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Rationality, Parapsychology, and Artificial Intelligence in Military and Intelligence Research by the United States Government in the Cold War

Guy M. LoMeo
CUNY Hunter College

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RATIONALITY, PARAPSYCHOLOGY, AND ARTIFICIAL INTELLIGENCE IN MILITARY AND INTELLIGENCE RESEARCH BY THE UNITED STATES GOVERNMENT IN THE COLD WAR

By

Guy LoMeo

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Thesis Sponsor:

December 21, 2016	Daniel Margócsy
Date	Signature

December 21, 2016	Jonathan Rosenberg
Date	Signature of Second Reader

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CHAPTER 1 - INTRODUCTION OF THEMES AND THE HISTORY OF PARAPSYCHOLOGY AND ARTIFICIAL INTELLIGENCE

Scientific developments in the twentieth century progressed at an exponential rate. While it may be easy to see that some of those pursuits were nefarious in nature, it is more difficult to try to identify which pursuits were rational and which were not. More problematic still is the task of defining the very concept of rationality. Rationality is largely subjective, meaning different things to different people or groups. The period of the Cold War was expressive of this conundrum, as much of the state-sanctioned research throughout the period that was considered rational at the time, in that context, was not considered so before or after.

The first half of the twentieth century is littered with examples of scientific research that seriously questioned rationality as it was then understood; it reached such a degree that by the time of the Cold War, the very definition of the concept was also called into question.[1] The seeds for this can be seen in certain types of research carried out by governments during the Second World War, which are known throughout the world as horrific, such as those conducted by the Third Reich. Yet, the rationality of those objectives is often not considered to such an extent. The idea of approaching wars or conflicts with the concept of rationality acting as the guiding force behind the decision-making process

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[1] Paul Erickson et al., *How Reason Almost Lost Its Mind: The Strange Career of Cold War Rationality* (Chicago: The University of Chicago Press, 2013), 1-4.

only began with the onset of the Cold War; the strategies utilized by the military in previous 'hot' wars proved to be inapplicable. In a way, it can be said that the Cold War manifested a sense of rationality that was wholly its own.

The term Cold-War rationality does not refer to a specific, accepted concept of rationality, but rather the attempts made by scholars to formulate a universal system of rational behavior in the period of the Cold War. This grandiose undertaking was necessary as the rational procedures that guided the art of war throughout the preceding world wars were inapplicable in the uncharted waters of the Cold War. Initiated by national security analysts and nuclear strategists, this campaign was "summoned into being in order to tame the terrors of decisions too consequential to be left to human reason alone, traditionally understood as mindful deliberation. In that implied gap between reason and rationality lay the novelty of Cold-War rationality."[2] It was especially concerned with the most optimal or appropriate way to make decisions in international relations, but was also supposed to filter down and work with much more mundane situations, such as a family's domestic relations under a single roof.

Proponents of this new conceptualization sought to "articulate a pure rationality, valid independently of the problems to which it was applied, and therefore valid for everyone and always."[3] There were many different theories advanced that claimed superiority over its competitors, none of which were ever awarded that title. The task of

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[2] Erickson, *How Reason Almost Lost Its Mind*, 2.

[3] Erickson, *How Reason Almost Lost Its Mind*, 2.

constructing this type of rationality spanned the period roughly from 1945 to the mid-1980s and involved parties originating from diverse areas of society, including "sharp minds, powerful politicians, wealthy foundations, and military brass."[4] The alliance between the United States government, private industry, and academia will be a theme I examine throughout this paper. One of the most prominent of these institutions, and one whose reports will be a primary focus in this study, is the Rand Corporation (Research and Development Corporation). The idea of countering maneuvers made by the Soviet Union through the use of systematic rational decision-making was a major factor in the authorization of controversial scientific research projects that were not rational endeavors at the time. Two examples of such projects, and the ones that I will analyze, are government-sponsored research into parapsychology and artificial intelligence.

The overarching position of the scientific community at the time was that both areas fell on the irrational side of the debate. As the Cold War progressed and financial support for these fields grew, the perspective on artificial intelligence's status began to shift, while parapsychology remained on the fringes, a place it occupies to this day. What began as a project that was quixotic, shadowy, and indistinct, evolved into one that became more and more refined to reflect the principles that were being developed regarding Cold War rationality. The life of these two disciplines provides a lens through which Cold War rationality can be glimpsed. However, the phrase "Cold War rationality" itself is a misnomer, as it implies that there was a consensus on what exactly that meant. In fact, the

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[4] Erickson, *How Reason Almost Lost Its Mind*, 3.

term was never defined in a singular fashion. Rationality would be better understood by analogizing it to an amoeba-type organism, i.e., amorphous and constantly altering its appearance to meet new challenges.[5]

What is seen as rational varies between societies and time periods. Logically, rationality in the present should be more sound and sensible than the rationality of past eras. This may be a trend over long periods of time; however, sometimes there are stretches where irrationality reigns supreme. Rationality and irrationality are hard to define concepts and interpretations change as time passes. In a way, these terms are subjective because not all societies use the precepts of logic in the same way. For this reason, rationality should be examined in the context of whatever time period is under investigation rather than purely as a linear progression.

An example of an epoch where this situation played out is the Cold War, where unprecedented threats created a volatile situation that made it extraordinarily difficult to draw the line between what was rational and irrational. These circumstances resulted in the development of state-funded research into parapsychology and artificial intelligence. The former, for instance, represents a paradox that was the driving force behind this study.

Parapsychology, especially in the last few centuries, has been an area of contention among academics. It has been viewed as a pseudoscience by established scientists. Surprisingly, from the research campaigns into its supposed existence in the eighteenth century by people like Franz Anton Mesmer, to this very day, the overarching view has

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[5] Erickson, *How Reason Almost Lost Its Mind*, 1-4.

changed very little.[6] Yet, for a period of several decades in the twentieth century, all previous scholarship on the subject was cast aside and millions of dollars were funneled into projects that did not attempt to prove its reality, but rather assumed it, and attempted to make such phenomena applicable in a military and intelligence gathering setting. As a result, it can be said that parapsychology was an integral part of the *zeitgeist* that was Cold War rationality.

To put the paradox in the form of a question, how could phenomena that were considered nonexistent by the scientific elite for quite a long time, suddenly become possible, and even probable, in the eyes of a government that would consider itself the most cogent one on the planet? As will be made clear in the next chapter, the government's first encounter with pseudoscientific doctrines was a result of paranoia coupled with a pre-emptive strike strategy. Put more colloquially, the initiation of parapsychological research can be described as a massive example of the platitude "better safe than sorry." Although not nearly on the same level as parapsychology, the same question could be raised concerning research into artificial intelligence.

Artificial Intelligence, or AI, was on the periphery of mainstream science when the concept was first introduced, and was much more mundane than modern science fiction would have the public believe. Nevertheless, the fundamental issue remains: with so much conventional scientific research that could have been sponsored by the government, what compelled them to finance these controversial research projects throughout the Cold War?

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[6] David Ray Griffin, "Parapsychology and Philosophy: A Whiteheadian Postmodern Perspective," *Journal of the American Society for Psychical Research* 87, no. 3 (July 1993): 217-88.

The answer is neither explicit nor elementary, but part of a wider phenomena revolving around the aforementioned concept of rationality, what it was, and what it was not. In order to properly explicate the quandary surrounding these two disciplines, a brief historiography from the eighteenth century to their developments in the mid- to late twentieth century will shed light on how these unorthodox enterprises entered an arena normally reserved for projects that represent the cutting edge of scientific and technological exploration. The concept of rationality will inform this study as it provides a context through which Cold War scientific pursuits can be scrutinized. The use of rationality to evaluate parapsychology and artificial intelligence will also aid in interpreting the reasoning behind the decisions made by officials when it came to funding or terminating these programs.

Both of these concepts have been around since the earliest period of recorded history and can be located in almost any civilization. As disparate as these two fields are, there are some significant similarities between them. First and foremost, both have been met with a high, though unequal, degree of opposition from critics in the past as well as the present. Antagonism toward parapsychology has traditionally been much more virulent than that toward artificial intelligence. One explanation for why this is so is because parapsychological phenomena has been intricately tied to deeply ingrained belief systems in ways artificial intelligence has never experienced. One can find extrasensory perception and related phenomena described in texts ranging from the Sumerian cuneiform tablets, to ancient Sanskrit literature, to the Judaic, Christian, and Islamic holy books. The farther

back in history one goes, the more abstract these concepts are, but they are present and pervasive nonetheless.

Parapsychological processes are at the heart of many religious and spiritual experiences, from telepathic communication to displays of psychokinesis. Prophets have claimed to have nonverbal communication with their deities, while other situations clearly describe psychokinesis being performed by figures of such significance as Moses, Elijah, and Jesus Christ.[7] To be clear, these are only indicative that such conceptualizations were present thousands of years before the present time, not that those events actually took place. Since religion and science are almost always at odds, the fact that parapsychology hovers somewhere in the middle adds skepticism among scientists. Though not as prevalent in spiritual literature as parapsychology, artificial intelligence has a long history rooted in simulation, art, and mechanical intelligence. One of the more familiar examples would be the Golem of Jewish tradition, a creature made animate from wholly inanimate parts. A secular example of artificial intelligence in history would be the homunculus that started to gain attraction in the early modern period.

While both fields have long been considered independent of each other by their respective researchers, they are linked together in a unique fashion. The point of convergence is the field of psychology proper. One of the main goals of psychology is to map the way the mind functions. Parapsychology attempts to do just that, focusing on the phenomena that orthodox psychology does not consider. Parapsychologists try to identify

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[7] J Stafford Wright, "Parapsychology and the Christian," *The Churchman* 67, no. 2 (March 1953): 89-98.

unknown processes that permit extrasensory perception to occur. Parapsychology

essentially picks up where psychology leaves off. The field of artificial intelligence strives to

do the same thing, but has its sights set on an alternative endgame. One of AI's principle

goals is equipping mechanical and electronic technology with the ability to think, act, and

respond in the same way as the human mind. Simply put, the goal of AI research is to

automate the human mind's higher mental faculties in a nonhuman. However, the objective

down the line is to go beyond this and create an intelligent machine that is superior to the

human mind.[8] Although psychology proper informs both of these disciplines and provides

a context through which they can be viewed, it is not often invoked by researchers in either

field as evidence for their theories. This is because it does not assist in explaining one of the

most problematic aspects of this type of controversial research: reproducibility. The

desideratum of both disciplines is a thoroughly explainable, replicable understanding of

what agencies are responsible for, or play a part in, certain processes of the mind.

For instance, parapsychologists in the twentieth century have often sought to

explain psychic phenomena in terms of quantum physics, citing the exotic nature of non-

locality on the subatomic level. Quantum physics is not used as an explanation, but as an

oversimplified precedent setter for "action at a distance."[9] Despite their compatibility, or

lack thereof, the idea was to apply the cutting edge of hard science, physics, to a soft

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[8] Pamela McCorduck, "Brass for Brain," in *Machines Who Think: A Personal Inquiry Into the History and Prospects of Artificial Intelligence*, 25th ed. (Natick, MA: A.K. Peters, 2004), 3-36.

[9] Chris Clarke, "A New Quantum Theoretical Framework for Parapsychology," *European Journal of Parapsychology* 23, no. 1 (2008): 3-30.

science, psychology, in an attempt to explain it in scientific terms. Likewise, proponents of artificial intelligence tried to merge the hard sciences with the soft, only in the opposite direction. Artificial intelligence as a field is an outgrowth of electronic and computer technology. Artificial intelligence, first and foremost, is only applicable in a machine; it requires a piece of hardware. Endowing that hardware with a "brain" of human level intelligence is the goal of AI. That piece of the puzzle is what we as machine or computer users would understand as software.

Artificial intelligence researchers sought to incorporate the psychological processes of the human brain in the software that is the brain of a computer. Whereas parapsychology used hard science in its search for answers in a soft science, artificial intelligence tried to utilize the soft science of psychology in its quest to formalize or mathematize the processes of the brain for machine intelligence. In addition to these parallels, in their current incarnations, they share a common perception by the general public: they are either wholly endorsed or downright condemned. While those opinions may or may not be rooted in a scientific frame of thought, scientists seem to be just as polarized on the subject as well.[10] These perspectives shed light on the contemporary rationale of society, although they do not define what rationality is.

Parapsychology is unique among the numerous "pseudoscientific" doctrines because it has garnered some measurable legitimacy in certain circles of scientists, albeit outside the mainstream. Even though it is not seen as legitimate by orthodox science, it is

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[10] No Author Listed, "Anticipating Artificial Intelligence," *Nature International Weekly Journal of Science* 532, no. 760 (28 April 2016): 413.

not condemned with the same incendiary language as, say, cryptozoology or astrology. Parapsychology has, in fact, actually created a little niche for itself located between conventional science and "pseudoscience," some describing it as a proto-science. It is interesting that the controversy surrounding parapsychology has not been settled after more than a century of serious research, when most other unorthodox ideas fade away much sooner. More interesting is that parapsychology seems to go through cycles of interest and disinterest.

The mid- to late twentieth century can be seen as the acme of parapsychological research because of the way the research was conducted and by whom. The validity of reports and experiments prior to the twentieth century are difficult to assess since there are often too many questions left unanswered. However, at the turn of the century, credible and compelling, though not conclusive, research was being carried out by a multitude of countries around the globe. The impetus for this inquiry, as well as for AI, was similar to that of many other scientific and technological breakthroughs: war. In order to analyze why both disciplines gained currency in some circles and not others, one must look at the historical and sociological factors that generated the dominant viewpoint of each research community.

A comprehensive examination of their respective histories would span several volumes. For that reason, this study will focus on the research carried out at the behest of the United States government. Rather than stressing the technical aspects of the research, the spotlight will be directed upon the personages and institutions involved. Interestingly,

there are several characters and establishments, such as the Rand Corporation, that figure prominently in rationality research and either ESP or AI. Examples of experiments, especially those in parapsychology, will be discussed in passing so as to provide the reader with what is needed to understand a particular argument.

The aim of this analysis is not to give credibility to one field over the other; such would be a futile task since both fields "survived" the Cold War, and are still the object of government research. Rather, the goal is to uncover the key players and see how theories of Cold War rationality influenced their decisions in seeing parapsychology as fact or fiction. All of the phenomena that figure in the discipline of parapsychology are intricately entangled with occultism. Orthodox science may have thrown occult practices into the waste bin of pseudoscience long ago, but the same cannot be said for the general public, or even for government and corporate leaders.

With regard to the twentieth century, this 'great divide' was one of the main reasons government research into the paranormal was able to reach unprecedented levels. This goes for both the United States and other countries. Almost without exception, both the United States and the Soviet Union researched the practical applications of parapsychology, while the civilian research communities examined it "in the name of science." This will become clear as I conduct an exegesis of the reports and documentation. While the main focus of this thesis is the Cold War, government involvement began decades earlier. These previous forays into the paranormal paved the way for the projects of the Cold War.

Section 1 – Parapsychology and Artificial Intelligence in History

Parapsychological research in the West can be traced back quite a way. Phenomena associated with parapsychology can be witnessed in some remarkably old texts. Extrasensory perception is utilized at a pivotal moment in the ancient Indian Sanskrit epic, the *Mahabharata*, when Shakuni, the prince of Gandhara Kingdom, cheated in a dice game by using a die that he could control with his mind.[11] Scientists, of course, disregard this as an example of evidence for the phenomena's reality. Too much time has passed to evaluate those claims; thus, an imaginary line must be drawn to separate what can and cannot be considered relevant. What can be construed as germane to this study can be labeled experimental parapsychology, which is understood as psychic research conducted in a modern setting, as in a laboratory.

Some historians identify Franz Anton Mesmer as the first to deal with the phenomena in this way, while others contend that it began in the nineteenth century. Still others cite J.B. Rhine as the initiator. A cursory examination of these links will be fruitful because they represent the earliest instances of debate that serve to inform the general scientific community on parapsychology in a modern setting. Toward the end of the eighteenth century, Franz Mesmer developed his theory for what he called "animal magnetism": unlike mineral magnetism, which had corporeal effects, animal magnetism determined health, wellbeing, and other mysterious mechanisms. In the beginning, Mesmer

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[11] John D. Smith, trans., "The Hall: The Gambling Match," in *The Mahābhārata*, Penguin Classics (New Delhi: Penguin, 2009), 121-63.

would use magnets on a patient, waving them by the afflicted area, for example, to manipulate the fluid in the patients' body and thus relieve the illness. After a while, he forewent the magnets and just used hands to stroke the patient where it was necessary.

He was quite popular for his "medicine" and was even known to succeed when the conventional remedies of the time failed. This imperceptible phenomenon enthralled Mesmer's contemporaries. As relayed by Robert Darnton, it was understood in a similar fashion as was "Newton's gravity, made intelligible by Voltaire; Franklin's electricity, popularized by a fad for lightning rods… and the miraculous gases of the Charlieres and Montgolfieres that astonished Europe by lifting man into the air for the first time in 1783."[12] The link between Mesmer's work and the field of parapsychology lay in the nature of both of their mechanisms. The conduit through which the device (magnet) used to deliver its cure is imperceptible to regular testing equipment. Mesmer thought he had discovered another force in nature, equivalent to gravity or electromagnetism. The problem was that this force, as it was presented, seemed on the surface to violate the principle of causality, but it did not. One of the reasons why it attained a minor degree of reputability was because it was built upon the same premise as Newton's law of gravity, which also theorized that action at a distance was at play. What made matters worse for this hypothetical force was that scientists could not replicate his experiments to a

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[12] Robert Darnton, *Mesmerism and the End of the Enlightenment in France* (Cambridge, Mass.: Harvard University Press, 1968), 10, accessed May 12, 2016, http://catalog.hathitrust.org/api/volumes/oclc/283547.html.

successful degree. Replicability is a significant principle in scientific exploration, even though its usefulness is still being debated.[13]

A commission initiated by King Louis XVI tested Mesmer's ideas in 1784. The commission, which famously included such prominent figures as Benjamin Franklin and the chemist Antoine Lavoisier, were assigned the task of investigating the purported reality of a magnetic fluid, the hypothetical conduit through which Mesmer's cure worked. Unsurprisingly, the verdict was that the fluid did not exist and that the phenomena witnessed could be attributed to more mundane causes. However, this was only half the story, as the commission had secretly distributed a report that detailed the real motivation behind its findings, which were the phenomena's apparent "moral dangers."[14] This confidential assessment stressed the "moral dangers of the magnetic therapy where most of the practitioners were men, most of the patients were women, and where so much stimulation by touch was involved and so much excitement generated."[15] While there is no doubt that there was justification for concern, especially if the treatment occurred behind closed doors, it is also evident that the conclusions of the commission were motivated by more than the scientific theories under investigation. Had that worrisome perspective been present from the outset, there is a good possibility their prior bias had negatively affected

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[13] Arturo Casadevall and Ferric Fang, "Reproducible Science," *Infection and Immunity* 78, no. 12 (September 27, 2010): 4972-75, accessed October 1, 2015, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2981311/

[14] Darnton, *Mesmerism and the End of the Enlightenment in France*, 64 n.10, accessed May 28, 2016, http://catalog.hathitrust.org/api/volumes/oclc/283547.html.

[15] John Beloff, *Parapsychology: A Concise History* (New York: St. Martin's, 1993), 20.

their objectivity. This theme, which recurs throughout the literature on most pseudosciences, is clearly palpable with regard to parapsychology. This bias, of course, is twofold, and goes for those who are proponents of parapsychology, as well. For the time being, it is important to emphasize that even though mesmerism did not fade away, the official consensus on the issue had been set for posterity.

One of the defining turning points for parapsychology in the West in the nineteenth century was the founding of the Society for Psychical Research (SPR) on February 20, 1882, in London. The Society for Psychical Research was the first learned institution of its kind, with a mission statement to "examine without prejudice or prepossession and in the scientific faculties of man, real or supposed, which appear to be inexplicable on any generally recognized hypothesis."[16] While still a little ways off from contemporary experimental parapsychology, it is the first instance where researchers tried to disentangle purported psychical phenomena in an organized way.

One of the major impetuses for the inauguration of the SPR was the growth and spread of Spiritualism, which had gained an unprecedented foothold in the upper echelons of society. What makes the SPR significant is not so much the phenomena it studied, or the fruits of that research, but rather the way it went about obtaining that information. According to professor Alan Gauld, a psychologist and parapsychologist known for uncovering fraud in parapsychological experiments, the research concerned "that large body of debatable phenomena designated by such terms as mesmeric, psychical, and

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[16] John Beloff, *Parapsychology*, 65.

'spiritualistic'" and was conducted "in the same spirit of exact and unimpassioned enquiry which has enable Science to solve so many problems."[17] Whether this was upheld in practice is up for debate, but the notion of researching the phenomena in the same way as other more reputable fields can be considered one of the first great attempts at transitioning psychical research from the non-scientific to the scientific side of the demarcation problem, even if it was not understood in those terms.

Eventually, the SPR branched out and even had a sister organization in the United States called the American Society for Psychical Research (ASPR), founded in 1885, which looked into the same purported phenomena on this side of the Atlantic. The ASPR was the source of the most progressive investigations of parapsychology in the United States until the time of Joseph Banks Rhine in the early decades of the twentieth century. In a broad way, this exemplifies the only changes parapsychology experienced from the nineteenth to the twentieth century, a shift toward institutional organization and professionalism when conducting experiments. In a similar fashion, enquiries into machine intelligence became more widespread and systematic in the same time period.

One of the aspects of parapsychology and artificial intelligence that made them so enthralling to eighteenth- and nineteenth-century audiences was that their proposed method of operation was impalpable to the five-senses and indistinguishable from the other supernatural and occult forces that captivated the minds of people at the time. Although it may be easy to see how parapsychology fits that description, early work in

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[17] Alan Gauld, *The Founders of Psychical Research* (London: Routledge & K. Paul, 1968), 167.

machine intelligence had the same inexplicable underpinnings. Artificial intelligence was becoming manifest through the works of inventors such as Jacques Vaucanson and Pierre Jaquet-Droz, whose "Defecating Duck" and "Lady-Musician," respectively, became focal points in the eighteenth century because they were portrayals of mechanical devices with life-like capabilities. So spellbinding were these contraptions that people often spent entire weeks' worth of wages in order to witness the mysterious machines at work.[18] Researchers have identified correlations between these kinds of devices and the ones scientists are incorporating artificial intelligence into today. According to Professor Jessica Riskin, artificial intelligence engineers today "'have an extraordinary amount in common with the people…from the [eighteenth] and early [nineteenth] century'. Like Vaucanson, they believe that new technologies might let them bridge the gap between machines and life -- a belief that has led modern researchers to build artificial insects, fish, gorillas and even people."[19] The commonalities also extend to early AI and parapsychology.

Mesmer has an interesting doppelganger in the sphere of machine intelligence, the creator of the Turk, Wolfgang Von Kempelen. Like Mesmer, Kempelen was capitalizing on the mysteries of the time, but rather than with an invisible fluid he awed his audiences with his supposed automaton. The major difference between the two was that Kempelen was

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[18] Etienne Benson, "Science Historian Examines the 18th-Century Quest for 'Artificial Life'," Stanford University, October 24, 2001, accessed June 9, 2016, http://news.stanford.edu/news/2001/october24/riskinprofile-1024.html.

[19] Benson, "Science Historian Examines the 18th-Century Quest for 'Artificial Life'," accessed June 9, 2016, http://news.stanford.edu/news/2001/october24/riskinprofile-1024.html.

uncovered as a fraud who willfully deceived the masses. Various forms of automata were particularly popular in the eighteenth century and Kempelen sought to exploit the "automaton craze" following the success of Vaucanson's works.[20] He created a device called *The Turk* that purportedly was able to play a game of chess against a human opponent, making moves dependent upon those made by the opponent, rather than ones that were simply predetermined or preprogrammed. Initially the gadget defied explanation and garnered interest from such historical giants as Napoleon; however, soon it was discovered to have been the result of trickery. Although Kempelen exhibited *The Turk* with "all of the internal-mechanism-displaying pageantry of the era's other famous automatons and would at times make a show of winding up the device, the Turk was actually a mere puppet."[21] Kempelen's *Turk* marked the beginning of the decline in public amusement with automaton-type devices. Both Kempelen and Mesmer reflect the need in the scientific community to stay vigilant and not get swept up in public fervor.

In conjunction with the initiative to develop machines with human-level capabilities was the concept of building them to perform human functions. Rather than imitating the bodily functions, as the defecating duck did, inventors began to build machines that could perform more practical functions, such as the work performed by humans. Those avenues of innovation became more widespread in the nineteenth century and they closely align

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[20] Minsoo Kang, *Sublime Dreams of Living Machines: The Automaton in the European Imagination* (Cambridge, Mass.: Harvard University Press, 2011), 7.

[21] "The Mechanical Turk," Harvard University Press | Blog, August 29, 2011, accessed June 18, 2016, http://harvardpress.typepad.com/hup_publicity/2011/08/the-mechanical-turk.html.

with the type of artificial intelligence research that will be the focus of this study. By the

middle of the nineteenth century, sophisticated apparatus, such as Charles Babbage's

Difference Engine, established that mechanized machines could perform tasks otherwise

only achievable by human labor. These tasks, however, were perceived to be simple and

only made use of a human's lowest mental faculties.[22] The machine did not think in order to

react to a situation, but followed preprogrammed rules. Certain information inputted into

the machine corresponded with a specific output. The association was built in and did not

require thought. A straightforward example of this would be the use of modern calculators,

which perform mathematical equations based upon rules rather than reason.

Reason is recognized as one of mankind's higher mental faculties and thus far its

programmability has eluded scientists. As a result, many scientists have contended that

machines cannot break that threshold, which essentially is seen as the demarcation point

between humanity and other creatures. Like parapsychology, the drive for artificial

intelligence has stimulated efforts to map the functions of the mind, the path it takes to

reach desired outcomes, and how the use of rationality is integral to that process. These

undertakings have achieved limited success. Unlike parapsychology, however, this

conundrum has not led to its being considered a pseudoscience, but a science yet to be

understood. With relation to the mind, artificial intelligence attempts to create a rational

entity while parapsychology attempts to use rationality to create a working model for

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[22] Seth Bullock, "Charles Babbage and the Emergence of Automated Reason," in *The Mechanical Mind in History*, ed. Phil Husbands, Owen Holland, and Michael Wheeler (Cambridge, MA: MIT, 2008), 27-37, accessed February 11, 2016, http://site.ebrary.com/lib/huntercollege/reader.action?docID=10214161&ppg=30.

perceived irrational mental processes. The relationship between the brain and rationality

is unambiguous in both instances; it is just expressed in different ways.

While Babbage's and other contemporaries' machines were by no means intelligent,

their performances were superior to that of their human counterparts. This was the case

for two reasons: they worked faster than humans could and performed calculations

flawlessly, thus eliminating human error.[23] In conjunction with the Industrial Revolution,

these programmable machines were introduced into the workplace and soon lost their

appeal to the public. Despite their increasing regularity, modifications continued apace and

advancements in a wide array of fields, notably mathematics and electrical engineering,

from the late nineteenth century to the middle of the twentieth, radically altered the way

humans and machines interacted.[24]

This brief historical background illustrates some of the commonalities between

these two seemingly distinct fields. Both parapsychology and artificial intelligence were

alluring to scientists and lay people because the mechanism through which they "worked

their magic" was concealed from public view and public awareness. Despite endless

hypothetical models, parapsychology proponents never came any closer to hammering out

the finer details of how it functions within the rational mind. Artificial intelligence was

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[23] Bullock, "Charles Babbage and the Emergence of Automated Reason," in *The Mechanical Mind in History*, 29, accessed February 11, 2016, http://site.ebrary.com/lib/huntercollege/reader.action?docID=10214161&ppg=30.

[24] Phil Husbands, Owen Holland, and Michael Wheeler, "Introduction: The Mechanical Mind," in *The Mechanical Mind in History*, 4, accessed February 11, 2016, http://site.ebrary.com/lib/huntercollege/reader.action?docID=10214161&ppg=30.

similar in that, although people were aware of the levers and gears within the mechanical machines that caused movement, they did not know *how* that movement was caused in terms of an animating force with rational guidance.

To use Babbage's machines as an example, it was common knowledge at that time that machines could simulate human behavior and effectively perform menial labor. What was groundbreaking was the transition from simulating menial labor to cognitive functioning.[25] Having a machine that could essentially "think" on its own, given a variety of situations, was unheard of and was considered quite miraculous. People did not know how a purely mechanical device could think or carry out mental processes. The questions that needed to be answered, such as the conduit through which these processes were to take place, were also the same questions being ruminated upon in the realm of parapsychology. Neither discipline has been able to satisfactorily come up with a theory or answer that can be experimentally tested, but that is not due to a lack of effort. Instead, contemporary scientists, working on behalf of the United States government, have been conducting research into both fields for the better part of a century. However, it only began to fully take shape from around the time of the Cold War, which is the foundation for the primary focus of the argument: official United States government support for research in the fields of parapsychology and artificial intelligence throughout the Cold War.

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[25] Bullock, "Charles Babbage and the Emergence of Automated Reason," in *The Mechanical Mind in History*, 29-30, accessed February 11, 2016, http://site.ebrary.com/lib/huntercollege/reader.action?docID=10214161&ppg=30.

To oversimplify, the Cold War made the divide between conventional warfare and unconventional warfare much more obscure than it had previously been. Indeed, the most desirous offensive and defensive strategies sought after were those that gave one side the upper hand over the other without necessarily having boots on the ground. These sentiments alone were not the sole motivation behind the government's involvement with parapsychology and artificial intelligence, but the allure that these disciplines provided for fighting a war from a distance was too great to neglect when they did arise.

Succinctly put, the exceptional nature of the Cold War in conjunction with the ambiguousness of rationality created a situation that permitted unorthodox concepts, like parapsychology and artificial intelligence, to be evaluated in ways that were untethered to prior dogma. These new research initiatives not only spanned the length of the Cold War, but also outlived it. By tracing the evolution of these projects, this paper will argue several points. The next chapter will first examine the post-1945 world and the way it was thrust into a situation where the relationship between the government and the fringes of scientific inquiry became more entangled than ever before. Secondly, I will argue that the initial decisions made pertaining to fringe research were largely the result of the geopolitical atmosphere rather than because of the 'science.' Once that is established, the parapsychology and artificial intelligence programs in the first decades of the Cold War will be analyzed and shown to be both rational and irrational depending on the way they were understood. The third chapter will evaluate the second half of the Cold War and how these projects progressed in a way that could not have been anticipated. It will also consider the

financial aspects of each program and how the money awarded to them does not accurately indicate the level of actual support. Lastly, I will exam each project in relation to the end of the Cold War and whether they were continued or terminated, with particular scrutiny on how that informs the process of the 'hype cycle,' a conceptualization that will be introduced and discussed at length toward the end of the paper.

CHAPTER 2 – THE ORIGINS OF STATE-SPONSORED RESEARCH INTO PARAPSYCHOLOGY AND ARTIFICIAL INTELLIGENCE IN THE COLD WAR

While the United States was the pioneer in computer and AI technology in the Cold War, the parapsychology program was a response to perceived advances made in that field by the Soviet Union. That response was largely the result of the Rand Corporation study led by Dr. Janus Irving, which suggested that the United States should not fall behind in research regarding extrasensory perception. Without that provocation, there would have been no impetus to even arouse the thoughts of a parapsychologist like Andrija Puharich.

In effect, it was a *rational* move to overlook the supposed *irrationality* of parapsychology because not doing so could possibly have made the country vulnerable if the Soviets did in fact make progress. Extreme examples would be a Russian telepathically reading state secrets or psychokinetically detonating a bomb in the US from safely within Soviet borders. While such scenarios might sound like science fiction, they were the kinds of applications some thought parapsychology could have militarily. Although materials from the Soviet Union have not been made available, a picture drawn by one of the psychics used by the United States Government will give the reader some perspective on how precise these methods could be, if needed in a military setting. Figure 1 is a sketch made by a CIA psychic of a location to which he had only been given geographic coordinates. Figure 2 is a reproduction of an actual photograph of those exact coordinates. The drawing, which

is a gantry crane, is remarkably accurate and illustrates one of the hypothetical

applications of parapsychology in warfare, especially in locations where obtaining

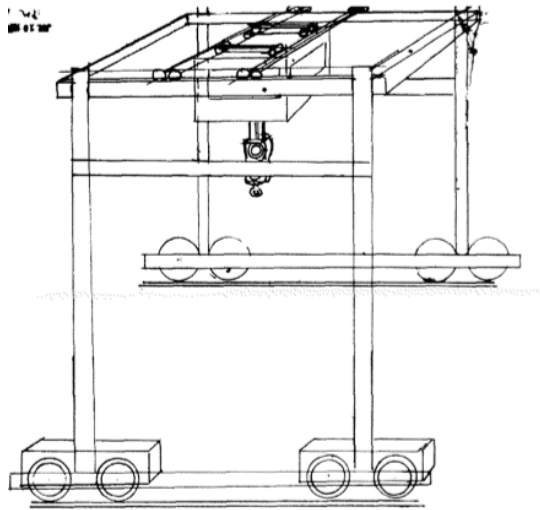photographic intelligence is dangerous or impossible.

Figure 1: Pat Price's sketch of crane at the secret Soviet R&D site at Semipalatinsk.
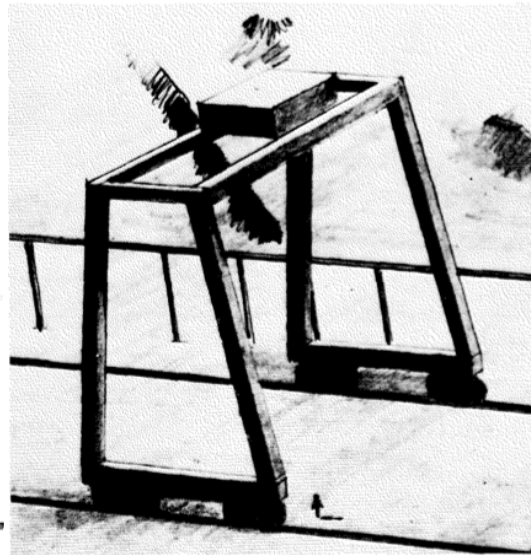
Figure 2: Drawing reproduced from CIA satellite photograph. (So as to not divulge actual quality of satellite technology.)

On the other side of the spectrum, artificial intelligence research was conducted for

much the same reason. From the beginning, the idea of a machine exhibiting intelligence

rivaling that of a human brain was understood as irrational. Critics cited numerous

practical limitations to the kinds of tasks that a machine could intelligently undertake, such

as the astronomical amount of pre-loaded data that needs to be at the machine's disposal to

carry out even the simplest assignments. Hubert Dreyfus juxtaposed this with the

intelligence and commonsense of a young child. The fact that the leading luminaries in AI

could not create a machine to match the commonsense of a four year-old child was seen as

evidence that AI was an irrational endeavor. However, as with parapsychology, it was easy to imagine the military applications for a fully realized artificial intelligence.

Despite the drawbacks it endured up until that point, the prospect of creating a successful artificial intelligence was not yet dampened by its immediate failures. Parapsychologists had not presented the world with anything new in terms of developments outside of refined research procedures and protocols. Very little had changed regarding the reporting of the phenomena, which made it more difficult to get establishment scientists to become interested. But, artificial intelligence was still a relatively young discipline, so failures were not perceived in the same way as failures were in parapyschological studies. Electronic technology had not been investigated for thousands of years and did not have the deeply rooted opposition that parapsychology had. This is one of the key differences that help to explain why, though both were irrational, artificial intelligence research was established out of its own inherent potential while the programs in parapsychology were launched in reaction to research into extrasensory perception by the Soviet Union.

The rationality aspect of Cold War research was debated much more comprehensively in the development of artificial intelligence than it was in parapsychology circles. It seems as though there was a real, lively debate over the rationality of artificial intelligence, directly affecting its possible future. In contradistinction, Cold War research into parapsychology never reached the same level of dialogue that AI did. In terms of orthodox science, there was never any reason to have a discussion over its rationality

because that had been done numerous times in the past, and the precedent had been set. Government research, at least what has been declassified, did not make any discoveries that science proper would consider groundbreaking or worth investigating. While it must be acknowledged that the most explosive information about a given situation is generally what is kept classified, speculation alone is not enough to fuel a discussion among conventional scientists. Despite these shortcomings for both artificial intelligence and parapsychology, federal funding continued unabated through the early Cold War. It was not until the 1970s that another shift in government support for these programs is discernible.

This chapter will establish the geopolitical atmosphere from World War II to the mid-1960s, and how that context set the stage for the development of research in pioneering fields ranging from perceived pseudosciences like parapsychology to the seemingly unfathomable such as artificial intelligence. Examinations of these diverse disciplines were not authorized "in the name of science," but were the result of complex deliberations surrounding the concept of rationality: how it informed decision-making and how to use it to respond to the maneuverings of the Soviet Union. The indeterminate status of rationality at the time had significant and direct effects on the government's response to certain perceived threats.[26] These threats, which were both real and imagined, were the primary motivation behind studies into rationality and the subsequent development of the programs in question.

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[26] Erickson, *How Reason Almost Lost Its Mind*, 5.

The dawn of the twentieth century witnessed an exponential growth of research into parapsychology and artificial intelligence across the United States and Europe. Yet, the histories of parapsychology and artificial intelligence rarely, if ever, crossed paths directly. If a connection has to be made, the most tangible relationship would have been through the various institutions and think tanks that studied both disciplines in terms of practicality and usefulness in conjunction with their proposed rationality, such as the Rand Corporation. Most often these studies were commissioned at the behest of the military and intelligence sectors of the government. Prior to the Cold War, parapsychology was largely the prerogative of civilian scientists, while the government always had a hand in the development of computer technology.

State-sponsored parapsychology research in the early years of the Cold War had its antecedents in the psychological warfare programs from the beginning of the twentieth century.[27] The intelligence community and the military had been investigating the practical uses of psychological warfare in this period and many of the reports are still classified. Although an examination of these preliminary programs is outside the scope of this study, it is significant to note that the psychological warfare research began to take on new characteristics from the late 1940s on. Coincidentally, and contrary to popular belief, researchers have identified this exact timeframe as the starting point for the modern conception of artificial intelligence. Both parapsychology and AI researchers were

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[27] Christopher Simpson, "Defining Psychological War," in *Science of Coercion: Communication Research and Psychological Warfare, 1945-1960* (New York: Oxford University Press, 1996), 3-74.

attempting to bridge the gap between science, warfare, and the burgeoning study of rationality in the context of the Cold War.

The start of the Cold War ushered in an era of unprecedented anxiety and paranoia on a global scale. No potential weapon or research endeavor was seen as too far-fetched or too irrational for the USSR to consider. Indeed, the very nature of the Cold War called into question the art of war more than ever before. Without a traditional frontline, the Cold War catalyzed the emergence of unconventional approaches geared toward breeching enemy defenses, a practice that had roots in World War II. Such tactics played "a significant role in U.S. foreign policy during the early Cold War years, often in the form of covert paramilitary operations led by the Central Intelligence Agency."[28] As a result, the government, not wanting to be caught off guard by another Sputnik-type event, could not brush off information that it otherwise would not entertain, such as reports describing the utilization of mind control and extrasensory perception.[29] Although multiple reasons have been given for why the government started looking into parapsychology, the detail that remains constant is that it was a response to work being conducted by the Soviet Union. As previously noted, the United States was the pioneering force in the development of artificial intelligence. With the Soviet Union spearheading research into parapsychology, it

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[28] Joseph L. Votel et al., "Unconventional Warfare in the Gray Zone," *Joint Force Quarterly* 80 (January 1, 2016): 101-9.

[29] Michael J. Nojeim and David P. Kilroy, "The Sputnik Crisis and the Nuclear Age," in *Days of Decision: Turning Points in U.S. Foreign Policy* (Washington, DC: Potomac Books, 2011), 77-94.

is clear that both superpowers were in a competition to mastermind unorthodox offensive and defensive weapons in the Cold War.

In the United States, research revolved around what methodologies were feasible, no matter how bizarre they might have seemed. Many of the intellectual elites in the country at the time contemplated this very question, wondering where rationality began and ended. This question of rationality was quite broad; its study was not the result of wanting to frame parapsychology and artificial intelligence as reasonable. Instead, those fields materialized as a result of the vacuum left by having too many different hypotheses of rationality, none of which was definitive. Put another way, the study of rationality in the Cold War made clear that the very idea of rationality was an artificial construct. The inability to develop a formula or algorithm for universal rational behavior meant that there was no rubric with which to evaluate how to proceed in a given situation.

There were many attempts to create a system of this nature, not all of which included algorithms or mathematics in general. They included such concepts as game theory, prisoners' dilemma, nuclear strategy, operations research, groupthink, Bayesian decision theory, systems analysis, rational choice theory, and experimental social psychology. This list is by no means exhaustive, but it represents a major part of the "loose and somewhat motley conglomerate… [that] defined the field of contestation about what rationality should be under the radically altered conditions of the Cold War."[30] The relevance lies in not how each theory of rationality failed, but that they did fail. Not a single

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[30] Erickson, *How Reason Almost Lost Its Mind*, 4.

theory advanced could be universally applied to all decision-making situations. This influenced United States policy regarding parapsychology. Since parapsychology had always been construed as irrational by orthodox science, it should have been brushed off as outlandish and a waste of valuable resources. However, with the concept of rationality in an uncertain state, the United States decided that parapsychological research was actually rational, given the state of global affairs.

<center>Section 1 – Parapsychology's Origins in the Early Cold War</center>

Initial investigations into parapsychology by the government during the Cold War grew out of standard psychological warfare operations from the preceding world wars. Psychological warfare was not a new weapon in the military's arsenal in the twentieth century, but had existed since the earliest recorded conflicts. The United States made extensive use of psychological warfare in the twentieth century, most notably in Latin America and Southeast Asia, which has been extremely well documented.[31]

Psychological warfare became intertwined with the field of communications, making this academic discipline fertile ground for literature regarding psychological manipulation. Although government funding of university research is a standard practice, what makes this particular area unique, though similar to computer technology in terms of control, is that "[m]ilitary, intelligence, and propaganda agencies such as the [DoD] and the

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[31] Simpson, "Academic Advocates," in *Science of Coercion*, 42-51.

[CIA] helped bankroll substantially all of the post-World War II generation's research into techniques of persuasion, opinion measurement, interrogation, political and military mobilization, propaganda of ideology and related questions."[32] In effect, the government held a monopoly over communications research through its financial sponsorship. The government did not tell the scientists what they could and could not say, but it could influence which scientists' statements were seen as authoritative and which were not.

The study of psychological warfare was compounded by the rumors of parapsychological studies in the Soviet Union. The Soviets opened the door to the world of extrasensory perception first. Awareness of this raised curiosity within the intelligence community's psychological warfare research, which was complemented by its own exposure to a wide variety of pseudoscientific, occult, and paranormal themes, especially in Southeast Asia.

The Soviet Union's research into parapsychology reached Western intelligence agencies through various channels, some more reputable than others. Two of the more prominent conduits were the slow leak of information on paranormal research[33] and Soviet displays of psychical coercion in the form of show trials, which were designed to influence public opinion.[34] They had been used under different circumstances in the Soviet Union in

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[32] Simpson, *Science of Coercion*, 1-2.

[33] Flora Lewis, Special to The New York Times. "Emigre Tells of Research in Soviet in Parapsychology for Military use." *New York Times (1923-Current File),* Jun 19, 1977. http://search.proquest.com/docview/123111711?accountid=27495.

[34] U.S. National Council for Soviet and East European Research, Proceedings of Congress and General Congressional Publications, *The Occult in Modern Russian and Soviet*

the 1930s in the Moscow Trials and even earlier than that, but these earlier demonstrations were never suspected to have used parapsychological manipulation.[35] By the 1960s, the stream of information from the Soviet bloc on ESP-related research, in addition to their public displays of manipulated individuals, were largely responsible for the United States' study of telepathy, clairvoyance, and other related phenomena.

The first significant document to appear with respect to possible applications of unconventional psychological phenomena occurred in the late 1940s, when the Cold War was in its early stages. The Soviets had been exceptionally productive in their interrogations of political dissidents, extracting confessions in ways that defied the logic of Western intelligence. They received admissions of guilt from people who seemingly should not have been easily "broken", which prompted enquiries into the possible influence of some unknown psychology process on prisoners. The most famous case is that of Josef Mindszenty, a Hungarian archbishop, cardinal, and leader of the Catholic Church in Hungary.

Cardinal Mindszenty was known to be a staunch anti-communist. Prior to his arrest in December 1948 on charges of treason and conspiracy to overthrow the Hungarian government, he wrote a letter stating any confession or related statements would be

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Culture, by Bernice Glatzer Rosenthal, 99th Cong., 2d sess., open-file report, U.S. Geological Survey, pt. 806-03 (Washington, DC: Government Printing Office, 1993), 13-18.

[35] William Chase, "Stalin as Producer: The Moscow Show Trials and the Construction of Mortal Threats," in *Stalin: A New History*, ed. Sarah Davies and James R. Harris (Cambridge, UK: Cambridge University Press, 2005), 226-48.

completely false. Indeed, even President Truman called the trial a "sickening sham."[36]

However, knowing that it was fraudulent did not translate into knowing how the Soviet

accomplished the feat. That void in intelligence proved difficult to fill. As a result, "the

cardinal's trial kick-started fears in the USA that the 'Reds' had mastered the art of mind

control–paranoid suspicions that only grew in the years that followed."[37]

These circumstances are often cited by researchers as the genesis of what would

eventually become the CIA's infamous MK-ULTRA project, overshadowing key elements

involving the use of parapsychology. The obvious answer to how the Soviets received the

cardinal's confession is through torture. With that established, the question became, by

what means? Were they implanting ideas into Mindszenty's head telepathically? Were they

creating physical trauma through some psychokinetic process? As ludicrous as this may

seem, it came out years later that the Soviets were working on this very tactic with a

parapsychologically gifted woman named Nina Kulagina.[38]

Documentary footage of her can easily be found on YouTube which shows her

performing many seemingly impossible feats. The videos, released by the Soviet Union at

the First Moscow International Conference of Parapsychology in 1968, might have been

fictitious and made for propaganda purposes, but that information has never come to light.

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[36] Michael Otterman, *American Torture: From the Cold War to Abu Ghraib and Beyond* (Carlton, Vic.: Melbourne University Press, 2007), 15.

[37] Otterman, *American Torture*, 15.

[38] Dr. Montague Ullman, "PK in the Soviet Union," in *Research in Parapsychology*, ed. William G. Roll, Robert L. Morris, and J. D. Morris (Metuchen, N. J: Scarecrow Press, 1974), 120-25.

The veracity of the visual evidence would have no bearing on the argument being made because whether they were real or fake does not detract from the fact that, in the absence of absolute knowledge, the government could not dismiss the possibility that they were legitimate and that the Soviets were investigating the phenomena.

A 1949 Rand Corporation memorandum examined the use of hypnotic suggestion and other psychological manipulation techniques in the Soviet Union to elicit false confessions.[39] This report, authored by eminent Yale psychologist Irving L. Janis, concluded with a series of recommendations that influenced the mentality of the intelligence and military communities for decades to come. Janis asserted that the "successful use…would represent a serious threat to democratic values in time of peace and war. In addition, it might contribute to the development of unconventional methods of warfare, which will be widely regarded as immoral." He went on to say that the "results of scientific research in the field under discussion would obviously lend themselves to offensive as well as defensive applications."[40] The document leaves one with the impression that, although the existence of such phenomena is not wholeheartedly accepted, enough evidence was there to warrant further investigation. This was qualified by the declaration that such unorthodox approaches could yield offensive as well as defensive applications, and that it would be wise to keep up with Soviet research in case of a breakthrough.

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[39] Janis Lester Irving, "Are the Cominform Countries Using Hypnotic Techniques to Elicit Confessions in Public Trials?" Santa Monica, CA: RAND Corporation, 1949. http://www.rand.org/pubs/research_memoranda/RM161.

[40] Irving, "Are the Cominform Countries Using Hypnotic Techniques to Elicit Confessions in Public Trials?" 19-20.

The fact that the document originated with the Rand Corporation is significant because Rand was also the source for much of the theorizing on rationality, and the influence of the latter on the former can be seen in the suggested course of action. The reality of the phenomena itself was not the core issue. The report was not meant to validate the existence of paranormal processes, but rather to substantiate the existence of a Soviet paranormal program. Had speculation about the Soviet Union's use of parapsychology not arisen, the United States would not have had any desire to conduct its own research. Science proper had long considered parapsychology to be irreconcilable with established beliefs. It was seen as irrational. That view remained largely unchanged at the time of the Cold War. The goal of the RAND Corporation was to try to synthesize parapsychology with these beliefs in a way that would allow ESP to be analyzed as objectively as possible. RAND's cadre of elite scientists and intellectuals had the task of trying to make sense of a theoretically impossible weapon being deployed from an enemy that was delving into subjects that had no prior counterpart or comparable program in the United States.

From a logistical standpoint, the material and financial support required to start a research program designed to examine the possible uses of extrasensory perception far outweighed any potential benefits that could have resulted. At least, that is, until word of a Soviet program began to spread. Parapsychology was seen as irrational to investigate in and of itself, but crossed the threshold into rational territory when it was believed the USSR had developed a weapon previously unknown in the West. Unfortunately, but not consequentially, the smoking gun evidence for Soviet psychical coercion techniques never

turned up. For instance, after a number of years, Josef Mindszenty broke his silence on the issue and quelled the colorful rumors that had been circulating since his confession. He stated that the Soviets had kept him awake for twenty-nine days straight and that nothing paranormal took place.[41]

Discussions about Cold War parapsychology usually cite the most popular cases; as a result, some of the more intriguing characters are omitted, such as Dr. Andrija Puharich, born Henry Karel Puharić. Puharich was born on February 18, 1918, in Chicago, to Croatian immigrants from the Austro-Hungarian Empire. Puharich is significant for several reasons, not least of which is that his footprint can be seen from the beginning of the governments' parapsychological research programs all the way to their renewed initiatives in the twenty-first century. His biography reads like a science fiction novel, complete with tales of contact with extraterrestrial beings and communication with ancient Egyptian deities, yet he was taken quite seriously by the United States government, before, during, and after these supposed events took place.[42]

Puharich embodied the convergence of all the elements that aided in initiating the parapsychological research programs: he had a deep interest in the occult, he was in the US Army Medical Corps involved in specialized psychological research, and he was a well-established academician. He was educated in the field of medicine and did post-graduate

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[41] Otterman, *American Torture*, 197.

[42] Joseph Hanlon, "Uri Geller and Science: A New Scientist Special Investigation," *New Scientist*, October 17th, 1974, 170-89.

work in philosophy. Puharich's expert knowledge in a scientific field and in philosophy was vital to his paranormal research. He was also an inventor of medical devices and obtained several patents for his creations, the esoteric nature of which can be gleaned from their titles: "Method and Apparatus for Improving Neural Performance in Human Subjects by Electrotherapy" and "Method and Apparatus for Splitting Water Molecules." Others were less exotic, such as methods for improving human hearing. These examples show his aspiration to enhance human perception beyond the five senses; it is easy to see why certain sectors of the government would be interested in such capabilities.

Puharich's significance also lies in the fact that he was one of the first scientists to introduce the military to the practical applications of extrasensory perception. According to Puharich, he had been carrying out research on psychic abilities for the United States Navy for 'Project Penguin' as early as 1948.[43] In another account, he stated that he left the military in 1948, which adds to his mystique. Regardless of that episode, what is known is that he presented a paper to a Pentagon briefing on November 24, 1952, entitled, "On the Possible Usefulness of Extrasensory Perception in Psychological Warfare."[44] The lecture, presented to officials within the Research Branch of the Office of the Chief of Psychological

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[43] *Geraldo*. Episode no. 3, first broadcast October 2, 1987 in syndication.

[44] John Wilhelm, "Psychic Spying? The CIA, the Pentagon And the Russians Probe The Military Potential of Parapsychology," *Washington Post*, August 7, 1977.

Warfare, apparently generated much interest and curiosity in the subject, for arrangements

were made for Puharich to be reinstated into the Army soon thereafter.[45]

What came next for Puharich was so captivating that it would guide and shape his

work for the remainder of his life. On New Year's Eve, 1952, Puharich was with his

laboratory assistant Hank Jackson, when a third man, a Dr. Vinod, entered a trance state

and began to communicate with otherworldly beings. There are several points that are

significant in the context of this examination. Parapsychology, as was stated above, was for

the most part understood as a pseudoscience by the majority of the scientific community.

In trying to explicate the factors that contributed to the creation of intelligence and military

parapsychology studies, a major characteristic found among the most vocal advocates of

the research was a belief in the paranormal. People like Puharich, and later the scientists at

Stanford Research Institute, were the closest the United States government came to having

a group comparable to those doing parapsychology research in the Soviet Union.

Puharich's close relationship with the military throughout the Cold War was partly a

result of his interdisciplinary expertise in parapsychology, engineering, and medicine.

Rather than separating his personal convictions from his research into these areas, he

integrated them. Puharich believed he was in communication with an intelligent force, and

he allowed "it" to guide and shape his research. For example, after being told by the

intelligent supernatural force that "we shall negate and revise part of your work, by which I

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[45] Andrija Puharich, *The Sacred Mushroom: Key to the Door of Eternity* (Garden City, N.Y.: Doubleday, 1974), 10-12.

mean the work as presented by you," Puharich replied, "It is helpful to have your guidance." Then, after talking about the Lorenz-Einstein Transformation equation, the voice affirmed that "[t]he whole group of concepts has to be revised. The problem of psychokinesis, clairvoyance, etc., at the present stage is all right, but profoundly misleading – permit us to say the truth."[46] Unfortunately, a full reference or transcript of what transpired was never made public. Whether one believes his accounts are genuine or not is of no consequence here because Puharich was completely overtaken by these purported experiences.

Since the content directly focuses on parapsychological processes, which was one of his specialties, it follows that he would have worked to incorporate this new information into his own research. Indeed, after a few weeks of "conversations" through the medium, Dr. Vinod, Puharich perceived these exchanges to be profound and the information he was receiving to be nothing short of supreme wisdom. He commented that "it was a deeply moving experience, and we really believed every word that we heard based purely on the internal evidence. This was interrupted in February 1953 when I had to serve as a captain in the U.S. Army during the Korean War."[47] Despite being well-acquainted with the paranormal, this event forever changed his perception of the nature of reality.

From then on, Puharich's career would commingle conventional research on the one hand, such as his electronic inventions, and government extrasensory perception research

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[46] Andrija Puharich, "Introduction," in *Uri: A Journal of the Mystery of Uri Geller* (Garden City, NY: Anchor Press, 1974), 1-10.

[47] Puharich, "Introduction," in *Uri*, 1-10.

on the other. Puharich was arguably the most significant person in getting the United States government to investigate parapsychology. One question that people may ask is why, with his bizarre background, the government took Puharich seriously in the first place. Although this question has many answers, the most pertinent one given the context of this essay, may be to see it as a microcosm of the major argument of this thesis: the question of rationality. Just as parapsychology and artificial intelligence themselves were initially given extra scrutiny in the face of mounting objections, the government also cast a wider net among the realm of scientists. In addition to believers in aliens, the government also employed scientologists and run-of-the-mill psychics. In some cases, the government even exposed critiques against them as nothing more than preconceived prejudices against the phenomena wrapped in a veil of objectivity.[48] One document, a briefing report issued by the Defense Intelligence Agency titled "Recent Adverse Publicity on Parapsychological Research," is short but indicative of the government's perspective on these characters.

The author of the document, whose name has been redacted, suspects that the sole intent of the skeptics was to debunk the phenomena, even if that meant manipulation. The report relays how there are claims that "parapsychological researchers…were taken in by trickery, and that most if not all parapsychological research is suspect" but that "these

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[48] Author redacted, *Recent Adverse Publicity on Parapsychological Research (U)* (CIA-RDP96-00788R001100360001-1) (Washington, DC: Defense Intelligence Agency), March 11, 1983.

claims are in fact gross distortions."[49] The document was authorized by Dr. Jack Verona, a renowned nuclear physicist and the head of the Scientific and Technical Intelligence Directorate of the DIA, and was intended for internal distribution so as to create a divide between public perception and the views held by officials in government. Although the document does not mention Puharich by name, it is a clear defense of the research he and others were conducting on behalf of the military and intelligence communities.

Aside from his fringe pursuits, the sheer number of patents Puharich obtained showed that he was no madman, and gave credence to his ability to conduct research in controversial areas. To place the example in the wider context of this analysis, Puharich's worldview was such that the distinction between what was *science* and what was *pseudoscience* was considerably less stark than that of a scientist with orthodox views. In effect, he was able to incorporate these ideas successfully because his view of what was rational was more inclusive. Puharich's unique position as a scientist who believed that parapsychology was a rational endeavor made the idea of utilizing the phenomena more palatable to those in charge of directing policy. His specific contributions to the government's investigations into parapsychology during the Cold War cannot be overstated. As will be shown in the following chapter, his presence could be felt in government research laboratories long after the Cold War.

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[49] Author redacted, *Recent Adverse Publicity on Parapsychological Research (U)* (CIA-RDP96-00788R001100360001-1) (Washington, DC: Defense Intelligence Agency), March 11, 1983.

Section 2 – Computing Research involving Artificial Intelligence

It is impossible to examine the role of artificial intelligence without first explicating the close relationship between the field of computing and the federal government. Research into electronic computing during the Cold War involved scientists from three domains: academia, private industry, and the government. These divisions, however, easily became blurred as scholars often moved between each realm, pending security clearance. In this way, researchers for artificial intelligence mirrored scientists like Puharich in that they were able to move in and out of the public and private sectors with relative ease. Aside from a group of scientists hailing from diverse backgrounds, the development of electronic computing technology in the twentieth century would not have reached the degree it did had it not also been for the continuous financial support of the United States government. For this reason, many of the innovations in computer technology since World War II can be traced back to federal sponsorship.

Several explanations have been given for why government support was indispensable in this area, especially for long-term goals. First, the government was poised to fund research that tended to *complement* rather than *preempt* the work in universities and private industry. As with all areas of scientific research, certain initiatives are avoided for reasons that have nothing to do with science. For example, a private corporation may resist conducting research in an area that could potentially reduce the profitability of current technologies by making them obsolete. This includes tedious, long-term,

fundamental research where the immediate benefits cannot be projected or known.[50] Although they were never without their critics, artificial intelligence and parapsychology gained legitimacy as a result of the patronage of the Department of Defense. This helped reduce some of the resistance from parties outside the public sector to get involved in research that might or might not yield results.

Similar to parapsychology, the allure of utilizing computer technology in war, both hot and cold, was enough of an incentive to stimulate great effort in making the technology operational. It is at this point that the history of artificial intelligence and standard computing research diverge, since computers reached a degree of functionality that permitted them to perform simple calculations. Federal funding in the field of computing from the end of World War II to the 1970s facilitated nothing short of a revolution in electronic technology. However ambitious this endeavor, the creation of an artificially intelligent machine was hardly more than a thought, let alone a practical goal; the concept itself was only speculated upon a few years earlier. Although the period generally thought to inaugurate the field of artificial intelligence is the mid-1950s, the conception can actually be traced back more than a decade earlier. According to artificial intelligence pioneer Donald Michie, Alan Turing had been ruminating on the potentiality of machines

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[50] "Executive Summary," in *Funding a Revolution: Government Support for Computing Research* (Washington, DC: National Academy Press, 1999), 1-15, accessed January 7, 2016, http://www.nap.edu/read/6323/chapter/1.

functioning on the level of the human brain as far back as 1941, albeit using different phraseology, calling it *machine intelligence*.[51]

Despite the coalescence of the most articulate intellectuals and extraordinary resources, artificial intelligence was just not a rational aim at the time. One of the most elementary problems encountered by researchers was what could and could not be programmed into a machine. Similar to the tasks performed by the Difference Engine in the time of Charles Babbage a century earlier, electronic computers could perform individual, specific functions, such as mathematical equations, but could only perform one task at a time. Both questions and answers were recorded into the machine from the outset, and when questions were asked, the computer essentially made the association. If the computer was needed to carry out a different task, it would have to be programmed for that beforehand. This became burdensome, especially in relation to war operations when data was needed in real time. Detractors saw the inability to multitask as a significant impediment to creating artificial intelligence.

Hubert Dreyfus was one of the most vocal critics of artificial intelligence in the early years of the Cold War. In his monograph *What Computer's Still Can't Do: A Critique of Artificial Reason*, Dreyfus identifies the sheer magnitude of raw information needed to make the simplest decisions as one of the most impenetrable roadblocks in the creation of artificially intelligent machines. Also among his objections was the fact that the human

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[51] Jack Copeland, "The Turing Test," in *Studies in Cognitive Systems*, ed. James Moor, vol. 30, *The Turing Test: the Elusive Standard of Artificial Intelligence* (Dordrecht: Kluwer Academic Publishers, 2003), 1-22.

brain, with more data about a particular situation at its disposal, reaches a solution faster than one with less information. But a machine takes ever longer to reach a solution the more information it has. The rationale for this critique was that a machine would take a protracted amount of time to process information when searching for the most optimal outcome, while a human brain unconsciously or instinctively goes through the searching process imperceptibly fast. It was this mechanism, argued Dreyfus, which could not be formalized into an algorithm. No matter how much *information* was registered into a computer's memory, endowing it with the proficiency or *commonsense* of even a young child was what eluded scientists.[52] Dreyfus' significance also lies in the fact that he was a consultant for the Rand Corporation when his critique was published, a time when Rand was spearheading artificial intelligence research. Nevertheless, proponents of artificial intelligence, especially within the organization like Simon Newell and John Clifford Shaw, were not to be dissuaded.

With millions of dollars in financial incentive coming from government contracts, researchers were not at a loss for resources. The primary funder of these research projects in the first three decades of the Cold War was ARPA, later renamed DARPA (Defense Advanced Research Projects Agency). Much of the funding was awarded to universities, such as Stanford University and the Massachusetts Institute of Technology (MIT), with additional contracts going to private corporations, such as International Business Machines

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[52] Hubert L. Dreyfus, "Introduction to the MIT Press Edition," in *What Computers Still Can't Do: A Critique of Artificial Reason* (Cambridge, MA: MIT Press, 1992), ix-lii.

Corporation (IBM) and Radio Corporation of America (RCA). DARPA was involved with artificial intelligence research from the very beginning and was the catalyst for innovations in computer technology, ranging from the cybernetics to the predecessor of the modern Internet, the ARPANET. DARPA is one of the main reasons artificial intelligence was researched to the extent it was. Due in part to the creation of the Information Processing Techniques Office (IPTO), it "radically changed the scale of research in AI, propelling it from a collection of small projects into a large-scale, high-profile domain."[53] Indeed, the United States was, as it is now, the global leader in AI research.

In contrast to parapsychology, the United States was a pioneering force in artificial intelligence. Advances in electronics and computing technology were occurring at an exponential rate, and it was believed that artificial intelligence would become a reality down the line. The government took on the burden of laying the foundation and doing preliminary (costly) research in areas that were unappealing to industry and academia by themselves. For instance, one of the initial impetuses for artificial intelligence research was the establishment of a universal, digital, symbolic language that could be understood by any machine. These enquiries were directly related to rationality studies at the Rand Corporation. Decision-making tools derived from these efforts were the result of artificial intelligence research and from the debate over rationality. The very idea of artificial

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[53] "Developments in Artificial Intelligence," in *Funding a Revolution*, 198-225, accessed January 7, 2016, http://www.nap.edu/read/6323/chapter/9.

intelligence rested on the notion that the machine making the decision would do so based on some form of rational deliberation.

Since artificial intelligence incorporates many different disciplines, research was pursued in a variety of fields. For this reason, the SUR program would be used to represent DARPA's progress in artificial intelligence. In addition to translating words, the aim was to have the process carried out automatically, as close to real-time as possible. One of the fundamental aspects of SUR was the construction of a universal formula for rationality, as it was considered essential to a successful speech recognition program.

Since defining rationality was a highly contested subject at the time, artificial intelligence researchers attempted to make the type of rationality they were concerned with distinct from the rationality debate in general. One of the proponents of this was Allen Newell, who used the phrase "knowledge level" to describe the type of rationality they were after. He hypothesized that there was a level of knowledge above simple symbol recognition, which functioned as the component that chose the best option to complete a given goal.[54] This can be seen as a response to the skepticism of critics like Dreyfus.

There needed to be a mechanism that could reduce the period between question-and-answer in the symbol-based system as new information was added, rather than increase it. Knowledge was conceptualized to be a "competence-like notion, being a

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[54] Allen Newell, "The Knowledge Level," *Artificial Intelligence* 18, no. 1 (1982): 87-127.

potential for generating action" and was "intimately linked with rationality."[55] The idea was that there was a higher order function that could wade through all possible answers to reach the best answer possible.

Researchers at DARPA worked on this problem for the SUR program, but were not successful. Although seemingly simple in scope, this project would prove to be tremendously difficult to complete. In fact, it proved to be such a complex undertaking that it was nearly abandoned in the 1960s, and did not become fully realized for over three decades.[56] The inability of researchers to create an algorithm to translate languages, in this case Cyrillic to English, provided critics like Dreyfus with ammunition for their arguments against AI's rational foundations.

Nevertheless, DARPA and the Rand Corporation continued to work together on problems related to artificial intelligence. Failure did not necessarily lead to ditching the project. It is significant to note that the same attitude was maintained throughout the course of the Cold War with parapsychology as well; both efforts offered just enough to keep the interest of the government piqued. Since one of the core tenets of Defense Department sponsorship in computer technology during the Cold War was preliminary research, it was generally understood that the research's utilization would not be readily known until it was needed, or "required." As a result, the leading AI researchers, including

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[55] Newell, "The Knowledge Level," 87-127.

[56] Philip Klahr and D. A. Waterman. Artificial Intelligence: A RAND Perspective. Santa Monica, CA: RAND Corporation, 1986. http://www.rand.org/pubs/papers/P7172.html.

John McCarthy, Marvin Minsky, and Simon Newell, "view[ed] their institutions' research, during the first 10 to 15 years of DARPA's AI funding, as essentially unfettered by immediate applications." In other words, for much of the early Cold War, substantial progress did not have to be demonstrated for the funding to continue.

Parapsychology was afforded the same luxury. Just like any other science, it was required to pass rigorous testing. Since the military began to have new objectives in mind for artificial intelligence, "the nature of DARPA's support changed radically—from an emphasis on fundamental research at a limited number of centers of excellence to more broad-based support for applied research tied to military applications—both reflecting and motivating changes in the field of AI itself."[57] Undoubtedly, the government had its sights set on military applicability from the very beginning, but the overt transition would have far-reaching effects.

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[57] "Developments in Artificial Intelligence," in *Funding a Revolution*, 205, accessed January 7, 2016, http://www.nap.edu/read/6323/chapter/9.

CHAPTER 3 – PARAPSYCHOLOGY, ARTIFICIAL INTELLIGENCE, AND THE HYPE CYCLE IN COLD WAR RESEARCH

As the East and West entered the third decade of the Cold War, the United States government's perspective on the viability of the research projects under investigation began to shift. This was, in part, a result of the changing state of the Cold War in the late 1960s through the 1970s. Although the United States and the Soviet Union never deployed troops on each other's land or officially declared war, there were deadly battles that were fought with the support of both superpowers. The Vietnam War is one of the conflicts that was born out of this tedious situation. The United States supported South Vietnam and the Soviets backed the North. This proxy war left millions of Vietnamese maimed or dead and it created a massive platform for anti-war sentiments within the United States. In turn, the United States and the Soviet Union entered a state of détente. Détente was considered an easing of relations between the East and the West, at least in terms of armed conflict.

The nuclear arms race that dominated the early part of the Cold War exacerbated rather than quelled fears over nuclear war. Mutually Assured Destruction (MAD) was a concept that was promoted in an attempt to get the idea out that nuclear war was in no one's best interest. Another effort that illustrated the gravity of the situation was the Doomsday Clock, created by scientists in order to

show how close the world was perceived to be from global catastrophe. Midnight

represented nuclear war with the Soviet Union. The symbolic clock, initially set to 7

minutes to midnight, was moved as close as 2 minutes away from worldwide

annihilation. Treaties such as the Nuclear Nonproliferation Treaty and the

Antiballistic Missiles Treaty were signed in an effort to steer away from the arms

race. With the prospect of hurling nuclear bombs at each other became more

remote, less devastating military measures were afforded more consideration

among government officials. Among these were parapsychology and artificial

intelligence.

The hype cycle, which will be discussed in the following section, is a concept

that is used to describe the rise and fall of certain technologies or fields of research.

It is instructive in this study because both artificial intelligence and parapsychology

experience these cycles in similar ways. Both research initiatives experienced dark

and golden ages within a couple of decades. Their ebb and flows are representative

of what information technology and government advisory firm Gartner Inc. calls

'hype cycles'[58]. In short, the cycle begins with a new concept entering public

consciousness. Sometimes, the concept in question will experience a period of time

where anticipatory outcomes are greatly inflated. The next stage of the process is

when the forecasted results are not met in the requisite time. This is followed by a

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[58] "About Gartner," Gartner Inc., 2016, accessed April 4, 2016,
http://www.gartner.com/technology/about.jsp.

severe downturn in the viability of the concept. Lastly, the theory suggests that the conceptualization is realized somewhere between complete success and total failure.

The factor makes parapsychology and artificial intelligence significant is that they both go through these cycles continuously. Even though they had intervals where there was a lull in support, parapsychology and artificial intelligence both reemerged from those periods and re-intrigued government officials enough to start new investigations.

This chapter will analyze how parapsychology and artificial intelligence went through these cycles and the factors that went into them. In the 1980s, the parapsychology program was moved between different intelligence agencies which sparked a more critical debate internally about its progress and applicability. Reports were prepared by independent institutions that aided in providing a more objective perspective on the programs. These debates elucidate how parapsychology reemerged on a regular basis, why the government was rational in its decision to investigate it, and why these resurgences in interest are likely to continue in the future. The assessment described parapsychology going through multiple hype cycles.

The progress of artificial intelligence was also debated, albeit in a more open forum. These dialogues show how AI was scrutinized by critics and why research continued despite minimal accomplishments. Similar to parapsychology, artificial

intelligence research continually changed hands, which widened the debated considerably. This chapter will close by showing that by the end of the Cold War, both disciplines were on the stage representative of disillusionment, but neither program was scrapped entirely, permitting the cycle to repeat itself in the future.

<div align="center">Section 1 – Hype Cycles and Parapsychology</div>

The use of the concept of the hype cycle comes from the American information technology firm Gartner Inc., an organization that regularly consults with government and private industry.[59] Although they never weighed in on these subjects specifically, the hype cycle is applicable to both parapsychology and artificial intelligence. Before examining each program, it is imperative to offer a quick overview of what hype cycles are and how they play out. The cycle begins when there is a "technological trigger," that is, an idea or conceptualization for a new technology. This is followed by an unprecedented explosion in anticipation and expectation for the capabilities of the technology, usually exaggerated by media beyond initial projections. The next stage is the period of disillusionment when the technology, and the hype behind it, are not realized. The final phase, which varies depending on the technology in question, is when the technology experiences a

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[59] "About Gartner," Technology Research | Gartner Inc., accessed April 25, 2016, http://www.gartner.com/technology/about.jsp.

slight resurgence, ending with it tapering off somewhere in the middle between both extremes. The life of the hype cycle is illustrated in this infographic[60]:
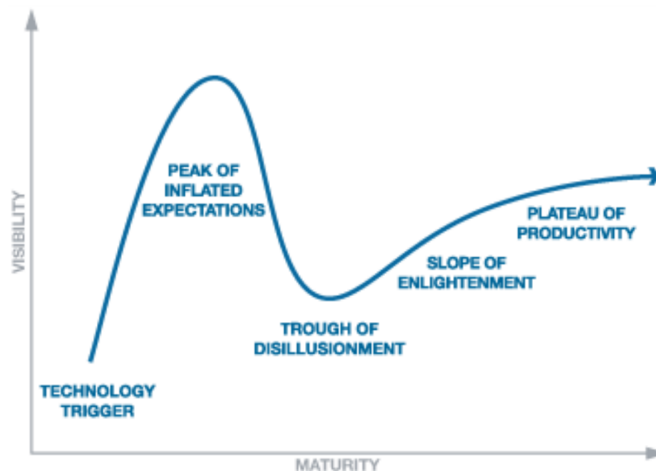
Figure 2: The Five Main Phases of the
Hype Cycle

The concept of hype cycles is not universally accepted by scholars, but the main criticism, leveled by British computer scientist Richard Veryard, works to the advantage of the programs being examined.[61] The theory of the hype cycle attempts to articulate the evolution of certain ideas or technologies as they go from the proverbial drawing board to the production line. Critics assert that this does not portray a cycle, but rather a linear phenomenon that goes from point A to point B.

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[60] *Gartner Research Methodologies* (Stamford, CT: Marketing Communications, 2015), 7, accessed March 12, 2016, http://www.gartner.com/imagesrv/research/methodologies/methodologies_brochure_14.pdf.

[61] Richard Veryard, "Technology Hype Curve," Demanding Change, September 16, 2005, accessed May 25, 2016, http://demandingchange.blogspot.com/2005/09/technology-hype-curve.html.

Interestingly, however, parapsychology and artificial intelligence do in fact have a cyclical nature. Historically speaking, parapsychology rears its ugly head periodically, with neither proponents able to fully satisfy critics and critics never able to fully strike it down and put a nail in its coffin. Likewise, artificial intelligence experienced many ups and downs in its short history, with periods known as *AI Winters* where its fate was seriously called into question. Yet neither discipline underwent the final stage of tapering off into an acceptable middle ground; they loop back to the initial stage where enthusiasm, or *hype,* is somehow re-inculcated back into them.[62] The fields of parapsychology and artificial intelligence have yet to break free from this system.

The hype cycles of artificial intelligence are more pronounced than those of parapsychology. The most glaring reason is because the AI experienced several cycles within the second half of the Cold War. The hype cycles of parapsychology take much longer to become palpable by comparison. This may be a result of the fact that parapsychology has had a much longer history and has accrued more literature over the centuries that inform the debate. Despite having roots that reach back to ancient history, artificial intelligence, in its current conception, is a new field. When researchers were met with seemingly impassable roadblocks, critics were quick to jump on them as proof of the infeasibility of artificial intelligence. One example of

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[62] Dr. Michael D. Mumford, Dr. Andrew H. Rose, and Dr. David A. Goshin, *An Evaluation of Remote Viewing: Research and Applications* (Washington D.C.: American Institutes For Research, 1995), 3-47.

these kinds of roadblocks is the aforementioned barrier researchers met when they were unable to match the tacit knowledge of a young child in machine intelligence. If and when solutions were found for whichever issues was at hand, the perspective reverted back to viability. The process happened rapidly and set precedents for future research.

This back-and-forth had been taking place in the field of parapsychology for a very long time and so debates are not so easily settled. This long and complex history of alternating perspectives is one of the reasons, researchers contend, why interest in parapsychology flairs up after periods of dormancy. When the case appears to be settled that it is a pseudoscience, there are always scientists to go back to the literature and see something of worth that was disregarded by those that deemed the phenomena nonexistent, causing the cycle to start over again.[63] This was one of the conclusions of a panel of researchers commissioned to investigate the progress and possible future of parapsychological research by the US government.

The study, "An Evaluation of Remote Viewing: Research and Applications," was carried out by the American Institute of Research (AIR), and was conducted at the behest of the Defense Intelligence Agency after that agency inherited the program from the CIA. Today it is colloquially known as the "AIR Report," and while it was widely thought to have delivered the death knell to state-funded

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[63] Mumford, Rose, and Goshin, *An Evaluation of Remote Viewing*, 3-47.

parapsychology research, in reality it shows how government-sponsored research into ESP will likely return in the future, a prediction that came to fruition in the early twenty-first century.

The AIR Report incorporated an extensive section on the history of parapsychology and unwittingly illustrates the hype cycles that parapsychology goes through by asserting that parapsychology "has a shifting database. Experimental data that one generation puts forth as rock-solid evidence for [ESP} is discarded by later generations in favor of new data."[64] The report traces parapsychology back to the Society for Psychical Research (SPR) of the nineteenth century and how it periodically reemerged from its own ashes. The authors include this narrative in their study in order to show that the very phenomena that they were being asked to research had already been done on a cyclical basis for centuries.

The SPR's first president, Henry Sidgwick, obtained alleged evidence from a set of five siblings, called the Creery sisters. They were tested for telepathy by having one sister leave the room while the researcher showed a word or image to the remaining sisters in the room. When the fifth sister came back into the room, there was a good probability that she would be able to guess the word or image.

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[64] Mumford, Rose, and Goshin, *An Evaluation of Remote Viewing*, 3-47.

This was seen as legitimate evidence for many years, until it was discovered that the sisters had cheated and used various signals to tip off their sibling.[65]

Another set of experiments carried out at the end of the nineteenth century, by Douglas Blackburn and George A. Smith, a mesmerist, was advanced as unassailable evidence of psychical phenomena. These experiments were along the same lines at those conducted on the Creery Sisters, with Smith blindfolded and asked to name the object shown to Blackburn. The idea was that Blackburn was telepathically communicating the information to Smith. This data, however, also proved to be fraudulent as one participant published a confession in 1911, detailing how the deception took place.[66] Those who saw psychical phenomena as real were not dismayed for long, as it would have been irrational to take a few instances of fraud and use that as evidence to discount all other research.

Parapsychology's hype cycle continued, as a decade or so later the famed researcher J.B. Rhine began his experiments that really propelled parapsychological research into the modern era. Rhine's work illustrates how parapsychology goes through hype cycles. It also shows that, historically, critics were more subjective than objective in their attempts to discredit the phenomena. Pundits were initially quick to attack Rhine from a direction that seemingly left little room for interpretive

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[65] Robert M. Schoch and Logan Yonavjak, *The Parapsychology Revolution: A Concise Anthology of Paranormal and Psychical Research* (New York: Jeremy P. Tarcher/Penguin, 2008), 26-28.

[66] Schoch and Yonavjak, *The Parapsychology Revolution*, 26-28.

leeway: mathematics. This should have served as a death knell because, to use as old

phrase, numbers do not lie. However, this attempt backfired. As the AIR report

recounts:

> Burton Camp, the president of the Institute of Mathematical Statistics,
> issued a statement that if the critics were going to fault
> parapsychological research they could not do so on statistical
> grounds. The critics then turned their attention to methodological
> weaknesses.[67]

Herein lies a significant factor in why parapsychology is still researched. The

picture that the history portrays is one where critics will go to extraordinary lengths

to discredit parapsychology. Rather than account for their initial rejection, which

clearly had no basis in reality (according to Camp), they jumped to another tactic.

What never comes up in the debate is why critics tried to use faulty mathematics to

discredit Rhine. Rather than being held accountable, they jumped to their next line

of attack, which was his methodology.[68] Modern day researchers see these tactics

used by skeptics as just that, tactics to debunk the hypothetical phenomena no

matter what. Current parapsychological researchers within the military

establishment see that and do not take the conclusions of those critics seriously.

It does not matter here whether Rhine's work proved the validity of

parapsychology, but rather how the research was attacked. Shifting from critique to

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[67] Mumford, Rose, and Goshin, *An Evaluation of Remote Viewing*, 3-47.

[68] Mumford, Rose, and Goshin, *An Evaluation of Remote Viewing*, 3-47.

critique, hoping that one sticks, unwittingly shows that the critics' sole desire was to discredit the phenomena. People who are interested in parapsychology perceived this as a reason to continue investigations. Critics have long ridiculed parapsychologists for cherry-picking evidence that makes the phenomena look the best,[69] but parapsychologists charge skeptics with the same crime.[70] From this one can infer that the debate is more deeply ideological rather than rooted in scientific progress.

Proponents of parapsychology always seem to view the retorts of critics with severe skepticism, and vice versa, creating a situation of perpetual disagreement. This ideological divide is one of the major reasons why interest in parapsychology revivifies over time, as newer generations of government researchers look into the debate and conclude that the arguments from established science are not strong, and more importantly, insufficient to prevent further research, especially within the United States Department of the Air Force.[71]

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[69] Richard Wiseman, "'Heads I Win, Tails You Lose': How Parapsychologists Nullify Null Results: Parapsychologists Have Tended to View Positive Results as Supportive of the Psi Hypothesis While Ensuring That Null Results Don't Count as Evidence against It. Here's How This Self-deceptive Process Works and Four Suggestions to Overcome It. (Report)." *Skeptical Inquirer* 34, no. 1 (2010): 36-50.

[70] Chris Carter, ""Heads I Lose, Tails You Win", Or, How Richard Wiseman Nullifies Positive Results, and What To Do About It: A Response to Wiseman's (2010) Critique of Parapsychology," *Journal of the Society for Psychical Research* 74 (2010): 156-167.

[71] United States Department of the Air Force, Air Force Research Laboratory (AFMC) AFRL/PRSP, *Teleportation Physics Study*, by Dr. Eric W. Davis, AFRL-PR-ED-TR-2003-0034 (Lancaster, California: Edwards Air Force Base CA, 2004), 1-55.

Section 2 – The Hype Cycles of Artificial Intelligence

Artificial intelligence experienced many ups and downs throughout the latter half of the Cold War, reflecting the nature of hype cycles. Several periods have been identified as *AI Winters*, conjuring the image of a barren wasteland where there was once a thriving industry.[72] That would be a gross misrepresentation of what actually transpired. Funding was not necessarily pulled from projects related to artificial intelligence, but was continuously reoriented, sometimes looping back to previously discarded approaches. The same held true for general enthusiasm. When breakthroughs were not forthcoming, goals were altered in an effort to keep the research going. A good example of this is the history of the artificial neural network (ANN).

ANN's have fallen in and out of favor numerous times throughout the history of artificial intelligence, arguably experiencing microcosmic examples of hype cycles itself. The concept of ANNs was first introduced by Warren McCulloch, a neurophysiologist, and Walter Pitts, a mathematician, in the early 1940s. Although theoretically promising, initial attempts to simulate organic neural networks failed, leading to a decline in enthusiasm. Then, some progress was made in the late 1950s with the development of the "Multiple ADAptive LINear Elements" model, or

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[72] Joel Moses, "Macsyma: A Personal History" (paper presented at the Milestones in Computer Algebra conference, Stonehaven Bay, Republic of Trinidad and Tobago, May 1-3, 2008), 1-9.

"MADALINE" for short, which gave the hypothetical neural network a very rudimentary capacity to 'think'. Then ANN's took an unexpected turn, since "despite the later success of the neural network, traditional von Neumann architecture took over the computing scene, and neural research was left behind."[73] These examples show artificial intelligence's movements through various hype cycles.

Disillusionment reached a peak with publication of a book by Marvin Minsky and Seymour Papert titled *Perceptrons: An Introduction to Computational Geometry*, which was highly critical of the severe limitations that ANNs had.[74] This coincided with a period of drastically reduced funding and research for almost two decades until interest in ANNs was revitalized in the 1980s when John Hopfield from the California Institute of Technology presented an influential paper to the National Academy of Sciences.[75] New models had made improvements but the celebration was short-lived as it was slow and ineffectual. By the turn of the century, neural

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[73] "Neural Networks - History: The 1940's to the 1970's," Stanford University, accessed July 2, 2016, https://cs.stanford.edu/people/eroberts/courses/soco/projects/neural-networks/History/history1.html.

[74]Gary Marcus, "Is 'Deep Learning' a Revolution in Artificial Intelligence?," *The New Yorker*, November 25, 2012, 1, accessed March 12, 2016, http://www.newyorker.com/news/news-desk/is-deep-learning-a-revolution-in-artificial-intelligence.

[75] "Neural Networks - History: The 1980's to the present," Stanford University, accessed July 2, 2016, https://cs.stanford.edu/people/eroberts/courses/soco/projects/neural-networks/History/history2.html.

networks had again been sidelined in favor of alternative approaches.[76] These episodes represent the field of artificial intelligence going through numerous hype cycles as scientists consistently became discouraged each time they encountered a new impediment.

This recurred on a perpetual basis throughout the 1970s and the 1980s, causing periodic lapses in the conviction that a fully realized artificially intelligent machine was feasible. For this reason, the term *AI Winter* should be understood in the contexts of *enthusiasm* and *progress*. Whether or not the total amount of funding for artificial intelligence increased or decreased overall is less relevant than the flow of money in and out of isolated projects. For example, when researchers faced algorithm programming problems, the ones that Dreyfus was critical of, they shifted their attention to artificial neural networks and the MADALINE model. When that research area proved fallacious, scientists shifted again to a new field of interest called expert systems. When perceived failures occurred in parapsychology, scientists were quick to jump on them as conclusive evidence; when the same occurred in artificial intelligence research, they were not as quick to denounce the entire field as pseudoscience.

When one looks at the individual parts rather than the whole, it is evident that solitary projects working on minute aspects of artificial intelligence were

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[76] Marcus, "Is 'Deep Learning' a Revolution in Artificial Intelligence?," http://www.newyorker.com/news/news-desk/is-deep-learning-a-revolution-in-artificial-intelligence.

constantly redirected or sublimated to work on different problems, thus creating a

situation where progress was at times non-existent. This left Dr. Kevin B. Korb to

remark, "Many thousands have worked on one aspect or another of the AI research

program and it has achieved a great many things, but where is the AI?" [77] With all

the resources poured into artificial intelligence, the results were essentially the

same as parapsychology: neither was demonstrable. While the degree of AI's

progress may not be that simple, these circumstances are reflective of artificial

intelligence's correlation with the concept of hype cycles.

The field of artificial intelligence suffered from the unbounded speculation on

what could be accomplished. Even when there were accomplishments worth

celebrating, they were not seen as significant milestones to the general public. For

example, consider DARPA's speech recognition programs, often considered the

"Holy Grail" of DARPA's technological quest.[78] For a substantial amount of time, the

creation of automated language translation in real time was an abysmal failure. It

only began to become a reality in the early twenty-first century, long after the end of

the Cold War, which is illustrative of just how little was actually achieved

throughout that period. The public is now acquainted with this kind of technology in

the form of tools such as Google Translate, but even these mechanisms fall short of

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[77] "The True State of Artificial Intelligence," Monash University, November 9, 2012, accessed December 3, 2015, http://www.monash.edu/news/articles/4531.

[78] Clay Dillow, "DARPA's Newest Language Translator Would Be Less Handheld Device, More Robot Assistant," Popular Science, April 6, 2011, accessed May 15, 2016, http://www.popsci.com/technology/article/2011-04/darpas-newest-language-translator-would-be-less-handheld-device-more-robot-assistant.

being defined as artificial intelligence.

The divide between what is considered a massive development by scientists, and that by non-scientists, illustrates how little the significance of supposed breakthroughs filter down from the laboratory to the bureaucrats office or the public. Indicative of this was a lack of appreciation by DARPA itself. DARPA, the patriarchal institution in the life of artificial intelligence, was unsure by the late 1980s what exactly was achieved in the field of AI in the Cold War. In the Presidential Address of the Association for the Advancement of Artificial Intelligence, titled "Foundations and Grand Challenges of Artificial Intelligence," Raj Reddy touched upon this sentiment when he remembered being asked by senior DARPA personnel, "What are the major accomplishments of the field? How can we measure progress? How can we tell whether you are succeeding or failing?"[79] These are not questions that are asked of someone whose work should speak for itself.

DARPA was not a passive sponsor, it was integral in the research every step of the way because of the technologies capabilities in terms of national defense. Had artificial intelligence really experienced massive developments, as proponents would argue, DARPA would have known of them from the start. One can infer from this that even though artificial intelligence research has ever so slightly chipped away at the problems it has encountered, those successes are not perceived as

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[79] Raj Reddy, "Foundations and Grand Challenges of Artificial Intelligence," in "Presidential Address," *AI Magazine* (Winter 1988): 9-21, accessed December 2, 2015, http://www.aaai.org/Library/President/Reddy.pdf.

profound or life-changing in any way. Even though DARPA supported projects it knew would not have immediate applications, the promises made to it rang hollow after so many years.

Section 3 – The Fate of Parapsychology and Artificial Intelligence at the End of the Cold War

Parapsychological research in the second half of the Cold War, specifically the 1980s through the 1990s, is intriguing because many of the participants in those programs have gone on to detail their experiences to the public. The latter phase of parapsychology research encapsulated the 1980s, when the research was transferred from the Central Intelligence Agency to the Defense Intelligence Agency, to the end of the Cold War in the 1990s. The program's designated codename was changed on several occasions throughout this time.[80] Publicity surrounding the government's involvement with paranormal activities reached a crescendo during this time due to the sensationalization of the subject by various media outlets.[81] With the program no longer secret, the government was in a tough position. Having

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[80] Steven Aftergood, "Star Gate [controlled Remote Viewing]," Federation of American Scientists, last modified December 29, 2005, accessed May 12, 2016, http://fas.org/irp/program/collect/stargate.htm.

[81] Daniel Druckman and John A. Swets, "Paranormal Phenomena," in *Enhancing Human Performance: Issues, Theories, and Techniques* (Washington, DC: National Academy Press, 1988), 169-208, accessed June 29, 2016, http://www.nap.edu/read/1025/chapter/13.

knowledge that the United States officially researched parapsychology for several decades by the mid-1980s, people have been curious about what was found that kept the program alive for so long. Since parapsychology is a deeply polarizing issue, several committees of scientists were commissioned to analyze what exactly the research showed. One of these committees, the American Institute of Research, was responsible for the aforementioned AIR report that gave a pessimistic view of the research.

Another body that was tasked with the same objective was the Committee on Techniques for the Enhancement of Human Performance from the Commission on Behavioral and Social Sciences and Education (CBASSE) of the National Security Council. This report is curious due to a single paragraph at the very end of the text. While concluding that the actual data just did not support the incredible declarations being made regarding ESP, it notes that the committee was urged by the military to reconsider because several military personnel had concluded otherwise. The reference is short and vague, mentioning only that "two of the military officers who briefed us…urged the committee to give serious consideration to paranormal phenomena…They described a variety of such phenomena that they felt had military potential, either as threats to security or as aids to defense."[82] No other information or details are given as to what paranormal phenomena the military was talking about, or how it might aid in national defense. One can only

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[82] Druckman and Swets, ""Sources of Information" within Paranormal Phenomena," in *Enhancing Human Performance: Issues, Theories, and Techniques*, 169-208, accessed June 29, 2016, http://www.nap.edu/read/1025/chapter/13.

speculate whether the most potent evidence was kept concealed from the committee or the public for purposes of national security.

Nevertheless, the committee did not alter its assessment, meaning these divergent views were to remain irreconcilable. The civilian wing of the parapsychology programs, such as the CIA and DIA, took these assessments as a cue to back away from paranormal research, at least publicly; on the other hand, the military stood by its own scientific assessments and initiated new projects delving deeper into parapsychology and incorporating it within quantum physics. Before briefly evaluating the military's twenty-first century psychic warfare program, a summary of parapsychology at the end of the Cold War will shed some light on how that transition occurred.

By the last decade of the twentieth century programs related to artificial intelligence and parapsychology had been in operation for over thirty years. The fruits of this labor are highly contested. Neither program established the sort of success that had been projected over the years, nor did they aid in winning the Cold War over the Soviet Union. This is not to say, however, that all the research and resources expended on these programs was in vain. Throughout the course of the Cold War, the programs on extrasensory perception produced over twelve thousand documents totaling nearly one hundred thousand pages of information, and that is just what has been declassified. Much of this material has not been investigated, but

includes internal memos, committee briefings, experiments and results, financial records, and foreign intelligence.[83]

In fact, as far as I have been able to uncover, there has been no academic historian that has undertaken a systematic review of these documents, leading amateur and budding historians to wade through the material themselves. Despite steady derision and unsubstantiated claims that the intelligence community purposefully lied in the documents, they are the most prestigious source of information for future parapsychological researchers and enthusiasts. Since the topic is controversial, any laboratory looking into it will be met with skepticism, even if done at a respected university. At the very least, the government-supported studies provide an extra layer of protection against deceit because they were carried out under the banner of national security.

When the government officially recognized the parapsychology projects in the mid-1990s, it did so with the understanding that those programs were promptly terminated. Most of the programs were closed down, but not all. Though smaller in size and scope, the Defense Intelligence Agency maintained a cadre of psychics and continued to carry out research.[84] Not much is known about these newer projects

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[83] Tamra L. Temple, "Project Stargate Interactive Archives," Project Stargate Interactive Archives, 2016, accessed November 3, 2015, http://www.stargate-interactive.com/index.html.

[84] Kenneth Kress, "Parapsychology in Intelligence: A Personal Review and Conclusions," *Journal of Scientific Exploration* 13, no. 1 (1999): 69–85, accessed

but their existence is significant for several reasons. First, someone in the establishment must have seen potential in psychic warfare for new studies to be authorized. Here the concept of rationality shines through, closely mirroring the situation that initially sparked this saga half a century earlier. Maybe the most successful research was kept classified from the public and internally served as a reason for renewed efforts. This is sheer speculation, but the point is that even after the Cold War, after the program's disclosure, and after assurances that parapsychology was not useful, the intelligence community still considered further parapsychological research as the rational approach.

Another reason the DIA's decision to continue research is significant is because it could represent the beginning of a new hype cycle. The end of one era ushered in a new one. Although it remains to be seen if government parapsychological research will cause hype in the future, it certainly is a subject that is discussed and not as taboo as one might expect. Indeed, although the CIA transferred the program to the DIA, former Director of Central Intelligence Robert M. Gates made it clear that the CIA would continue to monitor parapsychological research conducted by other institutions, especially in the academic world, with the intention of focusing on abilities that would have practical and operational

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December 3, 2014,
http://www.scientificexploration.org/journal/jse_13_1_kress.pdf.

applications.[85] In addition to the intelligence community, the military has also

shown recent interest in parapsychology.

In 2004, the United States Air Force released a special report titled

"Teleportation Physics Study," a large section of which was focused on "psychic

teleportation." Psychic teleportation can be thought of as a synonym for

psychokinesis. The author of the report, Dr. Eric W. Davis, declared:

> The teleportation phenomenon discussed in the chapter is based on
> psychokinesis (PK), which is a category of psychotronics. The U.S.
> military-intelligence literature is reviewed, which relates the
> historical scientific research performed on PK-teleportation in the
> U.S., China and the former Soviet Union. The material discussed in the
> chapter largely challenges the current physics paradigm; however,
> extensive controlled and repeatable laboratory data exists to suggest
> that PK-teleportation is quite real and that it is controllable.[86]

The report speaks rather highly of the research conducted by Puthoff and Targ at

Stanford University and goes on to state that the central figure in initiating the

United States Government research programs into parapsychology, Andrija

Puharich, is considered an expert in the field by the military.[87] The fact that this

report was written nearly a decade after the program's disclosure to the public (and

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[85] Robert M. Gates et al., video conference with Ted Koppel, November 28, 1995, ABC News Nightline, ABC, Washington D.C.

[86] United States Department of the Air Force, Air Force Research Laboratory, *Teleportation Physics Study*, viii.

[87] United States Department of the Air Force, Air Force Research Laboratory, *Teleportation Physics Study*, 55.

its tacit disavowal) is more evidence that a new hype cycle might indeed be underway.

For scientists in the Air Force to see potential in the same phenomena that civilian scientists vehemently consider a pseudoscience means that the public is not aware of the full situation. Does the Air Force have access to information that the general public did not that sways them toward seeing parapsychology as a reality? What do they see that civilian scientists do not? These questions cannot be answered until more information is made available in the future. For now, all that can be inferred from the current circumstances is that a highly elite, prestigious, wealthy and powerful sector of American society has and continues to be a proponent of the reality of extrasensory perception and related anomalous phenomena. The concomitant inference is that the civilian scientific establishment has been unsuccessful in its repeated attempts to discredit parapsychology in the eyes of its military and intelligence counterparts.

On the other side of the spectrum, artificial intelligence experienced similar fluctuations, but is not as inherently controversial as parapsychology is to the scientific establishment. By comparison, research into artificial intelligence was more open in terms of what the public was made aware of. Even when reading publications by scientists who are skeptics, the condescension present in literature critical of parapsychology is not palpable to the reader. This is because the idea of artificial intelligence does not invade upon the pre-accepted principles that scientists adhere to. Artificial intelligence was not a successful enterprise in the Cold

War, but, unlike parapsychology, the question was never, "Should we continue to research it?" Rather, the question that more closely resembles the real issue at hand was, "what aspect of artificial intelligence should be studied next?" The former question reflected the majority of scientist's perspective on parapsychology, the latter on artificial intelligence. Indeed, the correspondence between DARPA and the AAAI previously mentioned exemplifies a willingness of the government to continue its support of artificial intelligence research.

Despite the role played by the private and academic sectors in the growth of artificial intelligence, the government has and will continue to be the backbone of support in the field. The entanglement of these three entities solidified the field of computer technology and this relationship is what fuels artificial intelligence research today. These associations were pivotal for progress in computer technology. Interrelationships such as these will continue and become stronger in the future as computer technology becomes even more ubiquitous that it already is.

Even though research regarding artificial intelligence is not likely to be terminated anytime soon, it is impossible to ascertain whether its previous fluctuations represented by the hype cycle will continue in the future. DARPA, the government entity that is primarily concerned with artificial intelligence, is currently undertaking three public programs geared toward artificial intelligence: "Probabilistic Programming for Advancing Machine Learning" (PPAML), "Communicating with Computers" (CwC), and the "Big Mechanism". The PPAML serves as a perfect example of the hype cycle as the project's intended purpose is to

"create more economical, robust and powerful applications that need less data to produce more accurate results – features inconceivable with today's technology."[88] This is the same technology that was sought in the original research that was ultimately unsuccessful. Once abandoned, the concept for machines with a sophisticated enough artificial intelligence to makes decisions faster and more accurate with less time and resources is being revisited.

On the whole, the artificial intelligence and parapsychology programs followed similar trajectories throughout the Cold War and beyond. The idea of the hype cycle is a strong conceptual aid that illustrates the periodic episodes of intense optimism followed by widespread disillusionment. These trends were consistent with the state of the research at the time and the expectations that were associated with them. Although it is important to acknowledge that the advances made in AI have been more impressive than in ESP, to the public's knowledge neither venture to this day has proved successful to the point where government scientists can confidently demonstrate them in an open forum. Yet, both parapsychology and artificial intelligence are still being investigated for their potential benefits.

One of the factors that make parapsychology and artificial intelligence uniquely connected is the fact that both initiatives in the post-Cold War era are directly descended from the programs that took place in the second half of the

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[88] Dr. Suresh Jagannathan, "Probabilistic Programming for Advancing Machine Learning (Ppaml)," Defense Advanced Research Projects Agency, accessed January 29, 2016, http://www.darpa.mil/program/probabilistic-programming-for-advancing-machine-Learning.

twentieth century. The United States Air Force proposed further research in the work of Dr. Andrija Puharich and the experiments conducted at Stanford University, citing specific interest in the area of 'psychic teleportation,' which is more generally known as psychokinesis. With regard to artificial intelligence, DARPA decided that it was imperative to go back and reexamine the same problem it encountered in the 1960s; the art of endowing a machine with a significantly reduced period between question and answer, or input and output. In both cases the government is holding its own previous research as the benchmark or basis for what endeavors to explore in the future.

<u>CONCLUSION</u>

Artificial intelligence and parapsychology are two concepts that have been investigated in past eras and will surely continue to be the subjects of inquiry in the future. These fields undoubtedly transcend the Cold War, yet their histories within that period are illustrative of the kinds of decisions that beset the leaders of the United States' intelligence and military communities. The raw firepower of conventional weapons that were utilized in former wars were of no consequence in the Cold War, leaving officials with the task of creating offensive and defensive weaponry of a different caliber. Artificial intelligence, at the time, was largely being considered for its defensive capabilities, as U.S. authorities sought to have speech recognition technology that understood and translated languages in real time. Parapsychology, theoretically at least, was acknowledged as having potential in both offensive and defensive objectives by the intelligence community, particularly after scientists learned of reports from the Soviet Union. These aberrant research initiatives seriously questioned the concept of rationality, as it was then understood. Though theorists' ideas of rationality were by no means monolithic, prior to the Cold War there was a fairly unified perspective that parapsychology, and to a certain extent artificial intelligence, were irrational research endeavors.

The Cold War that enveloped the world in the second half the twentieth century created a situation where both superpowers felt it was necessary, and

rational, to investigate concepts that otherwise would not have been entertained. These forays into the fringe resulted in a break from the form of rationality that had been previously accepted and ushered in an era where rationality was understood within the confines of a very specific context: the need for alternative measures against the Soviet Union. Indeed, the decisions to authorize research into parapsychology and artificial intelligence were not without their critics, but in the face of extraordinary circumstances, such as the intelligence that the Soviets were working on parapsychological warfare measures, the United States Government had no other option but to research it, lest it risk falling behind the USSR. In conjunction with this, the military was impressed with the work of a scientist named Andrija Puharich, who argued for government support for research into extrasensory perception for military and intelligence applications.

Artificial intelligence, though seemingly less controversial than parapsychology, was not as acceptable to the scientist of the mid-twentieth century as it is to one of the twenty-first. Since the concept of artificial intelligence in its modern incarnation developed alongside computer technology, researchers were hesitant to endorse the notion that a piece of hardware could seamlessly simulate the functioning of the human brain. One of the most prominent arguments critiquing AI was that despite recording vast swaths of information into a device, that device would not have the comprehension equivalent of a small child; words such as 'wood' and 'would' were confused by the machine. The Defense Department was never fully

deterred by these criticisms, even though artificial intelligence would encounter

numerous roadblocks throughout the Cold War.

Both parapsychology and artificial intelligence paralleled each other in the

sense that those working on the projects were ardent proponents of their potential

capabilities and the results they were receiving. On the other hand, members of the

government that were far removed from the programs did not always share that

sense of accomplishment. This division in supporters and detractors extends

beyond the realm of the government and pervades the public sphere as well. Since

neither side, for both parapsychology and artificial intelligence, was able to wholly

convince the other, a scenario of perpetual conflict arose. This clash pointed to what

researchers have termed "hype cycles." The concept of the hype cycle symbolizes

how ideas fall in and out of favor based on a variety of data points. Both programs

experienced cycles analogous to these throughout the course of the Cold War.

Parapsychological phenomena have perplexed man for centuries and will

continue to in the future, especially if those at the apex of scientific progress, such as

the Air Force Research Laboratory, continue to find it worth investigating. Artificial

intelligence is slowly being introduced today through numerous electronic

platforms, but it is not the kind of artificial intelligence that one would expect. The

speech recognition programs undertaken by DARPA were never able to translate

the Russian language in real time. In fact, that sort of technology is only coming to

fruition in the present. In many cases, speech-to-text software fails to recognize

voices, accents, and words in general. Nevertheless, artificial intelligence as a concept has become ubiquitous in society and is promoted by private industry in ways that wholly contradict the actions of corporations when AI was in its infancy. Whereas corporations in the early Cold War were reluctant to finance research into a subject without a large prospect of return, private industry in the twenty-first century is pouring billions of dollars into researching ways to endow machines with human-level intelligence. This drive by the private industry is buoyed by the interest of the Department of Defense in developing artificially intelligent machines, neither party of which is likely to end its pursuits any time soon.

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