Edwin C May

Edwin C May is an American physicist and parapsychologist, notable for his direction of the US government-funded Star Gate remote viewing research program in its later stages and for his formulation of physicalist theories of psi.

Life and Career

Edwin C May received his BSc in physics at the University of Rochester in 1962 and in 1968 obtained a PhD in nuclear physics.1

May became interested in parapsychology having attended lectures organized by Charles Tart, especially by one given by Robert Morris on out-of-body experiences. In 1973-74 he undertook a research trip to India, attempting to scientifically evaluate people who claimed to possess psychic abilities (or *siddhis*). His interest deepened when in 1975 he was hired by Charles Honorton to collaborate on dream ESP experiments being carried out at the Maimonides Medical Center in New York. He commented: 'I studied serious parapsychology research with a master [Honorton] and saw substantial evidence for the existence of ESP. I was hooked.'

At Maimonides he worked with Ingo Swann, a psychically gifted artist who participated in experiments there and also in federally funded classified research into ESP begun by laser physicists Harold Puthoff and Russell Targ in 1972 at the Stanford Research Institute (SRI). At Swann's recommendation May was hired in 1975 as a consultant to the SRI project, on psychokinesis experimental research. Targ left in 1982 and when Puthoff also resigned in 1985, May succeeded him as project director.

At this time, May founded the Cognitive Sciences Laboratory (CSL) at SRI. The Star Gate program, slated for termination with the closure of SRI in 1990, was able to continue for a further four years thanks to May's fund-raising efforts in Washington, relocating to Science Applications International Corporation (SAIC).

Laboratories for Fundamental Research (LFR)

Following the termination of Star Gate in 1995, May moved the CSLfrom SAIC to the Laboratories for Fundamental Research (LFR) based in California. The LFR is multi-disciplinary in its outlook and conducts research on any topic, including the study of psi, which it refers to as 'anomalous cognition'. It aims to ascertain which psi phenomena can be validated, understand the mechanisms behind these phenomena, and explore practical applications.

Theories of Psi

Untypically for a parapsychologist, May believes a revolution in the scientific worldview is not necessary to accommodate psi phenomena, but rather that a physicalist explanation for consciousness will eventually be reached that includes

psi. He argues that there is one underlying modality behind all psychic phenomena – that of precognition.

Beginning in the early 90s, with British mathematician James Spottiswoode (then director of research at CSL), May developed Decision Augmentation Theory (DAT) as a way of understanding the results of micro-PK experiments using random number generators (RNGs) within a precognition framework (see below). In 2015, with Sonali Bhatt Marwaha, May developed the MultiPhasic Model of Precognition (MMPC) – an all-encompassing theory to accommodate psychic phenomena. Together, these represent a significant landmark in the field by providing testable predictions of a materialist interpretation of psychic phenomena (see below).

Remote Viewing Research

As a consultant, and later as project director, May played a leading role in the laboratory research arm of the US government-funded remote viewing program that ran from 1972 to 1995 (generally known as Star Gate, as it was named in its final phase).

A 2004 paper by May and Joe McMoneagle, one of the most consistently successful of the operational viewers, draws attention to the high success rate (80%) of 44 remote viewing sessions carried out by McMoneagle for television programmes, among them a televised demonstration carried out for National Geographic.2. The authors attribute this to the much higher levels of attention seen in such operational work, where real life matters such as the fate of missing persons is at stake - as compared with laboratory trials based on artificial situations.3 Other factors which they consider most important are expectation of success and intention to achieve positive outcomes.

Physical Variables

As part of May's development of a physicalist interpretation of psi data, he has explored the possible influence of sidereal time – the relative position of the Earth to the stars – and geomagnetic field strength (GMF). In an examination of nearly three thousand free-response anomalous cognition trials the overall correlation with GMF was found to be small (-0.026) but marginally significant ($p = 0.06$). An increased GMF- psi correlation was found for 256 trials conducted around 13 hours local sidereal time ($p = 0.002$).4 This time period was associated with a four-fold increase in effect size relative to other time periods. However, when Spottiswoode and Adrian Ryan examined correlational data from 3678 fresh free response trials they failed to find the previous sidereal time peak at 13.5 hours, but rather a small peak around 7.5 hours sidereal time. They interpret this lack of replication by suggesting the sidereal-ESP correlation is modulated by long-term cycles such as solar activity.5

Acoustic Presentiment

Previous studies have shown that skin conductance levels respond to an emotional stimulus two or three seconds before its random presentation.6 However, picture

stimuli used in such studies can produce idiosyncratic responses on the part of subjects, reducing the overall presentiment effect and complicating the interpretation.

To circumvent this, May and Spottiswoode used audio instead of visual stimuli. Volunteers were presented with 20 stimuli per session with a 50% chance of being exposed to a loud alarm or a silent control. May and Spottiswoode looked at the three second period before stimulus onset and found a significant presentiment effect ($p = 0.001$) with skin conductance levels producing significant changes compared to the silent control.[7]

In an attempted replication reported in 2005 by May and Hungarian psychologists Vassy and Paulinyi, acoustic presentiment was seen again in 50 participants ($p = 0.032$) one second before stimulus onset as compared to silent controls. Furthermore, it was demonstrated by simulation techniques that experimenter precognition – following DAT modelling (in which experimental arrangements such as session timing, subject allocation and timing of 'random' runs are influenced by the future, see below) – might be responsible for the effects rather than subject presentiment.[8]

A second experiment by the same authors found a stronger presentiment effect among a further 50 participants. Combining both experiments resulted in extremely significant evidence of acoustic presentiment from 100 participants ($p = 1.8 \times 10^{-7}$).[9]

Entropy and Psi

Research has shown that targets characterized by rapid changes in entropy (underground nuclear tests, particle accelerators, terrorist atrocities, electromagnetic pulses, rocket launches) are associated with a clear remote viewing advantage over more mundane targets.[10] Additionally, it has been shown that changes in the gradient of Shannon entropy (a measure of the informational content) of a target is also correlated with anomalous cognition.[11]

Based on these findings, May hypothesised that causing a rapid entropy change at the remote viewing location using liquid nitrogen would facilitate psi, compared to control areas where no liquid nitrogen is released. This was confirmed to near statistical significance ($p = 0.066$) in a remote viewing study in which, in half of the sessions, liquid nitrogen was released in the vicinity of the target location. The first half of the study gave significant results ($p = 0.036$) with a pronounced decline in the second half. One subject produced significant confirmation of the entropy hypothesis ($p = 0.013$).[12]

Decision Augmentation Theory (DAT)

According to DAT, the mind cannot directly influence random outputs; rather, precognition on the part of both experimenter and subject unconsciously affect key decisions, such as when to start runs and what direction to aim for. For instance, in an RNG-PK experiment, a participant may start precisely when future RNG activity

aligns most favourably with the intended PK aim. In a 1995 paper, Spottiswoode, May, and statistician Jessica Utts present research findings that appear to give more support for the DAT model than to the 'force' model based on micro-PK data gathered at the PEAR laboratory.13

Multiphasic Model of Precognition (MMPC)

In a paper published in the high impact publication *Sage Open* in 2015, May and Marwaha describe comprehensive and robust laboratory evidence in support of a range of psi phenomena from ganzfeld telepathy to clairvoyant card-guessing. Because of future target feedback, it is impossible to remove the possibility of precognition, which they argue is the only manifestation of psychic ability. In support of this, a comparison between clairvoyant and precognition experiments conducted from 1935 to 1997 found a tiny difference in effect size (0.01).14

May and Marwaha have developed the Multiphasic Model of Precognition (MMPC), which is an attempt to explain *all of the evidence* for psi functioning. This is a brain-based materialistic model that compartmentalizes precognition into a physics domain: how does the signal reach through time to the brain, and a psychological domain: how does the brain process the signal into a precognitive insight?

Physics Domain

In the physics domain, May and Marwahadescribe the necessity of *entropic gradients*. Furthermore, entropic gradients have been shown to be important in regular biological sensory systems.15 They argue that the second law of thermodynamics, which states that time flows in one direction with increasing entropy, is not violated by the existence of precognition, owing to the time-symmetrical equations of particle motion (indistinguishable going forward and backwards in time) at the microscopic level. A carrier mechanism has yet to be identified but they believe that tentative evidence of a physical entropic basis to remote viewing has been found.16

Neuroscience Domain

The neuroscience domain of psi-cognition and consists of three stages:

- the perception of retrocausal (going backwards in time) signals from an energy carrier
- brain processing of retrocausal signals
- conversion of the signal to precognitive information

Experimentally, a first step is to identify which individuals are promising candidates for precognition testing.

May and Marhawa draw attention to the shortcomings of standard personality testing in identifying individuals with precognitive ability. A meta-analysis of 309 forced-choice precognition experiments found that subjects selected on the basis of prior testing performance had a clear edge over unselected subjects.17 This suggests that selecting subjects who have been successful in previous tests is a

better strategy for finding precognition than selecting on the basis of personality testing.

Extensive brain imaging studies have failed to find a stable neural correlate for precognition, although Michael Persinger found evidence implicating the right temporoparietal lobe.18 Uncertainty as to when the precognitive 'signal' reaches the brain – before or during testing – might have contributed to the negative brain imaging studies. May and Marwaha describe how the MMPC complements other theories such as Walter von Lucadou's Model of Pragmatic Information (MPI) and James Carpenter's First Sight Theory. Experimental predictions of MMPC are discussed.

Star Gate Archives

In 2017 May and Marwaha published a four-volume chronicle of the history of the Star Gate program, aimed at providing a comprehensive and unbiased account of the entire project. Volumes 1 and 2 detail the history of the program in the SRI period 1972-85 and the SAIC period 1991-95 respectively; volume 3 details researches dedicated to understanding psychokinesis; volume 4 is a collection of memorandums and reports.19

Michael Duggan

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Endnotes

Footnotes

- 1. All details in this section are taken from Senn & Matthews (2019).
- 2. May & Marwaha (2017).
- 3. McMoneagle & May (2004).
- 4. Spottiswoode & May (1997).
- 5. Spottiswoode & Ryan (2015).
- 6. Bierman & Radin (1997).
- 7. May & Spottiswoode (2003).
- 8. May et al. (2005).
- 9. May & Marwaha (2015).
- 10. May et al. (2000).

- 11. May et al. (2000).
- 12. May et al. (2016).
- 13. May et al. (1995).
- 14. Steinkamp et al. (1998).
- 15. Norwich (2005).
- 16. May & Marwaha (2015).
- 17. Honorton & Ferrari (1989).
- 18. Persinger et al. (2015).
- 19. May & Marwaha (2017).