

URI GELLER AND THE RECEPTION OF PARAPSYCHOLOGY IN THE 1970S

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Abstract

This paper investigates the controversy following the publication of work by scientists working at the Stanford Research Institute that claimed to show that the extraordinary mental powers of 1970s super psychic Uri Geller were real. The thesis argues that the controversy around Geller represented a shift in how skeptical scientists treated parapsychology. Instead of engaging with parapsychology and treating it as an incipient, if unpromising scientific discipline, which had been the norm since the pioneering work of J.B. Rhine in the 1930s, parapsychology's critics portrayed the discipline as a pseudoscience, little more than an attempt by credulous scientists to confirm their superstitious belief in occult psychic powers. The controversy around Geller also led to the creation of The Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), one of the first skeptical organizations specializing in investigating supposed instances of paranormal phenomena.

I argue that the shift in critics' attitudes and the creation of CSICOP were partially due to a fear among some scientists and their supporters that the scientific work on Geller would lend legitimacy to the "Occult Revival"—a term used to describe rising popular interest in the occult, astrology and psychic abilities in the late 1960s and early 1970s.

Lay Summary

This paper investigates the controversy following the publication of work by scientists working at the Stanford Research Institute that claimed to show that the extraordinary mental powers of 1970s super psychic Uri Geller were real. The thesis argues that the controversy around Geller represented a shift in how skeptical scientists treated parapsychology. Instead of engaging with parapsychology and treating it as an incipient, if unpromising scientific discipline, which had been the norm since the pioneering work of J.B. Rhine in the 1930s, parapsychology's critics portrayed the discipline as a pseudoscience, little more than an attempt by credulous scientists to confirm their superstitious belief in occult psychic powers. The controversy around Geller also led to the creation of The Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), one of the first skeptical organizations specializing in investigating supposed instances of paranormal phenomena.

Preface

This dissertation is original, unpublished, independent work by the author, Jacob Older Green.

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To struggling graduate students everywhere

Introduction

In October of 1974, Harold Puthoff and Russell Targ, two researchers working at the Stanford Research Institute (SRI), published an article in *Nature* that claimed they had proven the existence of what they called "remote viewing," more commonly known as extrasensory perception (ESP).¹ While it was unusual, this was not the first time that researchers from parapsychology—the discipline that studies ESP and other supposed psychic phenomena—had published an article in *Nature*. Just five years earlier, a group of parapsychologists had jointly published an article on card-guessing experiments that also purported to prove the existence of ESP.² However, unlike this earlier research, which was criticized and then quickly forgotten, Targ and Puthoff's paper launched a massive public controversy in both the scientific and popular press. In this paper, I will investigate the controversy around their experiments to better understand why they drew such attention. I will explore how the controversy shifted the legitimacy of parapsychology in the eyes of the scientific press, and what this shift can tell us about the relationship between the New Age and science in the 1970s.

One thing that differentiated the experiments at SRI from those that had previously appeared in *Nature* and other major scientific journals was that they claimed to verify the abilities of a celebrity psychic. This psychic, a young Israeli named Uri Geller, became an

¹ Russell Targ and Harold E. Puthoff, "Information Transmission Under Conditions of Sensory Shielding," *Nature* vol. 251 (Oct 18, 1974): 602-607. ESP is the posited ability to see far away or hidden things that cannot be seen with one's eyes using one's mind. ESP is also sometimes called clairvoyance or remote viewing. Since these terms are largely equivalent they will be used interchangeably throughout this paper. Terms like "the paranormal," "parapsychological phenomena" and "psychic abilities" will be used to refer to the wider set of phenomena researchers in this area, known as parapsychologists, focus on, such as telekinesis (the ability to move objects with one's mind), in addition to ESP.

² J.G. Pratt, et al, "Identification of Concealed Randomized Objects Through Acquired Response Habits of Stimulus and Word Association," *Nature* 220 (October 5, 1968): 89-91.

international sensation during the 1970s, performing psychic feats on many prominent television shows, and for paying audiences around the world. Geller's fame naturally drew attention to the experiments at SRI, and helped cement its association with the "occult revival" of the late 1960s and early 1970s, which would later be known as the beginnings of the New Age Movement.³ This association with popular occult ideas did not bode well for how other scientists received Targ and Puthoff's research. Skeptics saw investigations into "supernatural" topics like ESP as an invasion of popular interest in the occult into the domain of science. These skeptics did not treat parapsychology as an incipient, if problematic science, which was the way they had treated it since J.B. Rhine's work help consolidate the discipline in the 1930s. Rather, they engaged in what Thomas Gieryn has called boundary-work and claimed parapsychology was a pseudoscience.⁴

Since the 1970s, the legitimacy of unorthodox scientific endeavors such as parapsychology has been a popular topic of discussion for historians and philosophers of science.⁵ Much of this literature relates to the "demarcation problem," which asks what standards should be used to differentiate between science and other, unscientific, knowledge-

³ The coinage of the term "New Age" is attributed to Alice Bailey, a Theosophist writing in the first half of the 20th century, but the beginning of what became the New Age Movement started forming around 1971. Note that the "New Age Movement" here does not refer to some monolithic, organized endeavor, but is rather a classificatory term used to group loosely-related alternative religious and magical practices such as astrology, ESP, tarot and witchcraft. David J. Hess, *Science in the New Age: The Paranormal, its Defenders and Debunkers, and American Culture* (Madison: University of Wisconsin Press, 1993), 3-4, 20 and Bruce J. Schulman, *The Seventies: The Great Shift in American Culture, Society, and Politics* (New York: Simon and Schuster, 2001), 96. For an in-depth history of the New Age movement and survey of its literature see Wouter Hanegraaff, *New Age Religion and Western Culture: Esotericism in the Mirror of Secular Thought* (Albany, NY: State University of New York Press, 1998). For an account of the rise of alternative religions in America leading up to the 1970s occult revival see Robert S. Ellwood, *Alternative Altars: Unconventional and Eastern Spirituality in America* (Chicago: University of Chicago Press, 1979).

⁴ In boundary-work, groups trying to claim scientific authority for their knowledge-making practices butt heads with those in the more established sciences. In most permutations of these "credibility contests," as Gieryn calls them, members of the established sciences engage in public rhetoric aimed at delegitimizing outsider knowledge-making practices and their claims to scientific legitimacy. Thomas F. Gieryn, *Cultural Boundaries of Science: Credibility on the Line* (Chicago: University of Chicago Press, 1999).

⁵ For an early collection of work on this topic see Patrick Grim, ed. *Philosophy of Science and the Occult* (Albany, NY: SUNY Press, 1982).

making practices. Karl Popper is credited with bringing attention to the demarcation problem in the late 1920s. Popper tells us that for knowledge to be scientific, it must be falsifiable, meaning that there is some way to prove that it is not true using empirical evidence. For Popper, this meant that fields of knowledge like physics, which were structured in a way that allowed for experimental evidence to challenge or revise current theories, were scientific. Psychoanalysis, on the other hand, was not scientific because its flexible, loosely formulated theories could be used to explain any set of human behaviors, making it impossible to argue against its tenants using any sort of evidence.⁶ A number of scholars have attempted to use this criterion to evaluate knowledge-making endeavors that claimed to scientifically study subjects usually classed as paranormal, notably astrology and ESP. Popper, himself, argued that astrology is not scientific because astrologers often make vague predictions that make it easy for them to explain away contradictory evidence.⁷ R. Laurence Moore has also argued that parapsychology fails to meet Popper's demarcation criterion because of its lack of a reliably replicable experiment. Since parapsychologists themselves admit that sensitives cannot reliably use their ESP abilities, it is impossible to judge whether a failed replication showed that ESP is not real or was simply due to the temperamental nature of ESP, making certain falsification of investigators' results impossible.⁸ Recent works, however, have tended to eschew this line of analysis. Some scholars have argued that Popper's criterion is imprecise, and that he does not adequately explain the details of when and how we are supposed to falsify a claim. A single contradictory experiment, for example, rarely disproves

⁶ Michael D. Gordin, *The Pseudoscience Wars: Immanuel Velikovsky and the Birth of the Modern Fringe* (Chicago: University of Chicago Press, 2012), 7-8. Karl Popper, "Science: Conjectures and Refutations," in *Philosophy of Science and the Occult*, ed. Patrick Grim (Albany, NY: SUNY Press, 1982), 87-91.

⁷ Karl Popper, "Science: Conjectures and Refutations," 91.

⁸ R. Laurence Moore, *In Search of White Crows: Spiritualism, Parapsychology, and American Culture* (New York: Oxford University Press, 1977), 216.

an established theory.⁹ Others have pointed out that in practice, Popper's ideas are applied selectively. Knowledge-making endeavors on the fringes of science, like parapsychology, are frequently rejected using Popper's criteria. However, the same critics employing his criteria often ignore that their own "scientific" critiques of fringe science are not falsifiable.¹⁰

The other prominent line of discussion in the demarcation literature revolves around *The Structure of Scientific Revolutions*, in which Thomas Kuhn claims that science—at least in its normal form—is essentially about solving puzzles. Kuhn himself argued that astrology is not a science because its predictions rely on reading the stars through a set of rules. This is not the same as the sort of puzzle-solving that scientists engage in, which is aimed at providing fresh answers to questions about the natural world.¹¹ Conversely, Kuhn's theory is often employed to validate parapsychology. Harry M. Collins and Trevor Pinch, for example, adopted a radical interpretation of Kuhn's theory to argue that parapsychology was a scientific endeavor, which did indeed solve puzzles. It simply existed in a different paradigm than modern orthodox science.¹² In an uncommon touchpoint between the history and sociology of science and debate among practicing scientists, many parapsychologists and their supporters also adopted a version of this interpretation of Kuhn. Targ and Puthoff, for example, argued that their opponents rejected what was clearly valid evidence for the existence of ESP because they were stuck in an outmoded paradigm. According to Targ and

⁹ Michael D. Gordin, *The Pseudoscience Wars: Immanuel Velikovsky and the Birth of the Modern Fringe* (Chicago: University of Chicago Press, 2012), 7-10.

¹⁰ James McClenon, *Deviant Science: The Case of Parapsychology* (Philadelphia: University of Pennsylvania Press, 1984), 16 and Trevor J. Pinch, "Normal Explanations of the Paranormal: The Demarcation Problem and Fraud in Parapsychology," *Social Studies of Science* 9, no. 3 (1979), 343.

¹¹ Thomas Kuhn, "Logic of Discovery or Psychology of Research?" in *Philosophy of Science and the Occult*, ed. Patrick Grim (Albany, NY: SUNY Press, 1982), 110.

¹² Pinch and Collins used a self-consciously radical interpretation of Kuhn in this analysis, which claims that paradigms are totally incommensurable. They admit that Kuhn, himself, would probably not agree with such a radical interpretation of how paradigm shift occurs in the sciences. Harold M. Collins and Trevor J. Pinch, *Frames of Meaning: The Social Construction of Extraordinary Science* (New York and London, Routledge, 1982), 182-185.

Puthoff, even though quantum physics had already shown that strictly materialist views of reality were wrong, many scientists were still dogmatic materialists who *a priori* refused to entertain the idea that ESP might be real.¹³

One issue with both Popper and Kuhn's approaches is that they tend to focus on evaluating the quality of the scientific evidence for ESP at various points in history while paying fairly limited attention to the wider historical context surrounding parapsychologists' attempts to gain scientific legitimacy.¹⁴ In his book on Immanuel Velikovsky's rogue cosmological theories, Michael Gordin points out that the definition of what constitutes science has varied at different points in history, and that "pseudoscience" is essentially an empty term used to attack the legitimacy of scientific outsiders. Therefore, rather than trying to determine abstract demarcation criteria, as historians we should analyze the context surrounding cases where scientists invoked pseudoscience to discredit their opponents. This will help us understand how wider political and cultural forces help shape when and why scientists mount campaigns to police the boundaries of science.¹⁵ Through adopting Gordin's historicist approach to pseudoscience, I will help elucidate why critics shifted from portraying parapsychology as an incipient, if flawed, science, to casting it as a pseudoscience that had no business publishing in scientific journals like *Nature*.

While the history of parapsychology and psychical research up through the 1940s has been widely covered in the literature, few accounts speak to the history of the discipline and

¹³ Russell Targ and Harold E Puthoff, *Mind-reach: Scientists Look at Psychic Ability* (New York: Delacorte Press, 1977), 166.

¹⁴ For a critique of the lack of historicity in the demarcation problem debate see Andreas Sommer, "Psychical Research in the History and Philosophy of Science: An Introduction and Review," *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* volume 48, part A (December 2014): 38-45.

¹⁵ Michael D. Gordin, *The Pseudoscience Wars: Immanuel Velikovsky and the Birth of the Modern Fringe* (Chicago: University of Chicago Press, 2012), 7-15. For a similar take on boundary-work in relation to the early history of psychical research see Deborah J. Coon, "Testing the Limits of Sense and Science: American Experimental Psychologists Combat Spiritualism, 1880-1920," *American Psychologist* vol. 47, no. 2 (February, 1992): 143-51.

it status in the eyes of mainstream science after this period.¹⁶ One of the few, brief accounts of this period claims that parapsychology was essentially a dead discipline from the early 1950s up until the research at SRI in the 1970s.¹⁷ Another located parapsychology's fatal association with rising interest in the occult in the 1960s, ignoring how the Geller controversy contributed to this trend in thinking amongst critics.¹⁸ While it is true that the wider scientific community paid less attention to parapsychology in the 1940s and 50s than it did in the 1930s, the same could not be said of the 1960s and early 70s. During this period, parapsychologists received funding from the federal government, published articles in major mainstream journals, such as *Nature* and *Science*, and their association was admitted as an affiliate to the American Association for the Advancement of Science. While it is clear that most scientists did not accept parapsychologists' claims wholesale during this period, criticism of the discipline was tempered. Critics generally treated it as a valid scientific endeavor—if one that still had many flaws—and encouraged further research in the discipline.

¹⁶ For histories of the early activities of the SPR, see Janet Oppenheim, *The Other World: Spiritualism and Psychical Research in England, 1850-1914* (Cambridge: Cambridge University Press, 1985) and Alan Gauld, *The Founders of Psychical Research* (London: Routledge & K. Paul, 1968). For development of parapsychology at Duke see Seymour H. Mauskopf and M. R. McVaugh, *The Elusive Science: Origins of Experimental Psychical Research* (Baltimore: Johns Hopkins University Press, 1980). For an overview of the course of psychical research from its roots in spiritualism through the 1960s see R. Laurence Moore, *In Search of White Crows: Spiritualism, Parapsychology, and American Culture* (New York: Oxford University Press, 1977). For the history of parapsychology in Germany see Heather Wolfram, *The Stepchildren of Science: Psychical Research and Parapsychology in Germany, c. 1870-1939* (Amsterdam and New York: Rodopi Bv Editions). For the history of psychical research in France in the late 19th and early 20th century see Sofie Lachapelle, *Investigating the Supernatural: From Spiritism and Occultism to Psychical Research and Metapsychics in France, 1853-1931* (Baltimore: Johns Hopkins University Press, 2011) and Brady M. Brower, *Unruly Spirits: The Science of Psychic Phenomena in Modern France* (Urbana: University of Illinois Press, 2010). For a history of parapsychology in the 1960s-1980s, which primary focuses on research into poltergeist phenomena see Christopher Laursen, "Reimagining the Poltergeist in Twentieth-Century America and Britain" (PhD diss., University of British Columbia, 2016).

¹⁷ David Kaiser, *How the Hippies Saved Physics: Science, Counterculture, and the Quantum Revival* (New York: W.W. Norton, 2011), 215-216.

¹⁸ R. Laurence Moore, *In Search of White Crows: Spiritualism, Parapsychology, and American Culture* (New York: Oxford University Press, 1977), 221-223.

Things changed during the debate around the parapsychological research on Geller. During this controversy, critics engaged in boundary-work, casting the work on Geller as an unscientific endeavor carried out by investigators who had a credulous will to believe in the existence of the paranormal. The controversy was also a major driver behind the creation of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), the first major organization for paranormal skeptics in the Anglophone world.¹⁹ Many prominent members of CSICOP, such as James Randi, Martin Gardner and Ray Hyman, would go on to dedicate significant portions of their professional lives to critiquing parapsychology.

Fears about rising popular interest in the occult and the public rejection of science drove both critics' negative reactions to the experiments at SRI in the scientific press and the creation of CSICOP. Up until recently, historians have claimed that during the 1970s the public rejected science in favor of irrational ways of knowing drawn from the occult and other fringe knowledge-making endeavors. These accounts are largely based on cultural commentary from the 1970s, such as Theodore Roszak's *The Making of a Counterculture*, which claimed that the public, particularly young people, were rejecting America's dehumanizing, technocratic, rationally-planned society in favor of irrational and subjective ways of knowing the world, such as the occult.²⁰ According to these commentators, this new brand of social disaffection also involved a rejection of science. Recently, however, historians such as David Kaiser have pointed out that many people who were interested in the New Age and countercultural ideas were also deeply interested in science. Alternative publications like *The Whole Earth Catalog* provided technological solutions designed to help

¹⁹ Le Comité Belge pour l'Investigation Scientifique des Phénomènes Réputés Paranormaux, an organization similar to CSICOP, was created in Belgium shortly after WWII. Jean Dommanget, "Guest Column: The Comité Para—A European Skeptics Committee," *Journal of Scientific Exploration* Vol. 7, No. 3. (1993): 317-321.

²⁰ Theodore Roszak, *The Making of a Counter Culture: Reflections on the Technocratic Society and its Youthful Opposition* (Garden City, NY: Doubleday, 1969).

New Age communalists build intentional communities. Many scientists themselves were also interested in the occult and related topics. Quite a number of them even incorporated offbeat ideas from the New Age Movement into their research. Thelma Moss, a researcher at UCLA, for example, investigated Kirlian photography, which she claimed could capture on film energy fields that naturally surrounded people's bodies.²¹

However, while it is certainly true that quite a few scientists were interested in New Age ideas, accounts like Kaiser's do not pay adequate attention to the substantial, organized resistance to the incorporation of New Age ideas into the sciences. Through investigating the response in professional and semi-professional scientific journals to the parapsychological experiments at SRI and other scientific institutions, I will show that while cultural commentators like Roszak were wrong to claim that the public was rejecting science in the 1970s, at that time, many scientists certainly believed this was so. Orthodox scientists and their supporters worried that popular belief in the occult represented a widespread rejection of the scientific way of thinking, and that experiments like those at SRI were interpolating popular irrationality into science. These fears were largely responsible for critics' claims that the work at SRI and parapsychology, more generally, were unscientific, and led to the advent of CSICOP and professional skepticism, creating new obstacles in parapsychology's long quest for scientific legitimacy.

²¹ Thelma Moss, *The Body Electric: A Personal Journey into the Mysteries of Parapsychological Research, Bioenergy, and Kirlian Photography* (New York: St. Martin's Press, 1979).

Parapsychology and Psychical Research before 1970

The founding of the Society for Psychical Research (SPR) in England in 1882 marked the beginning of modern psychical research, the predecessor of parapsychology. The Society aimed to systematize the investigation of supposed supernatural phenomena—such as the materializations, trances and levitations that occurred during séances—into a science. Many early members of the SPR were Spiritualists who believed that their work would eventually prove that the spirit world existed. Other society members believed the strange happenings that occurred at séances were not supernatural, but actually manifestations of special abilities that some gifted people possessed. These people, which included some practicing Spiritualist mediums, seemed to be able to do things like read others' thoughts, see faraway places in their mind's eye, move objects through simply willing them to move, and see future events. These abilities, which came to be known as telepathy, clairvoyance, psychokinesis and precognition, respectively, became the primary subjects of interest in psychical research in the century following the SPR's founding.²²

From the outset, psychical research faced a number of obstacles that stood in the way of it gaining legitimacy as a scientific discipline. Unlike other emerging disciplines at the time, such as psychology, psychical research did not initially model itself on physics—i.e. as an experimental science. Psychical researchers did perform some experiments in the late 1880s and 1890s. However, these investigations produced poor results and many psychical researchers came to believe that psychic phenomena could not manifest under the strictly controlled conditions required for scientific experiments. This led both the SPR and its American counterpart, the American Society for Psychical Research (ASPR), to favor the

²² For a detailed history of the founding of the SPR see Gauld, *The Origins of Psychical Research* and R. Laurence Moore, *In Search of White Crows*.

collecting of field reports of spontaneous psychic activity over experimentation.²³ Psychological researchers also failed to professionalize their discipline. While the SPR could count a number of prominent scientists amongst its members, such as William Crookes and Alfred Russell Wallace, and the ASPR largely owed its existence to William James, both organizations accepted members from all walks of life.²⁴ For years after its inception, psychical research garnered little support from academic institutions, with no formal training programs or university departments devoted to the discipline. Through the early 1900s, a few research programs appeared at disparate universities, such as the creation of chair in parapsychology at Stanford, which, ironically, supported research that purported to disprove the existence of ESP. Famous British psychologist William McDougal also arranged for Gardner Murphy to receive support from Harvard's underused Hodgson Fund for telepathy experiments.²⁵

During these early years, psychical researchers faced criticism from skeptical scientists who saw them as credulous investigators who were being duped by fake mediums and psychic fraudsters into believing that they had found evidence for the existence of what was actually supernatural nonsense. Historians such as Andreas Sommer and Deborah J. Coon have argued that these sorts of criticisms, which were mainly leveled against psychic researchers by psychologists such as Hugo Münsterberg and Joseph Jastrow, were part of an effort to draw a boundary between psychical research and academic psychology, since the two were often confused, particularly by the public. Psychologists worried that such

²³ Mauskopf and McVaugh, *The Elusive Science*, 7.

²⁴ Moore, *In Search of White Crows*, 236-237.

²⁵ Mauskopf and McVaugh, *The Elusive Science*, 60-61 and 72-80.

associations with paranormal subjects would reflect poorly on the scientific status of their fledgling discipline.²⁶

Things changed in the late 1920s. In 1926, McDougal moved to Duke to become head of the psychology department there. The next year, he agreed to supervise the work of J.B. Rhine, a young botanist interested in switching into a career as a psychical investigator. Rhine's experimental program centered around card-guessing experiments in which test subjects would try to visualize the symbol (circle, cross, wavy lines, a square or star) displayed on the hidden side of a card from a special deck of 25 cards known as Zener cards, using their supposed psychic abilities. Rhine's studies on telepathy, clairvoyance, precognition and psychokinesis in the 1930s, which used sophisticated statistical techniques to analyze the results of card guessing experiments, would come to reshape psychical research into the experimental discipline that was renamed parapsychology.²⁷

Rhine primarily published his results in the *Journal of Parapsychology*, a professional journal for the discipline that he founded in 1937. He also published a number of semi-popular books about his research, the most notable of which were *Extra-Sensory Perception* (1934) and *New Frontiers of the Mind* (1937). The popularity of these books amongst laymen drew them to the attention of the wider scientific community. Not all of this attention was positive. Some scientists chided Rhine for circumventing the normal channels of scientific communication. Others claimed he was making it appear to the credulous public that ESP was scientifically supported, when in fact it was not.²⁸ Other scientists, notably B.F. Skinner, aggressively criticized Rhine's methodology and controls. Rhine actively responded to these

²⁶ Coon, "Testing the Limits," 143-151 and Andreas Sommer, "Psychical Research and the Origins of American Psychology: Hugo Münsterberg, William James and Eusapia Palladino," *History of the Human Sciences* 25(2) (2012): 23-44.

²⁷ Moore, *In Search of White Crows*, 188-191.

²⁸ Mauskopf and McVaugh, *The Elusive Science*, 159-167.

criticisms, enlisting mathematicians to help beef up his statistics and implementing new controls to prevent fraud and sensory leakage between experimenters and test subjects.²⁹

Most of the response to Rhine's experiments, however, was encouraging. After an initial burst of interest around the time of the founding of the SPR, the wider scientific community had largely ignored psychical research, thinking of it as a disorganized, fruitless attempt to investigate phenomena that were not real. After the publication of *Extra-Sensory Perception*, however, many scientists began to take note of parapsychology and even tried to replicate Rhine's work. These replication efforts were largely unsuccessful, and for the rest of his career, Rhine was unable to devise an experiment that could be repeated reliably to the satisfaction of the wider scientific community.³⁰ However, Rhine's earnest commitment to rigorous experimentation and his constant effort to improve his methodology in response to skeptical criticisms won him a level of respect from other scientists, including psychologists, who were traditionally hostile to psychical research. In 1938, Lucian Warner and C.C. Clark sent a questionnaire to the 603 full members of the APA asking them about their opinion of ESP. Of the 352 psychologists who returned the survey, half said they believed that ESP might exist—even if it was a remote possibility—and 90% granted that parapsychology was a legitimate scientific undertaking.³¹

The 1940s and '50s represented something of a lull in parapsychology's quest for legitimacy as a discipline. Rhine and his associates continued their work at Duke, but their most promising test subjects had stopped exhibiting psychic abilities by the end of the 1930s, a tendency that Rhine dubbed the "decline effect."³² During this period, parapsychologists did

²⁹ Mauskopf and McVaugh, *The Elusive Science*, 193-201.

³⁰ Mauskopf and McVaugh, *The Elusive Science*, 240-256.

³¹ Mauskopf and McVaugh, *The Elusive Science*, 278-279.

³² Moore, *In Search of White Crows*, 191.

not publish anything that caught the attention of the wider scientific community in the way that *Extra-Sensory Perception* or *New Frontiers of the Mind* had. The most notable work from the period was S.G. Soal and Frederik Batemans's 1954 *Modern Experiments in Telepathy*, detailing their own successful work modeled on Rhine's experiments. Yale University Press published the book's American edition, which received a number of positive reviews.³³ However, while parapsychology was relatively inconspicuous during this time, scientists outside the discipline still generally maintained a tolerant view towards it. A 1953 survey of members of the APA yielded results similar to the survey in 1938, with most members stating that parapsychology was a valid scientific enterprise, even if the existence of ESP was only a remote possibility.³⁴

In the 1960s and early 1970s, however, parapsychology made a number of strides towards acceptance in the wider scientific community.³⁵ Duke discontinued its parapsychological research program after Rhine retired in 1965,³⁶ but a new generation of investigators were making inroads at a small number of other institutions. In 1962, Montague Ullman, a New York psychiatrist with a longstanding interest in psychical research, established a laboratory for studying telepathy in dreams at Maimonides Medical Center in

³³ E. J. Dingwall, "Current Progress in Psychical Research," Review of *Modern Experiments in Telepathy*, by S.G. Soal and F. Bateman, *A New Approach to Psychical Research*, by Antony Flew and *Psychical Research Today* by D.J. West, *Nature* 175, no. 4461 (1955): 741 and Ray Hyman, "Review," review of *Modern Experiments in Telepathy*, by S.G. Soal and F. Bateman, *Journal of the American Statistical Association* vol. 52, No. 280 (December, 1957): 607-610

³⁴ Mauskopf and McVaugh, *The Elusive Science*, 305.

³⁵ How to measure parapsychology's acceptance in the wider scientific community is question which both historians and sociologists of science, and parapsychologists have discussed. See for example J. Gaither Pratt, *ESP Research Today: A Study of Developments in Parapsychology Since 1960* (Metuchen, NJ: Scarecrow Press, 1973), 157-174 and James McClenon, *Deviant Science: The Case of Parapsychology* (Philadelphia: University of Pennsylvania Press, 1984), 104-164. In this paper, I will use appearances in major cross-disciplinary journals, institutional support and funding, and the reception of parapsychology in the scientific press as a way to measure its acceptance in the wider scientific community.

³⁶ Rhine's research group shifted to the privately run *Foundation for Research into the Nature of Man*, located in Durham. Moore, *In Search of White Crows*, 202-203.

New York. Ullmann received a sizable grant from the National Institute of Mental Health for his work.³⁷ This grant was new and unusual; parapsychological research had received little publicly-acknowledged government funding in the past.³⁸ A parapsychological research division was also established at the University of Virginia's medical school in 1968, and there were a small number of lone parapsychological researchers working outside of their official disciplines at scattered universities throughout the United States.³⁹ As information leaked out of the Soviet Union, during the "thaw" following Stalin's death, psychic researchers in the West also became aware of the Soviet Union's academic psychic research program.⁴⁰

Parapsychological researchers also published in a number of major mainstream scientific journals during this period, including *Science* (1965), *Nature* (1968), the *Journal of Abnormal Psychology* (1967 and 1970), and the *Psychoanalytic Review*, which devoted a whole issue to recent advances in parapsychology in 1969. The reception of these articles is in line with how Rhine's research was received. While critics aggressively attacked the methodology used in these articles, for the most part, they treated ESP as something that could be scientifically investigated under correctly controlled experimental conditions.⁴¹ Two

³⁷ Moore, *In Search of White Crows*, 206-207. Lawrence R. Samuel, *Supernatural America: A Cultural History* (Santa Barbara, CA: Praeger, 2011), 103-104.

³⁸ Various defense related departments did perennially fund classified studies in the 1950s and 1960s, some of which were conducted by Puharich, Uri Geller's handler, and at Rhine's lab. However, since much of this work remained secret, the prestige associated with it did not help bolster parapsychology's legitimacy. For a popular history of government research into ESP and telekinesis see Annie Jacobsen, *Phenomena: The Secret History of the U.S. Government's Investigations into Extrasensory Perception and Psychokinesis* (New York: Little Brown, 2017).

³⁹ Moore, *In Search of White Crows*, 210.

⁴⁰ Pratt, *ESP Research Today*, 55-84. For a widely popular contemporary book on this topic see Sheila Ostrander and Lynn Schroeder, *Psychic Discoveries Behind the Iron Curtain* (Englewood Cliffs, NJ: Prentice-Hall, 1970).

⁴¹ T. D. Duane and Thomas Behrendt, "Extrasensory Electroencephalographic Induction between Identical Twins," *Science* vol. 150, no. 3694 (Oct. 15, 1965): 367; Charles T. Tart, et al., "More on Extrasensory Induction of Brain Waves," *Science* vol. 151, no. 3706 (Jan. 7, 1966): 28-30; T. Moss and J. A. Gengerelli, "Telepathy and Emotional Stimuli: A Controlled Experiment," *Journal of Abnormal Psychology* 72, no. 4 (1967): 341; Thelma Moss, Alice F. Chang, and Marc Levitt, "Long-Distance ESP: A Controlled Study,"

critics of experiment performed by J.G. Pratt, one of Rhine's longtime collaborators, for example, aggressively attacked Pratt's controls, but emphasized that their concerns were technical and that they did not intend their criticism to contribute to the "numerous attacks on parapsychological research in general and on various individual ESP experiments."⁴² While this is certainly not an endorsement of Pratt's work, it differs from later criticisms of parapsychology in that it does not simply dismiss the discipline as superstition in scientific clothing. The efforts of parapsychological researchers received further validation in 1969 when the American Association for the Advancement of Science granted the Parapsychological Association, a professional group founded by Rhine, affiliate status.⁴³

This slow rise in the scientific credibility of parapsychology was not to last, however. In 1973, an article entitled "Information Transmission Under Conditions of Sensory Shielding" appeared in *Nature*. This article, which claimed that the powers of 1970s television super psychic Uri Geller were real, would be the peak in parapsychology's trend towards scientific legitimacy, followed by a downturn. During the debate around Targ and Puthoff's article, skeptics slid back into earlier modes of criticism, which portrayed parapsychology as an unscientific endeavor. The controversy would also lead a large group of scientists and lay supporters of science to spend a sizable portion of their professional lives critiquing parapsychology.

Journal of Abnormal Psychology 76, no. 2 (1970): 288-294; Alan Baron and Thomas G. Stampfl, "A Note on 'Long-Distance ESP: A Controlled Study,'" *Journal of Abnormal Psychology* 78, no. 3 (1971): 280-283; Thelma Moss, "Reply to Baron and Stampfl's: A Note on 'Long-Distance ESP: A Controlled Study,'" *Journal of Abnormal Psychology* 78, no. 3 (1971): 284; W. G. Roll, et al., "Identification of Concealed Randomized Objects through Acquired Response Habits of Stimulus and Word Association," *Nature* 220, no. 5162 (1968): 89-91; E. J. Farge, "Parapsychology," *Nature* 220, no. 5165 (October 26, 1968): 412; Stephen Fienberg and Anthony Robertson, "Parapsychology," *Nature* 221, no. 5181 (1969): 687-688; C. E. M. Hansel, "ESP: Deficiencies of Experimental Method," *Nature* 221, no. 5186 (1969): 1171-1172; J.G. Pratt and I. Stevenson, "Identification of Concealed Randomized Objects," *Nature* 225, no. 5230 (1970): 394-394; Marie C. Nelson, "Contributions On Parapsychology," *Psychoanalytic Review* vol. 56, issue 1 (Spring 1969): 3-145.

⁴² Stephen Fienberg and Anthony Robertson, "Parapsychology," *Nature* 221, no. 5181 (1969): 688.

⁴³ Pratt, *ESP Research Today*, 169.

Parapsychology Meets Uri Geller

In October of 1974, Harold Puthoff and Russell Targ published a paper in *Nature* that detailed a number of experiments they had run at the Stanford Research Institute that purported to prove that ESP—which Targ and Puthoff renamed "remote viewing"—was real. The experiments that received the most attention out of the series that Targ and Puthoff published in their paper were those they performed on Uri Geller, an Israeli psychic performer.⁴⁴ In one series of experiments, they asked Geller to use his remote viewing abilities to copy drawings of images in sealed envelopes in another room. In another, they asked him to draw an image displayed on a computer screen in a room down the hall. In further tests, Geller was asked to identify the face-up side of a die in a sealed metal box. The tests notably did not confirm Geller's psychokinetic abilities—he was famous for bending spoons with his mind—with investigators saying that they could not observe Geller using this ability under adequately controlled conditions.⁴⁵

Judges were able to match the drawings that Geller made with the original images with a surprising level of accuracy. In one case, there was only a 1 in 300,000,000 probability that their matches had occurred purely by chance. Geller also performed well in the dice tests. Geller "passed" on two trial runs out of 10 saying he could not accurately visualize the die inside of the box, but he managed to guess the showing face of the die correctly the other eight times.⁴⁶

⁴⁴ Pat Price, a West Virginia coal mining executive and former police commissioner of Burbank California and a number of unnamed volunteers were featured in other experiments. Targ and Puthoff, "Information Transmission," 604-607.

⁴⁵ Targ and Puthoff, "Information Transmission," 602-604.

⁴⁶ Targ and Puthoff, "Information Transmission," 602-606. Parapsychologists often use such unlikely probabilities to claim that supposed psychic phenomena they observed could not have been the product of pure

There were a number of things about Targ and Puthoff's experiments that differentiated them from previous parapsychological research, which at first glance make them seem like good candidates for definitively proving the existence of ESP. Unlike previous parapsychological test subjects Geller was able to consistently—if not quite always—use his abilities on command. In the past, parapsychological test subjects usually did not circulate between labs, making replication challenging if not impossible, and creating skepticism of the veracity of investigators' results. This was not so with Geller. Geller showcased his abilities for a number of scientists outside of SRI, notably John Hasted, Brendan O'Regan, Ted Bastin and David Bohm at Birkbeck College in the UK, and John Taylor at King's College London. While these tests were not as well controlled as the ones at SRI, they seemed to confirm Geller's abilities.⁴⁷ The thing that most distinguished the experiments at SRI from other parapsychological work, however, was the publicity they received both in the popular and scientific press, a level of public exposure for the discipline that had not been seen since Rhine's publication of *New Frontiers of the Mind* in 1937. Unfortunately for Targ and Puthoff, their experiments also attracted the attention of many critics who vehemently attacked their experiments, casting both their work, and parapsychology more generally, as pseudoscience.

Some critics claimed Targ and Puthoff's methodology was flawed and that their safeguards against fraud were inadequate to prevent their subjects from cheating. These criticisms were in line with those that parapsychological work appearing in mainstream

chance and must therefore be attributed to ESP. Parapsychology's critics have questioned validity of such use of negative proof for the existence of ESP. See C.E.M. Hansel, *ESP: A Scientific Evaluation* (New York: Scribner, 1966), xiv-xv.

⁴⁷ J.B. Hasted et al., John Taylor, "News," *Nature* vol. 254 (April 10, 1975), 470-473. Geller also appeared under controlled conditions before a number of other psychic investigators including Thelma Moss at UCLA and Eldon Byrd, a researcher at the Naval Surface Weapons Center. For experimental reports of these encounters see Charles Panati, *The Geller Papers: Scientific Observations on the Paranormal Powers of Uri Geller* (Boston: Houghton Mifflin, 1976).

journals had received since the 1940s. Other critics, however, engaged in boundary-work and claimed that parapsychology was an irrational endeavor that could not rightly call itself science. This line of critique marked a sharp departure from how parapsychology had generally been received in the scientific press since Rhine's experiments, and ended the slow rise in its legitimacy in the eyes of mainstream science that had begun in the mid-1960s.

Richard Marks and David Kammann, two psychologists from New Zealand, were the most vocal critics of Targ and Puthoff's methodology. Marks and Kammann's main argument focused on Targ and Puthoff's experiments with Pat Price, another test subject who appeared in their *Nature* article. In these experiments, Price was asked to describe distant, randomly selected "target locations" from a room at SRI using his remote viewing abilities. Judges were then taken to the target sites and asked to match Price's descriptions with the correct locations. Marks and Kammann argued that Targ and Puthoff had carelessly left information in transcripts of Price describing the target locations, which may have subconsciously tipped off judges as to which transcript belonged with which location.⁴⁸

Other critics focused on the potential for fraud on Geller's part. In his influential critique of the SRI experiments in *New Scientist*, physicist and science writer Joseph Hanlon made a trip to SRI during which he theorized about how Geller may have skirted the controls that Targ and Puthoff implemented. In some experiments, Geller was asked to copy drawings held in another room using his remote viewing abilities. Hanlon claimed that Geller may have been using a radio implanted in his tooth that was designed by his handler, Andrei Puharich, who

⁴⁸ Targ and Puthoff responded quickly to Marks and Kammann's criticism. They removed the cues, had the experimental transcripts rejudged, and claimed that they still yielded significant results. Marks and Kammann disagreed, and the debate between them and the SRI experimenters continued sporadically in *Nature* for the decade following the experiments. David Marks and Richard Kammann, "Information Transmission in Remote Viewing Experiments," *Nature* vol. 274 (Aug 17, 1978); Charles T. Tart, Harold E. Puthoff and Russell Targ, "Information Transmission in Remote Viewing Experiments," *Nature* vol. 284 (March 13, 1980); David Marks, "Sensory Cues Invalidate Remote Viewing Experiments," *Nature* vol. 292 (July 9, 1981); H. Puthoff and R. Targ, "Rebuttal of Criticisms of Remote Viewing Experiments," *Nature* vol. 292 (Jul 23, 1981); David Marks and Christopher Scott, "Remote Viewing Exposed," *Nature* vol. 319 (Feb 6, 1986). See also David Marks and Richard Kammann, *The Psychology of the Psychic* (Buffalo, N.Y: Prometheus Books, 1980) 26-41.

was an audio electronics expert, to communicate with a confederate who told him about the contents of the target drawings.⁴⁹ A number of popular books appeared that made similar critiques. In *Confessions of a Psychic* and *Further Confessions of a Psychic*, for example, Uriah Fuller, a.k.a. Martin Gardner, the well-known *Scientific American* columnist and accomplished amateur magician, wrote a detailed explanation of how Geller may have fooled investigators using magic tricks.⁵⁰

Gardner was not the first magician to critique a psychic. In the late 19th and early 20th centuries, magicians were some of the staunchest opponents of fraudulent mediums and psychics. Famous conjurers like Harry Houdini and Neville Maskelyne published skeptical books and waged massive debunking campaigns against mediums to show that their supposed powers were actually just magic tricks.⁵¹ The debate around the experiments at SRI saw magicians re-emerge as prominent critics of the paranormal. During the controversy around Geller, magicians repeatedly claimed that scientists, who were not experts in conjuring, were unable to detect the tricks of a master magician like Geller. Only another magician could catch Geller in the act.⁵² Many scientists agreed, arguing that Targ and Puthoff's results were invalid because their work had not been overseen by a qualified

⁴⁹ Joseph Hanlon, "Uri Geller and Science," *New Scientist*, Oct 31, 1974, 184.

⁵⁰ Uriah Fuller and Karl Fulves, *Confessions of a Psychic: The Secret Notebooks of Uriah Fuller* (Teaneck, NJ: K. Fulves, 1975) and Karl Fulves, *Further Confessions of a Psychic: The Secret Notebooks of Uriah Fuller* (Teaneck, NJ: K. Fulves, 1980). See also John L. Wilhelm, *The Search for Superman* (New York: Pocket Books, 1976).

⁵¹ For Maskelyne's debunking efforts see Weatherly and Lionel Alexander, *The Supernatural? with Chapter on Oriental Magic, Spiritualism, and Theosophy, by J. N. Maskelyne* (Cambridge, UK: University Press, 1892), 189-190. For information on Houdini's debunking campaigns and anti-spiritualist lecture tours see Milbourne Christopher, *Houdini: The Untold Story* (New York: Crowell, 1969), 174 and 200. For Houdini's anti-Spiritualist book see Harry Houdini, *A Magician Among the Spirits* (Cambridge, UK: Cambridge University Press, 2011).

⁵² James Randi, *The Truth about Uri Geller* (Falls Church, VA: The James Randi Foundation, 2011), 245 and Donald Gould, "Gellerbility," *New Scientist*, December 13, 1973, 800.

magician.⁵³ Magicians bolstered their criticism through publicly duplicating Geller's supposedly psychic feats. James Randi and Milbourne Christopher, for example, appeared on many of the same television shows that Geller had appeared on, and duplicated his act under the same conditions, implying he used similar tricks during his performances.⁵⁴

Attacks on methodology and insinuations of fraud had long been a common weapon in the arsenals of parapsychological skeptics. All of the experiments published in major journals in the 1960s were criticized for having loose methodologies.⁵⁵ As for fraud, in 1955 George R. Price published an article in *Science* claiming that both Rhine and Soal's results could be explained away as the result of fraud on either their part or the part of their test subjects.⁵⁶ In his 1966 book, *ESP: A Scientific Evaluation*, psychologist C.E.M. Hansel made similar critiques of Rhine, Soal and a number of other well-known parapsychological

⁵³ After seeing magician James "The Amazing" Randi replicate many of Geller's feats for an audience of scientists at Kings College, Nobel Prize winner Maurice Wilkins, convinced that Geller might be using similar tricks, drafted a letter saying that all scientific investigations of paranormal phenomena should involve a qualified magician. The letter was signed by a number of scientists, and both the editor and deputy editor of *Nature*. "New Spoonbender Puts Psychic Researchers in a Magic Twist," *New Scientist*, Jul 31, 1975, 283. In his exposé of the experiments at SRI, Joseph Hanlon also said that magicians could easily dupe scientists. Hanlon, "Uri Geller and Science," 184-185. See also letters to *Science News* following Jack Sarfatti's press release for similar sentiments. Morton McMichael, Robert L. Meyer, Jim Gerrish, Steven Okulewicz, T. V. Wolansky, Phyllis Rathbun, Frank J. Tipler, Michael Nass, and Robert Carroll, "Geller and Magicians," *Science News* 106, no. 5 (1974): 78-79.

⁵⁴ Randi, *The Truth about Uri Geller* and Milbourne Christopher, *Mediums, Mystics and the Occult* (New York: T. Y. Crowell, 1975).

⁵⁵ For debate around these experiments see, for example, W. G. Roll, et al., "Identification of Concealed Randomized Objects," 1968; E. J. Farge, "Parapsychology;" Stephen Fienberg and Anthony Robertson, "Parapsychology;" C. E. M. Hansel, "ESP: Deficiencies of Experimental Method," *Nature* 221, no. 5186 (March 22, 1969): 1171-1172; J.G. Pratt and I. Stevenson, "Identification of Concealed Randomized Objects," 1970; Alan Baron and Thomas G. Stampfl, "A Note on "Long-Distance ESP: A Controlled Study," *Journal of Abnormal Psychology* 78, no. 3 (December, 1971): 280-283; Thomas R. Scott, Victor G. Laties, Bernard Weiss, and Edwin G. Boring, "Extrasensory Induction of Brain Waves," *Science* 150, no. 3701 (December 3, 1965): 1240-1244.

⁵⁶ There is some question as to whether Price's criticism was serious or meant sarcastically since the accusations it makes seem to go a bit over the top. Rhine, at least, thought that Price's article was a joke and thanked him for it and the visibility it gave to parapsychology. Price publicly apologized to Rhine and Soal for publishing the article in 1972, which reinforces this theory. George R. Price, "Science and the Supernatural," *Science* 122, no. 3165 (August 26, 1955): 359-367; J. B. Rhine, "The Experiment Should Fit the Hypothesis," *Science* 123, no. 3184 (January 6, 1956): 19-19; J. B. Rhine, "Comments on Science and the Supernatural," *Science* 123, no. 3184 (January 6, 1956): 11; George R. Price, "Apology to Rhine and Soal," *Science* 175, no. 4020 (January 28, 1972): 359.

investigators.⁵⁷ However, while these critics were stern, they did not usually claim that their criticism implied that parapsychology was an invalid scientific endeavor. Bad methodology and inadequate controls were problems that could be corrected. Critics often said that they meant their criticisms to be constructive and encouraged parapsychologists to tighten up their controls so that they could provide iron-clad proof of the reality of ESP.

In the Geller case, however, in addition to these sorts of critiques, skeptics also attacked the credibility of parapsychologists. Joseph Hanlon said that Targ and Puthoff's "desire to believe" in Geller's powers may have "clouded their discrimination,"⁵⁸ wondering if "their natural desire to see Geller succeed [did] not cause them to unconsciously make errors or misinterpret the data to Geller's benefit."⁵⁹ Donald Gould, a medical researcher and science journalist, took a harsher tone in a letter to *New Scientist*, saying Geller and his supposed powers had reduced "normally hard-headed observers of the human scene to the status of awe-struck peasants."⁶⁰ Critics were also keen to point out that many of the people involved with the experiments at SRI—including Puthoff; Ingo Swann and Pat Price, two of the SRI test subjects; and George W. Church, Jr. who had provided private funding for the SRI experiments—were Scientologists.⁶¹ Others suggested that parapsychology, as a whole, was superstitious nonsense masquerading as science. This line of argument was featured most prominently in the only two letters printed in *Nature* in response to Targ and Puthoff's experiments. These letters did not deign to actually discuss the content of Targ and Puthoff's

⁵⁷ C.E.M. Hansel, *ESP: A Scientific Evaluation* (New York: Scribner, 1966).

⁵⁸ Hanlon, "Uri Geller and Science," 182.

⁵⁹ Hanlon, "Uri Geller and Science," 182.

⁶⁰ Gould, "Gellerbility," 800.

⁶¹ Martin Gardner, "Supergull," review of *Mind-Reach: Scientists Look at Psychic Ability* by Russell Targ and Harold Puthoff and *The Search for Superman* by John L. Wilhelm, *The New York Review of Books*, March 17, 1977.

paper, and simply dismissed it as an unacceptable incursion of irrationality into the sciences. In one of the letters, J.H. Fremlin, a physicist at the University of Birmingham, sardonically compared the experiments to medieval witchcraft trials. In the other letter, Martin Raff, a biologist working at University College, London, chided *Nature* for publishing Targ and Puthoff's article at all, claiming that it unduly lent scientific authority to ESP and "irrationalism." Gould echoed these sentiments in his letter to *New Scientist*, in which he similarly disparaged the publication for focusing on Geller and compared ESP to "ghosts, hobgoblins, astral intelligences and things that go bump in the night."⁶² Physicist John Wheeler went even further and called for the Parapsychological Association to be disaffiliated from the AAAS.⁶³ For these critics, Targ and Puthoff's work was not another flawed, but earnest experiment in the incipient science of parapsychology. They were the credulous japes of two physicists who had been seduced by their faith in the paranormal into embarking on new careers in pseudoscience.

Here, Targ and Puthoff's critics were engaging in boundary-work. Sociologist of science Thomas Gieryn describes boundary-work as "credibility contests in which rival parties manipulate the boundaries of science in order to legitimate their belief about reality and secure for their knowledge-making a provisional epistemic authority that carries with it influence, prestige and material resources."⁶⁴ For Gieryn—unlike Karl Popper and Thomas Kuhn, who forwarded theories of what constitutes good science—science does not have any eternal characteristics, but is rather a sort of flexible category or idea that knowledge makers seek to appropriate for themselves to gain the authority, prestige and funding that comes with

⁶² Martin Raff, "Irrationalism and Science," *Nature* 252, no. 5483 (December 6, 1974): 437; J. H. Fremlin, "Irrationalism and Science," *Nature* 252, no. 5485 (December 20/27, 1974): 629; Gould, "Gellerbility," 800. See also I.M.A. Dupe, "Geller," *New Scientist*, May 1, 1975, which uses a similar, sardonic tone to criticize John Taylor's work on Geller.

⁶³ Martin Gardner, *Science: Good, Bad and Bogus* (Buffalo, N.Y: Prometheus Books, 1981), 189-191.

⁶⁴ Gieryn, *Cultural Boundaries of Science*, 336-337.

being a "scientist." In this quest to appropriate—or maintain—the epistemic authority of science, knowledge makers seeking to legitimate new avenues of research, and their critics in the more established sciences employ rhetorical strategies aimed at discrediting the work of their opponents and their status as scientists. In the controversy around Geller, skeptics did just that. Through seeking to discredit parapsychologist, portraying them as superstitious, skeptics were making a concerted attempt to show that parapsychology did not deserve to call itself a science.

Why did critics return to this pre-1940 attitude and engage in boundary-work that made parapsychology out to be unscientific nonsense? Boundary-work erupts when scientists believe that someone is misappropriating the authority of science to try to gain credibility for their claims about nature. Bouts of boundary-work are especially likely in cases where scientists feel such incipient claims raise questions about their own authority.⁶⁵ The late 1960s and early 1970s witnessed an "occult revival," which was the beginnings of what later became known as the New Age Movement. Scientists editorializing in the scientific press saw this rising interest in the occult as a symptom of a widespread public rejection of science. From this point of view, Targ and Puthoff's experiments were an attempt to lend scientific authority to popular irrational ideas.

The publicity around Geller was another, related factor that drew skeptics to Targ and Puthoff's work. Soon after Targ and Puthoff performed their experiments with Geller, he became something of an international sensation, performing all over the world, and on many prominent television shows. His reputation was augmented by the many voices, including his own, that claimed that his powers were scientifically validated. By the time that Targ and Puthoff published their results, Geller's fame had become a very visible, threatening

⁶⁵ Gieryn, *Cultural Boundaries of Science*, xii-27.

manifestation of rising popular interest in the occult. In response to fears about science being misused to validate Uri Geller's powers and popular irrationalism more broadly, skeptical scientists engaged in a boundary-making effort meant to show that in reality, the supposed scientific support for Geller's powers and parapsychology more generally was actually irrational nonsense.

What Powered the Boundary Work around Geller

Geller was not quite world famous when he showed up at SRI. He had achieved some notoriety in Israel, and his handler, Andrei Puharich, a psychic investigator working outside of academic parapsychology, had arranged a publicity tour for him in Germany, which generated some press coverage, but he had yet to become the international psychic sensation that he would be by the mid-1970s.⁶⁶ In fact, one of Geller's first big breaks in the United States was an appearance in tandem with a report on—and condemnation of—Targ and Puthoff's research in *TIME* magazine. Soon after the experiments on Geller began at SRI near the end of 1972, someone in the Department of Defense got wind of them. They dispatched Ray Hyman, a psychology professor from the University of Oregon and noted parapsychology critic; George Lawrence, the DOD projects manager for ARPA; and Robert Van de Castle, a University of Virginia psychologist and parapsychological investigator to SRI to evaluate whether the research Targ and Puthoff were doing might have military applications. While Van de Castle was guardedly impressed with what he saw, Hyman and Lawrence claimed they caught Geller cheating red-handed during a demonstration of his abilities. Hyman got in touch with a contact at *TIME* magazine and informed them about the tests at SRI and his poor opinion of them. A few months later, in March of 1973, an article appeared in *TIME* that relayed Hyman's critical assessment of the experiments, which he was quoted as calling "the most uncontrolled and poorly recorded data I have ever encountered." A description of Geller's visit to *TIME*'s offices, during which he demonstrated his supposed powers, also appeared in the report. The article said that magician James Randi, who was present during the demonstration, easily duplicated Geller's supposed psychic abilities using

⁶⁶ Andrija Puharich, *Uri: A Journal of the Mystery of Uri Geller* (New York, New York: Bantam Books, 1975), 83.

simple magic tricks after Geller had left the office, casting further doubt on the reality of his powers.⁶⁷

While the *TIME* article roundly denounced Geller and SRI, it didn't affect the trajectory of Geller's rise to fame. In the months following the *TIME* article, Geller appeared on a slew of major American talk shows including *The Jack Paar Show*, *The Merv Griffin Show*, *The Mike Douglas Show* and *The Tonight Show*.⁶⁸ Later that year, Geller made his debut in Britain, most notably on *The Dimbleby Talk-In*, where he wowed John Taylor, a mathematician and physicist working at King's College London who had been brought on the show to judge the scientific validity of Geller's abilities. Following the show, Taylor invited Geller to his laboratory. His demonstrations there further convinced Taylor of Geller's legitimacy, leading him to embark on a psychic research program at Kings that eventually came to focus on testing the spoon-bending abilities of supposedly psychic schoolchildren.⁶⁹

Geller's purported powers piqued the curiosity of a number of other scientists with parapsychological interests. Offbeat physicist Jack Sarfatti, for example, was very impressed with what he saw during a visit to Targ and Puthoff's lab. Through his contacts, Sarfatti managed to convince David Bohm, a well-known physicist who was working at London's Birkbeck College, to run an experiment on Geller's abilities. In June of 1974, Sarfatti issued a press release trumpeting the success of the experiments, which was reprinted in *Science News*.⁷⁰ By the end of 1973, Geller, and the experiments on his abilities had generated so

⁶⁷ "The Magician and the Think Tank," *TIME*, March 12, 1973.

⁶⁸ "Uri Geller Filmography," Internet Movie Database, Accessed April 1, 2018, https://pro-labs.imdb.com/name/nm0312414?ref=nm_ov_res.

⁶⁹ Joseph Hanlon, "Uri Geller and Science," *New Scientist*, Oct 31, 1974, 314 and J.G. Taylor, *Superminds: An Introduction into the Paranormal* (London: Pan Books, 1976).

⁷⁰ Kaiser, *Hippies*, 200-226 and J. Sarfatti, "Geller Preforms for Physicists," *Science News* 106 (1974): 46. Sarfatti retracted his support for Geller in 1975 after James Randi duplicated many of Geller's tricks for him, convincing him that Geller was also using such methods to produce his supposed abilities. Kaiser, *Hippies*, 247-251. For a collection of articles written by other scientists, such as Thelma Moss at UCLA and Wilbur Franklin a Kent State, attesting to Geller's abilities see Panati, *The Geller Papers*. A few years later, Taylor reigned back his bullishness on ESP, saying that he no longer believed it was real because his tests showed that using ESP did

much publicity that they caught the attention of the editors of *Nature*, who wrote an editorial about Geller and the challenge his alleged powers posed to the current scientific understanding of the world.⁷¹ In October of the next year, *Nature* published Targ and Puthoff's initial results.⁷²

Why did the experiments on Geller receive so much attention while the parapsychological results published during the 1960s in major journals were quickly forgotten? Research on the history of the patterns of scientists' reactions to ESP before the 1970s suggest that the massive attention that the media paid to Geller and the experiments at SRI were a major factor in how skeptical scientists responded to the experiments at SRI. Critics of parapsychology and similar forms of knowledge with a contested scientific status tended to become more vocal when they perceived that practitioners of these contested sciences were misusing the authority of science to bolster their claims in the media. This was true when Rhine published his popular book on parapsychology, *New Frontiers of the Mind* in 1937, which resulted in critics claiming that Rhine was bypassing the normal channels of science to make ESP seem like it was much more widely accepted in the scientific community than it actually was.⁷³ The bulk of the debate around Immanuel Velikovsky's offbeat cosmology in the 1950s also centered on similar concerns. In this case, scientists objected to MacMillan publishing Velikovsky's works because it was a large publisher of scientific books. Scientists worried that the MacMillan imprint would legitimize Velikovsky, leading the public to believe his ideas were scientifically supported when they were actually

not correlate with any sort of emission of electromagnetic radiation. J. G. Taylor and E. Balanovski. "Can Electromagnetism Account for Extra-Sensory Phenomena?" *Nature* 276, no. 5683 (November 2, 1978): 64-67 and J. G. Taylor and E. Balanovski. "Is there any scientific explanation of the paranormal?" *Nature* 279, no. 5714 (June 14, 1979): 631-633.

⁷¹ "Challenge to Scientists," *Nature* vol. 246 (December 7, 1973), 321.

⁷² Targ and Puthoff, "Information Transmission."

⁷³ Mauskopf and McVaugh, *The Elusive Science*, 256-264.

nothing more than crankery.⁷⁴

Geller was far more prominent in the media than Rhine or Velikovsky, appearing on many popular television talk shows and performing publicly for large audiences around the United States and Britain. Television's status as a relatively new medium of mass communication and related anxieties about its effect on the population likely boosted critics' anxieties about Geller's presence on TV. The late 1960s and early 1970s witnessed skyrocketing concern about the effects of television on public morals. In 1968, president Johnson created the U.S. National Commission on the Causes and Prevention of Violence in response to high profile shootings of public figures like Martin Luther King Jr. and Bobby Kennedy to try to understand why violence seemed to be spreading in American society. The commission's final report suggested that violent television programs were one contributing factor to this problem, exercising a pernicious influence on children which skewed their morality and normalized violent behavior.⁷⁵ Nervousness about the negative influence of television on the population would pervade the 1970s, seen in campaigns by conservative Americans against the appearance of homosexuality on television and by organizations like the national Parent-Teacher Association and the American Medical Association against violence on television.⁷⁶ The editors of *Nature* were also nervous about effects of television on the general populace. In 1973, *Nature* published an editorial chiding the BBC for running programs which made science seem mysterious and magical. One of the programs they took issue with, for example, displayed flashy images of volcanic eruptions without explaining the forces that caused them. The editors said such programs cheapened the public understanding

⁷⁴ Gordin, *The Pseudoscience Wars*, 22.

⁷⁵ National Commission on the Causes and Prevention of Violence, "Final Report of the National Commission on the Causes and Prevention of Violence," U.S. Government Printing Office, December, 10, 1969, 206-207.

⁷⁶ Judy Kutulas, *After Aquarius Dawned: How the Revolutions of the Sixties Became the Popular Culture of the Seventies* (Chapel Hill: The University of North Carolina Press, 2017), 137-151.

of science and made nature seem random and capricious rather than something which was governed by natural law.⁷⁷ If the editors of *Nature* were so concerned about the detrimental effect of overly aestheticized portrayals of volcanoes, it is not hard to see why they took it upon themselves to quiet popular rumors about the strength of the scientific proof for Geller's supposed abilities, which was one of their stated aims in publishing Targ and Puthoff's article.⁷⁸

Geller's popularity on television was not a freak accident. In the early 1970s, belief in psychic powers and occult phenomena was growing in American society. The advent of this "occult revival," which would later be seen as the beginnings of the contemporary New Age Movement, certainly boosted Geller's fame. The rising popular interest in ESP and the occult also made some scientists nervous. They feared that the popularity of figures like Geller indicated that the public was turning away from science and favoring irrational approaches for interacting with the world.

In June of 1969, *The New York Times* published an article declaring that there was "a New-Time Religion on Campus." Recent reports from college campuses had revealed that there was a rising interest in the occult among students. Groups that embraced witchcraft and mystical monastic practices were sprouting on campuses all around the country. Many students requested that their universities offer courses on the occult. Specialized bookstores, including one in Harvard Square, had popped up to serve this new interest in the esoteric amongst young people. This sudden rise in interest in the occult was portrayed as the next stage of the campus radicalism that had begun in the 1960s. These new radicals were similar to hippies in that they had communitarian values and rejected the suburban, bourgeois way of life, but were more focused on finding meaning in life and gaining the ability to personally

⁷⁷ For *Nature* editorial see "Another Pretty Flame," *Nature* vol. 241 (February 2, 1973), 300.

⁷⁸ "Investigating the Paranormal," *Nature* vol. 251 (October 18, 1974): 559.

change the world through spiritual means than they were in having kicks and poking fun at the Establishment.⁷⁹

As it soon became clear to sociologists, this "occult revival" was not just limited to college campuses. Between the early 1950s and the 1970s, the number of newspapers nationwide that ran astrology columns rose from a mere 100 to more than 1,200 of the 1,750 publishing dailies. The number of books published on occult topics exploded as well. According to the industry publication "Paperbound Books in Print," in 1968 there were 169 paperback books in print on occult topics. That number jumped to 519 in 1969. The sales of Ouija Boards, which had been very low for almost 40 years, also dramatically increased. In 1967 alone, over 2 million Ouija Boards were sold, which was more than the number of Monopoly sets sold that year.⁸⁰

Similar trends were taking place in the UK. During the early 1970s, a younger generation of seekers began to engage with the mostly middle-aged British occult scene. The late 1960s and early 1970s, for example, saw the population of Findhorn, a well-known intentional community in Scotland that focused on alternative forms of spirituality, grow sixfold from a few mostly older residents to a permanent population of 120 which included many younger hippie-types.⁸¹ Findhorn also provides one example of how people and ideas flowed between the new occult scenes in the UK and America. David Spangler, an American clairvoyant and channeler, who was a prominent figure in the New Age Movement in America, joined Findhorn in 1970 and helped contribute to its revitalization.⁸² The late 1960s

⁷⁹ Andrew M. Greeley, "There's a New-Time Religion on Campus," *The New York Times*, June 1, 1969.

⁸⁰ Marcello Truzzi, "The Occult Revival as Popular Culture: Some Random Observations on the Old and the Nouveau Witch," *The Sociological Quarterly* vol. 13, no. 1 (Winter, 1972): 16-19. See also Martin Marty, "The Occult Establishment," *Social Research* vol. 37, no. 2 (Summer 1970): 212-230.

⁸¹ Steven Sutcliffe, *Children of the New Age: A History of Spiritual Practices* (New York: Routledge, 2002), 118.

⁸² Sutcliffe, *Children of the New Age*, 120.

and early 1970s also saw the creation of New Age spaces and publications like Gandalf's Garden, a shop and gathering space for New Age events that also published a magazine by the same name which was dedicated to esoteric subject matter.⁸³ Contemporary polls aimed at judging the extent of belief in the occult and ESP in Britain are also revealing. In a 1971 poll in *New Scientist* aimed at gauging readers' attitudes towards parapsychology, 25% of respondents said that they believed that ESP was an established fact and another 42% said that it was a likely possibility.⁸⁴ A 1972 poll in the *Sunday Times* aimed at gauging readers' participation in the occult revival yielded similar results: 26% of survey respondents said they believed that ESP was an established fact, with another 47% saying it was a likely possibility. 75% of respondents also professed to believe that there was some truth in astrological predictions.⁸⁵

It is hard to say how much increased sales figures in occult books and periodicals, somewhat sensationalized news stories and surveys conducted without much methodological rigor, can say about the actual extent and strength of belief in occult ideas in American and British society during the 1970s. According to sociologist Marcello Truzzi, who wrote a contemporary study of the occult revival, many of the people who engaged with the occult revival did so on a casual basis, treating things like astrology as something more akin to a leisure activity than a serious engagement with occult ideas.⁸⁶ However, narratives claiming that serious interest in ESP and the occult was rapidly spreading were certainly present in the media in the early 1970s, including in publications like *New Scientist* that were prominently

⁸³ Sutcliffe, *Children of the New Age*, 120.

⁸⁴ Christopher Evans, "Parapsychology--What the Questionnaire Revealed," *New Scientist*, January 25, 1973, 209. The results were based on the analysis of 1,400 survey returns out of the 71-72,000 copies of the magazine sold in that month.

⁸⁵ Christopher Evans, "A Question of Belief," *The Sunday Times* (London, England), Sunday, March 26, 1972.

⁸⁶ Truzzi, "The Occult Revival," 22.

involved in the controversy around Geller. This shows that while the occult revival may have not been the monolithic cultural force that some media reports in the early 1970s made it out to be, discourse about its imminent rise was certainly floating around in the orbit of the scientists who critiqued the experiments on Geller and probably influenced how they reacted to them.

The rise of the New Age was not the only troubling discourse which would have been on the minds of Geller's critics. A related discourse around the Counterculture which had formed in the 1960s that claimed that the public was rejecting science in favor of irrational understandings of reality also clearly influenced how critics responded to the experiments at SRI.

The 1970s were a time of pandemic disillusionment in American society. The Watergate scandal and the conflict around the Vietnam War, which reached new heights in 1970 when members of the National Guard fired into a crowd of unarmed students at Kent State University, left many Americans with little faith in the government at the beginning of the decade. People began to question authority of all kinds, including that of physicians, as seen in the dramatic rise in malpractice lawsuits.⁸⁷ The sense of societal cohesion and public responsibility that most Americans felt before the 1960s was also on its last legs, leading people to focus their social and political energies on local politics, and identity-based movements aimed at securing political rights for their ethnicity, those of their sexual orientation or their age group, rather than striving towards some abstract notion of social harmony and rights for all.⁸⁸

According to contemporary cultural commentators, this widespread disillusionment

⁸⁷ Peter N. Carroll, *It Seemed Like Nothing Happened: America in the 1970s* (New Brunswick, NJ: Rutgers University Press, 1990), 240-243.

⁸⁸ Bruce J. Schulman, *The Seventies: The Great Shift in American Culture, Society, and Politics* (New York: Free Press, 2001), 83-87.

with "The System" also led to a rejection of the technology and scientific establishment that supported it. According to these critics, such as Theodore Roszak and Charles Reich, who both published widely popular books on this trend, members of a new American Counterculture came to see the rational planning that had come to dominate American society in the 1950s, with its love of efficiency, war and weapons production, as dehumanizing. This bureaucratic "technocracy," run by powerful scientific experts, dominated business and government and stripped away people's individuality in an attempt to make them into cogs in an efficient, rationally-planned machine-like society.⁸⁹ Reich believed that the people would try to repurpose science and technology to create a society in which people were not alienated from their labor and lived fulfilling lives.⁹⁰ Others, such as Roszak, believed that the rejection of the technocracy involved a total rejection of science and rationality in favor of a subjectivist approach to life that valued feelings and personal experience over efficiency, objectivity and empiricism.⁹¹

Britain experienced a somewhat less radical version of the 1960s, but the hippies and the Counterculture were still a strong presence there.⁹² Ideas about the contours and causes of this youth rebellion similar to Reich and Roszak's also circulated in Britain. *The Times* of London published a seven part series on *The Greening of America*, which excerpted large sections of Reich's book.⁹³ Echoing Roszak, British sociologist Richard Mills also claimed

⁸⁹ Charles A. Reich, *The Greening of America* (New York: Bantam Books, 1971), 64-65 and Theodore Roszak, *The Making of a Counter Culture: Reflections on the Technocratic Society and its Youthful Opposition* (Garden City, N.Y: Doubleday, 1969), 229.

⁹⁰ Reich, *The Greening of America*, 24.

⁹¹ Roszak, *The Making of a Counter Culture*, 50-51.

⁹² Hans Righart, "Moderate Versions of the 'Global Sixties': A Comparison of Great Britain and the Netherlands," *Journal of Area Studies* 6, no. 13 (1998): 82-96.

⁹³ Charles Reich, "The Loss of the American Dream," *The Times* (London, England), Apr 17, 1971, 19; Charles Reich, "How Old America Lost its Roots but Retains its Myths," *The Times* (London, England), Apr 19, 1971, 12; Charles Reich, "The Men with Grey-flannel Minds," *The Times* (London, England), Apr 20, 1971, 14; Charles Reich, "Organization man in search of fulfilment," *The Times* (London, England), Apr 21, 1971, 14; Charles Reich, "A Generation Betrayed," *The Times* (London, England), Apr 22, 1971, 16; Charles Reich,

that hippies rejected time discipline and the sort of mechanized labor and lifestyle that it produced.⁹⁴ In his 1971 hippie manifesto *Play Power*, Richard Neville, the editor of the popular UK countercultural magazine *OZ*, expressed a similar attitude towards straight culture, explaining and advocating for the lifestyle led by hippies who had dropped out of society.⁹⁵

From our vantage point in the present, Reich's assessment of how people viewed science at that time was clearly more accurate than Roszak's. As historian David Kaiser has pointed out, many members of the Counterculture had a strong interest in science, demonstrated by publications like Steward Brand's *Whole Earth Catalog*, which advertised technological solutions, like plans for geodesic domes, designed to help New Age communalists build intentional communities. Some scientists, such as members of the Fundamental Fysiks Group, also sought to integrate ideas drawn from countercultural currents into mainstream science.⁹⁶ However, despite the deficiencies of Roszak's argument, ideas similar to the ones that he expressed about the Counterculture and its rejection of society clearly had currency in the early 1970s. This rhetoric was particularly present in news coverage of the occult revival.

Although most of those interested in the occult engaged with it on a sporadic and casual basis, journalists, echoing Roszak, saw the rising interest in astrology and the occult as a result of widespread disaffection with both science and society. Journalists attributed this

"Plastic Lives in Plastic Homes," *The Times* (London, England), Apr 23, 1971, 16; Charles Reich, "The Flowering of America," *The Times* (London, England), Apr 24, 1971, 15.

⁹⁴ Richard Mills, *Young Outsiders: A Study of Alternative Communities* (New York Pantheon, 1973), 10-11.

⁹⁵ Richard Neville, *Play Power* (London: Paladin, 1971).

⁹⁶ Kaiser, *Hippies*, 701-706. For more on the intersection between science and countercultural ideas see David Kaiser and Patrick McCray, *Groovy Science: Knowledge, Innovation, and American Counterculture* (Chicago: The University of Chicago Press, 2016) and Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2006).

disillusionment to a number of causes. Some claimed that belief in things like astrology and the occult always increased during times of uncertainty, and that the 1970s were uncertain times. Things like the possibility of getting drafted to fight in Vietnam made the future seem arbitrary and unpromising. The occult gave people a sense of control, allowing them to feel like they had some agency to create their own destiny. Advances in science itself, particularly quantum physics, which proposed a counterintuitive picture of how the universe functions, were also seen as a contributing factor to this prevalent sense of unease. Others blamed rising interest in the occult on the failure of science to live up to its potential as a bringer of peace and harmony. The scientific technocracy, with its nuclear-war-mongering and schemes to extract maximum efficiency from workers, was neither peaceful nor harmonious, they said.⁹⁷ In all these cases, rising interest in the occult was seen as part of a larger trend towards public distrust of rationality and science.

Worries about popular interest in the occult and the attendant rejection of science were major factors in *Nature*'s decision to publish Targ and Puthoff's research. The editors of *Nature* published three editorials leading up to the publication of Targ and Puthoff's paper.⁹⁸ The editors claimed that unorthodox ideas that had been gaining popularity at the time, such as acupuncture and Immanuel Velikovsky's off-beat cosmology, were diverting public attention away from what they called "conventional science" towards the "bizarre and magical." Some scientists, who had "turn[ed] their backs on science," were contributing to this dangerous trend by appropriating the authority of science to support such irrational

⁹⁷ "The Occult: A Substitute Faith," *TIME*, June 19, 1972; William Irwin Thompson, "Alternative Realities," *The New York Times*, February 15; Jerry M. Flint, "Rise in Occultism viewed as Revolt Against Science," *The New York Times*, September 10, 1971; Judy Klemesrud, "To Hear the Fashion Crowd Tell It, It's Written in the Stars," *The New York Times*; "Astrology: Fad and Phenomenon," *TIME*, March 21, 1969; du Plessix Grey, "Parapsychology and Beyond;" Greeley, "New-Time Religion."

⁹⁸ "Challenge to Scientists;" "Investigating the Paranormal," 559; "Science Beyond the Fringe," *Nature* vol. 248 (April 12, 1974): 541.

ideas.⁹⁹ While the editors didn't accuse Targ and Puthoff of doing this outright, the decision to publish their paper was largely driven by a desire to quell rumors in the popular press that claimed their work provided compelling support for all of Geller's supposed abilities. The article would clear up these rumors through showing that Targ and Puthoff's results were much more tentative than many thought, particularly about Geller's supposed psychokinetic abilities, which they were not able to observe under controlled conditions.¹⁰⁰ Here we see *Nature* asserting itself as one of the most well-respected journals in the world to prevent the spread of perceived irrational ideas from subverting the authority of science.

Critics responding to Targ and Puthoff's article were also apprehensive about popular irrationalism. According to Martin Raff in his critical letter to *Nature*, "pandemic disillusionment with political and social institutions" had left science and rationality hiding "defensively in a few remaining outposts, while mysticism strides about in its various forms."¹⁰¹ Those who chastised *Nature* and *New Scientist* for publishing Targ and Puthoff's work were also upset because they believed that publication in such prestigious journals would lend undue scientific legitimacy to both Geller and the experiments at SRI, which would further the public trend towards irrationalism.¹⁰² Physicist John Wheeler made similar arguments in his attempt to get the Parapsychological Association disaffiliated from the AAAS, saying the continuing association between the two organizations amounted to the AAAS "prostitute[ing] itself" to public trends in irrational thinking in search of popularity.¹⁰³ Richard Marks and David Kammann flipped this argument into a critique of society,

⁹⁹ "Science Beyond the Fringe," 541.

¹⁰⁰ "Challenge to Scientists," 321.

¹⁰¹ Raff, "Irrationalism and Science," 437.

¹⁰² Raff, "Irrationalism and Science," 437 and Gould, "Gellerbility," 800.

¹⁰³ Martin Gardner, *Science: Good, Bad and Bogus* (Buffalo, N.Y: Prometheus Books, 1981), 185-194.

worrying that popular irrational belief in the paranormal reflected the absence of critical public discourse. They claimed that such uncritical attitudes could have dangerous political consequences, citing the American public's initial lack of skepticism towards President Nixon's claims of innocence during the recent Watergate scandal as an example of a case where lack of critical thinking almost allowed an immoral public figure to get away with a serious crime.¹⁰⁴

In some ways, skeptics in the 1970s were right to say that parapsychology threatened to introduce occult ideas into the scientific domain. During the 1960s, a number of parapsychologists shifted away from Rhine's experimental paradigm and started investigating topics with stronger supernatural associations like reincarnation and haunted houses.¹⁰⁵ Targ and Puthoff themselves were also involved in the occult revival. Both investigators had a longstanding interest in supernormal phenomena. Targ first heard about Geller at a conference on psychic healing he attended at Stanford. Puthoff—along with some of the financial backers of their experiments and some of their test subjects—were Scientologists.¹⁰⁶ Targ and Puthoff also agreed with critics that their experiments were not conventional science, since they investigated topics that had traditionally been labeled as "supernatural." However, Targ and Puthoff believed the incorporation of these subjects into science was not irrational, but was rather an attempt, in the adventurous spirit of the true scientist, to systematically investigate all aspects of nature.¹⁰⁷ Unfortunately for Targ and Puthoff, and the legitimacy of parapsychology as a whole, critics did not see things this way.

The SRI experiments could have done a lot for the scientific credibility of ESP. The

¹⁰⁴ Marks and Kammann, *The Psychology of the Psychic*, 210.

¹⁰⁵ Pratt, *ESP Research Today*, 30-54.

¹⁰⁶ Targ and Puthoff, *Mind-reach*, 135 and Martin Gardner, "Supergull."

¹⁰⁷ Targ and Puthoff, *Mind-reach*, 212.

experiments claimed to have created conditions under which a number of test subjects could reliably and consistently demonstrate their ESP abilities, which was unprecedented in parapsychology. Targ and Puthoff's work also received more attention than any work in academic parapsychology since Rhine's *New Frontiers of the Mind*. However, in the end, instead of providing a sterling example of parapsychological work that legitimated the discipline in the eyes of both scientists and the public, the experiments at SRI ended up hurting parapsychology's reputation. Criticisms that compared parapsychology to superstition, which had largely been absent from the skeptical literature on the subject following Rhine's work in the 1940s, resurfaced due to fears about public disillusionment with science and worries that the SRI experiments represented an incursion of popular irrationality into the sciences. In these critiques, skeptics portrayed parapsychologists as pseudoscientists that were misusing the authority of science to validate their dogmatic belief in the supernatural. In the critical discourse around the experiments at SRI, parapsychology was no longer the nascent, if unpromising, scientific discipline it had been since the 1940s. Instead, it was merely superstition in scientific clothing.

The Beginnings of Professional Skepticism

In addition to reviving old criticisms about the pseudoscientific nature of parapsychology, the Geller controversy also led a number of skeptical scientists and lay supporters of science to organize themselves to prevent people like Targ and Puthoff from appropriating the authority of science to support supernatural belief in the future. Many of these individuals devoted increasingly large portions of their professional lives to critiquing parapsychology and related endeavors.

In 1973 James Randi and Ray Hyman met with Martin Gardner at his home in Oklahoma. During this meeting, the three men founded a short-lived skeptical organization called Sanity in Research (SIR).¹⁰⁸ After philosopher Paul Kurtz and sociologist Martin Truzzi joined forces with Randi, Hyman and Gardner, SIR morphed into the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), which would grow to become the first major skeptical organization in the United States with thousands of members devoted to critically investigating supposed scientific evidence for the existence of the paranormal.¹⁰⁹ CSICOP, and its cohort of dedicated skeptics, would go on to systematically oppose all of parapsychology's future attempts to legitimate itself as a discipline.

There is a long tradition of skepticism of parapsychology and other fringe sciences. In the 19th century, scientific men like Michael Faraday and English physiologist W.B. Carpenter opposed the work of scientists like William Crookes, who claimed to have proven

¹⁰⁸ Daniel Loxton, "Why Is There a Skeptical Movement?" The Skeptics Society, accessed April 1, 2018, <https://www.skeptic.com/downloads/Why-Is-There-a-Skeptical-Movement.pdf>, 66.

¹⁰⁹ SIR went through some short-lived intermediate steps, such as changing its name to Resources for the Scientific Evolution of the Paranormal (RSEP) before turning into CSICOP. For a retrospective account on the forming of CSICOP by Ray Hyman see JamesRandiFoundation, "Preserving Skeptic History Workshop TAM 2013," filmed at The Amazing Meeting, July 11-13, 2013, Las Vegas, NV, accessed April 1, 2018, <https://www.youtube.com/watch?v=4793EWf7eOw>. For published letters on CSICOP's founding see Dana Richards, *Dear Martin, Dear Marcello: Gardner and Truzzi on Skepticism* (Singapore: World Scientific Publishing, 2017).

that psychic phenomena were real.¹¹⁰ The early part of the 20th Century saw the rise of magician-skeptics like Harry Houdini and Nevil Maskelyne, who doggedly exposed well-known mediums of the day.¹¹¹ From the 1880s through the 1920s, psychologists such as Joseph Jastrow and Hugo Münsterberg also mounted critical campaigns against psychical research in the U.S. to disassociate it and its paranormal research topics from psychology, which was struggling to gain scientific legitimacy during that time.¹¹² Later on, in the 1950s, American population geneticist George R. Price wrote a widely referenced piece in *Science* claiming that S.G. Soal's successful telepathy experiments were the result of fraud. A few years later, British psychologist C.E.M. Hansel continued this line of critique in his skeptical book, *ESP: A Scientific Evaluation*, which made similar attacks on Rhine and Soal.¹¹³ CSICOP represented an institutionalization of these sorts of skeptical attitudes on a scale never seen before. CSICOP has its own magazine, the *Skeptical Enquirer*, which focuses on debunking fringe science claims. CSICOP also holds conferences on skepticism and has a pool of skeptical experts ready to provide counterarguments to fringe-science claims made in the scientific and popular media.

Like Geller's critics in the scientific press, many early members of CSICOP, including Gardner, Hyman, Randi and Kurtz, feared that the rising popularity of irrational ideas and the perceived attendant degradation of the public authority of scientific thinking could have dangerous political and social consequences. The Geller controversy was a very

¹¹⁰ Elisabeth Wadge, "A Fair Trial for Spiritualism?: Fighting Dirty in the Pall Mall Gazette" in *Repositioning Victorian Sciences: Shifting Centres in Nineteenth-century Scientific Thinking*, edited by David Clifford (London: Anthem Press, 2006), 95-106; William B Carpenter, "The Radiometer and its Lessons," *Nineteenth Century: A Monthly Review*, April 1877, 242-56; William B Carpenter, "Spiritualism and its Recent Converts," *Quarterly Review*, 131 (1871).

¹¹¹ Houdini, *Amongst the Spirits*; Weatherly and Lionel Alexander, *The Supernatural?*; Mauskopf and McVaugh, *The Elusive Science*, 21-24.

¹¹² Coon, "Testing the Limits," 143-151 and Sommer, "Psychical research," 23-44.

¹¹³ Price, "Science and the Supernatural," 359-367 and Hansel, *ESP: A Scientific Evaluation*.

public representation of this perceived trend towards irrationality and had a direct influence on the careers of these skeptics and the creation of CSICOP.

Martin Gardner and Ray Hyman were both skeptics before they got involved in the controversy around Geller. In 1950, Gardner published his first skeptical article attacking scientists with crankish ideas in *The Antioch Review*.¹¹⁴ This morphed into his 1952 book, *In the Name of Science: An Entertaining Survey of the High Priests and Cultists of Science, Past and Present*, which was republished in 1957 as *Fads and Fallacies in the Name of Science*. In *Fads and Fallacies*, which is now considered a skeptical classic, Gardner attacked a number of fringe ideas, such as Flat Earth Theory and Wilhelm Reich's Orgone Theory, along with ESP.¹¹⁵ Ray Hyman got his start in parapsychological criticism in 1957, when he published a review of S.G. Soal and Frederick Bateman's *Modern Experiments in Telepathy* in the *Journal of the American Statistical Association*. Hyman followed this up with a book that critically evaluated the practice of dowsing in America which he co-wrote with anthropologist Evon Z. Vogt.¹¹⁶

However, while both Hyman and Gardner had written skeptical works before, their level of output and, in Hyman's case, the character of his criticism, changed after their involvement in the Geller controversy. Martin Gardner only wrote a sprinkling of skeptical reviews of books on parapsychology and fringe science in the 20 years between the original publication of *Fads and Fallacies* and the experiments at SRI.¹¹⁷ During the Geller

¹¹⁴ Martin Gardner, "The Hermit Scientist," *The Antioch Review* (Winter, 1950): 4, 47-457.

¹¹⁵ Martin Gardner, *In the Name of Science* (New York: Putnam, 1952) and Martin Gardner, *Fads and Fallacies in the Name of Science: Formerly Published Under the Title in the Name of Science* (New York: Dover Publications, 1957).

¹¹⁶ Ray Hyman, "Review," review of *Modern Experiments in Telepathy* by S.G. Soal and Frederic Bateman, *Journal of the American Statistical Association* vol. 52, No. 280 (December 1957): 607-610. Dowsers supposedly have the ability to determine where there is water under the ground using a forked stick or wire. Evon Z. Vogt and Ray Hyman, *Water Witching USA* (Chicago: University of Chicago Press, 1959).

¹¹⁷ "Martin Gardner's Books on Skepticism," accessed April 1, 2018, <http://martin-gardner.org/SkepBooks.html>.

controversy, Gardner's skeptical output increased greatly. He wrote two short books under the pen name "Uriah Fuller," which mocked the experiments at SRI and described conjuring tricks that Geller may have used to fool investigators.¹¹⁸ He also wrote blistering reviews for the *New York Review of Books* of a number of books supporting Geller, including Puharich's *Uri* and Targ and Puthoff's *Mindreach*.¹¹⁹ In an article in *The New York Times*, Gardner also helped publicize John Wheeler's plea to get the Parapsychological Association disaffiliated from the AAAS.¹²⁰ After the Geller controversy, Gardner went on to publish eight more skeptical books, many of which compiled material from "Notes of a Psi-Watcher" (later renamed "Notes of a Fringe-Watcher"), his regular column in *The Skeptical Enquirer*, CSICOP's magazine, which he began writing in 1983.¹²¹

Ray Hyman's skeptical output and attitude towards parapsychology also changed after the Geller controversy.¹²² In his 1957 review of *Modern Experiments in Telepathy*, for example, Hyman was complimentary about Soal and Bateman's methodology. Hyman's work on dowsing took a similar tone. At the end of their book, *Water Witching, USA*, Hyman and Vogt concluded that while dowsing is not real, the practice should not be stopped because it helps farmers deal with feelings of uncertainty about where and when to drill new

¹¹⁸ Fulves, *Confessions of a Psychic* and Fulves, *Further Confessions of a Psychic*.

¹¹⁹ Gardner, "Supergull" and Martin Gardner, "Paranonsense," review of *Superminds: A Scientist Looks at the Paranormal* by John Taylor and *The Magic of Uri Geller* by The Amazing Randi, *The New York Review of Books*, October 30, 1975.

¹²⁰ Gardner, *Science: Good, Bad and Bogus*, 185-206.

¹²¹ "Martin Gardner's Books on Skepticism," accessed April 1, 2018, <http://martin-gardner.org/SkepBooks.html>.

¹²² See his collection of skeptical writings in Ray Hyman, *The Elusive Quarry: A Scientific Appraisal of Psychical Research* (Buffalo, N.Y.: Prometheus Books, 1989). Hyman was also a referee for Targ and Puthoff's article in *Nature*. See Barry Brilliant, "Jerry Andrus and Ray Hyman on Uri Geller," segment of Telescope television program from 1973, accessed April 1, 2018, <https://www.youtube.com/watch?v=2iSVye8cEJE&t=923s.>, 15:20.

wells.¹²³ In critiquing Geller, Hyman took a different tone. In the 1973 *TIME* article discussed above, Hyman was quoted saying that Targ and Puthoff's work was "the most uncontrolled and poorly recorded data I have ever encountered."¹²⁴ He also blasted Targ and Puthoff in his review of their book, *Mind-Reach*, and wrote a very unflattering review of Charles Panati's *The Geller Papers*, an edited collection of scientific papers on Geller.¹²⁵ While Hyman would continue to advocate for empirical criticism—rather than the *a priori* rejection of ESP—after the Geller controversy, his attitude towards parapsychology remained decidedly negative.¹²⁶

For other skeptics, notably James Randi, the controversy around Geller would mark the beginning of their skeptical careers. Randi was one of Geller's most vocal critics and organized an extensive publicity campaign against him. Randi publicly replicated many of Geller's feats on a number of major television shows in an attempt to show that they were nothing more than stage magic. He also infiltrated John Taylor's parapsychological laboratory at King's College, London. While pretending to interview Taylor for a news story on his work on Geller and psychic schoolchildren, Randi surreptitiously bent a number of metal objects and hid them around Taylor's lab. In his book, *The Truth about Uri Geller*, Randi revealed his little hoax and claimed that Taylor's failure to detect what he had been doing indicated that he would be unable to detect if Geller or his other test subjects had been

¹²³ Hyman, "Review of Modern Experiments in Telepathy," 609-610 and Vogt and Hyman, *Water Witching USA*, 211-212.

¹²⁴ "The Magician and the Think Tank," *TIME*, March 12, 1973.

¹²⁵ Panati, *The Geller Papers*, 300-307 and "Psychics and Scientists: 'Mind-Reach' and Remote Viewing," *The Humanist* (May-June 1977), 16-20.

¹²⁶ See for example, "The Case of Parapsychology" and "Psi Experiments: Do the Best Parapsychological Experiments Justify the Claims of Psi?" in Hyman, *The Elusive Quarry*. For Hyman on moderation in criticism see "Proper Criticism" in *The Elusive Quarry*.

cheating.¹²⁷ Randi also helped produce an Italian TV documentary starring Yasha Katz, Geller's former manager, who claimed that Geller's powers were fake.¹²⁸

The Geller controversy and the ire it drew from Randi, Hyman and Gardner also directly contributed to the founding of CSICOP. Randi and Hyman first encountered each other when they both appeared in the 1973 *TIME* article criticizing Geller and the experiments at SRI. Soon after that, Randi contacted Hyman about the possibility of starting a skeptical organization aimed at combatting popular interest in figures like Geller. They then invited their mutual friend Martin Gardner to join them, kicking off the process that would lead to the creation of CSICOP.¹²⁹

Like many of the skeptical scientists previously discussed, Gardner, Hyman, Randi and Paul Kurtz, a philosopher and secular humanist who was also instrumental in the founding of CSICOP, were nervous about rising popular interest in the occult and its cultural and political implications. Martin Gardner was particularly opposed to quack doctors who convinced people to forgo lifesaving medical treatments in favor of bunk alternative medicines. He also repeatedly claimed that the Nazi regime in Germany was presaged by a sharp rise in occult belief in German society, implying that the spread of occult belief could also lead to fascism in America.¹³⁰ For Ray Hyman, widespread belief in the occult was merely a symptom of a larger trend towards irrational thinking in American society. People could only believe that psychic phenomena were scientifically proven if they had a poor grasp on science and rational thinking. Many people in America, including its leaders,

¹²⁷ Randi, *The Truth about Uri Geller*, 396-440.

¹²⁸ James Randi, "Geller a Fake Says Ex-manager," *New Scientist*, April 6, 1978, 11.

¹²⁹ Loxton, "Why Is There a Skeptical Movement?" 66 and D.J. Grothe, "The Life of an Expert Skeptic, Part 1," For Good Reason Podcast, YouTube video, accessed April 8, 2018, <https://www.youtube.com/watch?v=-8VAOzcXGc4&t=831s>, 7:00-12:00.

¹³⁰ Gardner, *Fads and Fallacies*, 7. See also Marks and Kammann, *The Psychology of the Psychic*, 3 and Martin Gardner, *The Whys of a Philosophical Scrivener* (New York: W. Morrow, 1983), 54.

believed in the paranormal. Hyman claimed that people who entertain such irrational beliefs cannot govern effectively. His desire to combat this perceived public trend towards irrationality and promote the spread of critical thinking drove his skepticism.¹³¹

James Randi's motivations were slightly different. There is a long tradition of paranormal skepticism in the conjuring profession, stretching back to the debunking campaigns of Harry Houdini and Nevil Maskelyne near the beginning of the 20th Century. Randi saw himself as part of this tradition. He believed that his expertise as a magician made him uniquely suited to evaluate the reality of paranormal claims. That expertise, he believed, comes with a responsibility to protect the public from psychic charlatans who use magic tricks to bilk money out of naïve psychic believers.¹³² This magician's morality also likely influenced Hyman and Gardner's attitudes towards debunking. Both men are well-known amateur magicians and Hyman has said that, like Randi, he sees debunking as an integral part of what magicians should do.¹³³ Unlike Gardner and Hyman however, Randi was also making something of a career move in observing this old magical tradition. Randi was an expert escape artist, who modeled his career on Houdini's. He imitated many of Houdini's signature escapes, such as breaking out of a giant metal can filled with water, sometimes using Houdini's original equipment. Being an escape artist, however, is a young man's game. After an almost fatal botched water escape, Randi decided to call it quits and soon embarked on a new career as a professional skeptic and debunker. Here, too, he followed the same path

¹³¹ Ray Hyman, "Epilogue" in *The Elusive Quarry*, 447 and Ray Hyman, "Occult Healing" in *The Elusive Quarry*, 346.

¹³² Randi, *The Truth About Uri Geller*, 243-245 and "James Randi AMA," Reddit, accessed April 1, 2018 https://www.reddit.com/r/IAmA/comments/2y1vzh/i_am_james_the_amazing_randi_skeptic_neerdowell/.

¹³³ While Gardner did not often perform publicly, he published many magic tricks in magician's periodicals like *Sphinx* and wrote a number of books related to magic "Martin Gardner—Magician," accessed April 1, 2018, <http://martin-gardner.org/MAGICIAN.html>. Ray Hyman worked as a professional magician for a time and has been featured on the cover of *The Linking Ring*, the magazine of the International Brotherhood of Magicians. "Cover," *The Linking Ring* vol. 32, No. 4, June 1952 and 502 Conversations, "502 Conversations with Ray Hyman, James Randi, and James Alcock," YouTube video, accessed April 1, 2017, <https://www.youtube.com/watch?v=D9Ey62oWyQ4&t=923s>.

as Houdini. When Houdini reached a similar point in his career, he began aggressively debunking mediums, in part as a publicity bit to maintain his cachet.¹³⁴

Paul Kurtz, who served as the initial co-chair of CSICOP, had similar reservations about popular belief in the paranormal. While Kurtz was not heavily involved with the Geller controversy, he was at the epicenter of another contemporary clash between skeptics and fringe science. In 1975 Kurtz helped organized "Objections to Astrology," a statement signed by 192 scientists stating that there was no scientific support for astrology, which had seen a recent surge in popularity. The statement blamed the rising interest in this irrational subject on the many newspapers that had started carrying astrology columns, calling for them to include a disclaimer next to their daily horoscopes that said they were only for entertainment value.¹³⁵ Kurtz believed that popular fascination with the paranormal reflected what he called the "transcendental temptation:" the tendency for humans to assign magical causes to phenomena they do not understand. Kurtz believed this kind of thinking distracts from real world problems and efforts to solve them using science. According to Kurtz, such magical thinking may even lead to a return to the benighted ages when we relied on the lies of religious myths and superstition to understand reality.¹³⁶

CSICOP was created largely to address the worries Hyman, Gardner, Randi and Kurtz had about the dangers of irrational thinking and the perceived rise in its prevalence in society in the 1970s. This concern was reflected in CSICOP's initial activities, which consisted of campaigns to combat the uncritical portrayal of the paranormal in the media. In 1977,

¹³⁴ Adam Higginbotham, "The Unbelievable Skepticism of the Amazing Randi," *The New York Times Magazine*, November 7, 2014, accessed April 1, 2018, <https://www.nytimes.com/2014/11/09/magazine/the-unbelievable-skepticism-of-the-amazing-randi.html>.

¹³⁵ Bart J. Bok and Lawrence E. Jerome, *Objections to Astrology* (Buffalo, N.Y: Prometheus Books, 1975).

¹³⁶ Paul Kurtz, *The Transcendental Temptation: A Critique of Religion and the Paranormal* (Buffalo, NY: Prometheus Books, 1991), 31-44 and 1113-1188.

CSICOP filed a complaint with the FCC under the Fairness Doctrine about *Exploring the Unknown*, a program on NBC which CSICOP claimed portrayed ESP as scientifically proven without giving equal time to a skeptical take on the phenomenon. In another early push, CSICOP reiterated the call in "Objections to Astrology" for newspapers to include a disclaimer alongside their daily horoscope columns.¹³⁷ Hyman, Gardner, Randi and Kurtz's dedication to fighting fringe science was also the source of early conflicts within the organization. Marcello Truzzi, a sociologist working at Michigan State University, was one of the original founders of CSICOP, serving as its co-chair with Kurtz and as editor of *The Zetetic*, CSICOP's academic journal. However, it soon became clear that Truzzi had a different vision for CSICOP and *The Zetetic* than its other founders. Truzzi wanted CSICOP and *The Zetetic* to be an academic forum where both skeptics and paranormal believers could debate. This only became clear to the other founders after they discovered that the first issue of *The Zetetic* contained an article that was critical of Kurtz's attack on astrology. In response, the other founders told Truzzi that they primarily saw CSICOP as a means to draw attention to the skeptical take on the paranormal, which had been neglected in recent uncritical media reports. Truzzi soon resigned from CSICOP and *The Zetetic* was transformed into the *Skeptical Inquirer*, a magazine designed to communicate the skeptical view on the paranormal to a popular audience.¹³⁸

Gardner, Hyman, Randi and Kurtz worried that the popularity of what they perceived

¹³⁷ Under the Fairness Doctrine (1949-1987), the FCC required that radio and television broadcasts provide contrasting viewpoints on important issues of public concern. The FCC rejected CSICOP's complaint. Boyce Rensberger, "Panel Fears Vogue for the Paranormal," *The New York Times*, August 10, 1977 and CSICOP and the George P. Hansen, "Skeptics: An Overview," *The Journal of the American Society for Psychological Research* vol. 86, no. 1 (January 1992): 44. CSICOP kept up Kurtz's campaign to get newspapers to include disclaimers with their astrology columns. By 2001 they had convinced over 60 papers to carry a disclaimer with their horoscope column. Paul Kurtz, "A Quarter Century of Skeptical Inquiry: My Personal Involvement," originally published in *Skeptical Inquirer* vol 25.4, July/August 2001, accessed April 1, 2018, https://www.csicop.org/si/show/quarter_century_of_skeptical_inquiry_my_personal_involvement.

¹³⁸ JamesRandiFoundation, "Preserving Skeptic History Workshop," 59:00-1:08.

as irrational knowledge-making endeavors, like those at SRI, represented a public rejection of rational thinking in favor of occult ideas. These worries motivated them to actively criticize parapsychologists and contribute to the boundary-work aimed at preventing them from misappropriating the authority of science to lend support to the existence of ESP. This new breed of skeptics provided concerted opposition to parapsychologists' efforts to break into the scientific mainstream on par with the most aggressive attacks on the discipline in its history. Like the criticisms of the experiments on Geller in the scientific press, which compared parapsychology to popular superstition, the creation of CSICOP and its army of hardcore skeptics marked a radical departure from the critical, but encouraging, response to parapsychological publications in the 1960s. The rise of these new forms of parapsychological skepticism and their close ties to anxieties about the popularity of occult ideas demonstrates that worries about the wider societal effects of well-publicized fringe science can be a key factor driving boundary-making efforts to mark such outside knowledge-making practices as pseudoscience.

Conclusion: Parapsychology in the 1970s and Historicism in the Demarcation Debate

The parapsychological research program at SRI did not end after the initial wave of negative criticism following Targ and Puthoff's publication in *Nature*. A few successful replications of their experiments were published in *IEEE Spectrum*, the journal of the Institute of Electrical and Electronics Engineers.¹³⁹ In spite of all the negative criticism directed at their work, Targ and Puthoff also managed to attract a number of defense-related organizations that were interested in the possible military applications of their research, including the CIA and the Defense Intelligence Agency. Targ and Puthoff continued working at SRI until the mid-1980s under the auspices of these organizations, and parapsychological work continued at SRI until a congressional hearing shut the program down in 1995.¹⁴⁰ However, despite the longevity of this research program, it lived within the world of secret military science and did not generate any more papers in major mainstream scientific journals after those few initial replications appeared in *IEEE Spectrum*. In the years after the SRI controversy, publishing in mainstream journals would become more challenging for parapsychologists more generally. Following the Geller controversy, both the editors of *Science* and *IEEE Spectrum* said they would no longer accept submissions on

¹³⁹ Russell Targ and Harold Puthoff, "Information Transmission Under Conditions of Sensory Shielding," *Communications Society* vol. 13, no. 1 (January 1975): 12-19; T. W. Whitson, D. N. Bogart, J. Palmer and C. T. Tart, "Preliminary Experiments in Group "Remote Viewing"," *Proceedings of the IEEE* vol. 64, no. 10 (Oct. 1976): 1550-1551; H. E. Puthoff and R. Targ, "A Perceptual Channel for Information Transfer Over Kilometer Distances: Historical Perspective and Recent Research," *Proceedings of the IEEE* vol. 64, no. 3 (March 1976): 329-354.

¹⁴⁰ Douglas Waller, "The vision thing," *TIME*, December 11, 1995, 48; Michael D. Mumford, et al., "Evaluation of Remote Viewing: Research and Applications," report prepared by The American Institutes for Research, September 29, 1995, accessed April 1, 2018, <https://www.cia.gov/library/readingroom/document/cia-rdp96-00791r000200180006-4>; Ray Hyman, "Preliminary Evaluation of SRI/SAIC Anomalous Mental Phenomena Program," American Institutes for Research, August 29, 1995, accessed April 1, 2018, <https://www.cia.gov/library/readingroom/document/cia-rdp96-00789r003200290001-5>. The United States Government has funded a number of parapsychological investigations in addition those at SRI. For popular histories of these efforts see Jacobsen, *Phenomena* and Jon Ronson, *The Men Who Stare at Goats* (New York: Simon & Schuster, 2004).

parapsychology. *Nature* said it would accept papers on ESP, but only if the findings were negative.¹⁴¹

CSICOP and its skeptical members also caused new problems for parapsychologists. The most impactful of these activities were public debunking efforts which provided evidence against the reality of paranormal phenomena and questioned the competence of the scientists who studied them. From 1979 to 1983, James Randi carried out what he dubbed "Project Alpha." In Project Alpha, Randi planted two young magicians as test subjects in a well-funded parapsychological research program at Washington University in St. Louis. In 1983, he publicly revealed the hoax, discrediting the lab.¹⁴² In the late 1980s, Ray Hyman, along with James Alcock, another prominent CSICOP member, took part in a National Research Council investigation that claimed parapsychologists have never provided convincing evidence for ESP. Ray Hyman also participated in the congressional investigation into the continuing parapsychology research program at SRI which finally led to the closure of the parapsychology lab there in 1995.¹⁴³ Hyman, along with Martin Gardner and other members of CSICOP also continued to critique parapsychology in the scientific and popular

¹⁴¹ For a statement by the editor of *Science* to this effect in response to Marks and Kammann's attempt to publish their negative findings on ESP see Marks and Kammann, *The Psychology of the Psychic*, 151-152. For the position of *Nature's* editors see Harry M. Collins and Trevor J. Pinch, "The Construction of the Paranormal: Nothing Unscientific is Happening," *The Sociological Review* 27, no. 1 (1979): 259. The editors of *IEEE Spectrum* continued to have an encouraging attitude towards ESP until at least 1982 when an invited paper on this topic appeared. See Robert G. Jahn, "The Persistent Paradox of Psychic Phenomena: An Engineering Perspective," *Proceedings of the IEEE* 70, no. 2 (February, 1982): 136-170. However, in the post-script to a skeptical 1986 article by Ray Hyman, which was a delayed response to this earlier invited article, the journal said it was no longer interested in the topic. Ray Hyman, "Parapsychological Research: A Tutorial Review and Critical Appraisal," *Proceedings of the IEEE* 74, no. 6 (June, 1986): 823-849.

¹⁴² William J. Broad, "Magician's Effort to Debunk Scientists Raises Ethical Issues," *The New York Times*, February 15, 1983.

¹⁴³ For the NRC study, see National Research Council, "In the Mind's Eye: the origins of American psychology" (Washington, DC: National Academies Press, 1992). For parapsychologists' criticism of the report see John A. Palmer, Charles Honorton, and Jessica Utts, "Reply to the National Research Council Study on Parapsychology," *American Society for Psychical Research*, 1989. For Hyman's involvement with the closure of the parapsychology lab at SRI in 1995 see Michael D. Mumford, "Evaluation of Remote Viewing" and Ray Hyman, "Preliminary Evaluation of SRI/SAIC."

press.¹⁴⁴ CSICOP members would also weigh in on other issues related to fringe science. In the 1980s, for example, Randi was part of a team that also included John Maddox, the editor of *Nature*, that investigated and helped to discredit French immunologist Jacques Benveniste's experiments on homeopathy.¹⁴⁵

As for Uri Geller, he continued to fight the accusations made against him during the debate about the validity of the SRI experiments for years after the controversy had died down. Up through the 1990s, Geller initiated lawsuits against James Randi for his supposed libelous portrayal of Geller in his book, *The Truth About Uri Geller*, and against Prometheus books, which published Randi's book and others that were critical of Geller's abilities.¹⁴⁶ Geller did not win these lawsuits, but in the grander scheme of things this was not such a loss for him. Geller continues to benefit from his supposed powers, and reportedly charged hefty fees for dowsing for oil and mining companies in the years following the SRI report. He has also hosted a number of television shows including *The Next Uri Geller*, a reality show advertised as the search for Geller's psychic successor.¹⁴⁷ Geller's continuing popularity shows that successful boundary-making efforts directed at fringe science can discredit such alternative knowledge-making practices in the eyes of the scientific community without necessarily affecting how the wider public views the phenomena that they seek to explain.

This paper has helped locate a key shift in the legitimacy of parapsychology that took

¹⁴⁴ Martin Gardner, "Paranormal Companionship," *The New York Review of Books*, September 29, 1988, accessed April 1, 2018, <http://www.nybooks.com/articles/1989/02/16/paranormal-companionship/> and Ray Hyman, "Parapsychological Research: A Tutorial Review and Critical Appraisal," *Proceedings of the IEEE* 74(6): 823-849.

¹⁴⁵ Alter Sullivan, "Water that has a Memory? Skeptics Win Second Round," *The New York Times*, Jul 27, 1988, accessed April 1, 2017, <https://www.nytimes.com/1988/07/27/us/water-that-has-a-memory-skeptics-win-second-round.html>.

¹⁴⁶ Kurtz, "A Quarter Century of Skeptical Inquiry."

¹⁴⁷ John Chadwick, "International Mining the Geller Effect on Exploration," accessed April 1, 2018, <http://www.urigeller.com/international-mining/> and "The Next Uri Geller," accessed April 1, 2018, <http://www.urigeller.com/the-next-uri-geller/>.

place in the early 1970s. During the debate around the experiments on Uri Geller's abilities at SRI, critics shifted from treating parapsychology as a fledgling—if problematic—science, to portraying it as a superstitious pseudoscience. Critics' fears about the rising tide of irrationality shifted how they treated parapsychology. Instead of simply critiquing parapsychologists' methodology to help improve their experimental technique as they had done following Rhine's work in the 1930s, critics portrayed the experiments at SRI, and parapsychology more generally, as a pseudoscience in which credulous investigators tried to curry scientific support for their superstitious beliefs. This analysis has shown the strengths of taking the historicist approach to the demarcation problem that Michael Gordin has proposed, which uses boundary-making controversies to investigate how the wider cultural and social context surrounding scientists affects their attitudes about what constitutes good science.¹⁴⁸ Investigating the controversy around the experiments at SRI has allowed me to trace the contours of how scientists responded to the occult revival in popular American culture in the 1970s, showing that previous historians have not paid adequate attention to the resistance skeptical scientists directed against scientific research into New Age topics like ESP.

However, in spite of the skeptical resistance to the occult revival and the experiments at SRI, parapsychology is still with us today, albeit as a small-scale endeavor that exists outside the realm of mainstream science. As R. Lawrence Moore has pointed out, parapsychology will probably continue to be with us, since the population at large has a perennial interest in psychic phenomena.¹⁴⁹ Parapsychology and its still-ongoing quest for

¹⁴⁸ Gordin, *The Pseudoscience Wars*.

¹⁴⁹ Moore, *In Search of White Crows*, 242-243. Moore seems to be right, at least as of 2001 when a Gallup poll showed 50% of Americans believe in ESP. E. Asprem, "Parapsychology: Naturalizing the Supernatural, Re-enchanting Science," in *Handbook of Religion and the Authority of Science*, edited by James R. Lewis and Olav Hammer (Brill: Boston, 2011), 664.

legitimacy will in turn continue to provide case studies for historians and sociologists of science interested in understanding the demarcation problem and how the scientific community deals with knowledge-makers outside of mainstream science that seek to gain scientific legitimacy for their research.

Bibliography

Primary Sources

502 Conversations. "502 Conversations with Ray Hyman, James Randi, and James Alcock." YouTube video, accessed April 1, 2017

<https://www.youtube.com/watch?v=D9Ey62oWyQ4&t=923s>.

Alexander, Weatherly and Lionel. *The Supernatural? with Chapter on Oriental Magic, Spiritualism, and Theosophy, by J. N. Maskelyne*. Cambridge, UK: University Press, 1892.

"Another Pretty Flame." *Nature* vol. 241 (February 2, 1973): 300.

Barry Brilliant. "Jerry Andrus and Ray Hyman on Uri Geller." Segment of Telescope television program from 1973, accessed April 1, 2018, <https://www.youtube.com/watch?v=2iSVye8cEJE&t=923s>, 15:20.

Baron, Alan and Thomas G. Stampfl. "A Note on "Long-Distance ESP: A Controlled Study." *Journal of Abnormal Psychology* 78, no. 3 (1971): 280-283.

Bok, Bart J. and Lawrence E. Jerome. *Objections to Astrology*. Buffalo, N.Y: Prometheus Books, 1975.

Carpenter, William B. "The Radiometer and its Lessons." *Nineteenth Century: A Monthly Review* (April 1877).

Carpenter, William B. "Spiritualism and its Recent Converts." *Quarterly Review*, 131 (1871).

Chadwick, John. "International Mining the Geller effect on Exploration." Accessed April 1, 2018. <http://www.urigeller.com/international-mining/>.

"Challenge to Scientists." *Nature* vol. 246 (December 7, 1973): 321.

Christopher, Milbourne. *Houdini: The Untold Story*. New York: Crowell, 1969.

Christopher, Milbourne. *Mediums, Mystics and the Occult*. New York: T. Y. Crowell, 1975.

"Cover." *The Linking Ring* vol. 32, No. 4, June 1952.

Dingwall, E. J. "Current Progress in Psychical Research." Review of *Modern Experiments in Telepathy*, by S.G. Soal and F. Bateman, *A New Approach to Psychical Research*, by Antony Flew and *Psychical Research Today* by D.J. West. *Nature* 175, no. 4461 (April 30, 1955): 741.

Dommanget, Jean. "Guest Column: The Comite Para—A European Skeptics Committee." *Journal of Scientific Exploration* Vol. 7, No. 3. (1993): 317-321.

- Duane, T. D. and Thomas Behrendt. *Extrasensory Electroencephalographic Induction between Identical Twins*. *Science* vol. 150, no. 3694 (Oct. 15, 1965): 367.
- Evans, Christopher. "Parapsychology--What the Questionnaire Revealed." *New Scientist*. January 25, 1973, 209.
- Farge, E. J. "Parapsychology." *Nature* 220, no. 5165 (October 26, 1968): 412.
- Fienberg, Stephen and Anthony Robertson. "Parapsychology." *Nature* 221, no. 5181 (February 15, 1969): 687-688.
- Fremlin, J. H. "Irrationalism and Science." *Nature* 252, no. 5485 (December 20/27, 1974): 629.
- Fuller, Uriah and Karl Fulves. *Confessions of a Psychic: The Secret Notebooks of Uriah Fuller*. Teaneck, NJ: K. Fulves, 1975.
- Fulves, Karl. *Further Confessions of a Psychic: The Secret Notebooks of Uriah Fuller*. Teaneck, NJ: K. Fulves, 1980.
- Gardner, Martin. *In the Name of Science*. New York: Putnam, 1952.
- Gardner, Martin. *Fads and Fallacies in the Name of Science: Formerly Published Under the Title in the Name of Science*. New York: Dover Publications, 1957.
- Gardner, Martin. *Science: Good, Bad and Bogus*. Buffalo, N.Y.: Prometheus Books, 1981.
- Gardner, Martin. "The Hermit Scientist." *The Antioch Review*. Winter, 1950: 447-457.
- Gardner, Martin. *The Whys of a Philosophical Scrivener*. New York: W. Morrow, 1983.
- Gould, Donald. "Gellerbility." *New Scientist*, December 13, 1973, 800.
- Grim, Patrick, ed. *Philosophy of Science and the Occult*. Albany, NY: SUNY Press, 1982.
- Grothe, D.J. "The Life of an Expert Skeptic, Part 1." For Good Reason Podcast. YouTube video, accessed April 8, 2018, <https://www.youtube.com/watch?v=-8VAOzcXGc4&t=831s>.
- Hanlon, Joseph. "Uri Geller and Science." *New Scientist*, Oct 31, 1974, 170-185.
- Hansel, C.E.M. *ESP: A Scientific Evaluation*. New York: Scribner, 1966.
- Hansel, C. E. M. "ESP: Deficiencies of Experimental Method." *Nature* 221, no. 5186 (March 22, 1969): 1171-1172.
- Hansen, George P. "CSICOP and the Skeptics: An Overview." *The Journal of the American Society for Psychological Research* vol. 86, no. 1 (January 1992): 19-63.
- Hasted, J.B. et al. and John Taylor. "News." *Nature* vol. 254 (April 10, 1975): 470-473.

- Houdini, Harry. *A Magician Among the Spirits*. Cambridge, UK: Cambridge University Press, 2011.
- Hyman, Ray. "Review." Review of *Modern Experiments in Telepathy*, by S.G. Soal and F. Bateman. *Journal of the American Statistical Association* vol. 52, no. 280 (December, 1957): 607-610.
- Hyman, Ray. "Parapsychological research: A Tutorial Review and Critical Appraisal." *Proceedings of the IEEE* 74, no. 6 (June, 1986): 823-849.
- Hyman, Ray. *The Elusive Quarry: A Scientific Appraisal of Psychological Research*. Buffalo, N.Y: Prometheus Books, 1989.
- Hyman, Ray. "Preliminary Evaluation of SRI/SAIC Anomalous Mental Phenomena Program." American Institutes for Research. August 29, 1995. Accessed April 1, 2018, <https://www.cia.gov/library/readingroom/document/cia-rdp96-00789r003200290001-5>.
- "Investigating the Paranormal." *Nature* vol. 251 (October 18, 1974): 559-560.
- Jahn, Robert G. "The Persistent Paradox of Psychic Phenomena: An Engineering Perspective." *Proceedings of the IEEE* 70, no. 2 (February 1982): 136-170.
- "James Randi AMA." Reddit. Accessed April 1, 2018 https://www.reddit.com/r/IAmA/comments/2y1vzh/i_am_james_the_amazing_randi_skeptic_neerdowell/.
- JamesRandiFoundation. "Preserving Skeptic History Workshop TAM 2013." Filmed at The Amazing Meeting. July 11-13, 2013. Las Vegas, NV, accessed April 1, 2018, <https://www.youtube.com/watch?v=4793EW7eOw>.
- Kurtz, Paul. *The Transcendental Temptation: A Critique of Religion and the Paranormal*. Buffalo, NY: Prometheus Books, 1991.
- "Martin Gardner's Books on Skepticism." Accessed April 1, 2018, <http://martin-gardner.org/SkepBooks.html>.
- Marks, David and Richard Kammann. "Information Transmission in Remote Viewing Experiments." *Nature* vol. 274 (Aug 17,1978): 680-681.
- Marks, David and Richard Kammann. *The Psychology of the Psychic*. Buffalo, N.Y: Prometheus Books, 1980.
- Marks, David. "Sensory Cues Invalidate Remote Viewing Experiments." *Nature* vol. 292 (July 9, 1981): 177.
- Marks, David and Christopher Scott. "Remote Viewing Exposed." *Nature* vol. 319 (Feb 6, 1986): 444.

- Marty, Martin. "The Occult Establishment." *Social Research* vol. 37, no. 2 (Summer 1970): 212-230.
- McMichael, Morton, Robert L. Meyer, Jim Gerrish, Steven Okulewicz, T. V. Wolansky, Phyllis Rathbun, Frank J. Tipler, Michael Nass, and Robert Carroll. "Geller and Magicians." *Science News* 106, no. 5 (August, 1974): 78-79.
- Mills, Richard. *Young Outsiders: A Study of Alternative Communities*. New York Pantheon, 1973.
- Moss, T. and J. A. Gengerelli. "Telepathy and Emotional Stimuli: A Controlled Experiment." *Journal of Abnormal Psychology* 72, no. 4 (1967): 341-348.
- Moss, Thelma, Alice F. Chang, and Marc Levitt. "Long-Distance ESP: A Controlled Study." *Journal of Abnormal Psychology* 76, no. 2 (1970): 288-294.
- Moss, Thelma. "Reply to Baron and Stampfl's: A Note on 'Long-Distance ESP: A Controlled Study'." *Journal of Abnormal Psychology* 78, no. 3 (1971): 284-285.
- Moss, Thelma. *The Body Electric: A Personal Journey into the Mysteries of Parapsychological Research, Bioenergy, and Kirlian Photography*. New York: St. Martin's Press, 1979.
- National Commission on the Causes and Prevention of Violence. "Final Report of the National Commission on the Causes and Prevention of Violence." U.S. Government Printing Office. December, 10, 1969.
- National Research Council. "In the Mind's Eye: Enhancing Human Performance." Washington, DC: National Academies Press, 1992.
- Nelson, Marie C. "Contributions On Parapsychology." *Psychoanalytic Review* vol. 56, issue 1 (Spring 1969): 3-145.
- Neville, Richard. *Play Power*. London: Paladin, 1971.
- "New Spoonbender Puts Psychic Researchers in a Magic Twist." *New Scientist*, July 31, 1975.
- Ostrander, Sheila and Lynn Schroeder. *Psychic Discoveries Behind the Iron Curtain*. Englewood Cliffs, NJ: Prentice-Hall, 1970.
- Mumford, Michael D., et al. "Evaluation of Remote Viewing: Research and Applications." Report prepared by The American Institutes for Research. September 29, 1995. Accessed April 1, 2018, <https://www.cia.gov/library/readingroom/document/cia-rdp96-00791r000200180006-4>.
- Palmer, John A., Charles Honorton, and Jessica Utts. "Reply to the National Research Council Study on Parapsychology." *American Society for Psychical Research*, 1989.

- Panati, Charles. *The Geller Papers: Scientific Observations on the Paranormal Powers of Uri Geller*. Boston: Houghton Mifflin, 1976.
- Pinch, Trevor J. "Normal Explanations of the Paranormal: The Demarcation Problem and Fraud in Parapsychology." *Social Studies of Science* 9, no. 3 (August, 1979): 329-348.
- Pratt, J.G., et al. "Identification of Concealed Randomized Objects Through Acquired Response Habits of Stimulus and Word Association." *Nature* 220, October 5, 1968: 89-91.
- Pratt, J.G. and I. Stevenson. "Identification of Concealed Randomized Objects." *Nature* 225, no. 5230 (January 24, 1970): 394.
- Pratt, J. Gaither. *ESP Research Today: A Study of Developments in Parapsychology Since 1960*. Metuchen, NJ: Scarecrow Press, 1973.
- Pratt, J. Gaither. *Parapsychology: An Insider's View of ESP*. Metuchen, NJ: Scarecrow Press, 1977
- Price, George R. "Science and the Supernatural." *Science* 122, no. 3165 (August 26, 1955): 359-367.
- Price, George R. "Apology to Rhine and Soal." *Science* 175, no. 4020 (January 28, 1972): 358-359.
- Puharich, Andrija. *Uri: A Journal of the Mystery of Uri Geller*. New York, New York: Bantam Books, 1975.
- Puthoff, H. E. and R. Targ. "A Perceptual Channel for Information Transfer Over Kilometer Distances: Historical Perspective and Recent Research." *Proceedings of the IEEE* vol. 64, no. 3 (March 1976): 329-354.
- Puthoff, H. and R. Targ. "Rebuttal of Criticisms of Remote Viewing Experiments." *Nature* vol. 292 (Jul 23, 1981): 388.
- Raff, Martin. "Irrationalism and Science." *Nature* 252, no. 5483 (December 6, 1974): 437.
- Randi, James. "Geller a Fake Says Ex-manager." *New Scientist*, April 6, 1978, 11.
- Randi, James. *The Truth about Uri Geller*. Falls Church, VA: The James Randi Foundation, 2011.
- Reich, Charles A. *The Greening of America*. New York: Bantam Books, 1971.
- Rhine, J. B. "Comments on Science and the Supernatural." *Science* 123, no. 3184 (January 6, 1956): 11-14.
- Rhine, J. B. "The Experiment Should Fit the Hypothesis." *Science* 123, no. 3184 (January 6, 1956): 19.

- Roszak, Theodore. *The Making of a Counter Culture: Reflections on the Technocratic Society and its Youthful Opposition*. Garden City, NY: Doubleday, 1969.
- Sarfatti, J. "Geller Preforms for Physicists." *Science News* 106 (1974): 46.
- "Science Beyond the Fringe." *Nature* vol. 248 (April 12, 1974): 541.
- Scott, Thomas R., Victor G. Laties, Bernard Weiss, and Edwin G. Boring. "Extrasensory Induction of Brain Waves." *Science* 150, no. 3701 (December 3, 1965): 1240-1244.
- Targ, Russell and Harold E. Puthoff. "Information Transmission Under Conditions of Sensory Shielding." *Nature* vol. 251 (Oct 18, 1974): 602-607.
- Targ, Russell and Harold Puthoff. "Information Transmission Under Conditions of Sensory Shielding." *Communications Society* vol. 13, no. 1 (January 1975): 12-19.
- Targ, Russell and Harold E Puthoff. *Mind-reach: Scientists Look at Psychic Ability*. New York: Delacorte Press, 1977.
- Tart, Charles T., et al. "More on Extrasensory Induction of Brain Waves, Science." *Science* vol. 151, no. 3706 (Jan. 7, 1966): 28-30.
- Tart, Charles T., Harold E. Puthoff and Russell Targ. "Information Transmission in Remote Viewing Experiments." *Nature* vol. 284 (March 13, 1980): 191.
- Taylor, J.G. *Superminds: An Introduction into the Paranormal*. London: Pan Books, 1976.
- Taylor, J. G. and E. Balanovski. "Can Electromagnetism Account for Extra-Sensory Phenomena?" *Nature* 276, no. 5683 (November 2, 1978): 64-67.
- Taylor, J. G. and E. Balanovski. "Is there any scientific explanation of the paranormal?" *Nature* 279, no. 5714 (June 14, 1979): 631-633.
- "The Next Uri Geller." Accessed April 1, 2018. <http://www.urigeller.com/the-next-uri-geller/>.
- Truzzi, Marcello. "The Occult Revival as Popular Culture: Some Random Observations on the Old and the Nouveau Witch." *The Sociological Quarterly* vol. 13, no. 1 (Winter, 1972): 16-36.
- "Uri Geller Filmography." Internet Movie Database. Accessed April 1, 2018, <https://pro-labs.imdb.com/name/nm0312414?ref =nm ov res>.
- Whitson, T. W., D. N. Bogart, J. Palmer and C. T. Tart. "Preliminary Experiments in Group "Remote Viewing"." *Proceedings of the IEEE* vol. 64, no. 10 (Oct. 1976): 1550-1551.
- Wilhelm, John L. *The Search for Superman*. New York: Pocket Books, 1976.
- Vogt, Evon Z. and Ray Hyman. *Water Witching USA*. Chicago: University of Chicago Press, 1959.

Secondary Sources

- Asprey, E. "Parapsychology: Naturalizing the Supernatural, Re-enchanting Science." In *Handbook of Religion and the Authority of Science*. Edited by James R. Lewis and Olav Hammer. Brill: Boston, 2011, 633-670.
- Brower, Brady M. *Unruly Spirits: The Science of Psychic Phenomena in Modern France*. Urbana: University of Illinois Press, 2010.
- Collins, Harold M. and Trevor J. Pinch. *Frames of Meaning: The Social Construction of Extraordinary Science*. New York and London, Routledge, 1982.
- Collins, Harry M. and Trevor J. Pinch. "The Construction of the Paranormal: Nothing Unscientific is Happening." *The Sociological Review* 27, no. 1 (1979): 237-270.
- Coon, Deborah J. "Testing the Limits of Sense and Science: American Experimental Psychologists Combat Spiritualism, 1880-1920." *American Psychologist* vol. 47, no. 2, (February, 1992): 143-151.
- Carroll, Peter N. *It Seemed Like Nothing Happened: America in the 1970s*. New Brunswick, NJ: Rutgers University Press, 1990.
- Ellwood, Robert S. *Alternative Altars: Unconventional and Eastern Spirituality in America*. Chicago: University of Chicago Press, 1979.
- Gauld, Alan. *The Founders of Psychological Research*. London: Routledge & K. Paul, 1968.
- Gieryn, Thomas F. *Cultural Boundaries of Science: Credibility on the Line*. Chicago: University of Chicago Press, 1999.
- Gordin, Michael D. *The Pseudoscience Wars: Immanuel Velikovsky and the Birth of the Modern Fringe*. Chicago: University of Chicago Press, 2012.
- Hanegraaff, Wouter. *New Age Religion and Western Culture: Esotericism in the Mirror of Secular Thought*. Albany, NY: State University of New York Press, 1998.
- Hess, David J. *Science in the New Age: The Paranormal, its Defenders and Debunkers, and American Culture*. Madison: University of Wisconsin Press, 1993.
- Jacobsen, Annie. *Phenomena: The Secret History of the U.S. Government's Investigations into Extrasensory Perception and Psychokinesis*. New York: Little Brown, 2017.
- Kaiser, David and Patrick McCray. *Groovy Science: Knowledge, Innovation, and American Counterculture*. Chicago: The University of Chicago Press, 2016.
- Kaiser, David. *How the Hippies Saved Physics: Science, Counterculture, and the Quantum Revival*. New York: W.W. Norton, 2011.
- Kuhn, Thomas. "Logic of Discovery or Psychology of Research?" In *Philosophy of Science and the Occult*, edited by Patrick Grim. Albany, NY: SUNY Press, 1982.

- Kutulas, Judy. *After Aquarius Dawned: How the Revolutions of the Sixties Became the Popular Culture of the Seventies*. Chapel Hill: The University of North Carolina Press, 2017.
- Laursen, Christopher. "Reimagining the Poltergeist in Twentieth-Century America and Britain." PhD diss., University of British Columbia, 2016.
- Loxton, Daniel. "Why Is There a Skeptical Movement?" The Skeptics Society. Accessed April 1, 2018, <https://www.skeptic.com/downloads/Why-Is-There-a-Skeptical-Movement.pdf>.
- Lachapelle, Sofie. *Investigating the Supernatural: From Spiritism and Occultism to Psychical Research and Metapsychics in France, 1853-1931*. Baltimore: Johns Hopkins University Press, 2011.
- Mauskopf, Seymour H. and M. R. McVaugh. *The Elusive Science: Origins of Experimental Psychical Research*. Baltimore: Johns Hopkins University Press, 1980.
- McClenon, James. *Deviant Science: The Case of Parapsychology*. Philadelphia: University of Pennsylvania Press, 1984.
- Moore, R. Laurence. *In Search of White Crows: Spiritualism, Parapsychology, and American Culture*. New York: Oxford University Press, 1977.
- Oppenheim, Janet. *The Other World: Spiritualism and Psychical Research in England, 1850-1914*. Cambridge: Cambridge University Press, 1985.
- Popper, Karl. "Science: Conjectures and Refutations." In *Philosophy of Science and the Occult*, edited by Patrick Grim. Albany, NY: SUNY Press, 1982.
- Richards, Dana. *Dear Martin, Dear Marcello: Gardner and Truzzi on Skepticism*. Singapore: World Scientific Publishing, 2017.
- Righart, Hans. "Moderate Versions of the 'Global Sixties': A Comparison of Great Britain and the Netherlands." *Journal of Area Studies* 6, no. 13 (1998): 82-96.
- Ronson, Jon. *The Men Who Stare at Goats*. New York: Simon & Schuster, 2004.
- Samuel, Lawrence R. *Supernatural America: A Cultural History*. Santa Barbara, CA: Praeger, 2011.
- Schulman, Bruce J. *The Seventies: The Great Shift in American Culture, Society, and Politics*. New York: Simon and Schuster, 2001.
- Sommer, Andreas. "Psychical Research and the Origins of American Psychology: Hugo Münsterberg, William James and Eusapia Palladino." *History of the Human Sciences* 25(2) (2012): 23-44.

Sommer, Andreas. "Psychical Research in the History and Philosophy of Science: An Introduction and Review." *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* volume 48, part A (December 2014): 38-45.

Sutcliffe, Steven. *Children of the New Age: A History of Spiritual Practices*. New York: Routledge, 2002.

Turner, Fred. *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism*. Chicago: University of Chicago Press, 2006.

Wadge, Elisabeth. "A Fair Trial for Spiritualism?: Fighting Dirty in the Pall Mall Gazette." In *Repositioning Victorian Sciences: Shifting Centres in Nineteenth-century Scientific Thinking*. Edited by David Clifford, London: Anthem Press, 2006.

Wolfram, Heather. *The Stepchildren of Science: Psychical Research and Parapsychology in Germany, c. 1870-1939*. Amsterdam and New York: Rodopi Bv Editions, 2009.