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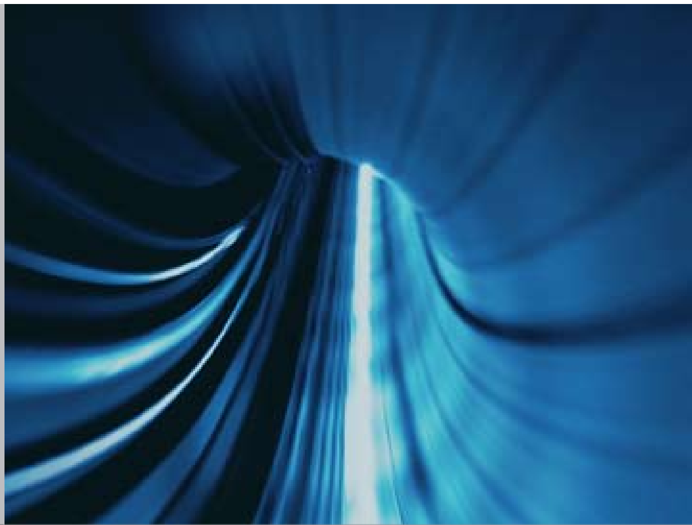
Aperture

The Official Publication of the International Remote Viewing Association

Feature Article

IRVA 2010
Remote Viewing Conference

by the Editors of Aperture



"Expand Awareness, Research, and Educate."

BRINGING TOGETHER A WIDE RANGE OF REMOTE VIEWING PRACTITIONERS, TRAINERS, AND RESEARCHERS.

The Green Valley Ranch was such a huge hit with both presenters and attendees during 2009's tenth-anniversary IRVA conference that, by popular demand, IRVA returned the annual conference to the upscale resort in Las Vegas, Nevada, during the weekend of June 18 – 20, 2010.

The facility is beautiful, modern, and plush, with an expansive reception and registration area, exceptional catering services, and many restaurants and fun activities to choose from. Lighting and the audio/video systems in the conference hall were beyond reproach, and IRVA provided several special amenities to make the attendees' days at the conference easier, including transportation to and from the resort; in-room wireless, high-speed Internet access; a vendors area at the rear of the room; and ample supplies of the resort's famously good coffee. Friendly volunteers were always available to help, as needed.

Over the three calendar days of the conference, attendees were treated to a plethora of spirited and insightful presentations, ranging in topic from remote-viewing applications and case studies to theories of consciousness and perception. This year's emphasis featured hands-on workshops, and the conference delivered with dowsing, psychometry, associative remote-viewing (ARV), and outbounder remote-viewing workshops.

Day 1:

Setting the stage for the opening was Master of Ceremonies Bill Ray, returning after a long absence from IRVA's conferences due to three tours in Iraq and one tour in Kuwait. Ray has a long history in the remote-viewing community, having served as a commander of the Fort Meade RV Unit and trained with controlled-remote-viewing pioneer Ingo Swann, one of only five military remote viewers to have done so. Ray spent over three years in the Fort Meade RV Unit and has remained involved with the remote-viewing community ever since. With his sharp Irish wit, along with a few songs and jokes, he kept the crowd entertained and the presentations running on time.

continued on page 5

Aperture

Ap - er - ture (ap'er-cher) n. 1. A hole, cleft, gap, or space through which something, such as light, may pass. 2. A term of art in certain remote-viewing methodologies, signifying the point or portal through which information transitions from the subconscious into conscious awareness.

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A General Membership in IRVA is $40 per year ($50 outside the US and Canada), which includes a subscription to *Aperture* and discounts on major conferences.

Letters and contributions to *Aperture* are invited. Please address them to the Editor. Submission of material does not guarantee its publication.

www.irva.org

Inside
This Issue

Website Quick-Reference Guide

IRVA 2010 RV Conference	www.irva.org/conferences/2010/
IRVA Conference Presentations	www.irva.org/shop/
Remote Viewing Events	www.irva.org/events/
Donald D. Hoffman, Ph.D.	www.cogsci.uci.edu/personnel/hoffman/hoffman.html
Parapsychology and the Skeptics	www.parapsychologyandtheskeptics.com
IRVA Ethical Guidelines	www.irva.org/remote-viewing/ethics
IRVA Website	www.irva.org
IRVA Facebook	www.facebook.com/pages/IRVA-International-Remote-Viewing-Association/121030527964765
IRVA Twitter	http://twitter.com/IRVAtweets

Thinking Critically

Remote Viewing Protocol:

The 2010 IRVA Conference Panel Discussion

by David Hathcock

The year was 1999. Just three years earlier, the CIA had disclosed the existence of a government psychic-spy program that used remote viewing (RV). Over those subsequent three years, reports had come of many positive scientific findings and activities using remote viewing. But, during that same period, individuals with questionable credentials and motives circulated many exaggerated stories and dubious claims about the discipline and its history. This showed RV in a poor light, and something had to be done.

In March of that year (1999), a group of scientists and former military remote viewers active in the field gathered and formed the International Remote Viewing Association (IRVA), with a charter to propagate credible information about remote viewing. I attended and helped facilitate IRVA's founding, and am a grateful eyewitness to those who expressed their concerns and positive ideas, and then created IRVA with its noble mission.

When performing RV work for various governmental agencies, the military remote viewers implemented what I would call both "unstructured" and "structured" methods to perform RV in service to our country's interests. By "unstructured" methods, I mean the use of a simple process of clearing one's mind and then allowing perceptions to flow while recording sketches and descriptions of the intended target. "Extended remote viewing" and "natural" remote viewing are examples of unstructured approaches.

Structured methods make some assumptions about the processes by which information flows to the remote viewer's perceptual response. These methods then use these assumed processes to go from simple "gestalt" beginnings to ever-increasing perceptual prompting and the recording of sketches and descriptions of the target. Examples of such structured methods are Controlled Remote Viewing (CRV) and its offshoots, such as Technical Remote Viewing (TRV) and Scientific Remote Viewing (SRV).

The dedicated scientists tended to favor unstructured methods for results evaluation and application, whereas many of the military personnel used a structured method created by Harold Puthoff, Ph.D. of the Stanford Research Institute (later SRI International) and gifted natural psychic Ingo Swann.

A key personal objective I had for IRVA's founding effort was to assemble representatives from each of the two distinctly different RV groups for the association's future staffing and representation. I expected conflicts to ensue over the methods and protocols used by each group, but trusted that these conflicts would work themselves out quickly. However, it seems that that effort continues.

In the panel discussion at IRVA's 2010 Remote Viewing Conference, Russell Targ and Stephan Schwartz, two pioneers of remote viewing and long-time members of IRVA's Board of Directors, represented the scientists' perspective. They asserted a need for efficacy testing of the structured methods of remote viewing, and that such testing should include (i) a double-blind targeting protocol and (ii) prior agreement on target-pool requirements and the methodology for evaluating remote-viewing results.

Former military remote viewers (and fellow IRVA directors) Paul H. Smith and Lyn Buchanan, acting as the panel's proponents of structured training methods, challenged the scientists to develop a structured-RV evaluation method that could be implemented and whose results could be shared publicly in *Aperture*.

This is an important move for the RV community to take and, to that end, I offer some suggestions for the testing by which to evaluate the efficacy of RV methods.

Concerning The Double-Blind Targeting Requirement

I recommend going beyond mere double-blind targeting and using precognitive targeting against a target photo that would be randomly selected in the future. This could be achieved by assigning a unique number that a remote viewer would use as that target's cueing reference in advance of any target actually being selected. Both structured- and unstructured-method remote viewers would then perform their sessions using the same unique cueing reference number.

At a later date, after the RV sessions had been performed and the results submitted to both sides of the panel, a random target number would be selected and used to select the target photo. While experience to date shows that attempts to remote-view a future event results in a hit rate of only about 20 percent,* remote-viewing future selections of previously taken photos yields a much better "hit" rate. At the least, performing remote viewing before the target selection occurs will remove any question of pre-loading or cheating during the actual viewing. For this reason alone, this protocol is better than the typical double-blind requirement.

Concerning An Evaluation Methodology

One structured-method approach teaches remote viewers to describe the target itself, as shown in a photo, at the time the photo was taken. That is, rather than merely describing the "visuals" of the photo, the remote viewer is also expected to describe other elements such as colors, smells, sounds, temperatures, voices, tangibles, intangibles, etc., that were present at the time the photo was taken.

This presents a completely different evaluation challenge from laboratory-style analysis, which weighs the remote-viewing data for statistical purposes and arrives at the best p value as a score and thus evidence of the remote-viewing phenomenon's reality. When used operationally, both unstructured and structured remote-viewing sessions go well beyond mere "proof of the phenomenon" and, instead, seek useful information that can be applied.

Furthermore, structured RV methods have mechanisms for gleaning additional data from targets (e.g., techniques for bypassing analytical interference, category prompting, and shifting viewer perspective, etc.). This can cause some difficulty in evaluating a remote viewer's work when the viewer presents unexpected additional information about a target that is correct, but which is not obvious in the target photo. While unstructured remote viewing can obtain the same or better quantity and/or quality of information, it usually requires much more personalized education and natural talent to do so. These kinds of differences must be taken into account when building a fair evaluation system.

Theoretically, structured RV methods should yield much more detail and value than generic "What is it?" methods of remote viewing, for which the main goal is only to allow a scientist to pick the correct target from among a set of four or five "distractor" photos. For the proposed evaluative process, I would suggest that the results per viewer submitted for evaluation be limited to a relatively brief written summary and one page of sketches, regardless of the RV method used.

Finally, and probably most important, the native perceptual ability and self-discipline of each remote viewer is unique; individual levels of natural psychic perceptiveness can vary significantly. Thus, a given remote viewer will be more or less effective than others. Any comparison of scores by any method needs to consider this variability. Ideally, every remote viewer subject to testing would do the target work first with one method and then with the other; however, this too can be expected to complicate any evaluation system because each person will surely prefer one method over any other -- or may not even know how to utilize one of the structured methods.

In conclusion, I am most pleased that IRVA is alive, well, and growing in acceptance and importance 11 years after its founding. At this past year's conference, I met some of IRVA's European members and was quite impressed with their enthusiasm and interest in remote-viewing integrity. An IRVA conference in Europe someday soon would be a very exciting development! Maybe one somewhere in the Pacific Rim could be next.

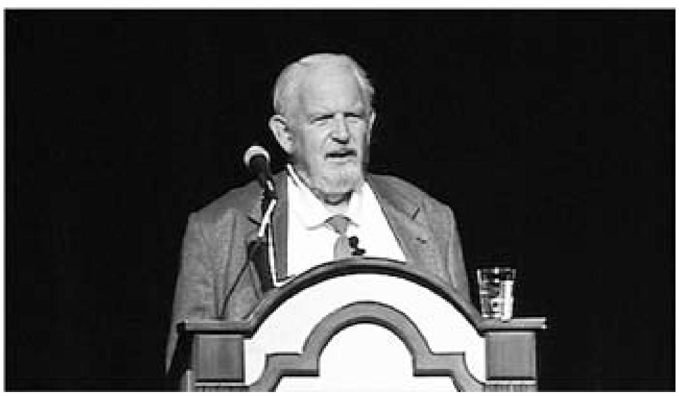
I welcome readers' responses and contributions so that we may further our understanding of this most amazing discovery of human potential.

*See *Reading the Enemy's Mind: Inside Star Gate – America's Psychic Espionage Program*, by Paul H. Smith (2005), which includes some military future-viewing statistics.

David Hathcock is a retired businessman in the telecommunications field who has been trained in a number of remote-viewing systems over many years. As IRVA's founding facilitator, he not only enabled IRVA's creation in March 1999 but also its growth into the landmark organization in the field of remote viewing that it has become. He lives in Arizona. ■

IRVA 2010: Remote Viewing Conference, continued from page 1

The conference in chief began with IRVA director and P>S>I president Lyn Buchanan's presentation of "Ten Things Absolutely Guaranteed to Make You a Better Psychic, Remote Viewer, or Controlled Remote Viewer." Buchanan's list of helpful hints and techniques included (1) the time-tested "describe, don't identify," (2) a discussion of proper cueing techniques, (3) how to be in control of your craft, (4) keep the process simple, (5) know yourself as it pertains to your abilities and limitations, (6) care about what you are doing, (7) always strive for the truth, (8) be curious in your pursuits, (9) realize the overall and participate in the "collective consciousness," and (10) practice, practice, practice! He wrapped up by emphasizing that much of the current methodology of remote viewing was bought and paid for by the taxpayers and that we should all take advantage of it.



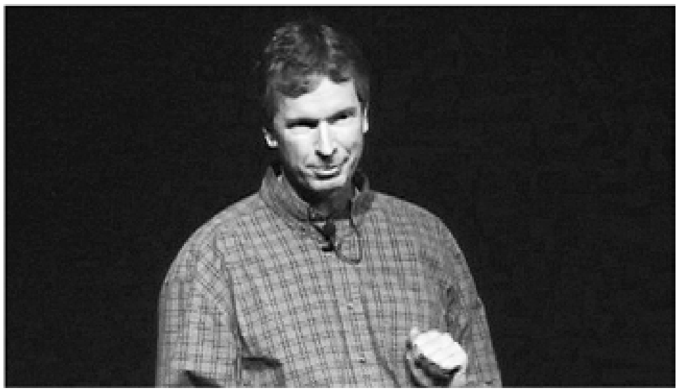
Leonard (Lyn) Buchanan

Bill Ray took a break from his master-of-ceremonies duties to share his often humorous "Celtic" view of monitoring, "Monitoring: Basics and Blarney." Ray noted that, because the art and science of monitoring are often perceived as not as exciting as the actual viewing, they do not get the attention that they should. He presented his two rules of monitoring: (1) do no harm, and (2) during monitored sessions, there is only one person on the signal line and one person with a brain – and they had better not be the same person! Ray further discussed monitoring protocols: double blind, single blind, no blind, and what he calls "legally blind," where the viewer has just enough front-loading to focus on specific aspects of the target. Ray shared the techniques of a "super monitor," such as using movement exercises in space or time and extracting data during the summary process. He also emphasized the monitor's responsibilities to the person viewing, such as the viewer's comfort, session administration and preparation, and keeping the viewer within structure as per Controlled Remote Viewing's protocols.

William (Bill) Ray, Master of Ceremonies

Pam Coronado, star of the Discovery Channel's popular series, *Sensing Murder*, returned by popular demand to present a workshop called "Psychometry: Techniques to Strengthen the RV Signal Line." Psychometry, the faculty of gaining impressions from physical objects and their history by handling them, is Coronado's favorite method of obtaining psychic data. She believes remote viewers can utilize psychometry to strengthen the signal line and sharpen all of their sensory perceptions. She began by giving an overview of the basics of psychometry and the perceptions that a viewer might pick up during a session. Attendees were then invited to come forward to the stage to select a rock from one of four secret sites, thereby to participate in a live psychometry experiment. Coronado then led the participants through a live session, followed by a second session where they were on their own to work the session. Finally, feedback was provided to the group by detailed photos from each of the four sites in southern California -- the 1865 Cold Spring Tavern stagecoach stop, the railroad tracks along Highway 101 near Santa Barbara, the Cross at Grant Park in Ventura, and the site of the 2009 fire in the San Gabriel Mountains. Many participants were enthusiastic about their results and were anxious to exchange their experiences during the Q&A session that followed.

Wrapping up the day, University of California, Irvine, professor Donald D. Hoffman presented "Consciousness and the Interface Theory of Perception."



Donald D. Hoffman, Ph.D.

This fascinating talk included a dynamic multimedia presentation of examples of how our visual perception is finely attuned to maximize utility and survivability, not accuracy or any realistic depiction of reality. Hoffman used overhead projection of slides with corresponding masks to illustrate how the human vision system is not so much a camera as a rules-based system that constructs patterns, colors, and motion to form an illusion of reality. As such, it can be stubbornly independent of conscious thought. Hoffman believes that perception is useful for the very fact that it is an abstraction of reality. He equates modern physical concepts such as space and time with forms of "user interface" that allow humans to interact with whatever objective reality is. He speculates that remote viewing and other forms of psychic functioning may be processes that penetrate those interfaces and are tapping directly into a reality vastly different from the one depicted by concepts of space and time.

Ingo Swann
(Photo courtesey of Robert M. Knight)

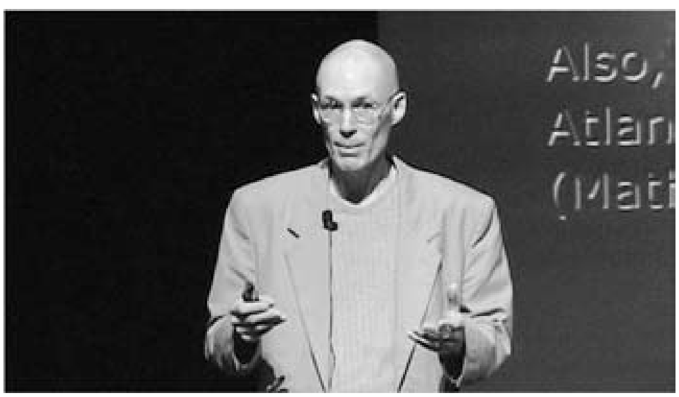
On Friday evening, conference attendees were treated to the screening of an extended trailer for the new documentary by legendary rock 'n roll photographer Robert M. Knight, "The Remarkable Mr. Swann." This movie, about the life and times of the "father" of remote viewing, Ingo Swann, features interviews with the subject as well as friends, family, and associates, including Dr. Harold Puthoff, Dr. William Tiller, Dr. Michael Persinger, Tom McNear, former CIA spokesman Peter Earnest, and Swann's sister Marlene. After the screening, Knight and co-producer John Stahler (then IRVA's vice president) shared anecdotes from the production and took questions from the audience.

Friday night ended with the ever-popular annual "PK" (for *P*sycho*K*inesis) or "spoonbending" party, hosted by Lyn Buchanan. It began with the screening of IRVA member Debra Katz's short comedy film, "Bending Spoons." After many hearty chuckles during the film, Buchanan guided the crowd through the process of bending solid metal cutlery. It was quite a sight to see the ballroom filled with people screaming at their silverware, shouting "BEND! BEND! BEND!!!" Veteran spoonbenders slung their properly bent silverware on their belts like harvested-game pelts, while many novices at the party stood in stunned disbelief at their own successful efforts.

Day 2:

The second day started off with a presentation by French researcher Alexis Champion. Champion, who started the first French company dedicated to remote-viewing applications, introduced "The Time-Machine Program: A Systematic Approach for Intuitive Archaeology." He detailed the "Man Museum Project" and archaeological endeavors, and discussed the successes, failures, and lessons learned during the course of the project. One example he gave was of a client unwilling to accept the data and an alternative explanation for the nature of the archaeological artifact being explored. Champion emphasized the importance of having an "intention contract" with the client, and the concept that all members of the project team -- client, managers, monitors, and viewers -- must all have the same goals and intentions to maximize the success of the project.

Professor Courtney Brown, an Emory University mathematician and social scientist, and founder of the Farsight Institute, returned for yet another exciting and controversial presentation on conducting public demonstrations of remote-viewing experiments. This year he offered “2012: Remote Viewing Climate Change Across Multiple Realities.” Having worked with a team of remote viewers from the Hawaii Remote Viewers’ Guild (HRVG) and IRVA director Lyn Buchanan’s P>S>I training company, Brown detailed an experiment to remote-view future climate-change events; the experiment included random targeting across multiple timelines and periods. Targets in 2008 were viewed as a baseline to be compared with the viewing of the same targets in 2013. A further aspect of the experiment was the definition of two different timelines in 2013 for the target set, distinguished by the joint conditions of (1) scientific-community acceptance of remote viewing, and (2) the existence of life beyond our planet -- or not. The results surprised Brown, as the quality of the sessions combined with the reporting of disastrous events happening along both 2013 timelines indicated a possible dark future if we were to occupy a similar future reality. He went on to speculate that current activities of governmental and scientific communities might be interpreted as preparation for some significant event, perhaps an adverse solar flare, in the 2012-13 timeframe.



Courtney Brown, Ph.D.

Marty Rosenblatt, president of Physics-Intuition-Applications Corporation (PIA), presented a workshop on “Associative Remote Viewing (ARV): Prediction of a Horse Race.” While horse-racing was featured, Rosenblatt emphasized that the purpose of the workshop was to illustrate the connection of ARV with enhanced quantum entanglement. He stressed that an ARV session “begins with the end,” that is, the feedback session comes after the remote-viewing session, and that therefore the remote-viewing information comes from the future. He touched on Quantum Biology and explained that all living processes rely on the transfer of information backwards in time. Inviting audience participation, Rosenblatt then had attendees predict the outcome of a six-horse race by means of accurately remote viewing a feedback photo associated with the future outcome of the race. The experiment, while successful, was less so due to some confusion with the feedback-photo numbering and the horse post-position numbering. There was no statistically significant consensual pick; however, the winning horse was the tied second choice of the participants. It was all great fun, and the attendees enjoyed participating in a live remote-viewing experiment.

Brenda Dunne

Brenda Dunne, former laboratory manager of the Princeton Engineering Anomalies Research (PEAR) laboratory, presented “Information and Uncertainty in Remote Perception at PEAR.” Dunne gave a brief introduction about how she came to the field through reading the now famous 1976 IEEE article by Hal Puthoff, Ph.D. and Russell Targ on remote perception. She was impressed enough that she decided to duplicate the experiment and publish her results as her senior honors thesis. She joked about how she left the University of Chicago for her future job with PEAR with the first Master of Science degree in remote viewing under her arm. Dunne discussed the successes and failures of PEAR’s remote-perception experiments, noting that their extraordinary initial success was later diminished as the approach became more programmed and analytical, and less intuitive and uncertain.

The topic for this year’s panel discussion was “The

RV Training Controversy: Does it work? Is it necessary? Is there evidence?" The distinguished panel, moderated by Bill Ray, featured IRVA founding directors Lyn Buchanan, Russell Targ, Stephan Schwartz, and Paul H. Smith, Ph.D. Russell Targ started off with the opinion that a successful remote-viewing session can be accomplished by taking a few deep breaths, quieting one's mind, and sketching the surprising thing that appears in one's awareness. He cited the highly successful psi experiments he conducted in the 1970s with psychic Pat Price and control subject Hella Hamid. He noted that that remote viewing is very easy to do and urged the remote-viewing teaching community to publish some of its students' results, preferably under double blind conditions, to prove the efficacy of its teaching methods.

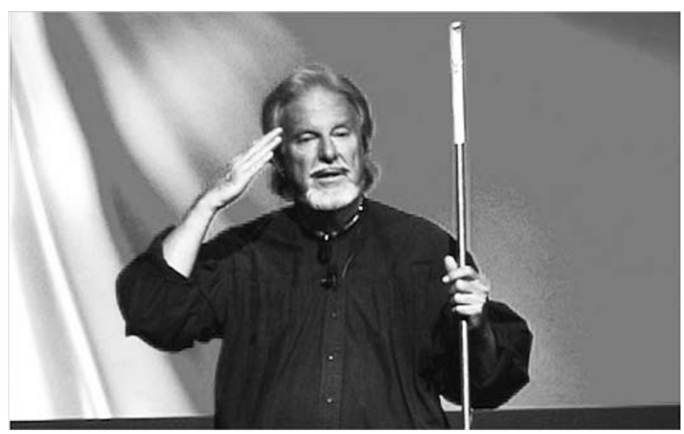
Russell Targ, Lyn Buchanan, Stephan Schwartz, and Paul H. Smith, Ph.D.

Lyn Buchanan picked up on Targ's comments, adding that it is important for remote-viewing students to experience their first result that provides a proof of concept, and agreed that it could be demonstrated through fifteen minutes of guidance. However, he felt that months, and maybe even years, of training were necessary for a viewer to develop the skills needed for complex operational work. Buchanan also felt that, while double-blind training was an important aspect of evaluation, it adds an unnecessary complexity in the early stages of training where the goal is to get both the viewer and the monitor to recognize when the viewer is connecting with the target.

Next, Stephan Schwartz weighed in with an historical perspective, illustrating that access to this form of nonlocal consciousness has been practiced for at least 2,500 years, with results equivalent to what is being observed today. He suggested that modern-day remote viewing is "a" protocol, but not "the" protocol. He believes it to be an innate human skill but, as with any other human ability, some people are naturally more adept at it than others. It is the level of a viewer's innate skill, combined with a technique compatible with that viewer, that determines the success of the practitioner, success being determined by double- or even triple-blind evaluation.

Paul H. Smith, Ph.D., IRVA's then president, closed out the initial round of discussion by agreeing that remote viewing is an innate skill and that one cannot teach someone a skill they do not already possess. He likened remote viewing to the ability to read: While everyone is born with the capacity to read, it is the teaching of reading that is the enabling force. Smith explained that the quality of that training, along with practice and the quality of the practice and evaluation, are what ultimately define success. He concurred that double-blind evaluations are useful and noted that he is already applying double-blind evaluations to his students.

Participants then took a break for dinner and returned for an outstanding speakers reception of desserts, drinks, and great conversation, catered by the Green Valley Ranch.



Jim Channon, 2010 IRVA Conference Keynote Speaker

Saturday evening opened with an entertaining yet thought-provoking keynote presentation by retired U.S. Army lieutenant colonel and First Earth Battalion commander Jim Channon. Taking the stage with a mask, walking stick, and dramatic music in the background, Channon fired up the crowd and inspired it to source their own legend and story about the achievements of the remote-viewing world. He expressed his belief that the planet is ready for a giant change and that remote viewing should be at the forefront. He briefly touched on the movie, "The Men Who Stare at Goats" (Channon himself being the inspiration for the Jeff Bridges character in the film), and why it was good for both the history of the First Earth Battalion and the future of remote viewing. He shared the story of how the Army came to adopt his ideas and charge him to "think the unthinkable," and then explained how those concepts can and should be applied to the remote-viewing community at large.

After the keynote address, IRVA held a large raffle consisting of many excellent and varied prizes donated by generous friends, members, and directors of the organization. There were so many prizes being offered that many attendees won two or more times.

Day 3:

The final day of the conference began with a popular speaker who returned after a long absence, psychic investigator Noreen Renier. Renier enchanted the audience with stories of her experiences as a skeptic-turned-psychic. She shared her belief that remote viewing and other forms of psychic functioning are a natural part of the human condition, "an awareness" as she likes to call it. She suggested that society needs to focus not just on developing the "left brain" activities of the public, but also recognize and develop the "right brain's" intuitive abilities.

Paul H. Smith, Ph.D.

Next up was IRVA President Paul H. Smith's introductory workshop on Dowsing. Smith has noted in prior presentations that dowsing is a very useful, complementary skill to remote viewing. While remote viewing can provide a useful *description* of a target, it is limited in its ability to *locate* the target. As such, dowsing provides an important additional technique to help viewers discern locations. Smith proffered a description of the various tools and implements used, as well an overview of the various types of dowsing. For the workshop, Smith provided attendees with a dowsing pendulum to work with during several live experiments. The first experiment, an attempted prediction of the outcome of two future coin tosses, had mixed results, but subsequent experiments forecasting the outcome of two-dice rolls and two-card draws resulted in four-out-of-four group successes, much to the excitement of the attendees. Smith concluded his presentation with templates and tools to execute a prediction for a pick-three style lottery.

Paul O'Connor

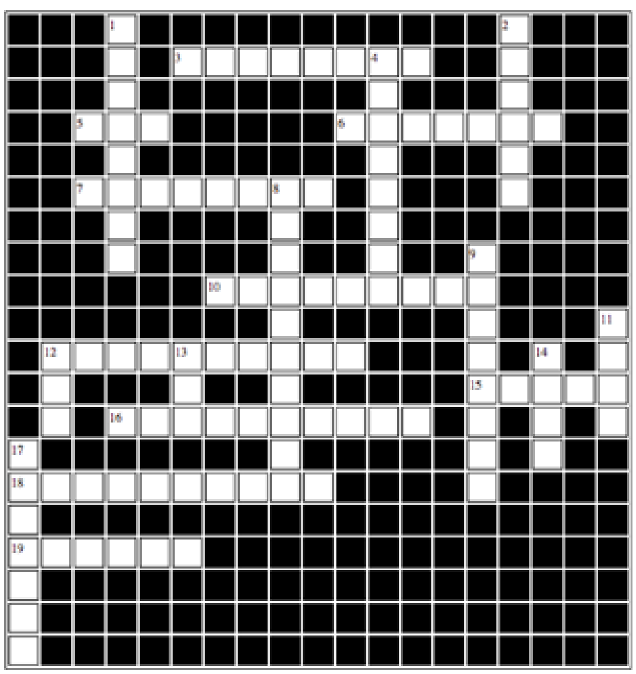
A fascinating presentation on using "energy psychology" techniques to remove beliefs and blocks that impede creditable remote-viewing performance followed, given by Paul O'Connor. O'Connor is an advanced-level controlled remote viewer and serves as coordinator for Lyn Buchanan's P>S>I trainings in Ireland. Energy psychology techniques evolved out of the traditional psychology field to treat issues that were resistant to conventional techniques. O'Connor gave a brief overview of some of the more common tools and then demonstrated his favorite one, the "Tapas Accupressure Technique" or TAT. He had the audience try it and then explored the benefits of applying TAT before the start of a remote-viewing session, to (1) establish agreement between the roles of the viewer's conscious and subconscious minds, and (2) to reduce emotional energy and anxiety over fear of failure. Techniques such as TAT can reduce emotion-based "AOL drive" and clear any traumatic events and memories that might spring up during a session. After the session, as necessary, energy-psychology techniques can "untangle" a viewer from events and emotions experienced during the session.

A final remote-viewing experiment involving the attendees was conducted by Pam Coronado and Paul H. Smith; the format was the traditional "outbounder" or "beacon" type of remote-viewing session. While Smith and Cynthia Tompkins, a long-time member and former secretary of IRVA, explored and interacted with the randomly selected target site (the steam locomotive at the Southern Nevada Museum), Coronado "cooled down" the audience and guided it through a simple remote-viewing session to pick up real-time aspects of the site. The participants had mixed results at this year's annual event, but all enjoyed the experience and the chance to partake of this classic experimental protocol.

The social aspect of IRVA's annual conferences is one of the prominent features that many attendees enjoy most, and they used this opportunity to once again make new friendships, renew old and honored ones, and meet many of the researchers, instructors, and other conspicuous members of the international remote-viewing community.

For those who may have missed the 2010 Remote Viewing Conference, DVDs of all of the presentations are available through IRVA's website at *www.irva.org/shop/*. We all look forward to another outstanding annual IRVA conference in Las Vegas this coming year beginning on Friday, June 17, 2011. Please join us there! ■

Remote Viewing Mind Puzzle



Down

1. Program codename
2. Data origin
4. Data limiter
8. Initiating function
9. Monroe's contribution
11. Pioneering psychologist
12. Place of early experiments
13. Mental noise
14. Early experimenter
17. Location finding tool

Across

3. Gestaltic squiggle
5. Structured method
6. RV Data
7. Early viewer
10. Army location
12. What is decoded
15. Referred to as the father of RV
16. Extreme target involvement
18. Simple form of RV
19. Visual data

(ANSWERS ON PAGE 27)

Consciousness Research

Conscious Realism and the Mind-Body Problem

by Donald D. Hoffman, Ph.D.

Editor's Note: This is part 1 of a 2-part paper written by Donald D. Hoffman, Ph.D., Department of Cognitive Science, University of California at Irvine, USA

Reprint: *Mind & Matter*
Vol. 6(1), pp. 87–121

Abstract

Despite substantial efforts by many researchers, we still have no scientific theory of how brain activity can create, or be, conscious experience. This is troubling since we have a large body of correlations between brain activity and consciousness, correlations normally assumed to entail that brain activity creates conscious experience. Here I explore a solution to the mind-body problem that starts with the converse assumption: these correlations arise because consciousness creates brain activity, and indeed creates all objects and properties of the physical world. To this end, I develop two theses. The *multimodal user interface* theory of perception states that perceptual experiences do not match or approximate properties of the objective world, but instead provide a simplified, species-specific, user interface to that world. *Conscious realism* states that the objective world consists of conscious agents and their experiences; these can be mathematically modeled and empirically explored in the normal scientific manner.

1. Introduction

What is the relationship between consciousness and biology? This question, a version of the classic mind-body problem, has in some form troubled philosophers at least since the time of Plato, and now troubles scientists. Indeed, a list of the top 125 open questions in *Science* puts the mind-body problem at number two, just behind the question (Miller 2005): What is the universe made of? The mind-body problem, as *Science* formulates it, is the question: What is the biological basis of consciousness?

One reason for this formulation is the large body of empirical correlations between consciousness and brain activity. For instance, damage to cortical area V1 is correlated with the loss of conscious visual perception (Celesia *et al.* 1991). If V1 is intact but certain extrastriate cortical regions are damaged, there is again a loss of conscious visual perception (Horton and Hoyt 1991). Damage to the lingual and fusiform gyri are correlated with achromatopsia, a loss of color sensation (Collins 1925, Critchley 1965), and magnetic stimulation of these areas is correlated with chromatophenes, conscious experiences of unusual colors (Sacks 1995, p.28; Zeki 1993, p.279). Damage to area V5 is correlated with akinetopsia, a loss of motion sensation (Zihl *et al.* 1983, 1991; Rizzo *et al.* 1995); magnetic inhibition of V5 is also correlated with akinetopsia (Zeki *et al.* 1991). In many tasks in which subjects view a display inducing binocular rivalry, so that they consciously perceive the stimulus presented to one eye and then periodically switch to consciously perceive the stimulus presented to the other eye, there are changes in cortical activity precisely correlated with changes in conscious perception (Alais and Blake 2004), changes that can be measured with fMRI (Lumer *et al.* 1998, Tong *et al.* 1998), EEG (Brown and Norcia 1997), MEG (Tononi *et al.* 1998), and single unit recording (Leopold and Logothetis 1996). Such correlated activity can be found in ventral extrastriate, parietal, and prefrontal cortices (Rees *et al.* 2002).

Such correlations, and many more not mentioned here, persuade most researchers that brain activity causes, or is somehow the basis for, consciousness. As Edelman (2004, p.5) puts it: "There is now a vast amount of empirical evidence to support the idea that consciousness emerges from the organization and operation of the brain." Similarly, Koch (2004, pp. 1–2) argues:

> The fundamental question at the heart of the mind-body problem is, *what is the relation between the conscious mind and the electrochemical interactions in the body that give rise to it?* How do [conscious experiences] emerge from networks of neurons?

Consensus on this point shapes the current scientific statement of the mind-body problem. It is not the neutral statement that opened this section, viz.: What is the relationship between consciousness and biology? Instead, as *Science* makes clear, it is a statement that indicates the expected nature of the solution: What is the biological basis of consciousness? Given this consensus, one would expect that there are promising theories about the biological basis of consciousness, and that research is proceeding to cull and refine them. Indeed such theories are numerous, both philosophical and scientific, and the volume of empirical work, briefly highlighted above, is large and growing.

For instance, following the demise of behaviorism in the 1950s, there have been many philosophical theories. Type physicalist theories assert that mental state types are numerically identical to certain neural state types (Place 1956, Smart 1959); token physicalist theories assert instead that each mental state token is numerically identical to some neural state token (Fodor 1974). Reductive functionalist theories assert that the type identity conditions for mental states refer only to relations, typically causal relations, between inputs, outputs, and each other (Block and Fodor 1972). Non-reductive functionalist theories make the weaker claim that functional relations between inputs, outputs, and internal system states give rise to mental states but are not identical with such states (Chalmers 1996). Representationalist theories (e.g., Tye 1996, 2000) identify conscious experiences with certain tracking relationships, i.e., with certain causal covariations, between brain states and states of the physical world. The "biological naturalism" theory of Searle (1992, 2004) claims that consciousness can be causally reduced to neural processes, but cannot be eliminated and replaced by neural processes.

This brief overview does not, of course, begin to explore these theories, and it omits important positions, such as the emergentism of Broad (1925), the anomalous monism of Davidson (1970), and the supervenience theory of Kim (1993). However it is adequate to make one obvious point. The philosophical theories of the mind-body problem are, as they advertise, philosophical and not scientific. They explore the conceptual possibilities where one might eventually formulate a scientific theory, but they do not themselves formulate scientific theories. The token identity theories, for instance, do not state precisely which neural state tokens are identical to which mental state tokens. The non-reductive functionalist theories do not state precisely which functional relations give rise, say, to the smell of garlic versus the smell of a rose, and do not give principled reasons why, reasons that lead to novel, quantitative predictions. These comments are not, of course, intended as criticisms of these theories, but simply as observations about their intended scope and limits.

It is from the scientists that we expect theories that go beyond statements of conceptual possibilities, theories that predict, from first principles and with quantitative precision, which neural activities or which functional relations cause which conscious experiences. Scientists have produced several theories of consciousness.

For instance, Crick and Koch (1990, cf. Crick 1994) proposed that certain 35-75 Hz neural oscillations in cerebral cortex are the biological basis of consciousness. Subsequently Crick and Koch (2005) proposed that the claustrum may be responsible for the unified nature of conscious experience. Edelman and Tononi (2000, p.144; cf. Tononi and Sporns 2003) proposed that "a group of neurons can contribute directly to conscious experience only if it is part of a distributed functional cluster that, through reentrant interactions in the thalamocortical system, achieves high integration in hundreds of milliseconds." Baars (1988) proposed that consciousness arises from the contents of a global workspace, a sort of blackboard by which various unconscious processors communicate information to the rest of the system. Hameroff and Penrose (1996, cf. Penrose 1994) proposed that quantum coherence and quantum-gravity-induced collapses of wave functions are essential for consciousness. Stapp (1993, 1996) proposed that the brain evolves a superposition of action templates, and the collapse of this superposition gives rise to conscious experience.

Again, this brief overview does not begin to explore these theories and, for brevity, omits some. But the pattern that emerges is clear. The theories so far proposed by scientists are, at best, hints about where to look for a genuine scientific theory. None of them remotely approaches the minimal explanatory power,

continued on page 16

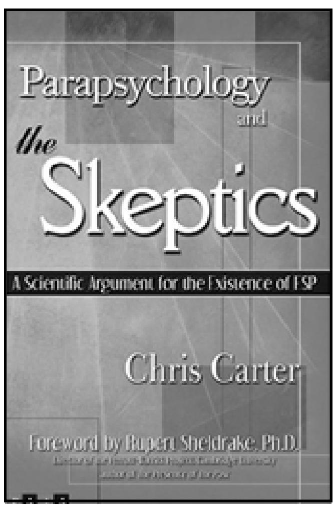
ReView

Parapsychology and the Skeptics

by Paul H. Smith, Ph.D.

By Chris Carter
Sterlinghouse Publisher, Inc.,
Pittsburgh, PA, 2007.
218 pp. + index

There are many books supporting and explaining extrasensory perception (ESP), and a goodly number written to debunk ESP, but there are almost none to debunk the debunking of ESP. *Parapsychology and the Skeptics* is one of the rare ones that exist exclusively to take on the skeptics of ESP. To the great fortune of those interested in ESP in general and remote viewing in particular, the book does a pretty good job of what it was written to do.



The book's tone is set early with 18th century Scottish philosopher David Hume, whose venerable argument against miracles went something like this: Nature is such that it is infinitely more likely that someone claiming a miracle that violates natural law is either a fraud or seriously misled than that a real such miracle could possibly happen.

By replacing "miracles" with "anomalous phenomena," Carter shows that, in spirit if not literally, Hume was the father of ESP's modern skeptics. As *Parapsychology and the Skeptics* unfolds, we are treated to a short history of how we got to where we are in terms of skepticism and debunkers, followed by a brief survey of the important modern skeptics – from the reasonable and fair-minded (such as Professor Marcello Truzzi, a friendly advisor to IRVA before his passing a few years ago) to the irascible (such as James Randi).

Along the way there is a historical account of the bias-tinged Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP -- recently renamed as the "Committee for Skeptical Inquiry" because, after all, CSICOP almost never investigated anything, as Carter points out). Included is a useful discussion of the early so-called (Michel) Gauquelin scandal, where CSICOP's one major investigation of paranormal claims (the alleged "Mars Effect" in the astrological analysis of famous persons) actually *confirmed* the claim being made, a fact which CSICOP quickly covered up and then was caught lying about.

The three-chapter introductory section is rounded out by an overview of the historical evidence for ESP, which includes a discussion at the end of the distinction between anecdotal and experimental evidence. While a nice touch, the author could have explained this distinction and why it matters much more thoroughly, as this is often a point on which lay people become confused.

The remainder of the book is divided into three sections. The first deals with the evidence for *psi* – both ESP and psychokinesis (PK) -- beginning with an early history of psi research. While the founding in 1882 of the Society for Psychical Research merits a mention, the focus is mostly on J.B. Rhine's breakthrough work; this is not just a historical account, however. Carter also introduces some of the "hot-button" issues associated with parapsychology research and how some of them were resolved, as well as controversies that still arise in skeptics' debates concerning ESP. Short chapters on psychokinesis and telepathy follow, and then a longer one on the Ganzfeld research (considered by many the best scientific evidence for *psi*) and the skeptics' attacks on it. This material is of particular value for those interested in remote viewing, not only because the Ganzfeld protocol is the closest one discussed in the book to remote-viewing research, but because many in the remote-viewing community are unfamiliar with the way the skeptics have assaulted the Ganzfeld research. Many of the same debunking strategies used by the Ganzfeld skeptics have been, and often still are, applied against remote viewing as well.

This first section culminates in an examination of the research done by skeptics on *psi* phenomena, especially ESP. Here there is not much to choose from because few such doubters have ever undertaken any such research. Carter focuses on the two most prominent ones, Susan Blackmore and Richard Wiseman. (Dr. Wiseman recently performed an out-bounder type of remote-viewing experiment using the online networking tool "Twitter" as a communications medium. For an IRVA statement on Dr. Wiseman's experiment, see *http://www.irva.org/news/20090607-twitterex.html*.)

Ironically, Carter's investigation discovered that both Blackmore's and Wiseman's research has on occasion demonstrated a *psi* effect, and yet they have failed to acknowledge it. This chapter closes with a short, pithy treatment of James "The Amazing" Randi and the widely touted million-dollar prize he promises to award to anyone demonstrating a real psychical effect. Carter cites instances where Randi sidestepped testing a claim when it looked like such a claim might succeed.

Section 2 of the book explores the question of whether the fact of *psi's* existence would really present a contradiction to modern science. His main thesis dovetails with that of notable parapsychologists such as Dr. Dean Radin and Dr. Edwin May, that ultimately a physical explanation (usually involving the nether reaches of quantum mechanics) will eventually unite *psi* theory with the rest of science. While this reviewer is increasingly dubious that this will really explain where *psi* comes from, Carter does a dandy job exploring the issues, discussing the research and theory-base that grounds the quantum-*psi* viewpoint, and laying out for the non-specialist a reasonably clear and comprehensible account. In the process, he helpfully entertains various questions such as what consciousness is, how mind-body interaction might be explained, and whether we are able to truly possess free will if precognition is real.

The final section of the book argues the question of whether parapsychology should count as science. The author juxtaposes the philosophies of Karl Popper and Thomas Kuhn to show that, first, science is not nearly as rigidly defined and delineated as both members of the public and actual scientists often mistakenly believe. The argument then proceeds to demonstrate that, according to the theory-generation and falsification standards advocated by Popper (and which are widely accepted as hallmarks of true science), parapsychology meets those criteria. Thus, if it should therefore rightly be counted as a science, it is excluded as illegitimate only by the biases of those scientists in authority – and presumably because they feel threatened by its implications for their own pet theories or worldviews.

Parapsychology and the Skeptics closes with a return to David Hume's dictum about the impossibility of miracles, refuting his argument by showing that the philosopher based his claim on a now-antiquated notion of what science is really like.

For those interested in remote viewing, there is one main failing in this book: Carter does not even mention remote-viewing research in his discussions. Given that remote viewing has often been described as a major revolution in parapsychology research, its absence from these pages seems a little surprising. One can only surmise that, because so much of the original remote-viewing research was done behind the walls of governmental secrecy (only recently to see the light of day), Carter may have felt that there was too little hard research to go on, or that what was available was too controversial.

Regardless, Carter's book is still valuable for those in the remote-viewing community, whether simply to learn more about these issues or to become better armed when confronting the skeptics -- or maybe even to pass on to our skeptical friends to help them with their education.

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RV Developments

Ethical Guidelines for Remote Viewers

by the IRVA Board of Directors

The International Remote Viewing Association (IRVA) is the largest and most respected international organization promoting the responsible practice of, education and training in, and research into the art, science, and phenomenon of remote viewing. We believe in and support the principles of verifiable truth, integrity, honesty, transparency, and responsibility in dealing with clients, persons subject to remote viewing as targets, the scientific community, the news media, law enforcement, and the general public. It is the purpose of these Ethical Guidelines to provide our members with a clear understanding of their responsibilities as active members of the Association and operational remote viewers. These Guidelines are also intended to protect the public and the Association from the unethical practice of remote viewing, wherever and in whatever nation remote viewers train, practice, and operate worldwide.

A "client" shall be construed to include any individual person, group, or legal entity, whether public or private, that solicits, engages, or retains the services of one or more Remote Viewers or Remote Viewing organizations, whether on a free or payable-fee basis.

"Operational Remote Viewing" shall be construed to mean remote-viewing activity conducted towards any real-world target to accomplish some practical or pragmatic intentional objective, whether on a free or payable-fee basis. Such remote-viewing activity shall not be deemed to include any remote viewing conducted exclusively for one or more of the purposes of training, practice, general education, or scientific research.

1. Remote Viewers shall adhere to all applicable laws, statutes, and regulations of the state or province in which they are working, as well as of their nations of work and residence, in carrying out any operational or other remote-viewing activity on behalf of clients or themselves, and, in particular, concerning any living human person or persons as targets.

2. A Remote Viewer shall provide honest, accurate, remote-viewing-based reports to clients to the best of his or her ability, using and acting in conformance with remote-viewing protocols generally accepted as facilitating the reception of truthful, reliable, and accurate remote viewing-originated information.

3. A Remote Viewer shall safeguard all confidential information provided to him or her by clients and exercise the utmost care to prevent any unauthorized disclosure of such information.

4. A Remote Viewer shall maintain confidentiality with clients to protect the privacy interests of all persons involved in the remote-viewing activity, unless duly and properly authorized otherwise. The targeting of persons and the collection of personal information about them shall only be done for lawful purposes. And, except when in aid of a *bona fide* law-enforcement investigation, any personal information so collected shall not be disclosed to any third party without the knowing permission, secured beforehand, of the particular person or persons so targeted, identified, or about whom personal information has been collected. No remote viewer shall make a disclosure of information to any person not authorized by the client or by applicable laws, statutes, or regulations.

5. A Remote Viewer shall disclose to any client any conflict, whether legal, moral, or personal, that would prevent the remote viewer from performing an objective, fair, accurate, and scientifically sound remote-viewing session. When soliciting work, a Remote Viewer shall always conduct himself or herself in an ethical manner and shall refrain from misrepresenting the nature, character, accuracy potential, or reliability potential of remote viewing and its various protocols and processes beyond what is verifiably known or reasonably posited by documented experience or reputable scientific research.

Notes:

(1) In "conducting oneself in an ethical manner," a Remote Viewer should also undertake to refrain from misrepresenting or disparaging any other remote viewer in any public or media forum in order to obtain a work assignment or an unfair advantage while performing an active work assignment, or while carrying out the duties of the Association.

continued on page 21

Conscious Realism and the Mind-Body Problem, continued from page 12

quantitative precision, and novel predictive capacity expected from a genuine scientific theory. We would expect, for instance, that such a theory could explain, in principle, the difference in experience between, e.g., the smell of a rose and the taste of garlic. How, precisely, is the smell of a rose generated by a 40 Hz oscillation, a reentrant thalamocortical circuit, information integration, a global-workspace entry, the quantum state of microtubules, or the collapse of evolving templates? What precise changes in these would transform experience from the smell of a rose to the taste of garlic? What quantitative principles account for such transformations ? We are not asking about advanced features of consciousness, such as self-consciousness, that are perhaps available to few species. We are asking about an elementary feature available, presumably, to a rat. But no current theory has tools to answer these questions and none gives guidance to build such tools. None begins to dispel the mystery of conscious experience. As Pinker (1997, p. 564) points out, ". . . how a red-sensitive neuron gives rise to the subjective feel of redness is not a whit less mysterious than how the whole brain gives rise to the entire stream of consciousness."

In short, the scientific study of consciousness is in the embarrassing position of having no scientific theory of consciousness. This remarkable situation provokes several responses. The first concludes that, although consciousness arises naturalistically from brain activity, humans lack the cognitive capacities required to formulate a scientific theory. As McGinn (1989) puts it, "we know that brains are the *de facto* causal basis of consciousness, but we have, it seems, no understanding whatever of how this can be so." Pinker (1997) agrees. After asking how conscious experience arises from physical systems he answers (Pinker 1997, pp.146–47):

> Beats the heck out of me. I have some prejudices, but no idea of how to begin to look for a defensible answer. And neither does anyone else. The computational theory of mind offers no insight; neither does any finding in neuroscience, once you clear up the usual confusion of sentience with access and self-knowledge.

A second response concludes that we must keep experimenting until we find the empirical fact that leads to a theoretical breakthrough. This is a defensible position and, indeed, the position of most researchers in the field.

A third response claims there is no mind-body problem, on at least two different grounds: There is no mind to reduce to body, or no body to which mind can be reduced. The first of these two arguments is sometimes asserted by eliminative materialists, who claim that nothing in reality corresponds to our folk psychological notions of consciousness (Churchland 1981, Churchland 1986, Dennett 1978). As neuroscience progresses we will not reduce such notions to neural activity; we will abandon them, much as we abandoned phlogiston. We will instead adopt the language of neurophysiology.

The second argument, that there is no body to which mind can be reduced, is made most notably by Chomsky (1980, 2000), who argues that there has been no coherent formulation of the mind-body problem since Newton introduced action-at-a-distance and, thereby, destroyed any principled demarcation between the physical and non-physical. Chomsky concludes that consciousness is a property of organized matter, no more reducible than rocks or electromagnetism (Chomsky 2000, p.86). However, what counts as matter is no clearer than what counts as physical. And why should we expect, in the non-dualistic setting that Chomsky endorses, that consciousness is a property of matter rather than *vice versa*?

This is a natural point of departure for the theory developed here. The dualistic formulation of the mind-body problem, in which consciousness arises from non-conscious neurobiology or physics, has failed to produce a scientific theory. But the search space of scientific theories is large, and it is reasonable, given the failure of explorations in the dualistic region, to explore elsewhere. That is the intent here: to explore a non-dualistic, but mathematically rigorous, theory of the mind-body problem, one that does not assume consciousness is a property of organized matter. To this end, we first develop a non-dualistic theory of perception that questions a key assumption of current perceptual theories.

2. Perception as Faithful Depiction

Current scientific theories of perception fall into two main classes: direct and indirect (see, e.g., Fodor and Pylyshyn 1981, Hoffman 1998, Palmer 1999).

Indirect theories, which trace their lineage through Helmholtz (1910/1962) and Alhazen (pp.956–1039; cf. Sabra 1978), typically claim that a goal of perception is to match, or at least approximate, useful properties of an objective physical world (Marr 1982). The physical world is taken to be objective in the sense that it does not depend on the perceiver for its existence. According to indirect theories, the information transduced at sensory receptors is not sufficiently rich, by itself, to determine a unique and correct match or approximation. Therefore the perceiver must infer properties of the world using constraining assumptions. For instance, in the perception of a three-dimensional shape from visual motion, the perceiver might use a *rigidity* assumption: If the image data could have arisen, in principle, by projection of the motion of a rigid three-dimensional body, then the visual system infers that the image data are, in fact, the projection of that rigid body (Ullman 1979). This inference might be couched in the mathematical framework of regularization theory (Poggio *et al.* 1985) or Bayesian inference (Knill and Richards 1996).

Direct theories, which trace their origin to Gibson (1950, 1966, 1979/1986), agree with indirect theories that a goal of perception is to match an objective physical world, but argue that the sensory data are sufficiently rich that perceivers can, without inference, pick up true properties of the world, especially affordances, directly from these data.

The debate between direct and indirect theories raises interesting issues (Fodor and Pylyshyn 1981, Ullman 1980). But what is pertinent here is that both agree on this: *A goal of perception is to match or approximate true properties of an objective physical environment. We can call this the hypothesis of faithful depiction* (HFD). This hypothesis is widespread and rarely questioned in the scientific study of perception.

For instance, Stoffregen and Bardy (2001) state:

> We analyze three hypotheses about relations between ambient arrays and physical reality: (1) that there is an ambiguous relation between ambient energy arrays and physical reality, (2) that there is a unique relation between individual energy arrays and physical reality, and (3) that there is a redundant but unambiguous relation, within or across arrays, between energy arrays and physcal reality.

The first hypothesis is endorsed by indirect theories, and the second by some direct theories. They conclude in favor of the third hypothesis, viewing it as an extension of standard direct theories. Nowhere do they question the assumption of faithful depiction that is shared by all three; nor do any of the more than 30 commentaries on their article.

Yuille and Buelthoff (1996, p.123) endorse HFD: “We define vision as perceptual inference, the estimation of scene properties from an image or sequence of images.” The commitment to HFD is clear in such terms as “estimate”, “recover”, and “reconstruct”, which appear repeatedly throughout the literature of computational vision.

Lehar (2003, p.375) endorses HFD: “The perceptual modeling approach reveals the primary function of perception as that of generating a fully spatial virtual-reality replica of the external world in an internal representation.”

Searle (2004, p.171) endorses HFD: “In visual perception, for example, if I see that the cat is on the mat, I see how things really are (and thus achieve mind-to-world direction of fit) only if the cat’s being on the mat causes me to see the situation that way (world-to-mind direction of causation).”

Purves and Lotto (2003) appear, on first reading, to reject HFD. They reject, for instance, “the seemingly sensible idea that the purpose of vision is to perceive the world as it is. . . ” (p.5). They suggest instead that (p.287)

> what observers actually experience in response to any visual stimulus is its accumulated statistical meaning (i.e., what the stimulus has turned out to signify in the past) rather than the structure of the stimulus in the image plane or its actual source in the present.

Thus Purves and Lotto do not, in fact, recommend rejection of HFD *tout court*. They simply recommend rejecting a version of the hypothesis that focuses exclusively on the *present* stimulus and the *present* state of the physical world. The purpose of vision is to perceive the world, not just as it is, but as it has been.

Noë and Regan (2002) also appear, on first reading, to reject HFD. They reject, for instance, the position that “the visual system builds up a detailed internal representation of the three-dimensional environment on the basis of successive snapshot-like fixations of the scene . . . ” (p.575). They propose instead that “what one sees is the aspect of the scene to which one is attending – with which one is currently interacting. . . ” (p. 575). Thus Noë and Regan also do not reject HFD *tout court*. They claim that “perceivers are right to take themselves to have access to environmental detail and to learn that the environment is detailed” (p.576) and that “the environmental detail is present, lodged, as it is, right there before individuals and that they therefore have access to that detail by the mere movement of their eyes or bodies.” (p.578). Thus they support a version of HFD that is careful to observe the limits of perceptual attention and the critical role of sensorimotor interactions.

HFD is so universally accepted that it appears in textbooks. For instance, Palmer (1999, p.6) endorses HFD as follows:

> Evolutionarily speaking, visual perception is useful only if it is reasonably accurate . . . Indeed, vision is useful precisely because it is so accurate. By and large, what you see is what you get. When this is true, we have what is called veridical perception . . . perception that is consistent with the actual state of affairs in the environment. This is almost always the case with vision.

I, too, endorsed HFD, describing the central questions about visual perception as follows (Hoffman 1983, p.154): “First, why does the visual system need to organize and interpret the images formed on the retinas? Second, how does it remain true to the real world in the process ? Third, what rules of inference does it follow?” But I now think HFD is false. Our perceptual systems do not try to approximate properties of an objective physical world. Moreover, evolutionary considerations, properly understood, do not support HFD but require its rejection.

I propose that perception is like a multimodal user interface (Hoffman 1998, 2003). A successful user interface does not, in general, resemble what it represents. Instead it dumbs down and reformats in a manner useful to the user. Because it simplifies, rather than resembles, a user interface usefully and swiftly informs the actions of the user. The features in an interface usually differ from those in the represented domain, with no loss of effectiveness. A perceptual user interface, simplifying and reformatting for the niche of an organism, gives that organism an adaptive advantage over one encumbered with constructing a complex approximation to the objective world. The race is to the swift; a user interface makes one swift by not resembling the world.

This is not what textbooks or most perceptual experts say and therefore invites spelling out. I begin by discussing user interfaces and virtual worlds.

3. User Interfaces

Suppose you wish to delete a file on your PC. You find the icon for the file, click on it with your mouse, drag it to the recycle-bin icon, and release. Quick and easy. The file icon might be blue and square. The recycle bin might be shaped like a trash can. All for ease of use. Of course what goes on behind the icons is quite complex: A central processor containing millions of transistors executes binary commands encoded as voltages in megabytes of memory, and directs the head on a hard drive to change the magnetic structure of a disk revolving thousands of times per minute. Fortunately, to delete a file you do not need to know anything about this complexity. You just need to know how to move colorful icons.

The icons, and the entire graphical-windows interface, are designed to help the user by hiding the complexity of the computer (see, e.g., Schneiderman 1998). This is accomplished, in part, by *friendly formatting*. The windows interface and its contents are designed not to resemble the actual complexity of the computer and its inner workings, but instead to present needed information to the user in a format that is friendly, i.e., that is easy and natural to use. Although the actual file in the computer is a complex array of voltages and magnetic fields with no simple geometry, the file icon is a rectangle because this is a simple symbol easily interpreted by human users. Nothing about the shape of the file icon resembles the shape of the file itself. This is no failure of the icon, no misrepresentation of reality. It is, instead, what makes the icon useful.

Few souls delight to search the guts of a computer with voltmeter and magnetometer to find a file. We prefer to find a rectangular blue icon in a pretty display. But nothing about the file itself, the voltages and magnetic fields inside the computer, is blue. Is this a gross misrepresentation by the icon? Of course not. The color of the icon is not intended to resemble anything about the file but simply to indicate, say, what kind of file it is or how recently it was modified. The icon sits at some spot on the display, perhaps in the upper right. But this does not mean that the file itself is in the upper right of the computer. The location of an icon on the display is, in part, simply a convenient way to keep track of it. There is, in short, no resemblance between properties of the icon and properties of the file. This is no problem, no failure of veridicality. It is the intended consequence of friendly formatting.

The interface also helps the user by means of *concealed causality*. Not only is the structural complexity of the computer hidden behind icons, but also its causal complexity. When you drag the file icon to the recycle bin and release, does moving the file icon to the recycle bin icon cause deletion of the file? No. Icons have no causal powers within the computer. They are patterns of pixels on the display, and send no signals back to the computer. The complex causal chain within the computer that deletes the file is hidden, behind the interface, from the user. And nothing in the movement of the file icon to the recycle-bin icon resembles anything in this causal chain. Is this a failure or misrepresentation of the interface? To the contrary, it is the reason for the interface. Hiding causal complexity helps the user to quickly and easily delete a file, create a new one, modify an illustration, or format a disk, without distraction by a myriad of causal details.

Although the icons of the interface have no causal powers, they are nonetheless useful by providing *clued conduct*. The icons effectively inform actions of the user, allowing the user to trigger the appropriate, but hidden, causal chains.[1] In the case of deleting a file, the icon of the file informs the user how to click the mouse, and the icon of the recycle bin informs the user how to release the mouse, so that appropriate causal chains are triggered inside the computer, resulting in deletion of the file. Icons inform an effective perception-action loop, without themselves having causal powers in the computer.

To the extent that a user interface succeeds in providing friendly formatting, concealed causality, and clued conduct, it will also offer *ostensible objectivity*. Usually the user can act as if the interface is the total reality of the computer. Indeed some users are fooled; we hear humorous stories of a child or grandparent who wondered why an unwieldy box was attached to the screen. Only for more sophisticated purposes, such as debugging a program or repairing hardware, does dissolution of this illusion become essential.

4. Virtual Worlds

Suppose you and a friend play virtual tennis at an arcade. You don your helmet and body suit, and find yourself in Roland-Garros stadium, home of the French Open. After admiring the clay court and stadium, you serve to open the first set and are soon immersed in play. The stadium, court, net, ball, and racquet that you experience are all, of course, part of a sophisticated user interface, one that exhibits the four qualities described in the last section. First, it sports friendly formatting: You see red clay, a yellow ball, a graphite tennis racquet, and a green stadium. These are much easier to interpret and use than the complex supercomputer and megabytes of software that control the game.

It conceals causality and clues conduct: When you hit a killer drop volley, it might appear that the head of the racquet caused the ball to sneak across the net. But, of course, the racquet and ball are just pixels in the user interface, and send no signals back to the supercomputer. The racquet and ball serve only to inform your actions and these, transmitted back via the body suit, trigger a complex but hidden causal sequence within the supercomputer, resulting in the proper updating of registers corresponding to the positions of racquet and ball. A good programmer could update these registers directly. But this would be so slow and cumbersome that even the deftest coder would lose the match to a modestly talented player who simply acted on the user interface. That is the power, and purpose, of the interface.

Finally, the commercial success of the game depends, in large part, on its ostensible objectivity. Customers want to play tennis, blissfully ignorant of the supercomputer and software hard at work in a back room. Tennis is, for them, the reality. Nothing in their

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[1]Here, and throughout the paper, the verb “trigger” means “to initiate a sequence of actions, typically causal and complex.” To say, for instance, that stress triggers cardiovascular disease means that stress initiates a complex causal sequence of biochemical interactions that eventuate in the disease.

tennis reality resembles the hidden supercomputer, the true causal nexus that makes the game possible. Customers can play as if the tennis ball and racquet had causal powers, even though this is merely a convenient and entertaining fiction.

5. Perception as a Multimodal User Interface

I reject HFD, the hypothesis that a goal of perception is to match or approximate properties of an objective physical world. Instead, I propose the hypothesis of multimodal user interfaces (MUI): *The conscious perceptual experiences of an agent are a multimodal user interface between that agent and an objective world.*

To say that a world is objective means that the world's existence does not depend on the agent. MUI theory claims nothing about the ontology of that objective world. It requires no resemblance between properties of the interface and the world. As virtual tennis illustrates, they can be as dissimilar as tennis balls and integrated circuits. MUI is a weaker hypothesis than HFD: Both say perception represents an objective world; but HFD claims, in addition, that perception *resembles* that objective world. MUI theory makes no such claim.

For instance, if you experience a rock or tree, HFD claims that, barring illusion, there must be a rock or tree in the objective world whose properties approximate those of your experience. MUI theory is not committed to this claim. It allows countless possibilities for what in the objective world triggered your experience. Chances are, there is no match between properties of experience and the objective world. Instead, perceptual experiences are, in the typical case, much less complex and differently formatted than the objective properties that trigger them. This failure to match, due to adaptive simplification and reformatting, is key to the usefulness of perceptual experiences. Concern about veridicality of perception is a category error. The proper concern is whether perception usefully informs action.

According to MUI theory, the objects of everyday experience – tables, chairs, mountains, moon – are not public. If, for instance, I hand you a glass of water, it is natural but false to assume that the glass I once held is the same glass you now hold. Instead, according to MUI theory, the glass I held was, when I observed it, an icon of my MUI, and the glass you now hold is, when you observe it, an icon of your MUI, and they are numerically distinct. There are two glasses of water, not one. And if a third person watches the transaction, there are three glasses.

This claim seems, to most, absurd, and straightforwardly refuted. Searle (2004, pp.275ff), for instance, argues against the denial of public physical objects as follows: First, we all assume, quite naturally, that we sometimes communicate successfully. This requires that we have public meanings in a public language, so that we can both mean, or intend, the same thing by utterances such as "this glass of water." But this requires that we have publicly available objects of reference, e.g., a publicly available glass of water, so that when I say "this glass of water" I am referring to the same object as you do when you say "this glass of water." This implies that we share perceptual access to the same object, which makes it a public object. Thus, concludes Searle, there are public physical objects and the correct philosophy of perception is direct realism.

This argument is seen false by counterexample. Bob and Tom, playing virtual tennis, can talk meaningfully about "the tennis ball" they hit; they can agree that Tom hit "the tennis ball" out of court, thus losing a point. There is, patently, no public tennis ball. Instead, a supercomputer in the back room feeds signals to the helmet displays of Bob and Tom and each, in consequence, constructs his own tennis-ball experience. But Bob's tennis-ball experience is numerically distinct from Tom's. And there is no other tennis ball around to serve the role of public tennis ball. Thus, public physical objects are not required for meaningful communication.

This counterexample is instructive, for it shows why Searle's argument fails. Bob and Tom can speak meaningfully about "the tennis ball" because their experiences are properly coordinated. Searle assumes that such coordination requires a public tennis ball. But this assumption is false: the coordination in the counterexample is accomplished not by a public tennis ball but by a hidden supercomputer.

According to MUI theory, everyday objects such as tables, chairs, and the moon exist only as experiences of conscious observers. The chair I experience only exists when I look, and the chair you experience only exists when you look. We never see the same chair. We only see the chair icons we each construct each time we look.

continued on page 22

Ethical Guidelines for Remote Viewers, continued from page 15

(2) The term "reputable scientific research" is intended to mean peer-reviewed, published research performed according to generally accepted scientific methods. This provision seeks to set a cognizable standard to increase the credibility of proper remote-viewing activity, as distinguished from other, less rigorously performed forms of paranormally cognitive functioning.

6. A Remote Viewer shall, within the scope of his or her personal authority and to the best to his or her ability, act to ensure that all other persons associated with a remote-viewing assignment for a client adhere to these Ethical Guidelines while performing remote-viewing activities on behalf of the client. Such activities shall include, among others, targeting, tasking, remote viewing, session analysis, and the operational management of the remote-viewing process.

Note: *This provision lists the essential elements of standard remote-viewing practice, known to and accepted by those in the remote-viewing training and operational communities. It is intended to encourage the practice and self-regulation of ethical behavior according to norms embodied in these guidelines.*

7. A Remote Viewer shall refrain from any conduct that would bring reproach by or negative attention from the general public, news media, or law enforcement to the remote viewer acting as a remote viewer; the field of remote viewing in general; his or her client, if any; or the Association.

Note: *This provision is not an enforcement tool, but rather seeks to encourage the practice of ethical behavior as it pertains to remote viewing, while practicing remote viewing, so as not to bring any undue negative publicity to the practice of remote viewing in general or to the individual remote viewer engaging in such activity.*

8. A Remote Viewer shall never undertake a remote-viewing assignment that is or might reasonably be construed as being contrary to the protection of the national or internal security interests of that state, province, or nation in which he or she is resident. ■

IRVA News

Odds & Ends

IRVA Announces New President

John Stahler was elected as IRVA's new President at the 2010 Board of Directors meeting, having previously served as IRVA's Secretary in 2008-2009 and Vice President in 2009-2010. John is also the Editor-in-Chief of IRVA's publication *Aperture*.

IRVA Announces New Vice President

Cheryle Hopton was elected as IRVA's new Vice President at the 2010 Board of Directors meeting and continues to act as IRVA's Secretary. Cheryle is also the Managing Editor of *Aperture*.

IRVA Director William F. Higgins Honored

The Rhine Research Center in Durham, North Carolina presented its first J.B. and Louisa Rhine Distinguished Service Award to William F. Higgins, a tribute to his extraordinary support of the Center's research into the fundamental nature of human consciousness. The award was presented at a Benefit Concert on Friday evening, February 4, 2011, in the Nelson Music Room on the Duke University campus.

Mr. Higgins has been a valued member of the IRVA Board of Directors for several years. ■

2010 IRVA Conference DVDs Are Now Available!

IRVA is pleased to announce that the 2010 IRVA Remote Viewing Conference presentations are now available on DVD. IRVA offers one-click ordering through its website at *www.irva.org/DVDs.* ■

Conscious Realism and the Mind-Body Problem, continued from page 20

There are several arguments for the absurdity of this claim. First, that chair cannot exist only when I look at it, for I can look away and still touch it. So it still exists. Or, I can look away and you can look at it, and confirm to me that it is still there. So again, it still exists.

But this argument is easily refuted by the virtual-tennis counterexample. Bob can claim that the tennis ball he and Tom are hitting exists even when he does not look at it. After all, he can look away and still touch the tennis ball. Or, he can look away and Tom can look at it. So, Bob can claim, the tennis ball still exists even when he does not look at it. But Bob's claim is patently false.

A second argument: If you think that this train thundering down the tracks is just an icon of your user interface, and does not exist when you do not perceive it, then why don't you step in front of it ? You will soon find out that it is more than an icon. And I will see, after you are gone, that it still exists.

This argument confuses taking something *literally* and taking it *seriously*. If your MUI functions properly, you should take its icons *seriously*, but not *literally*. The point of the icons is to inform your behavior in your niche. Creatures that do not take their well-adapted icons seriously have a pathetic habit of going extinct. The train icon usefully informs your behaviors, including such laudable behaviors as staying off of train-track icons. The MUI theorist is careful about stepping before trains for the same reason that computer users are careful about dragging file icons to the recycle bin.

A third argument: Look, if that wall is just an icon I construct, why can't I walk through it? Shouldn't it do what I want?

Not at all. You construct the subjective Necker cube that you see in Figure 1. But it doesn't do everything you want. For instance, sometimes you see a cube with corner A in front and sometimes a different cube with corner B in front. But try to make yourself switch, at will and instantly, between the two cubes and you will find that your cube constructions are stubborn (for a model of this, see Atmanspacher *et al.* 2004). Or try to see the edges of the cube as wiggly rather than straight. No chance. The fact that we construct our icons does not entail that they do whatever we wish. We are triggered to construct icons by our interactions with the objective world (whatever its nature might be) and, once so triggered, we construct our icons according to certain probabilistic rules (see, e.g., Hoffman 1998). The objective world and our rules for icon construction make the icons stubborn. Still, these icons exist only in our conscious perceptions.

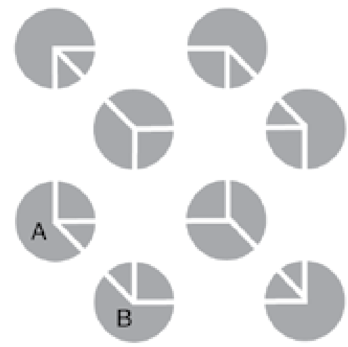

Figure 1: The subjective Necker cube (reproduced from Bradley and Petry 1977).

A fourth argument: Of course tables, chairs, and the moon are just our icons and exist only in our conscious experiences. But what's new? Physicists have long told us that the apparent solidity of a table is an illusion; it is mostly empty space with quarks and leptons darting about. Our perception of a table's surface approximates the envelope of this activity, and in this sense HFD is correct: There are no objective tables, just objective particles.

The mistake here is analogous to a computer user who admits that file icons on the display are just conventional symbols, not the actual files, but then puts a magnifying glass over an icon, sees its pixels, and concludes that these pixels are the actual file. File icons are indeed composed of pixels, but these pixels are part of the interface, not elements of the file. Similarly, tables are indeed composed of quarks and leptons, but quarks and leptons are part of the MUI, not elements of the objective world. The MUI may be hierarchically organized, but different levels of this hierarchy are part of the MUI, not of the objective world.

Placing subatomic particles in the MUI rather than in the objective world is compatible with quantum theory. Indeed, the Copenhagen interpretation of quantum theory asserts that the dynamical properties of such particles have real values only in the act of observation (see, e.g., Albert 1992, Wheeler and Zurek 1983, Zurek 1989). That is, they are part of the observer's MUI. Quantum physics does not contradict MUI theory.

A fifth argument: Ideas similar to MUI theory are found in various forms of idealism. But, as Searle (2004, p.48) says,

> [I]dealism had a prodigious influence in philosophy, literally for centuries, but as far as I can tell it has been as dead as a doornail among nearly all the philosophers whose opinions I respect, for many decades, so I will not say much about it.

This is a simple misunderstanding. MUI theory is not idealism. It does not claim that all that exists are conscious perceptions. It claims that our conscious perceptions need not resemble the objective world, whatever its nature is.

A sixth objection runs as follows: MUI theory implausibly claims that everything we see is not real, but created by an interface between us and the world.

This objection highlights an ambiguity of the word "real." To say that something is real can mean either that it exists, or that it exists independent of any observers. A headache is real in the first sense, but not in the second: If I have a headache, then I am inclined to say that the headache is real and to feel cross with anyone who says otherwise; however, I would not claim that the headache exists independent of me, or that anyone else could experience my headache, or that I could experience the headache of anyone else. Each of us has our own private headaches, and each such headache is real, but entirely dependent for its existence on the observer who has it. I typically have little idea what causes a headache, and therefore little reason to assert that my headache resembles these unknown causes; indeed, it almost surely does not. But the headache is not thereby a mystical veil between me and its unknown causes; instead, it is a simple guide to useful behavior, such as taking an aspirin, and spares me the further headache of ascertaining the complex causes of its genesis.

MUI theory does not claim that everything we see is unreal, but says instead that all sensory perceptions are real in the sense that headaches are real: They exist and are observer-dependent. They exist so long as they are experienced.

This sixth objection also highlights a similar ambiguity of the word "world": This word can refer to a sensory world or to an observer-independent *world*. When we speak of the visual world, we use world in the first sense. The visual world is observer-dependent; it disappears, for instance, when we close our eyes. Similarly, our auditory worlds are silenced if we plug our ears, and our olfactory worlds cease if we pinch the nose. The word "world" can also refer to entities hypothesized to be objective, i.e., to exist independent of any observation. HFD asserts that our sensory worlds resemble or approximate an objective world. MUI theory rejects this assertion.

MUI theory does not claim that our sensory perceptions are created by an interface between us and the world, as in the old sense-datum theories. Instead, MUI theory simply acknowledges that our sensory worlds of space and time, objects, motions, colors, sounds, touches, tastes, smells, and pains are observer-dependent and are not likely, on evolutionary grounds, to resemble the objective world, whatever form that world might have. This point is simple, but can be counterintuitive since we habitually assume, from early childhood, that the objective world resembles our sensory worlds.

A seventh objection is that MUI theory is logically faulty, because it is simply not true that real user interfaces do not imitate the physical world; on the contrary, they do their best to reproduce a physical-like world.

This objection is correct in noting that the user interface on a typical computer employs icons that imitate shapes and colors familiar from everyday sensory perception. However, these icons do not imitate the diodes, resistors, voltages, and magnetic fields inside the computer that they represent. The icons purposely hide all this complexity, so that computer users can get on with their work.

The idea that our sensory perceptions in everyday life are useful precisely because they *do not* resemble what they represent is, for most people, counterintuitive. Fortunately, the recent introduction and widespread popularity of user interfaces on personal computers gives a ready-to-hand metaphor that most can grasp: the typical computer user understands that icons of the interface are useful precisely because they simplify, and in no way resemble, the complex world of hardware and software they represent.

An eighth objection focuses on the notion of resemblance, as follows: MUI theory recognizes that a virtual replica of the world must share some causality with its target (a virtual tennis ball must behave causally like the real one, more or less). However MUI theory does not see that this is a kind of isomorphism between the world and the user interface. It seems to consider only pictorial isomorphisms as relevant. This is not the case.

This objection is correct in noting that a tennis ball in a realistic virtual-reality game behaves much like a normal tennis ball. But the point of the virtual-reality example is not the relation between virtual tennis balls and normal tennis balls, but rather the relation between virtual tennis balls and supercomputers. The point is that the virtual tennis ball in no way resembles, pictorially or otherwise, the structural or causal properties of the supercomputer that is running the virtual tennis game. Then, by analogy, the reader is invited to envision the possibility that a *normal* tennis ball might in no way resemble, pictorially or otherwise, the structural or causal properties of whatever observer-independent entities it represents.

So the analogy offered here is as follows: Virtual tennis ball is to supercomputer as normal tennis ball is to the observer-independent world. The supercomputer is vastly more complex, structurally and causally, than a virtual tennis ball; the observer-independent world is, in all likelihood, vastly more complex, structurally and causally, than a normal tennis ball. In mathematical terms, the functions relating the supercomputer to the virtual tennis ball, or the observer-independent world to the normal tennis ball, are not isomorphisms or bijections, but are instead many-to-one maps that lose much information.

A ninth objection questions the entire metaphor of virtual reality: The whole issue of virtual reality is dependent on the creation of real stimuli (for instance, a head-mounted display projects real lights and real colors to the subject's head). There is no evidence about the possibility of creating a super virtual-reality world (like that in the *Matrix* movie). There is no empirical ground on which an argument can be built.

The evidence that our sensory worlds *might* be virtual worlds that in no way resemble an observer-independent world comes from quantum physics. There are many interpretations of quantum theory, and this is no place to enumerate them. Suffice it to say that proponents of the standard interpretation (the Copenhagen interpretation) often respond to the empirical evidence for quantum entanglement and violation of Bell's inequalities by rejecting local realism, and in particular by claiming that definite physical properties of a system do not exist prior to being observed; what does exist in observer-independent reality is, on their view, unknown. Which definite physical properties are instantiated at any instant depends entirely on how and what we choose to observe, i.e., on the particular observables we choose. If we choose to observe momentum, we get a value of momentum. But this value did not exist before we observed, and ceases to exist if we next choose to measure, say, position.

Thus, the possibility that our sensory worlds *might* be virtual worlds, akin to a user interface, comports well with the empirical evidence of quantum physics and is endorsed by some physicists. This is not to say, of course, that quantum theory *requires* this interpretation. Proponents of decoherence approaches, for instance, reject this interpretation. And most proponents of the Copenhagen interpretation embrace it only for the microscopic realm, not the macroscopic, but this saddles them with the unsolved problem of providing a principled distinction between microscopic and macroscopic.

6. Conscious Realism

MUI theory, we have seen, makes no claim about the nature of the objective world. In this section, I propose a theory that does: conscious realism. One could accept MUI theory and reject conscious realism. But they fit well, and together provide a novel solution to the mind-body problem. Conscious realism is a proposed answer to the question of what the universe is made of. Conscious realism asserts that the objective world, i.e., the world whose existence does not depend on the perceptions of a particular observer, consists entirely of conscious agents.

Conscious realism is a non-physicalist monism: What exists in the objective world, independent of my perceptions, is a world of conscious agents, not a world of unconscious particles and fields. Those particles and fields are icons in the MUIs of conscious agents, but are not themselves fundamental denizens of the objective world. Consciousness is fundamental. It is not a latecomer in the evolutionary history of the universe, arising from complex interactions of unconscious matter and fields. Consciousness is first; matter and fields depend on it for their very existence. So the terms "matter" and "consciousness" function differently for the conscious realist than they do for the physicalist. For the physicalist, matter and other physical properties are ontologically fundamental; consciousness is derivative, arising from or identified with complex interactions of matter. For the conscious realist, consciousness is ontologically fundamental; matter is derivative and among the symbols constructed by conscious agents.

According to conscious realism, when I see a table, I interact with a system, or systems, of conscious agents, and represent that interaction in my conscious experience as a table icon. Admittedly, the table gives me little insight into those conscious agents and their dynamics. The table is a dumbed-down icon, adapted to my needs as a member of a species in a particular niche, but not necessarily adapted to give me insight into the true nature of the objective world that triggers my construction of the table icon. When, however, I see you, I again interact with a conscious agent, or a system of conscious agents. And here my icons give deeper insight into the objective world: they convey that I am, in fact, interacting with a conscious agent, namely you.

Conscious realism is not panpsychism; nor does it entail panpsychism. Panpsychism claims that all objects, from tables and chairs to the sun and moon, are themselves conscious (Hartshorne 1937/1968, Whitehead 1929/1979), or that many objects, such as trees and atoms, but perhaps not tables and chairs, are conscious (Griffin 1998). Conscious realism, together with MUI theory, claims that tables and chairs are icons in the MUIs of conscious agents, and thus that they are conscious experiences of those agents. It does not claim, nor entail, that tables and chairs are conscious or conscious agents. By comparison, to claim, in the virtual-tennis example, that a supercomputer is the objective reality behind a tennis-ball icon is not to claim that the tennis-ball icon is itself a supercomputer. The former claim is, for purposes of the example, true, but the latter is clearly false.

Conscious realism is not the transcendental idealism of Kant (1781/2003). Exegesis of Kant is notoriously difficult and controversial. The standard interpretation has him claiming, as Strawson (1966, p.38) puts it, that "reality is supersensible and that we can have no knowledge of it." We cannot know or describe objects as they are in themselves, the noumenal objects; we can only know objects as they appear to us, the phenomenal objects (see also Prichard 1909). This interpretation of Kant precludes any science of the noumenal, for if we cannot describe the noumenal then we cannot build scientific theories of it. Conscious realism, by contrast, offers a scientific theory of the noumenal, viz., a mathematical formulation of conscious agents and their dynamical interactions. This difference between Kant and conscious realism is, for the scientist, fundamental. It is the difference between doing science and not doing science. This fundamental difference also holds for other interpretations of Kant, such as that of Allison (1983).

Many interpretations of Kant have him claiming that the sun and planets, tables and chairs, are not mind-independent, but depend for their existence on our perception. With this claim of Kant, conscious realism and MUI theory agree. Of course, many current theorists disagree. For instance, Stroud (2000, p.196), discussing Kant, says:

> It is not easy to accept, or even to understand, this philosophical theory. Accepting it presumably means believing that the sun and the planets and the mountains on earth and everything else that has been here so much longer than we have are nonetheless in some way or other dependent on the possibility of human thought and experience. What we thought was an independent world would turn out on this view not to be fully independent after all. It is difficult, to say the least, to understand a way in which that could be true.

But it is straightforward to understand a way in which that could be true. There is indeed something that has been here so much longer than we have, but that something is not the sun and the planets and the mountains on earth. It is dynamical systems of interacting conscious agents. The sun and planets and mountains are simply icons of our MUI that we are triggered to construct when we interact with these dynamical systems. The sun you see is a momentary icon, constructed on the fly each time you experience it. Your sun icon does not match or approximate the objective reality that triggers you to construct a sun icon. It is a species-specific adaptation, a quick and dirty guide, not an insight into the objective nature of the world.

One reader commented that conscious realism and MUI theory entail not just that the objects of our experience are created by subjects, but also that particles and all the rest are so created. Eventually the theory will claim that natural selection and time are a creation of the user interface. It is more noumenic than Kant.

This comment is correct, *pace* Kant. Space, time, particles, and therefore natural selection are all within the user interface. But this claim comports well with recent attempts in physics to construct a theory of everything – including space, time, and particles – from more fundamental constituents, such as quantum information and quantum computing (e.g., Lloyd 2006), loop quantum gravity (Smolin 2006), and others (e.g., Callender and Huggett 2001). Space-time, classically conceived as a smooth manifold, appears untenable at the Planck scale. Instead, there appear to be "pixels" of space and time. The intuition that space-time is a fundamental constituent of an observer-independent reality seems destined to be overturned by theories of quantum gravity.

The ontology of conscious realism proposed here rests crucially on the notion of conscious agents. This notion can be made mathematically precise and yields experimental predictions (Bennett *et al.* 1989, 1991; Bennett *et al.* 1993a,b; Bennett *et al.* 1996). Space precludes presenting the mathematics here, but a few implications of the definition of conscious agent should be made explicit. First, a conscious agent is not necessarily a person. All persons are conscious agents, or heterarchies of conscious agents, but not all conscious agents are persons. Second, the experiences of a given conscious agent might be utterly alien to us; they may constitute a modality of experience no human has imagined, much less experienced. Third, the dynamics of conscious agents do not, in general, take place in ordinary four-dimensional space-time. They take place in state spaces of conscious observers, and for these state spaces the notion of dimension might not even be well-defined. Certain conscious agents might employ a four-dimensional space-time as part of their MUI, but, again, this is not necessary.

From these comments, it should be clear that the definition of a conscious agent is quite broad in scope. Indeed, it plays the same role for the field of consciousness that the notion of a Turing machine plays for the field of computation (Bennett *et al.* 1989).

7. The Mind-Body Problem

We now use MUI theory and conscious realism to sketch a solution to the mind-body problem. Exactly what that problem is depends, of course, on one's assumptions. If one adopts *physicalism*, then the central scientific problem is to describe precisely how conscious experience arises from, or is identical to, certain types of physical systems.

As we discussed before, there are no scientific theories of the physicalist mind-body problem. If one adopts *conscious realism*, then the central mind-body problem is to describe precisely how conscious agents construct physical objects and their properties.

Here there is good news; We have substantial progress on the mind-body problem under conscious realism, and there are real scientific theories. We now have mathematically precise theories about how one type of conscious agent, namely human observers, might construct the visual shapes, colors, textures, and motions of objects (see, e.g., Hoffman 1998; Knill and Richards 1996, Palmer 1999).

One example is Ullman's (1979) theory of the construction of three-dimensional objects from image motion. This theory is mathematically precise and allows one to build computer-vision systems that simulate the construction of such objects. There are many other mathematically precise theories and algorithms for how human observers could, in principle, construct three-dimensional objects from various types of image motions (e.g., Faugeras and Maybank 1990, Hoffman and Bennett 1986, Hoffman and Flinchbaugh 1982, Huang and Lee, 1989, Koenderink and van Doorn 1991, Longuet-Higgins and Prazdny 1980). We also have precise theories for constructing three-dimensional objects from stereo (Geiger et al. 1995, Grimson 1981, Marr and Poggio 1979), shading (Horn and Brooks 1989), and texture (Aloimonos and Swain 1988, Witkin 1981). Researchers debate the empirical adequacy of each such theory as a model of human perception, but this is just normal science.

Donald D. Hoffman has been a professor at UC Irvine since 1983 and holds appointments in the Depart-

ments of Cognitive Science, Computer Science, and Philosophy. He is author of the book Visual Intelligence: How We Create What We See *(W.W. Norton, 2000), and coauthor of the book* Automotive Lighting and Human Vision *(Springer, 2007). His research on cognitive neuroscience and human visual perception received a Distinguished Scientific Award from the American Psychological Association and the Troland Research Award of the U.S. National Academy of Sciences.*

Part 2 of this article will appear in the Spring/Summer 2011 issue of Aperture. ■

Remote Viewing Mind Puzzle
(ANSWERS)

Down
1. Stargate
2. Matrix
4. Aperture
8. Coordinate
9. HemiSync
11. Jung
12. SRI
13. AOL
14. Targ
17. Dowsing

Across
3. Ideogram
5. CRV
6. Sensory
7. Pat Price
10. Fort Meade
12. Signal Line
15. Swann
16. Bilocation
18. Outbounder
19. Sketch

Aperture
Guidelines for Submitting Articles

The Editors of *Aperture* would like to extend an invitation to all readers to submit relevant and well written articles about remote viewing for possible publication in future issues. All submissions must pertain to remote-viewing research, applications, protocols, skills, viewer performance, or experimentation. Article length is negotiable depending on the importance to and interest level of our readership, and the quality of the presentation. Submissions should generally be between 500-1500 words. Please submit any additional questions regarding submissions to *contact@irva.org*. ■

Taskings & Responses
Q & A with a Remote-Viewing Expert

Have you ever wanted to ask a question of a specific remote-viewing expert? Is there something you want to know about remote viewing, but didn't know where to turn for the answer? We regularly print questions and answers in the Taskings & Responses section of *Aperture.* Please forward your questions for consideration to *contact@irva.org*. ■

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About the International Remote Viewing Association

Expand Awareness, Research, & Educate

The International Remote Viewing Association (IRVA) was organized on March 18, 1999 in Alamogordo, New Mexico, by scientists and academicians involved in remote viewing since its beginnings, together with veterans of the military remote-viewing program who are now active as trainers and practitioners in the field. IRVA was formed in response to widespread confusion and conflicting claims about the remote-viewing phenomenon.

One primary goal of the organization is to encourage the dissemination of accurate information about remote viewing. This goal is accomplished through a robust website, regular conferences, and speaking and educational outreach by its directors. Other IRVA goals are to assist in forming objective testing standards and materials for evaluating remote viewers, serve as a clearinghouse for accurate information about the phenomenon, promote rigorous theoretical research and applications development in the remote-viewing field, and propose ethical standards as appropriate. IRVA has made progress on some of these goals, but others will take more time to realize. We encourage all who are interested in bringing them about to join us in our efforts.

IRVA neither endorses nor promotes any specific method or approach to remote viewing, but aims to become a responsible voice in the future development of all aspects of the discipline.