# FRONTIER

### Sixth Sense or Nonsense?

Exploring the frontiers of consciousness:

IONS' research continues to push the

sial from a scientific perspective because they imply a perceptual capacity that transcends the five known senses. This "sixth sense" seems to manifest differently according to need and context, leading to descriptive labels for a range of

sychic phenomena ("psi" for short) are controver-

boundaries. This issue: psi and science.

phenomena that may be, at root, the same. The labels encompass the whole panoply of psychic phenomena, including telepathy, clairvoyance, precognition, psychokinesis, distant healing, and, perhaps, mediumship.

Telepathy is particularly controversial because it challenges a central dogma in the neurosciences—that brain and mind are identical. If the dogma is correct, then it is nonsense to propose a nonsensory means of exchanging information at a distance. The only known means of doing something like that would be transmission of electromagnetic signals. And even if one person's brainwaves were amplified and transmitted, there is no known way that another brain could interpret those signals, as brainwaves are composite averages of the electrical activity of billions of underlying neurons.

Despite the dogma, telepathic experiences have been recorded throughout history, and their occurrence today appears to be just as prevalent as they were millennia ago. For the past 120 years, telepathy has been studied under controlled conditions involving a nominal "sender" who attempts to interact with an isolated, nominal "receiver." Senders have been asked to mentally send emotions, abstract symbols, drawings, photographs, or video clips, and receivers have been asked to try to draw the pictures, or to describe their subjective impressions, or simply to relax while their skin conductance, heart rate, and other physiological parameters are being monitored. Many experimental designs have been and continue to be explored, but the three largest classes of telepathy tests have been based on ESP cards, pioneered by J.B. Rhine at Duke University in the 1930s; the Ganzfeld experiment, independently developed by Charles Honorton, Carl Sargent, and Adrian Parker in the 1970s; and use of the autonomic nervous system as a detector of distant mental interactions, refined in the 1980s primarily by William Braud and Marilyn Schlitz (now vice-president for Research and Education at the Institute of Noetic Sciences). The composite scientific evidence from these studies, involving dozens of laboratories worldwide, hundreds of experiments, and thousands of pairs of participants, confirms to a high degree of certainty that the sixth sense is not nonsense, nor is it one of the ordinary five senses.

These studies tell us that telepathy is not "mind reading" because *thoughts* are very rarely perceived; that the effects are subtle, and only rarely reach conscious awareness; and that some commonly reported experiences may look and feel like psychic phenomena, but are best accounted for by more mundane explanations like tricks of perception and memory.

Theoretical explanations for telepathy have lagged behind the growing body of experimental evidence. While adequate theories are likely to remain elusive for some time, developments in physics have provided some intriguing clues.

# S O F R E S E A R C H



'You have to leave the city of your comfort and go into the wilderness of your intuition. What you'll discover will be wonderful. What you'll discover will be yourself.'

In particular, the experience of telepathy is reminiscent of quantum entanglement (QE). QE refers to correlations that can arise between isolated physical systems under special conditions—correlations that defy the predictions of classical physics. If macroscopic physical objects like the brain can exhibit similar quantum properties for even short periods of time, then it is conceivable that entangled brains might occasionally produce unexpected intersubjective correlations, like those observed in both life and lab.

Objections to a QE "explanation" include the correct

observation that quantum entanglement as presently understood is an exceedingly fragile state that requires conditions quite unlike the noisy environment of the human brain. However, research on entanglement has advanced rapidly, and we now know that generalization of Bell's Inequalities—a mathematical analysis of quantum mechanics that led to the concept of QE—results in forms of QE that are highly resistant to noise; that concepts like "quantum repeaters" and "entanglement purification" are being vigorously pursued as practical means of extending the lifetimes of entangled systems; and that clouds of trillions of atoms can be entangled at room temperature. As QE advancements continue, it seems likely that new forms of entanglement may be discovered that can be sustained in living tissue. If such developments do occur, they would provide a foundation on which to build a plausible physical theory of telepathy.

One approach to investigating telepathy that has enjoyed

a renaissance in the last few years embraces the standard neuroscience perspective by assuming that mental activity is always accompanied by brain activity. From this perspective, to study telepathy we ask two brain-minds to keep each other "in

mind," then stimulate one and see if the other shows corresponding activity under conditions that exclude ordinary influences, expectations, and sensory cues.

The relevant literature can be traced to the late 19th century, when German scientist Hans Berger was studying the electrophysiology of the human brain, inspired by a dramatic telepathic experience he had in his youth. In the process, Berger discovered and named the human electroencephalogram (EEG). Six decades later, researchers began to look for EEG correlations between pairs of isolated people. One of these studies, published in the toprated scientific journal *Science*, reported positive results with identical twins. Since then, about a dozen replications have been conducted, and unlike the vast majority of experiments investigating the sixth sense, many of these experiments have been published in mainstream physics and neuroscience journals. Overall, this body of research pro-



vides evidence that roughly 1 in 15 pairs of unselected people show above-chance, positive EEG correlations. These effects continue to be observed with each new generation of experiments, suggesting that the correlations are not due to simple design flaws, measurement, or analytical artifacts.

In the spring and fall of 2003, we conducted a replication of the EEG-correlation experiment in the IONS lab-

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oratory. Twenty-six pairs of volunteers participated, mostly spouses, friends, and mother-child pairs. We asked each pair to "feel the presence of the other," asked them to exchange a personal item like a ring or watch to help maintain a focus on the other person, and then placed the "receiver" in our electromagnetically shielded room, with the "sender" in another room about 20 meters away. We attached EEG electrodes to physiological-recording equipment at each location to monitor the electrical activity of each person's brain. The receiver was asked to simply relax and think about the sender. The sender was asked to gaze at a video monitor; at randomly determined times the live image of the receiver suddenly appeared on the monitor. After 10 seconds the screen would go dark again.

The onset and offset of this video image caused a predictable visual evoked response in the sender's brain. We were interested in whether there would be a corresponding change in the receiver's brain at the same time. The results of all 26 sessions showed a positive correlation between the senders' and receivers' EEGs (see figure at left). We also noticed that sometimes senders' brains hardly responded to the visual stimuli (perhaps because they fell asleep during session), and when their data were removed from the analysis the overall EEG correlation was much stronger. We are continuing to explore the conditions under which physiological synchrony appears between isolated but mentally "connected" people, and the intersubjective experiences associated with such episodes.

#### Exploring Indigenous Science

ur dominant ways of knowing about the world—science and religion—are often in competition, but neither can be exclusively correct. As old societal structures are stressed, the exploration of emerging paradigms and worldviews grows in importance. How might we use a free exchange between different worldviews and cultural perspectives to gain a deeper appreciation of who we are as a shared human race? And can a blend of ancient and contemporary wisdom help to generate transformative models for how to live life in the 21st century?

To address these timely questions, IONS researchers have begun a series of recorded dialogues with healers and cultural leaders from a variety of spiritual and religious traditions. What follows are excerpts from the stories of two American Indian women who participated in the Compassionate Intention and Distant Healing Conference, held on the IONS campus in November, 2003. The interviews are part of a larger program designed to create educational media programs from the rich archive of wisdom teachings.

Rose von Thater-Braan is a Cherokee artist and instructor at The Native American Academy in Kensington, California. She offered the following insights:

"To imagine that there is only one way to know something is not conceivable. Knowledge is held by lineages, families, and societies; it is brought together for the good of all the people. . . . Whenever native people come together, it's a very natural thing to explore different topics and to share your understandings. What a distortion it would be to say 'That couldn't be so.' One could say, 'We don't know it that way,' or 'We don't have that in our system of thought.' But that it couldn't be that way? It's extremely important that you retain the integrity of your own understandings, and that you offer them. But the shutting out of other ways of knowing—it's like madness."

Dr Nancy Maryboy, an indigeneous astronomer, teacher, and Cherokee/Navajo woman, reflected on the nature of worldview in a slightly different way: "I remember looking up the meaning of 'science,' because science as we know it today, it's like an arbiter of a way of life. Science as it was conceived back in the days of the Greeks meant 'to know.' Knowing. When we use the word 'knowing,' we mean ways of knowingand we say 'ways' with an 's'. It's 'multiple ways of knowing.' Knowing is not static. It's always in process. It's always growing and regenerating. So we say 'ways of knowing.'

"When I look at the Newtonian-Cartesian model of Western science,





I think of an exclusionary process. One of the things that is excluded is spirituality. Many scientists have their own spirituality, but they have to leave it at the door. They can't hold it up and say, 'This is where I got my idea. This is how I know it's true.' Spirituality is not a commonly accepted validator in science as we know science today. However, spirituality infuses all of native ways of knowing, so you can't leave it at the door and be talking about native ways of knowing, or native science; it's all one. You can't reduce it to the smallest common denominator because it's all one. You can't experiment with a frog, take it to pieces, and then give it life and let it live again, because it just doesn't happen that way. So there are protocols for native research, and spirituality and intuition are not excluded. The participant is not excluded. It's a much more inclusionary way of knowing."

> Marilyn Schlitz, PhD, IONS Vice-President for Research and Education Dean Radin, PhD, IONS Senior Scientist 🚑