



DREW GALLOWAY / PHOTO: JEANNE CLAYTON

FRONTIERS of Science

News from the IONS Research Department

The Return of Psychedelic Research

The IONS Transformation Project has conducted a series of studies over the last ten years examining the experiences, practices, and ways of being that lead to profound shifts in consciousness. These studies include analysis of individuals' stories, interviews and focus groups with teachers and scholars, surveys of nearly two thousand people, and longitudinal studies of people engaged in transformational practice programs (see www.livingdeeply.org). One common thread throughout all the unique experiences we've read and across the diverse world traditions

we've surveyed is that short-term alterations in one's state of consciousness can lead to positive, profound, and permanent transformations in worldview and ways of being. Whether thrust upon one involuntarily, as in the case of a near-death experience, or engaged in intentionally as part of a transformative practice, dipping into states of consciousness that diverge from our ordinary states of awareness can be a powerful stimulator of positive change.

Recent research in a field of study with a long and controversial history supports the idea that even one powerful experience can have profound effects. After being dormant for nearly thirty years, federally approved research on psychedelics is enjoying a quiet and careful revival. For example, researchers at Johns Hopkins University are engaged in a research program on psilocybin, the active ingredient in "sacred mushrooms." One double-blind study is taking place in a tastefully decorated, living room-type setting under "comfortable, structured, interpersonally supported conditions," where researchers administer psilocybin or methylphenidate hydrochloride (brand name Ritalin) to 36 healthy, well-educated, hallucinogen-naive volunteers with active spiritual lives. After taking the psilocybin, 60 percent of one group met criteria for having a "full mystical experience." Even more impressive, "Most of the volunteers looked back on their experience up to 14 months later and rated it as the most or one of the five most

personally meaningful and spiritually significant of their lives," says lead investigator Roland Griffiths, a professor in the Johns Hopkins departments of Psychiatry and Behavioral Sciences and Neuroscience. Sixty-four percent indicated that the experience increased their well-being and life satisfaction.

Cited as a landmark study in a commentary by former National Institute on Drug Abuse (NIDA) Director Charles Schuster, the research marks a new systematic approach to studying certain hallucinogenic compounds that, as far back as the 1950s, showed signs of therapeutic potential. "Human consciousness is a function of the ebb and flow of neural impulses in various regions of the brain—the very substrate that drugs such as psilocybin act upon," Schuster says. "Understanding what mediates these effects is clearly within the realm of neuroscience and deserves investigation."

A growing number of researchers are now testing psilocybin on cancer patients. Those at Johns Hopkins need volunteers with a current or past diagnosis of cancer who are anxious or depressed to participate in a scientific study of self-exploration and personal meaning. Patients with and without disease progression are eligible, and there is no geographic restriction to participation (see www.cancer-insight.org for more information). Researchers at New York University School of Medicine and Bluestone Center for Clinical Research need volunteers to participate in a similar study (contact Krystallia Kalliontzi at 212-998-9252 or kk71@nyu.edu).

Other scientists around the world engaged in research on psychedelics include Charles Grob at UCLA, who has conducted studies of MDMA (Ecstasy) and psilocybin with Stage IV cancer patients; Francisco Moreno, who has been studying psilocybin for obsessive-compulsive disorder at the University of Arizona, Tucson; and John Mendelson at California Pacific Medical Center in San Francisco, who has conducted studies with MDMA and *salvia divinorum*, a plant historically used by the Mazatec Indians in Oaxaca, Mexico.

In November of 1998, IONS sponsored a conference that brought together many pioneers of psychedelic research in an attempt to assemble some of their collective wisdom. The IONS-sponsored book *Higher Wisdom: Eminent Elders Explore the Continuing Impact of Psychedelics* (SUNY Press, 2005), authored by Roger Walsh and Charles Grob, emerged from that conference.

While questionnaires, graphs, and charts may not come close to adequately representing the experiences people have using psychedelics, the kind of careful, rigorous research currently being done on altered states is contributing to an evolving paradigm shift. It's a shift that recognizes the fundamental role that altered states of consciousness play in our development and well-being. Even briefly experienced states, far from just being "a trip," can have lasting impacts on our sense of self, our sense of meaning and purpose, and our view of the world.

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Cassandra Vieten, PhD, is director of Research at IONS.

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Research Roundup

Compiled by Marc Kaufman and Cindy Kuzma

Misleading Media Coverage of Medicine

A comparison of the way in which media covers pharmaceutical and herbal remedy trials has revealed that it is rarely possible for the lay public to assess the credibility of the described research, preventing readers from making informed decisions. Tania Bubela of the University of Alberta, Canada, led a team of researchers who studied 201 pharmaceutical and 352 herbal remedy newspaper articles, and the 48 pharmaceutical and 57 herbal remedy clinical trials to which the stories referred. For both complementary medicine and mainstream medicine, articles underreported risk and lacked

any disclosure of trial funding or scientists' conflicts of interest.

"There were significant errors of omission of basic information such as dose, sample size, and methods for randomized clinical trials," said Bubela, who reported the findings in the open access journal *BMC Medicine*. "In addition, there is an underreporting of risks, especially in the context of herbal remedies."

The main focus of almost all articles on pharmaceutical clinical trials was the trial itself. This contrasted with articles on herbal remedy clinical trials, where almost two-thirds focused on the trial, with the other third highlighting other issues, such as the myriad uses for any particular herb. The main benefit cited in almost all articles was improved health or treatment options. The study found that the media is overly reliant on narratives from satisfied patients, researchers, clinicians, and patient groups—without disclosing the various participants' financial ties to industry and conflicts of interest.

"The study is not all bad news for the media," Bubela said. "Slowly they are beginning to report on the welcome trend of evidence-based clinical trials for complementary and alternative medicine (CAM), including herbal remedies. Unfortunately, the media still rely on high-quality medical journals for their sources, which are more likely to report negative results about CAM and positive results about pharmaceuticals. The clinical trials in the study showed no difference in

quality between herbal remedy and pharmaceutical trials, but CAM was still reported on more skeptically.”

Source: Biomed Central (November 2008)

Acupuncture Beats Meds for Chronic Headaches

Acupuncture is more effective than medication in reducing the severity and frequency of chronic headaches, according to a new study by Duke University Medical Center researchers. The National Institutes of Health recommended acupuncture as a viable treatment for chronic headaches a decade ago, but while research in this field has increased, there are conflicting reports about its efficacy. “We combed the literature and conducted a comprehensive review of available data done to date using only the most rigorously executed trials,” said Tong Joo Gan, a Duke anesthesiologist who led the analysis. Researchers analyzed data from only randomized controlled trials that evaluated acupuncture for adults with chronic headaches and were conducted for more than four weeks.

“Acupuncture is becoming a favorable option for a variety of purposes, ranging from enhancing fertility to decreasing post-operative pain, because people experience significantly fewer side effects and it can be less expensive than other options,” Gan said. “This analysis reinforces that acupuncture also is a successful source of relief from chronic headaches.” While everyone experiences an occasional headache, more than

45 million Americans suffer from chronic headaches. Medication remains the mainstay of treatment, with varying levels of success.

“Acupuncture has been practiced for thousands of years but only recently has started to become more accepted as an alternative or supplement to conventional therapies,” Gan explained. “One of the barriers to treatment with acupuncture is getting people to understand that, while needles are used, it is not a painful experience. It releases your body’s own natural pain killers.”

Source: Duke Medicine News and Communications (December 2008)

Is Hypnosis a Distinct Form of Consciousness?

Contrary to popular opinion and media portrayals, electroencephalographic (EEG) studies have confirmed that subjects under hypnosis are not in a sleeplike state but are awake—though sometimes a bit drowsy. Moreover, they can freely resist the hypnotist’s suggestions. In addition, research by psychologist Nicholas Spanos of Carleton University in Ontario shows that a failure to remember what transpired during the hypnosis session, or so-called posthypnotic amnesia, is not an intrinsic element of hypnosis and typically occurs only when subjects are told to expect it to occur.

All of which raises a deeper question: Is the hypnotic state a distinct state of consciousness? Most people seem to think so. In a recent unpublished survey, psychologist Joseph Green of Ohio State University at Lima and his colleagues found that 77 percent

of college students agreed that hypnosis is a distinctly altered state of consciousness. This issue is of more than academic importance. If hypnosis differs in kind rather than in degree from ordinary consciousness, it could imply that hypnotized people can take actions that are impossible to perform in the waking state. It could also lend credibility to claims that hypnosis is a unique means of reducing pain or of effecting dramatic psychological and medical cures.

Despite the ubiquitous Hollywood depiction of hypnosis as a trance, investigators have had an extremely difficult time pinpointing any specific markers, or indicators, of hypnosis that distinguish it from other states. Fueling the perception of hypnosis as a distinct trance-like state is the widespread assumption that it leads to marked increases in suggestibility and even complete compliance with a hypnotist’s suggestions. Nowhere is this stereotype portrayed more vividly than in stage hypnosis shows, in which people are seemingly induced to bark like dogs, sing karaoke, and engage in other comical behaviors in full view of an amused audience.

Yet research shows that hypnosis exerts only a minor impact on suggestibility. Moreover, research demonstrates that a formal hypnotic induction isn’t needed to produce many of the seemingly spectacular effects of hypnosis including reduction of extreme pain or various physical feats (popular in stage hypnosis acts), such as suspending a participant horizontally between the backs of

two chairs. One can generate most, if not all, of these effects merely by providing highly suggestible people with sufficient incentives to perform them.

Source: Scientific American Mind (January 2009)

The Psychology of Déjà Vu

As more scientists study the phenomenon of déjà vu—the feeling that a new situation is familiar even if there is evidence that it could not have occurred previously—a number of new theories are emerging. A recent report by Colorado State University psychologist Anne M. Cleary, published in the journal *Current Directions in Psychological Science*, describes the many similarities that exist between déjà vu and our understanding of human recognition memory, suggesting that déjà vu is not merely a glitch in our brain's memory system.

Recognition memory is the type of memory that allows us to realize that what we are currently experiencing has already been experienced before, such as when we recognize a friend on the street or hear a familiar song on the radio. Our brain fluctuates between two different types of recognition memory: recollection and familiarity. Recollection-based recognition occurs when we can pinpoint an instance when a current situation has previously occurred—for example, seeing a familiar man at a store and realizing we've seen him before on the bus. On the other hand, familiarity-based recognition occurs when our current situation feels familiar but we don't remember when it has happened

before. For example, we see that familiar man in the store, but we just can't remember where we know him from. Déjà vu is believed to be an example of familiarity-based recognition—during déjà vu, we are convinced that we recognize the situation, but we are not sure why.

Cleary conducted experiments testing familiarity-based recognition and then conducted experiments to determine what features or elements of situations could trigger feelings of familiarity. The results support the idea that events and episodes we've experienced are stored in our memory as individual elements of that event. Déjà vu may occur when specific aspects of a current situation resemble certain aspects of previously occurring situations; if there is a lot of overlap between the elements of the new and old situations, we get a strong feeling of familiarity. "Many parallels between explanations of déjà vu and theories of human recognition memory exist," Cleary concludes. "Theories of familiarity-based recognition and the laboratory methods used to study it may be especially useful for elucidating the processes underlying déjà vu experiences."

Source: Association for Psychological Science news release (November 18, 2008)

Poverty's Impact on Children's Brains

A new study concludes that the brains of children from low-income families function differently from the brains of kids from high-income homes. Using EEG to measure brain function, researchers at the Helen Wills Neuroscience Institute and

the School of Public Health at the University of California, Berkeley, reported that normal nine- and ten-year-olds, differing only in socioeconomic status, have detectable differences in the response of their prefrontal cortex—the part of the brain that is critical for problem solving and creativity. The study was recently accepted for publication in the *Journal of Cognitive Neuroscience*.

"Kids from lower socioeconomic levels show brain physiology patterns similar to someone who actually had damage in the frontal lobe as an adult," said Robert Knight, director of the Institute and a UC Berkeley professor of psychology. "We found that kids are more likely to have a low response if they have low socioeconomic status, though not everyone who is poor has low frontal lobe response."

Coauthor W. Thomas Boyce, UC Berkeley professor emeritus of public health, was not surprised by the results: "We know kids growing up in resource-poor environments have more trouble with the kinds of behavioral control the prefrontal cortex is involved in regulating. "That we see functional differences in prefrontal cortex response in lower-socioeconomic-status kids is definitive."

"This is a wake-up call," Knight said. "It's not just that these kids are poor and more likely to have health problems, but that they might actually not be getting full brain development from the stressful and relatively impoverished environment associated with low socioeconomic status (fewer books, less reading, fewer games, fewer visits to museums)."

The scientists suspect that the brain differences can be eliminated by proper training. They are collaborating with UC Berkeley neuroscientists who use games to improve the prefrontal cortex function, and thus the reasoning ability, of school-age children. “It’s not a life sentence,” Knight emphasized. “We think that with proper intervention and training, you could get improvement in both behavioral and physiological indices.” Boyce agreed: “In work that we and others have done, it looks like something as simple as talking to your kids” can boost prefrontal cortex performance.

Source: UC Berkeley Media Relations (December 2008)


A Cross-Practice Approach to Dementia

Those with early-stage dementia can slow their physical, mental, and psychological decline by taking part in therapeutic programs that combine counseling, support groups, Taiji, and Qigong, researchers report. Some of the benefits of this approach are comparable to those achieved with anti-dementia medications. “Most of the research on dementia and most of the dollars up to this point have gone into pharmacological interventions,” said Sandy Burgener, a professor of nursing at the University of Illinois and lead author on the study, published in the *American Journal of Alzheimer’s Disease and Other Dementias*. “But we have evidence now . . . that other approaches can make a difference in the way people live and can possibly also impact their cognitive function.”

In the study, 24 people with

early-stage dementia participated in an intensive 40-week program. The intervention included biweekly sessions of cognitive behavioral therapy and support groups, along with three sessions per week of traditional Chinese martial arts exercises and meditation. A comparison group of people with early-stage dementia did not participate in these programs for the first 20 weeks of the intervention.

Qigong and Taiji combine simple physical movements and meditation. Qigong is a series of integrated exercises believed to positively affect the mind, body, and spirit. According to Yang Yang, a professor of kinesiology and community health and a coauthor of the study, Taiji is a type of Qigong that melds Chinese philosophy with martial and healing arts. Cognitive behavioral therapy is a form of psychotherapy that seeks positive alternatives to the beliefs and behaviors that can undermine a person’s health and happiness. Research has shown that cognitive behavioral therapy and support groups aid those who struggle with depression and other physical or mental health problems.

Researchers are discovering that multidisciplinary approaches—those that address patients’ physical, mental, and psychological dimensions—show the most promise in treating people with dementia. Participants in the program not only benefited in several measures of physical function but also showed positive cognitive and psychological effects. 

Source: News Bureau, University of Illinois at Urbana-Champaign (December 2008)



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