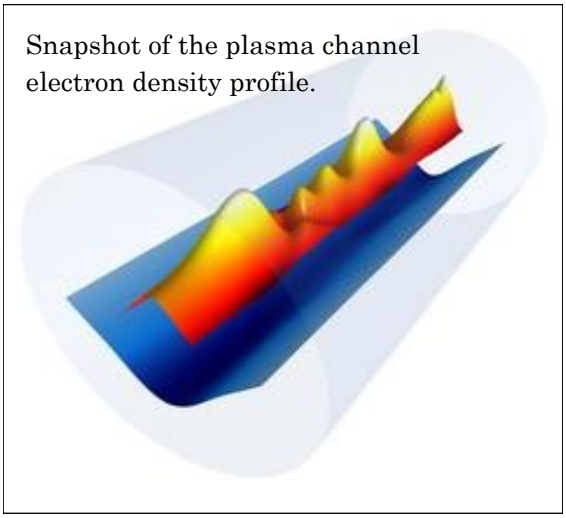
The more powerful the laser pulse is, the stronger the acceleration in the plasma. The team at BELLA shot incredibly intense and short infrared laser pulses, each with a peak power of about 850 trillion watts (850 terawatts) and lasting just 35 quadrillionths of a second (35 femtoseconds), into a 0.8 millimeters wide sapphire tube filled with hydrogen. The peak power is equivalent to lighting up about 8.5 trillion 100-watt light bulbs simultaneously, though the bulbs would be lit for only tens of femtoseconds.

"Just creating large plasma waves wasn't enough," noted Berkeley Lab's Anthony Gonsalves, lead author of the study. "We also needed to create those waves over the full length of the 20-centimeter tube to accelerate the electrons to such high energy." To do this required a plasma channel, which confines a laser pulse in much ›››

the same way that a fibre-optic cable channels light. But unlike a conventional optical fiber, a plasma channel can withstand the ultra-intense laser pulses needed to accelerate electrons. In order to form such a channel, the plasma needs to be less dense in the middle.

In an earlier experiment at BELLA that had set the former world record for plasma acceleration at 4.25 GeV in 2014 and was also led by Leemans, an electrical discharge was used to create the plasma channel, but to go to higher energies the researchers needed the plasma's density profile to be even deeper – so it is less dense in the middle of the channel. In previous attempts the laser lost its tight focus and damaged the sapphire tube. Gonsalves noted that even the weaker areas of the laser beam's focus – its so -called wings – were strong enough to destroy the sapphire structure with the previous technique.

Snapshot of the plasma channel electron density profile.



(Credit: Gennadiy Bagdasarov/Keldysh Institute of Applied Mathematics; Anthony Gonsalves/Berkeley Lab)

The solution of this problem was inspired by an idea from the 1990s to use a laser pulse to heat the plasma and form a channel. Leemans realized that such a laser could be combined with the discharge. If the laser is fed into the tube right after the discharge, it drills through the plasma to form a deeper channel that is able to confine the laser.

Experiments and theoretic modelling of the process, performed by Leemans' students and co-authors of the paper, Joost Daniels and Chris Pieronek, among others, showed that a laser pulse of 8 nanoseconds (billionths of a second) duration, shot through the tube exactly 420 nanoseconds after the electric discharge could drill the optimal channel for the laser pulse driving the acceleration.

The combined technique radically improved the confinement of the laser beam, preserving the intensity and the focus of the driving laser, and confining its spot size, or diameter, to just tens of millionths of a metre (micrometres) as it moved through the plasma tube. This enabled the use of a lower-density plasma and a longer capillary. The previous 4.25 GeV record had used a 9-centimeter capillary.

With a 20-centimetre capillary the team now achieved an energy of 7.8 GeV. The team needed new numerical models (codes) to develop the technique. A collaboration including Berkeley Lab, the Keldysh Institute of Applied Mathematics in Russia, and the ELI-Beamlines Project in the Czech Republic adapted and integrated several codes. "These codes helped us to see quickly what makes the biggest difference – what are the things that allow you to achieve guiding and acceleration," said Carlo Benedetti, lead developer of one of the codes at Berkeley Lab and also a co-author of the paper. Once the codes were shown to agree with the experimental data, it became easier to interpret the experiments, he noted. "Now it's at the point where the simulations can lead and tell us what to do next," Gonsalves said.

"This Berkeley Lab result, published in *Physical Review Letters,* is a milestone for laser plasma accelerators," commented Ralph Assmann, Leading Scientist for accelerator research and development at DESY, who was not involved in the study. "This does not only establish a new energy record, but describes an innovative method, that allows establishing in a robust setup an average accelerating gradient of 40 billion Volts per metre over 20 centimetres. This new technology opens new possibilities for our work at DESY."

Leemans thinks optimisation can boost the energy of the novel plasma acceleration technique to 10 GeV and beyond, and concepts researched at DESY can stabilise the method and increase the beam quality. While plasma accelerators cannot accelerate as many particles (i.e. a high beam current) as conventional accelerators, they can enable new applications like table-top X-ray lasers. "Our method is a major step forward for future compact light sources," emphasised Leemans. "The time is here to bring laser plasma acceleration from the lab to application." ■ ■ ■

Exploring Our Mysterious Universe

by Maria Anna van Driel

www.amazon.com