



SPOOKY BAD PARANORMAL STUDIES

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FRS-003-009



What is Paranormal?

- The dictionary describes paranormal as
 - “denoting events or phenomena such as telekinesis or clairvoyance that are beyond the scope of normal scientific understanding.”
- Specific examples include:
 - Clairvoyance, including
 - Remote viewing
 - Mind reading
 - Precognition
 - Psychometry (gaining information about objects by touching them)
 - Telekinesis: influencing a physical system without physical interaction.
 - Mediumship: acting as a bridge between the “physical world” and the “spirit world”, including deceased people.
- If these things do in fact exist, then we should be able to prove it and then try to explain them.



History of the “Paranormal”

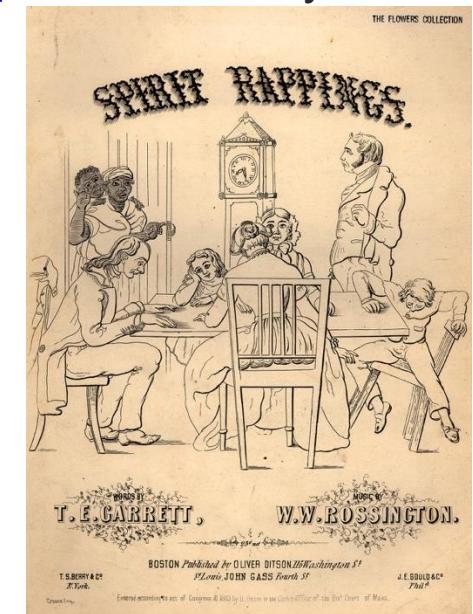
- The word was not coined in English until the early 20th century, but for most of human history, people would not have understood its meaning anyway.
- From the dawn of history, people believed that our world was controlled by *literal* gods, demons, and magic.
 - They also believed that people could manipulate these things, through prayer, ceremony, sacrifice, incantation, etc.
- For about the same amount of time, people have been performing illusions.
 - Either as entertainment or to fool people into thinking they had actual powers.
 - Modern stage magic started to appear in the 19th Century.
- With the advent of the Enlightenment, people moved to explain more and more phenomena in terms of natural laws, while most still believed in “supernatural” things.
- We’ll start our discussion with the rise of “spiritualism” in the 19th Century.





Spiritualism

- As scientific knowledge grew, some people began to divide reality into the “natural” world and the “spiritual” world.
 - The spiritual world contained both non-human spirits AND the spirits of the deceased.
 - “Mediums” were people who claimed to communicate with this world – usually for a fee.
- The “spiritualism movement” grew in the 19th Century.
 - Paschal Beverly Randolph and Emma Hardinge Britten were two early “trance mediums” around 1850.
- By the turn of the last century, medium-guided seances were very popular, particularly among the wealthy and educated in the English-speaking world.
 - The medium would go into a trance, make contact with the spirit world, often accompanied by sounds, lights, or the movement of objects in the room.
 - They would then speak or write for the spirits.





A Playground for Con Artists

- As we'll discuss, many people genuinely believe they have paranormal powers.
- This was not the case with most mediums who used a whole host of tricks to separate their clients from their money*.
- Among their tricks:
 - Using double exposure to create "[spirit photography](#)"
 - Levitation using cables and other devices.
 - Producing "[ectoplasm](#)" during seances.
 - This [1906 film](#) exposes some of their tricks.



Mary Todd Lincoln and
"her late husband"

*read "["Spook: Science Tackles the Afterlife"](#)", by Mary Roach



Enter Magicians...

- As a group, scientists are pretty easy to fool.

- Science works entirely on the honor system.
- The peer review system is not charged, nor is it equipped, to find fraud.
- If a scientist sees something that appears to challenge the laws of physics, the first question is “What’s the mistake?”

- Magicians make a living through trickery

"Yes, indeed, I'm a trickster, I'm a cheat, I'm a charlatan, that's what I do for a living." – James Randi

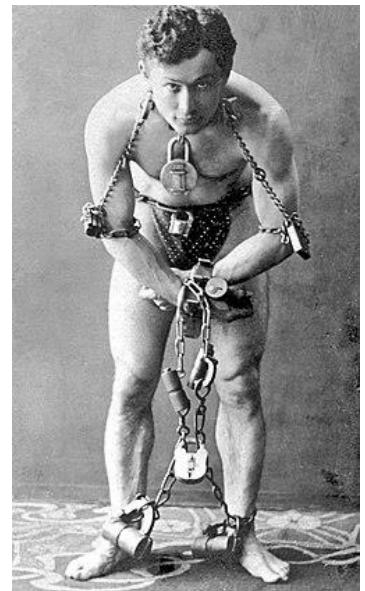
- Their first question is, “What’s this trick?”
- Most importantly, they understand that *they too can be fooled*, if they can’t fully control the scenario.
- They’re also a little upset that people make money doing bad magic tricks by pretending they’re real!
- This is why magicians have been some of the best debunkers for a very long time.





Harry Houdini: The OG Paranormal Debunker

- Houdini was born Erik Weisz in Budapest Hungary in 1874, immigrating to the United States in 1878.
- As a teenager, he began working as a magician, adopting the stage name “Harry Houdini” after a French magician he admired.
- By most reports, he was a competent magician, but not noteworthy, so he soon turned his talents to performing escape acts, which made him world famous and quite wealthy.
- His famous acts included the [Chinese Water Torture Cell](#) and the [Overboard Box Escape](#).
- He also had not very successful acting career.





Houdini vs. Spiritualism

- As a magician, Houdini saw spiritualists and mediums as simple frauds, and began challenging them in earnest in around 1920.
- Among the people he exposed were:
 - [George Valentine](#)
 - [Mina “Margery” Crandon](#)
 - [Joaquín Argamasilla](#) (“The Spaniard with the X-ray Eyes”) Arthur Conan Doyle
- His close friend Arthur Conan Doyle (author of “Sherlock Holmes”) was a passionate believer in spiritualism, married to a self-proclaimed medium named Jean.
 - In 1922, Conan Doyle arranged for a séance, in which Jean contacted Houdini’s dead mother, to whom he’d been very close.
 - Jean wrote 15 pages as his mother.
 - Houdini declared them fake, based on the facts that
 - His “mother” put a cross at the top of the first page, in spite of the fact they were Jewish.
 - The pages were written in English, a language his mother could *barely* speak.
 - [This ended his friendship with Conan Doyle.](#)
- Houdini became an inspiration to skeptics and debunkers to this day.





Paranormal Research

- “Serious psychic research” began concurrently with the increased popularity of spiritualism.
- One of the first societies dedicated to this research the society for psychical research, established in London in 1882.
 - Originally, the organization did a lot of work exposing fraudulent psychics
 - This angered a lot of people, who left the organization, including Arthur Conan Doyle.
 - Later the group turned decidedly more pro-paranormal.
- They still exist today
 - Including (paper!) magazine and journal
 - Appears to be mostly anecdotal and opinion pieces.
- Other 19th Century paranormal research societies include
 - The American Society for Psychical Research (1884)
 - Association for the Scientific Study of Anomalous Phenomena (1881)
 - College of Psychic Studies (1884)





Psychic Research in Ghostbusters (1984)



Beyond the obvious, what are some things wrong with this protocol?



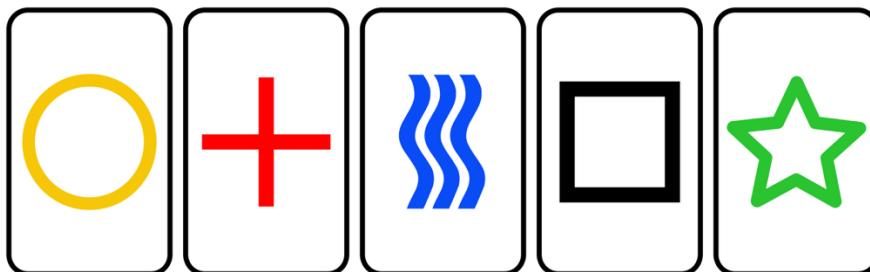
Extraordinary Claims Require Extraordinary Evidence

- In examining psychic research, which continues to this day, it's clear that researchers generally find its existence plausible.
 - They therefore use very low statistical significance to claim an effect.
 - A p -value of .05 is typically the threshold to claim an effect, just like medical research.
 - And we've already discussed how that's much too low a threshold!
- In contrast, when other scientists look to psychic research, they generally believe its existence as very unlikely, and therefore demand a much higher level of significance.
 - Personally, I view the demonstration of psychic phenomenon to be in the same class as violation of the conservation of energy.
 - Nothing less than a p -value of 10^{-3} should be reported, and it would take at least a p -value of 10^{-6} to truly establish that something paranormal exists.



Example: Zener Cards

- The cards in the Ghostbusters clip are called “Zener Cards”, and they’re a standard tool in psychic research.
- The set consists of 5 cards.

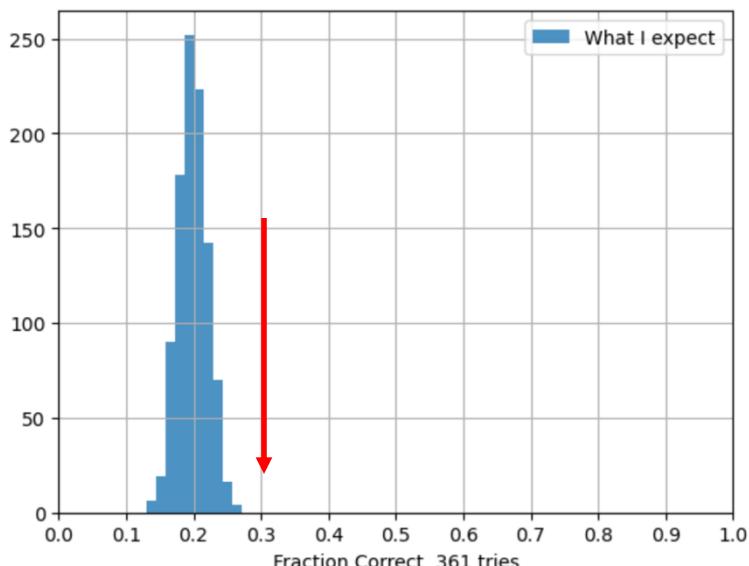
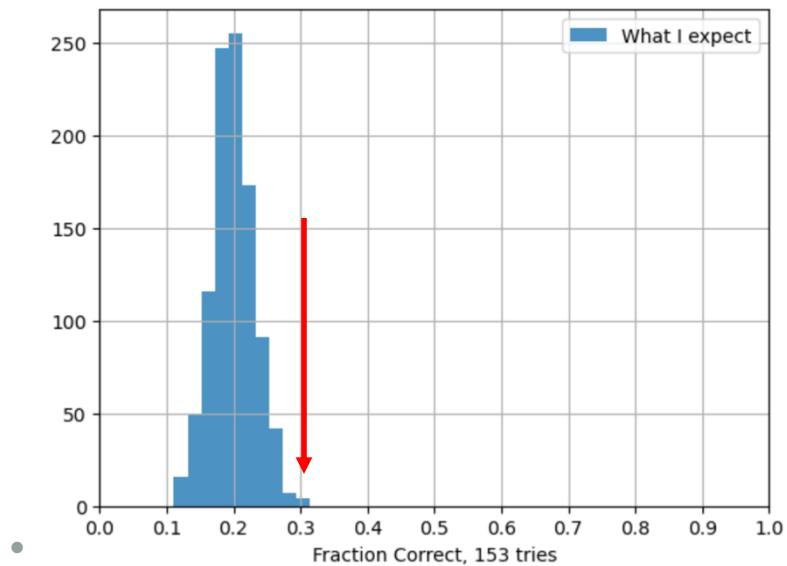


- In a remote viewing experiment, one person looks at a card, and another person tries to match it.
 - Doing it once has a p-value of .20
 - Doing it twice in a row has a p-value = $(.20)^2 = .04 < .05 \rightarrow$ publishable!
 - Doing it nine times in a row has a p-value of $(.20)^9 = 5 \times 10^{-7} < 10^{-6}$
 - *If this were done in a truly controlled way*, it would convince even the most hardened skeptics.
- But what if psychic abilities aren’t perfect?
 - We can still statistically test them to this accuracy.



What if I get the right card a *little* more than chance?

- Let's say I can pick the right card 30% of the time rather than 20%



If I repeat the experiment 153 times and get 30% or more correct, I exclude statistical fluctuations with a p-value of 10^{-3}

If I repeat the experiment 361 times and get 30% or more correct, I exclude statistical fluctuations with a p-value of 10^{-6}

- As far as I can tell, no one has ever attempted a remote viewing experiment to anywhere near this level of precision.



SRI International

- In 1946, Stanford University created the “Stanford Research Institute”.
- The institute focused on research that would benefit society at large. Some notable achievements
 - In 1968 (!), their [Augmentation Research Center](#) demonstrated hyperlinks, shared real time editing and the computer mouse.
 - Helped in the development of [ARPANET](#), which eventually became the internet.
 - In the last 1940s, they early work in pollution research and was one of the first groups to raise the red flag about the deterioration of the ozone layer.
- During the Vietnam War, many Stanford students and alumni protested the money the Institute was getting from Defense Advanced Research Projects Agency ([DARPA](#))
 - As a result, the Institute formally separated from the university in 1970 and became SRI International.
- In 1972, researchers [Harold E. Puthoff](#) and [Russell Targ](#) began a program into psychic phenomena
 - In 1995, we learned that these studies were arranged and funded by the CIA, as part of what soon became the [Stargate Project*](#)

*not to be confused with [MKUltra](#), in which the CIA dosed people with LSD, often without their knowledge.



Why was the CIA Interested in Psychic Phenomena?

- For the same reason we did EVERYTHING back then
 - Because we thought the Soviets were doing it!
 - In 1970, an intelligence report claimed that the Soviets were spending 60 million rubles (~\$800k)/year on remote viewing studies.
 - We could not allow a psychic gap!
- So research began at the CIA.
- There were a couple of problems:
 - The CIA is *terrible* at doing science*.
 - Hal Puthoff and Russell Targ are...problematic.
 - When Puthoff wasn't studying psychic phenomena he was pushing free energy schemes and communication schemes that violate the laws of physics.
 - Targ isn't as crazy as Puthoff, just very sloppy.
- The studies done at SRI could not be called rigorous.

*e.g. "[Operation Midnight Climax](#)"



Stargate Project

- In 1977, the research started at SRI and other clandestine research projects were absorbed into an Army unit called the [Stargate Project](#).
 - The focus was on remote viewing as a weapon against the Soviets.
- Key players in the program were
 - [Joseph McMoneagle](#), an Army Chief Warrant officer, known for numerous and contradictory claims about the paranormal
 - [Albert Stubblebine](#), an Army Major General who called himself a “psychic headhunter” and felt that psychic warfare should be a major thrust in the US military. Later went on to support many conspiracy theories.
 - Very colorful stories about these two and others can be found in the book [The Men who Stare at Goats](#)* , by Jon Ronson (although he doesn’t mention Stargate by name).
- The project claimed some successes
 - Most notably, in 1976, they claim Rosemary Smith was able to find a downed Soviet spy plane in Zaire (now the Democratic Republic of Congo), but there are no details or supporting documentation.
- We’ll return to the Stargate Project later.

*This was the inspiration for an entertaining *but highly fictionalized* [movie of the same name](#).



Uri Geller

- Uri Geller was born in Tel Aviv in 1946
- His family moved to Cyprus and in the late 1960s, he began to perform magic tricks.
- He soon became very famous in Israel and by the early 1970s, he was becoming well known in the US
- His most common trick involved bending spoons “with his mind”. Other tricks included:
 - Remote viewing
 - Telekinesis
 - Dowsing
- As magic tricks, all of these things were unimpressive, but *he claimed they were real.*
 - People all over the world believed him without question.
 - You can find instructions on how to do his spoon bending trick [here](#) and his spoon breaking trick [here](#).
- In 1973, he was tested by the CIA at SRI and convinced them he was real.
 - He was generally considered their biggest success.





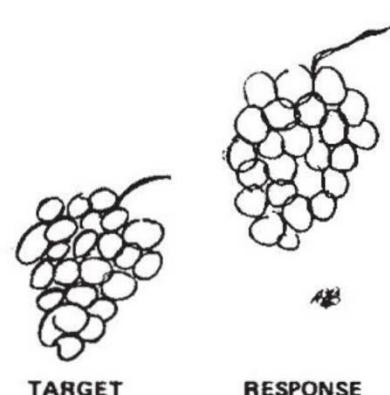
SRI Research on Uri Geller

- Their research was published in Nature(!) in 1974.
- The tests published involved putting Geller in a sealed room, and having him receive "remote viewing" images from other people.
- The test protocols in the paper are bizarre.
 - Rather than focus on one type of tests, they do several different things during 11 tests over 8 days.
 - Sometimes the sender was in a nearby room, sometimes across the country.
 - In one case they used primitive computer graphics to make the picture and in another they stored it in computer memory.
 - There are lots of details about somethings and no details about others, like how long each test took.
- In particular, only 11 tests in 8 days doesn't sound like very many.
- How much were they leaving out?



Results of the Tests

- Sometimes the results were remarkable?



- Sometimes much less so
 - Response 2 was counted as a “hit” because a drum is round and makes noise.





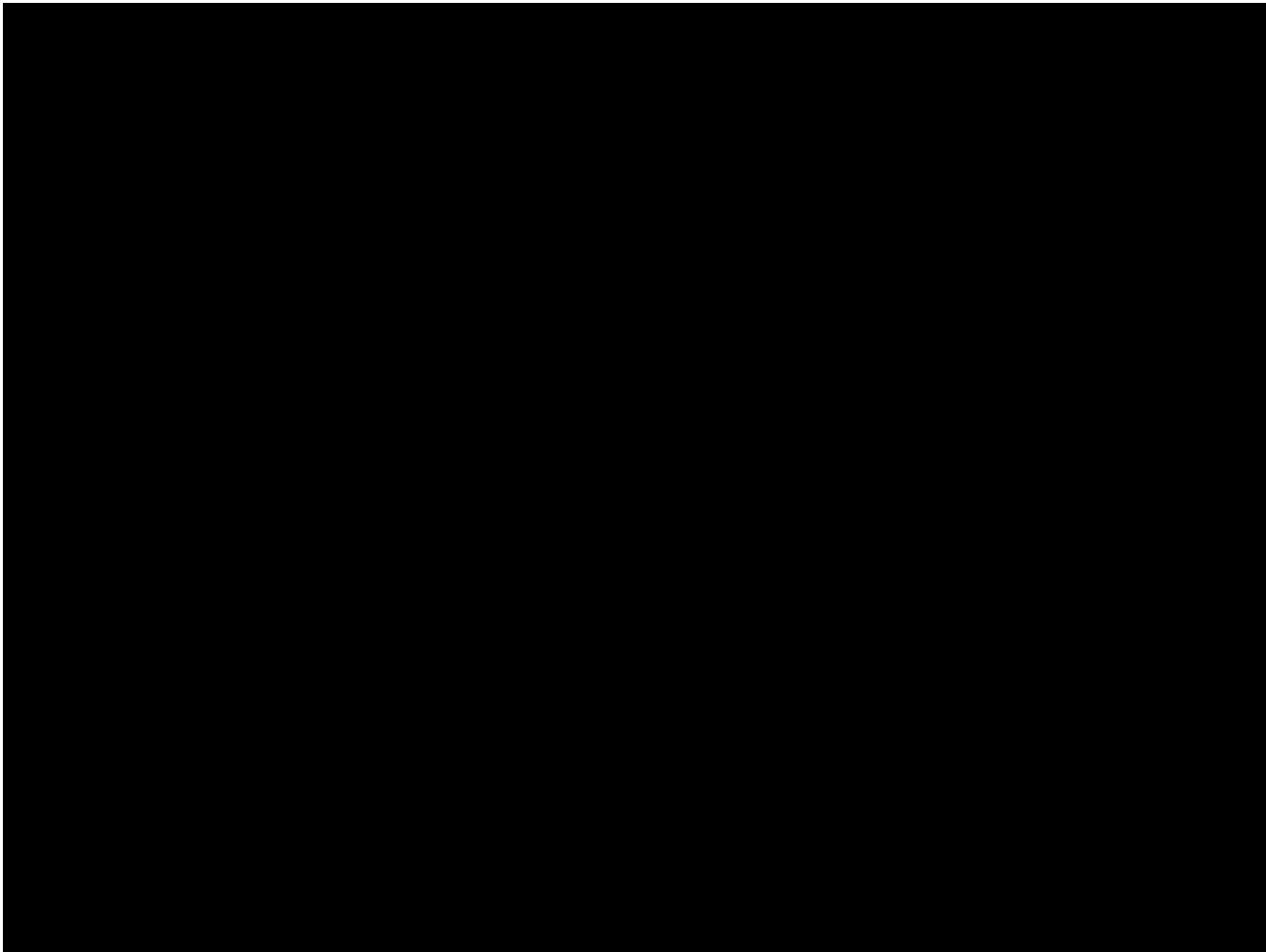
Ray Hyman's Analysis of Geller

- Ray Hyman is a professor of Psychology at U of Oregon.
- Also a long time skeptic
- He was asked by DARP to evaluate Geller.
- He also looked into the tests done at SRI, and concluded that – contrary to the claims of Putoff and Targ – Geller had many opportunities to gain knowledge about the target images.
- His conclusion was that Uri Geller was a complete fraud.
- We'll be hearing more from Dr. Hyman later.



Uri Geller on Johnny Carson

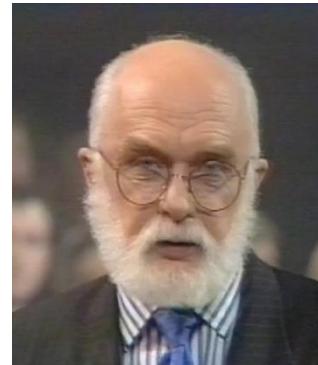
- Geller had been on MANY news and talk shows, and he always did impressive things
 - In 1973, he appeared on Johnny Carson, and things didn't go so well





James Randi: Modern Houdini

- James Randi was a successful magician, escape artist, and part time actor.
 - One of his more colorful achievements was touring with the Alice Cooper band in 1973 to manage an on-stage beheading illusion.
- He was always interested in exposing frauds
 - As a teenager, he exposed a “mind reading” preacher.
- In the 1970s, he transitioned to investigating the paranormal full time.
 - First big success was the Geller’s Johnny Carson appearance.
 - If you recall, he also debunked homeopathy data in the 1980s
- In 1989, he was the first (only?) non-scientist to win the APS Forum Award for “promoting public understanding of the relation of physics to society”.
- Eventually established the James Randi Educational Foundation (JREF, more about that soon)
- I highly recommend the documentary “An Honest Liar”, about his life.





Uri Geller's Career

- Uri Geller's Career was completely unaffected by his exposure on the Johnny Carson show.
- He spent many years trying unsuccessfully to sue James Randi for calling him a fraud.
- In 2006-7 he had a TV show in Israel called "The Successor", where he was again caught cheating.
 - Full clip [here](#).
- Geller continues to claim his “powers” are genuine and has never admitted that he’s merely an illusionist.
- In 1978, Geller’s former manager, Yasha Katz, admitted that Geller was just using illusions and explained how many of the tricks were done.
 - Interestingly, the only place I could find the original article was a [declassified CIA copy](#) with the cover note “FYI”.



Release 2000/08/10 : CIA-RDP96-00791R000100

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The End of Stargate

- In 1995, the CIA charged the American Institutes for Research to evaluate the program.
- They commissioned a “blue ribbon panel”, headed by
 - [Prof. Jessica Utts](#), a UC Davis (!) Statistics Professor (now emeritus at Irvine), who had published research supporting psychic phenomena.
 - [Prof. Ray Hyman](#), a Professor of Psychology at U of Oregon Eugene. Known to be very skeptical of psychic phenomena, he had previously strongly criticized their conclusions on Uri Geller.
- In spite of the claims about the downed spy plane, the review concluded that
 - “no remote viewing report ever provided actionable information for any intelligence operation.”
- [Their report](#) concluded:
 - The foregoing observations provide a compelling argument against continuation of the program within the intelligence community. Even though a statistically significant effect has been observed in the laboratory, it remains unclear whether the existence of a paranormal phenomenon, remote viewing, has been demonstrated. [...] Most importantly, the information provided by remote viewing is vague and ambiguous, making it difficult, if not impossible, for the technique to yield information of sufficient quality and accuracy of information for actionable intelligence. Thus, we conclude that continued use of remote viewing in intelligence gathering operations is not warranted.
- As a result of this review, the program was terminated.



One Million Dollar Paranormal Challenge

- James Randi had a long history of offering rewards to anyone who could demonstrate paranormal phenomena in controlled conditions
 - In 1964 he offered \$1000, which he increase to \$10,000
 - Later, Lexington Broadcasting added \$90,000 to do a show called “The \$100,000 psychic prize”
- In 1996, Randi started the [James Randi Educational Foundation](#) (JREF).
 - This is a grant-making institution to investigate claims of the paranormal.
- The same year, internet pioneer Rick Adams donated \$1 million to be used as a prize for anyone who can successfully demonstrate a paranormal phenomena under controlled conditions.
- Rules:
 - JREF and the applicant must agree in advance as to the details of the test and what will constitute “success”
 - The odds of success due to chance alone must be very low, on the order of 1 in a million.
- Since he started offering rewards, over 1,000 people have applied to be tested.
 - None succeeded.
- The challenge was formally terminated in 2015 to free up the money for other uses.



Tests at The Amazing Meeting (skeptic conference)

- Unfortunately, details of JREF testing and correspondence are no longer public; however, they sometimes took challengers at the Amazing Meeting

Year	Challenger	Purported Ability	Test	Results	Notes
2007	Derek Ogilvie	Mediumship	Identify which one out of ten toys is being used by a child at a particular time.	Failed	
2009	Connie Sonne	Dowsing (Pendulum)	Identify playing cards in sealed envelope.	Failed ^[30]	
2010	Anita Ikonen	Medical dowsing	Determine by observation which of five subjects was missing a kidney.	Failed	Billed as "demonstration" not "test"
2011	No challenger available				
2012	Andrew Needles	Performance-enhancing bracelet	Distinguish participants wearing real product significant number of times.	Failed	
2013	Brahim Addoun	Remote viewing	Remotely identify 3 of 20 objects.	Failed	
2014	Fei Wang	Sending energy through his hand that can be felt by another person.	The energy should be felt by the target person correctly eight out of nine times.	Failed	
2015	No claimant – "Demonstration test"	Ethernet cables that are claimed to be "directional".	Volunteers were played sound twice and were asked to determine which cable had the highest sound quality.	Failed	



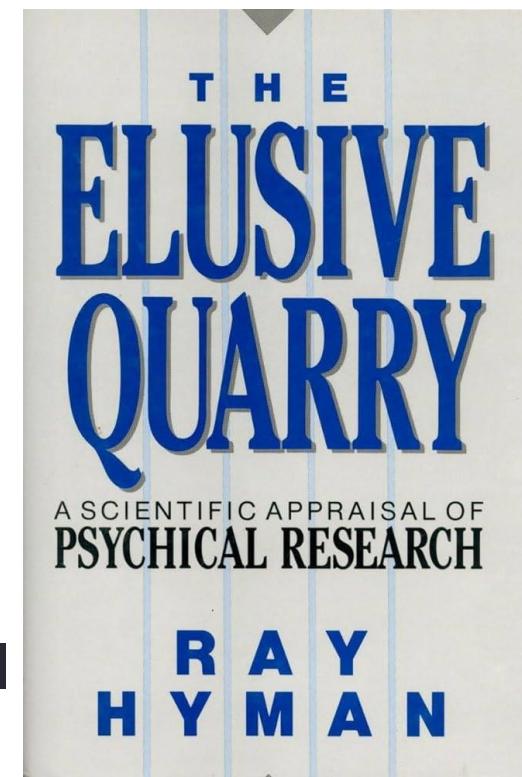
Some Notable Refusals

- Notably, Randi's nemesis Uri Geller never volunteered to be tested.
- In 2001, famous psychic [Silvia Browne](#) agreed on Larry King Live to take the challenge, but then never did.
 - Browne was a thoroughly loathsome individual who proved there's no such thing as "harmless nonsense".
 - She often claimed to work with police to solve cases (she hadn't)
 - In one famous case, she told Louwanna Miller that her missing daughter, Amanda Berry, was "not alive".
 - [Amanda Miller was in fact being held captive by Ariel Castro](#).
 - In her final failure, she predicted she herself would die at 88, but died at 77.
- In 2007, Randi challenged psychic [Rosemary Altea](#) to take the one-million-dollar challenge. She refused.
- In 2011, magician [Paul Zenon](#) challenged Welsh psychic Leigh Catherine (aka Leigh-Catherine Salway) to take the one million dollar challenge and she accepted.
 - She later backed out.



Detailed Studies of Psychic Research

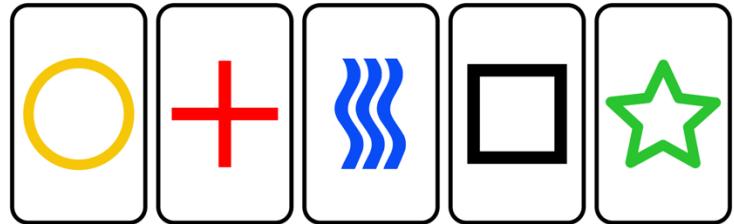
- There have continued to be paranormal studies since the glory days of the 1970s.
- My impression is that these are done by sincere researchers who are trying to use proper controls.
- The best summary I've found is
The Elusive Quarry, by Ray Hyman
 - If you recall, he was one of the people responsible for shutting down Project Stargate.
- It's a thorough review of the body of psychic research considered the most convincing.
- Not the most engaging reading material though.





The Book's Conclusions

- He begins by looking at “Ganzfeld Experiments”; that is, experiments wherein a “sender” sends an image to a receiver.
- These usually involve the Zener Cards, we discussed earlier
- He settled on 42 studies that were considered the gold standard.
- Among the problems he called out:
 - Problems with randomization.
 - Problems with what constituted a “hit”
 - Sometimes it was exact match
 - Sometimes it was being in the top two choices
 - Not clear if this was decided after the fact.
 - Possible problems with “data leakage”; i.e. testers influencing the people being tested.
 - Poor statistical analysis. His conclusion is that the p-value is often much higher than .05
- His conclusion is that the body of research does NOT establish the existence of psychic abilities to a statistically significant level.





Psychic Research Today

- There is still a good deal of paranormal research going on.
- The premiere peer-reviewed journal is [The Journal of Parapsychology](#), founded in 1937. Now open access.
- Table of contents of a recent journal

1. Kruth, J.G. Editorial: On Archetypes, Psi, and Poltergeists – A Philosophical Review and an Update on the 21st Century Poltergeist. 4-8
2. Mays, R. In Memoriam: A Tribute to Diane Corcoran (1946–2023). 9-10.
3. Lange, R., Laythe, B., and Houran, J. Preregistered Field Test of an ‘Enchantment-Psi’ Loop. 11-32.
4. Auerbach, L., Hedva, B., Solfvin, G.F., and Williams, B.J. A Virtually-Facilitated Investigation of Anomalous Household Disturbances Reported During the COVID-19 Pandemic. 33-65.
5. Storm, L. Attitudes and Beliefs as Predictors of Psi Effects in a Pseudo-Gambling Task. 66-86.
6. Weiler, C. The Science of Ghost Hunting. [Review of the book GHOSTED! Exploring The Haunting Reality of Paranormal Encounters by Brian Laythe, James Houran, Neil Dagnall, Kenneth Drinkwater and Ciarán O’Keeffe]. 87-89.
7. Kruth, J.G. An Elusive Poltergeist Investigation. [Review of the book The Elusive Force: A remarkable case of poltergeist activity and psychokinetic power by Anna Ostrzycka and Mark Rymuszko]. 90-94.



Overview of Paranormal Research

- The community has been “seriously” studying paranormal phenomena for roughly 140 years now.
- Each generation of researchers acknowledges problems with previous research and works to rectify them.
- Even so, after all this time, we have not had a *single*, reproducible, high significance result under properly controlled conditions.
- We’re reminded yet again of Bob Parks warning sign #3
 - An effect is always at the very limit of detection.
- Personally, I would love for paranormal phenomena to be real.
 - I just don’t believe they are.