

# IONS<sup>X</sup>: Applications of Psi

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## INTRODUCTION

IONS<sup>X</sup> is the name for the Institute of Noetic Sciences' "moonshot" research program. Its purpose is to demonstrate practical applications of nonlocal consciousness-related phenomena. The applications fall into two general classes: (1) mental intention directly affecting the physical world, and (2) perceptually transcending the conventional limitations of space and time. In the vernacular, nonlocal consciousness effects are better known as psychic phenomena, or more neutrally as psi.

The motivation for IONS<sup>X</sup> is that (a) psi experiences have been reported throughout history and across all cultural and educational levels (as reflected by the large proportion of novels, television and movies with psi-related themes), and (b) the relevant scientific literature has provided persuasive evidence indicating that these effects are real, but (c) despite popular interest and scientific evidence, strong skepticism persists within much of the academic world. This is reflected by the observation that fewer than 0.001% of academics worldwide are known for having an active research or scholarly interest in psi phenomena.<sup>1</sup>

The primary reason for this stubborn disbelief, which significantly constrains further scientific advancements and the ability to raise funds for research, can be traced to the current scientific worldview. That worldview is based on a core set of assumptions about the nature of reality that was developed during the European "Age of Enlightenment" (16th to 19th century). Various known as materialism or physicalism, this doctrine assumes that everything, including consciousness and all of its associated properties, emerge from matter (and after Einstein, energy). From that perspective, all phenomena associated with consciousness can only be understood and explained in terms of electrochemical activity in the brain. Given that the brain is not thought to be capable of directly influencing the world through intention alone, nor can it transcend space or time, then psi is considered to be impossible, and thus any positive scientific evidence can only be understood in terms of flaws or fraud.

Articles about psi on Wikipedia are written (and secured) by skeptics, thus it is not surprising that parapsychology – the scientific study of psi phenomena – is there described as follows:

[Parapsychology] is considered to be pseudoscience by a vast majority of mainstream scientists, in part because, in addition to a lack of replicable empirical evidence, parapsychological claims simply cannot be true 'unless the rest of science isn't'.<sup>2</sup>

This false “cannot be true” meme contributes to academics’ beliefs that widespread popular belief in psi is solely due to psychological or motivational components, like poor reasoning skills or fear of death.<sup>3</sup> The possibility that psi is real is dismissed by citing sham challenges for psychic skills offered by magicians, by selectively mentioning experiments that failed to replicate, by asserting that all existing evidence is flawed, by conflating claims of fraudulent psychics with scientific investigations, or by asserting that the phenomena violate fundamental scientific principles and thus cannot be true.<sup>4</sup>

The oft-cited latter belief is especially ironic, because the philosopher who proposed the “basic limiting principles” of science (Broad, 1953) did so to illustrate that because the evidence for psi was so strong that something about those “limiting principles” *must be wrong*. This misuse of Broad’s argument provides an excellent illustration of how memes borne on mistaken beliefs can become so infectious that many otherwise critical thinkers do not stop to question whether their beliefs are supported by evidence. As a result, a stubborn stigma persists, and academics who are secretly interested in psi (surveys suggest this is a majority<sup>5</sup>) learn to remain quiet.

There are signs that the stigma may be softening with the rise of serious academic and commercial interest in meditation and psychedelic research.<sup>6</sup> But old myths die hard.

Consider a recent article published in 2017 in *The New Republic* (2017) magazine, which mentions IONS’ founder and his interest in psi:

Edgar Mitchell, the sixth astronaut to set foot on the moon, a man who saw magisterial vistas the rest of us can only dream of ... during his first night aboard Apollo 14, while he was supposed to be getting necessary sleep, he was obsessing about ESP, attempting to transmit Zener card images to a friend in a Chicago apartment. While the Apollo 14 mission was a success, the Zener card experiment was a failure. That didn’t stop Mitchell from choosing ESP over NASA: He quit the agency and set out to prove to the world that ESP was real. Mitchell’s time on the moon is the kind of thing that millions of school kids dream of doing some day; it’s a dream that spurs young men and women to study science and go into STEM careers. *That someone with such a rare and fantastic opportunity would walk away from it to promote nonsense of charlatans is staggering.*<sup>7</sup> (emphasis added)

The prejudice depicted in the above paragraph (which among other things incorrectly states that Mitchell’s ESP test in space failed) is unfortunately re-stimulated by occasional reports of fraudulent psychics, mediums, and gurus,<sup>8,9</sup> which are uncritically linked to legitimate research on psi phenomena.

It is also worth noting that for tens of thousands of years prior to the rise of the scientific age, no one questioned the existence of psi. The only question of interest was how psi could be best applied.<sup>10</sup> The history of shamanism,<sup>11</sup> as well as the core tenets of both Eastern and Western esotericism,<sup>12</sup> are permeated

with treatises and descriptions of magical practices, which in today's terms are precisely what we would call applications of psi.<sup>13</sup>

## **STRATEGIES**

In recognition of the problem of the “woo-woo-taboo,” psi investigators have proposed three strategies.<sup>14</sup>

- 1) Develop easily repeatable experiments that demonstrate psi phenomena under well-controlled conditions, preferably effects that are self-evident and do not require statistical analysis.
- 2) Develop theories that are compatible with the existing scientific worldview, and that provide satisfactory explanations for psi effects.
- 3) Develop practical applications of psi.

IONS<sup>x</sup> focuses on the third strategy because it seems to offer the fastest way to finesse the taboo. However, it is clear that that strategy alone will not be sufficient to force a change in the status quo. We know this because there already are psi applications, such as psychic healing and psychic counseling, that attract billions of dollars of annual revenue.<sup>15</sup>

A skeptic might assume that all of those billions are due to scams, but that is unlikely to be the case. Some psi-type healing applications have been shown to be efficacious in placebo-controlled and randomized clinical trials.<sup>16,17</sup> And psi-related counseling (by psychics, mediums, and channelers) offers benefits to many clients in the form of bereavement therapies, assistance in making decisions, and in better understanding themselves.<sup>18</sup> Earning potential is often used as a proxy for success in the modern world, but even with these applications already successful in that regard, they have yet to dissolve the psi taboo in the academic world.

Thus, IONS<sup>x</sup> is necessarily accompanied by IONS and our colleagues' empirical and theoretical efforts. We believe that to achieve substantial progress in the understanding and use of psi, all three strategies will be required. It will also require an accompanying evolution in the scientific worldview. This grander aspiration is beyond the scope of what IONS alone can achieve, but with our partners and colleagues around the world we can advance toward that goal.

## **APPLICATION CATEGORIES**

Psi applications fall into seven general categories: communication and control, healing, intelligence, forecasting, archeology, dowsing, and counseling.

## CATEGORY 1: COMMUNICATION AND CONTROL

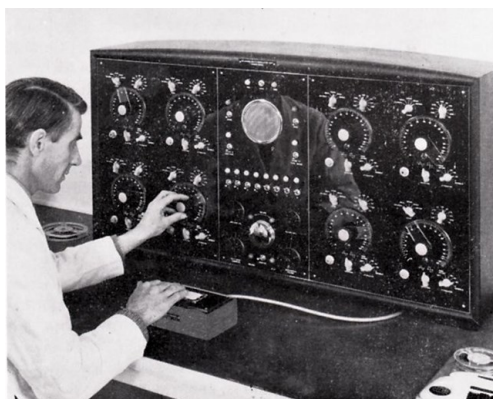
This category refers to methods of mentally influencing distant physical systems. The operative phenomenon is a mind-matter interaction effect, which in psi jargon is called psychokinesis or PK. These applications involve “transmission” of simple “signals,” which in turn can be used for communications or control. The terms transmission and signals are in quotes because while those words are useful as shorthand descriptions, PK probably does not entail classical signaling or force fields (like electromagnetics or gravity).<sup>19</sup> This application is sometimes referred to as a “psi switch.” As I mused in a 1994 editorial:

I suggest that ... direct interactions between mind and machine are even now associated with rare, spontaneous computer failures. I also suggest that what is currently viewed as annoying or delightful coincidences – depending on whether your machine mysteriously fails or recovers at precisely the right (or wrong) time - will eventually be harnessed into a new technology of direct mind-machine interaction (DMMI).<sup>20</sup>

Other applications that fall in this category are known as psychotronics, or equivalently as radionics or psionics. Psychotronics attempts to combine PK with technology to produce devices that can influence physical systems at a distance. The essential concept underlying most psychotronic devices is that reality is ultimately constructed out of information, or symbols, or subtle forms of “energy” that are highly reactive to mental influence. If such information, symbols, or subtle energies are manipulated, then the physical world is likewise manipulated. This principle of “correspondences” is a core belief underlying most ancient magical practices.



Radionics “machines.”



Some radionics devices give the appearance of being complex technologies, but the operative principles are based upon the magical concept of the “law of correspondences.” The electronic circuitry in these devices might look impressive, but it is irrelevant to the machine’s operation. What is relevant are the operator’s intentions, motivations, and beliefs, and the apparently sophistication of the device can help in sustaining those beliefs.

Simple forced-choice tasks can also be used to send the equivalent of “signals.” For example, in a majority vote technique designed to statistically amplify results in an ESP Card test, James Carpenter successfully “sent” the word PEACE via a Morse-Code-like method.<sup>21</sup> In an earlier experiment using similar methods, Milan Ryzl correctly “transmitted” a 10-digit code.<sup>22,23</sup> Other techniques based on error-correction schemes commonly used in the computing and information sciences have been used to enhance effects in communications-type psi applications,<sup>24</sup> as have machine learning techniques like artificial neural networks.<sup>25</sup>

## **CATEGORY 2: HEALING**

Psi healing applications involve the diagnosis and treatment of mental and physical health problems. A euphemism for this application is “biofield” or “energy” medicine, which covers a broad set of methods including Reiki, Healing Touch, Therapeutic Touch, Qigong, Shamanic Healing, Chakra balancing, Crystal healing, Johrei, Intercessory Prayer, Barbara Brennan School of Healing, Bengston Method, and Energy Psychology (e.g., Emotional Freedom Techniques and Thought Field Therapy).<sup>26</sup>

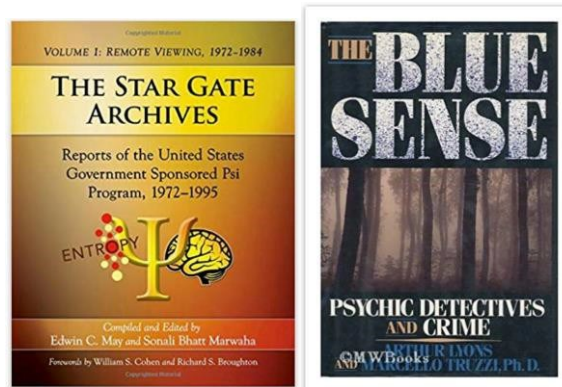
The reason these various healing techniques are considered psi applications is because in virtually every case of biofield healing the methods used are also claimed to work remotely. This is not always advertised as part of these healing practices because it is culturally less controversial (due to the Western materialistic worldview) to discuss healing in proximal or quasi-mechanistic terms.

Because of the obvious pragmatic value of healing and the rise of interest in “integrative” methods, there are some 225 research organizations studying these techniques worldwide, and over 125 healing organizations within the United States alone. Approximately 6,200 research articles have been published, and over 280 biofield devices are currently sold and in use.<sup>27</sup> Clinical trials show that some of these techniques, like Reiki, are efficacious in treating anxiety, pain, fatigue and depression when compared to control interventions.<sup>28</sup> Research studies have also shown positive effects of Reiki on cell cultures and animal models.

## **CATEGORY 3: INTELLIGENCE**

This category involves the use of psi for crime prevention, detective work, finding missing persons, espionage, counterterrorism, and as an adjunct method for making scientific discoveries. There are many books and articles available on these applications, most of which involve variations of clairvoyance, sometimes

by naturally talented individuals and sometimes by average people trained to perform remote viewing.<sup>29</sup> Similar to how the term biofield healing was developed to avoid the taboo associated with psi, the term remote viewing was coined by researchers working on US government psi programs to provide a more scientific-sounding euphemism for clairvoyance.



Books describing uses of psi in espionage and police work.

#### CATEGORY 4: FORECASTING

A subset of intelligence applications focuses on using psi for forecasting business, political, financial, and sports outcomes. I place it in a category separate from Intelligence gathering because the method most commonly used to make these forecasts is called Associative Remote Viewing or ARV. Briefly, ARV works as follows:

A third party assigns photographs or objects to stand for (thus, the word “associative” in ARV) future outcomes of interest. The objects are chosen to be as different from each other as possible. For example, a photo of or an actual *pencil* might be used to represent sports team A winning, and a photo or actual *apple* for team B winning. These teams will play the game of interest tomorrow, say Tuesday.

The day before the game, on Monday, we ask our remote viewers to describe the object that they will be presented with on Tuesday, after the outcome of the sports game is known. If during the remote viewing session the viewers describe something round, red, and sweet-smelling, we may conclude that they are going to perceive an apple in their future. That in turn means team B must be the winner of the match because it was associated with the apple.

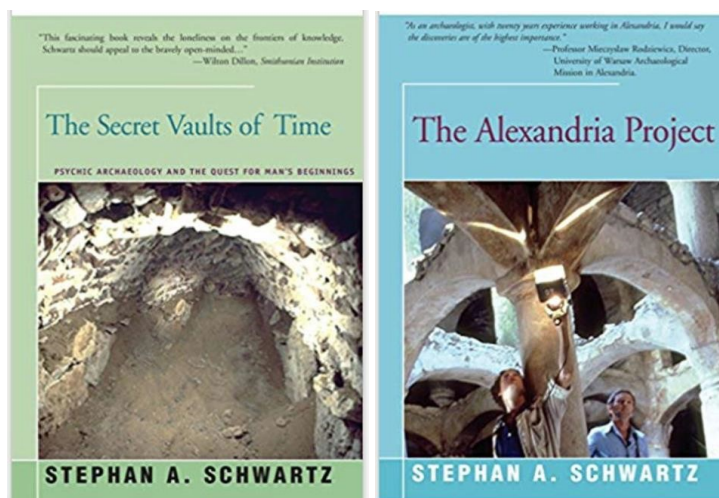
The purpose of ARV is to simplify the psychic task to make it easier for independent judges to tell whether the perceived future target is A or B.<sup>30</sup> By contrast, when judging an actual future event as described by RV, it can be more difficult to discern among the possible future targets when each of those targets may consist of hundreds of individual elements.



A review of 18 attempts to use ARV in financial trading, sports betting, and casino betting was reported by University of Amsterdam psychologist and physicist Dick Bierman. He found that the relevant literature involved a total of 550 decisions, of which 349 were correct predictions and 243 were passes (no decisions made), for an overall 63.5% hit rate (with 50% expected by chance). This resulted in an accumulated real profit of \$502,000. Other publications support the idea that ARV is a viable way to use remote viewing as a pragmatic, albeit not particularly efficient, way to earn income.<sup>31</sup>

## CATEGORY 5: ARCHEOLOGY

Remote viewing applied to archeology can be used to locate known or suspected archeological artifacts, and to analyze the history of said artifacts. Perhaps the best-known examples are those reported by Stephan Schwartz.<sup>32</sup>



Books describing successful psi applications in archeology.

## CATEGORY 6: DOWSING

Dowsing refers to methods of locating underground deposits of water, oil, minerals, gems, etc., or to locating objects in unknown locations by using a map. Both methods involve the use of ideomotor movements as ways of indicating unconscious perceptions. These tiny muscular motions are amplified by the use of forked sticks, bent metal rods, or hand-held pendulums. Field dowsing might not involve psi, but rather super-sensitivity to electromagnetic or magnetic fields associated with the presence of the desired objects. However, map dowsing must involve psi because the dowser and the target of interest are isolated by distance.



Illustration of classic field dowsing using a forked stick. Formal empirical evidence for both kinds of dowsing is mixed, with some studies suggesting its efficacy, and others showing little or no effects.

From a mainstream perspective, both field and map dowsing are usually dismissed for the same reason that psi is dismissed – they lack obvious mechanistic explanations. But like psi, dowsing is nevertheless widely used, and not only by the stereotype of unsophisticated backwoods farmers. National Public Radio in 2017 reported that most of the major water companies in the United Kingdom, and indeed many industrial companies around the world, regularly use dowsing to find underwater pipes.<sup>33</sup> They do this despite claims of no scientific value for a very simple reason: It works.

## CATEGORY 7: COUNSELING

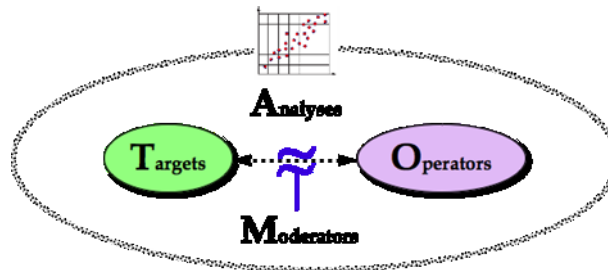
Perhaps the oldest application of psi, and one of the longest-running professions in the world, is psychic counseling. The Oracle at Delphi in Greece was an ancient psi business that ran continuously for 700 years, ending only when it was outlawed by the Catholic Church.<sup>34</sup> Psychics, mediums, and channelers in the United States today are estimated to earn about \$2 billion in annual sales for their services.<sup>35,36</sup> Formal experimental tests of the counseling services of psychics are relatively rare, but double and triple blind tests of mediums have shown that the information they obtain about clients' deceased loved one are (in some cases, depending on the medium) verifiably correct, and as such mediums can be effective in grief counseling.<sup>37</sup>

## IONS<sup>x</sup> Projects

### COMMUNICATIONS & CONTROL

The IONS<sup>x</sup> approach to developing a psi switch has focused on a four-fold strategy we call **ATOM**. This involves research and optimization of statistical **Analyses**, use of different physical **Targets**, characteristics of the **Operators**, and environmental **Moderators**.





**Analyses** refers to the methods used to evaluate data produced in experiments. In the past, most psi experiments have relied upon relatively simple statistical techniques.

Today, there are many more techniques that could be applied to data generated in psi experiments. They include sophisticated nonlinear regression techniques, methods of exploring large datasets, and machine learning algorithms that can automatically detect relationships among highly complex variables.

**Targets** refers to the types of physical systems that are used as the objects focused upon by intention or attention. This includes animate and inanimate systems ranging from the microscopic to the macroscopic: photons and electrons, human physiology and behavior, and global networks of random bit and quantum noise generators.

**Operators** refers to the people who apply intention or attention, including their personality, beliefs, physiological status, states of consciousness, and genetic makeup.

**Moderators** refers to aspects of the local and larger environments that interact with all of the above to enhance or inhibit psi performance. This includes changes in local weather variables, fluctuations in the Earth's geomagnetic field, the lunar cycle, solar wind, interplanetary magnetic field strength, and many other aspects of the near and far context that influence our performance.

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The three classes of **Targets** explored so far within IONS<sup>x</sup> include photon interference, polarization, and scattering in optical systems,<sup>38</sup> influence of the movement of electrons in highly charged electrical plasma,<sup>39</sup> random bit streams and quantum-based noise, the molecular structure of water, and physiological correlations between people isolated at a distance (including variables such as skin conductance, heart rate, and EEG).<sup>40</sup> We have also explored personality and brain activity **Moderators** of performance,<sup>41</sup> as well as studying if **Operators** can be selected for talent, and whether their performance depends on specific genetic components.<sup>42</sup> We have also explored the use of **Analytical** methods such as error-correcting codes and machine-learning techniques to statistically amplify observed effects.<sup>43</sup>

What we have learned from the relevant literature, as well as from our own experiments, is that each of the **ATOM** factors play important roles in psi performance. One of the consequences is that in our future experiments we will strive to simultaneously keep track of as many of these factors as possible, and then through use of regression techniques devise models that inform us about what variables are the most important. Previous studies suggest that what might be called “system-oriented” studies may significantly improve our ability to devise workable applications.<sup>44</sup> We are also paying attention to theoretical developments in the field that may help to inform us in creating better protocols for experiments.

On the drawing board, we are considering a new class of targets, namely adult stem cells derived from adipose (i.e. fat) tissue. We will use these targets to see if there are reliable correlations between the electrical activity of stem cells *in vitro* and emotional states in the human donor of those cells, located at a distance.

## HEALING

The most recent IONS<sup>x</sup> effort in studying psi-type healing has been the Energy Medicine Pilot Study. Phase I of this study investigated the effects of 17 energy medicine healers, each of whom treated clients with carpal tunnel syndrome. A total of 190 clients were treated, and the main effect showed a highly significant subjective reduction in pain. Other measures examined metrics like heart rate variability, magnetic fields, noise from a “quantum number generator,” and conductivity and infrared spectra of water. Published articles describing these outcomes are available through the IONS website.

IONS<sup>x</sup> is not directly engaged in developing healing applications, although our basic research efforts may one day lead in that direction.

## FORECASTING & INTELLIGENCE

Over 5,000 academic studies indicate that the “wisdom of crowds,” first reported by Sir Francis Galton in 1907, is a well-established phenomenon whereby collective decisions about certain kinds of questions are found to be more accurate than individual decisions. To capitalize on this phenomenon in a new way, IONS<sup>x</sup> is in the process of co-developing a smartphone app dubbed **EveryWhen**. The app is designed to aggregate collective intuition for practical purposes. Intuition in this context means impressions about future events that cannot be inferred by ordinary means.

Most contemporary applications of the wisdom of crowds have been applied to prediction of financial markets, but the idea that aggregated knowledge is more accurate than any one individual’s prediction can be found in many contexts, from polling to TV game shows to counterterrorism and political issues.<sup>45,46</sup> All of these applications assume that the participants are contributing their analytical skills or previous knowledge in making their prediction.

**EveryWhen** will differ in that the events that will be predicted are – by design – unknowable by any ordinary means, including analytical or learned knowledge. That is, this app will collect precognitive impressions from many individuals and average those impressions to form a single, accurate prediction.

A few prior experiments have explored this general idea. One study was conducted by a magazine, others via broadcast radio, and still others as group experiments in classrooms.<sup>47,48,49</sup> The results suggested that collective intuition does offer a boost in accuracy, but because those tests were long before the Internet, only a few trials could be completed. Those tests also identified individual biases that, when amplified by the contributions of many individuals, can produce spurious predictions. This is known as a “stacking” or “herd” effect. The IONS<sup>x</sup> app is designed to avoid those biases.

**EveryWhen** will allow thousands of people to simultaneously and independently predict the same future event. The app will provide enough data, through repeated trials, to progressively refine the algorithms used to make these predictions. Individuals who are naturally highly accurate “super-predictors” will be identified by their historical performance, and their predictions will be weighted accordingly. Machine learning will also be applied to the data to continue to refine the algorithms.

To further enhance the intuitive effects measured by **EveryWhen**, future versions may use the smartphone’s sensors to gain unconscious correlates of intuitive accuracy, including reaction timing, hovering time, and motion of the smartphone. Even more advanced versions can take advantage of simple physiological sensors, like heart rate to measure interoception, which evidence suggests is correlated with intuitive abilities.<sup>50</sup>

The app’s user interface will be simple and gamified to encourage many people to play for fun, but the resulting predictions can be applied to a broad range of future events. To do this, a small number of trials will use ARV techniques to associate simple binary guesses against real-world predictions of interest.

## SUMMARY

IONS<sup>x</sup> follows a long line of research and development efforts designed to put psi to practical use. One of our initial projects involves working on elements of a “psi switch,” an intention-sensitive communications system. Several other projects are in the planning stages or are underway.

## ENDNOTES

- <sup>1</sup> There are 300 members of the Parapsychological Association, the world's principal professional society for the scientific and scholarly study of psi phenomena. About 75 members are actively engaged in research. According to the World Bank database, as of 2017 there were approximately 13 million academics around the world.
- <sup>2</sup> <https://en.wikipedia.org/wiki/Parapsychology>
- <sup>3</sup> Branković M. (2019). Who Believes in ESP: Cognitive and Motivational Determinants of the Belief in Extra-Sensory Perception. *Europe's journal of psychology*, 15(1), 120–139. <https://doi.org/10.5964/ejop.v15i1.1689>
- <sup>4</sup> Broad, C. D. (1953). The relevance of psychical research to philosophy. In J. Ludwig (Ed.), *Philosophy and parapsychology* (pp. 43-63). Buffalo, NY, USA: Prometheus
- <sup>5</sup> <https://doi.org/10.1016/j.explore.2018.05.002>
- <sup>6</sup> <http://newsparliament.com/2020/02/17/business-gets-ready-to-shuttle-how-psychedelic-drugs-may-revolutionize-mental-health-care/>
- <sup>7</sup> <https://newrepublic.com/article/142268/united-states-government-embraced-occult>
- <sup>8</sup> <https://www.nytimes.com/2019/09/24/nyregion/psychics-arrested-upper-west-side.html?searchResultPosition=4>
- <sup>9</sup> <https://www.nytimes.com/1985/11/03/weekinreview/headliners-guru-arrested.html?searchResultPosition=1>
- <sup>10</sup> Radin, Supernormal: <https://amzn.to/3l4COz6>
- <sup>11</sup> Roger Walsh: <https://amzn.to/354GsTW>
- <sup>12</sup> Huxley's Perennial Philosophy: <https://amzn.to/3l6rx1a>
- <sup>13</sup> Radin, Real Magic: <https://amzn.to/36i4iLw>
- <sup>14</sup> Rhine, J. B. (1945) Editorial: the question of the practical application of parapsychological abilities. *Journal of Parapsychology*, 9(2), 77-79.
- <sup>15</sup> CHI report: <https://www.chi.is/systems-mapping-resources/>
- <sup>16</sup> E.g., Reiki healing
- <sup>17</sup> Mediumship meta-analysis: <https://doi.org/10.1016/j.explore.2020.04.002>
- <sup>18</sup> <https://www.nytimes.com/2019/03/19/style/wellness-mediums.html>
- <sup>19</sup> The perplexing properties of psychokinesis: <https://www.scientificexploration.org/journal/volume-1-number-2-1987>
- <sup>20</sup> Radin, D. (1994). On complexity and pragmatism. *Journal of Scientific Exploration*. 8 (4), 523-533.

- <sup>21</sup> Carpenter, J. (2010) Laboratory psi effects may be put to practical use: two pilot studies. *Journal of Scientific Exploration* 24, 667-690.
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- <sup>24</sup> *European Journal of Parapsychology* 1990-1991, Vol. 8, 98-111, Enhancing Effects in Psi Experiments with Sequential Analysis: A Replication and Extension, Dean I. Radin
- <sup>25</sup> Radin, complex systems experiment in *Subtle Energies*: <https://journals.sfu.ca/seemj/index.php/seemj/issue/view/20>, and <https://journals.sfu.ca/seemj/index.php/seemj/issue/view/30>.
- <sup>26</sup> <https://www.nationalhealerassociation.org/history>
- <sup>27</sup> CHI document: <https://www.chi.is/systems-mapping-resources/>
- <sup>28</sup> E.g., see the Cochrane database: <https://www.cochranelibrary.com/>
- <sup>29</sup> Dodge, C. H. (1983). Research into "psi" phenomena: Current status and trends of congressional concern (35 pp.) (Publication No. 83-511 SP), Science Policy Research Division, Washington, DC: Congressional Research Service.
- <sup>30</sup> Adapted from <https://rvviewer.com/associative-remote-viewing-arv/>
- <sup>31</sup> Katz, D. L., Grgć, I., & Fendley, T. W. (2018). An ethnographical assessment of project Firefly: A yearlong endeavor to create wealth by predicting FOREX currency moves with Associative Remote Viewing. *Journal of Scientific Exploration*, 32(1), 21–54; Kolodziejzyk, G. (2013). Greg Kolodziejzyk's 13-year associative remote viewing experiment results. *Journal of Parapsychology*, 76, 349–368.; Bierman, D., & Rabeyron, T. (2013). Can psi research sponsor itself? Simulations and results of an automated ARV-casino experiment. In 56th Annual Convention of the Parapsychological Association in Viterbo, Italy, August; Katz, D., Smith, N., Bulgatz, M., Graff, D., & Lane, J. (2019). The associative remote dreaming experiment: A novel approach to predict future outcomes of sporting events. *Journal of the Society for Psychical Research*, 83(2); Smith, C. C., Laham, D., & Modell, J. (2014). Stock market prediction using associative remote viewing by inexperienced remote viewers. *Journal of Scientific Exploration*, 28, 7-16; -Müller, M., Müller, L. & Wittmann, M. (2019). Predicting the Stock Market An Associative Remote Viewing Study. *Zeitschrift für Anomalistik*, Band 19, S. 326-346; Smith C, Jaham D, and Modell G. (2014) Stock Market Prediction Using Associative Remote Viewing by Inexperienced Remote Viewers. *J. Scientific Exploration*, volume 28 (1), 7-16

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- 33 <https://www.npr.org/sections/thetwo-way/2017/11/21/565746002/u-k-water-companies-sometimes-use-dowsing-rods-to-find-pipes>
- 34 See the history chapter in *Entangled Minds*: <https://amzn.to/32mUs9N>
- 35 <https://www.nytimes.com/2019/03/19/style/wellness-mediums.html>
- 36 <https://www.ibisworld.com/united-states/market-research-reports/psychic-services-industry/>
- 37 Meta-analysis of controlled mediumship studies: <https://doi.org/10.1016/j.explore.2020.04.002>.
- 38 In press, and D.I. Radin, L. Michel, K. Galdamez, P. Wendland, R. Rickenbach, and A. Delorme, *Phys. Essays* 25, (2012); D. Radin, Johnston, J., and A. Delorme, *Phys. Essays* 26, 553 (2013); D. Radin, L. Michel, A. Pierce, and A. Delorme, *Quantum Biosyst.* 6, 82 (2015); 6 D. Radin, L. Michel, and A. Delorme, *Phys. Essays* 29, 14 (2016)
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