

(Willard Libby was awarded the 1960 Nobel Prize in Chemistry for developing this wonderfully useful tool. Corrections are nowadays made for the fact that the amount of C-14 in the atmosphere has not remained constant over the relevant period of time. For the last few thousand years, accurate corrections have been possible by correlation with the annual growth rings of trees.)

⁵ Earthen mounds, considerably longer than they are wide, containing long passages lined with stone slabs and side-chambers to hold remains of the dead.

⁶ Thom thought to have identified a “megalithic yard” of 0.823 m.

⁷ For example, Callanish on the Isle of Lewis in the Outer Hebrides or the Isle of Arran in southwest Scotland.

⁸ A modern and maybe far-fetched analogy might be in Australia’s capital city, Canberra, where each country has built its embassy in the style of that country’s traditional architecture.

⁹ Each cycle being 18.6 years, so that 56 is the smallest whole number that corresponds closely to an integral number of cycles.

¹⁰ For example: “The connection with a sky-god is clear for in western England the axes were thought to be thunderbolts and in an interesting link with fire cottages in Ireland often had a stone axe placed in their rafters as protection against lightning” (p. 68); “Early though it was the particular Carrowmore combination of a flat-topped cairn lying inside a free-standing ring of tall stones never developed” (p. 82); “Whatever the ceremonies here they were interrupted when the site was converted into a cemetery” (p. 292).

DMT: The Spirit Molecule by Rick Strassman. Rochester, Vermont: Park Street Press, 2001. 378 pp., \$16.95, paperback. ISBN 0-89281-927-8.

This book is a narrative of the author’s experiences conducting research in which he injected volunteers with dimethyltryptamine (DMT) and other psychedelics during the 1990s at the University of New Mexico. Strassman sets the scene by discussing psychedelics, neurotransmitters, DMT, and the pineal gland. He hypothesized that the pineal gland produces high levels of DMT at critical times in one’s life, such as spiritual events and death. He reasoned that if his hypothesis were true, then administering DMT to participants in a study should evoke effects that would be similar to effects experienced in those states. However, obtaining approval to administer a Schedule I drug to volunteers is not an easy matter and Strassman recounts the labyrinthine bureaucratic process that he had to endure in order to get his experiments underway. The main body of the book consists of the reports given by participants of their experiences under the influence of DMT. Strassman concludes by describing the factors that led to the termination of his research program and discussing the implications of his results.

Strassman classified the case reports of experiences into three categories: personal, invisible, and transpersonal. Personal experiences were those that were concerned with a participant's personal mental and physical events, whereas transpersonal experiences were mystical and near-death events. Strassman had anticipated the occurrence of both of these types of experiences and his hypothesis was supported by the presence of the latter. However, he was surprised by the third category, that of invisible experiences, which consisted of encounters with normally invisible dimensions of reality and the beings that inhabit them. For example, participants reported interactions with clowns, and reptilian and insect-like creatures, some of which were benevolent while others were not. Initially, Strassman says that he tried to reify such experiences in neurological or psychological terms. However, participants were adamant that these were not dreams, hallucinations, or metaphors, but rather observations, sometimes described as more real than real, of other dimensions of reality. Strassman came to accept these reports at face value and to consider seriously that these experiences might in fact be what they appeared to be.

Strassman is not alone in considering the possibility that there may be dimensions of reality normally invisible to us. This is a theme that continues to press itself upon us as research concerning alterations of consciousness progresses. For example, felt presences occur even in states of consciousness, such as sensory restriction, that do not involve psychopathology, psychoactive drugs, or the use of mental techniques. What is required is not just a better understanding of the neurological and psychological mechanisms by which these phenomena occur but the gradual documentation of any consensus among experiencers concerning events occurring in normally invisible realms in order to eventually be able to understand the extent to which these events are objective.

According to Strassman, his second surprise, in addition to the reports of encounters with invisible realms, was that the DMT experiences, for all their apparent profundity at the time at which they occurred, had little long-term beneficial impact on participants. This should not have been surprising given the research that exists concerning religious conversion and the history of psychedelic psychotherapy itself. For example, there was initial enthusiasm after its invention for the use of LSD in the treatment of alcoholism, precisely so as to precipitate a conversion experience, and the testimonies of participants at the time that they received LSD were all that could have been expected. However, the better-controlled studies revealed that there were no long-term beneficial effects of the psychedelic treatment. Strassman also comes to the conclusion that DMT is not inherently therapeutic and, in keeping with his own participation in Buddhism, speculates that some form of psychotherapy or structured spiritual practice needs to be present for profound experiences to have transformative effects.

Strassman also notes the problem of trying to address the interesting ontological questions raised by DMT experiences in studies in which he is

supposed to be seeking the neurological mechanisms by which DMT works. After all, by some accounts, it was the capacity of psychedelics to undermine social values through profound ontological insights that led to restrictions on research with psychedelics in the first place. Pretending that psychedelics are just other drugs to be investigated for their biological and possibly therapeutic effects gets the research back off the ground but constricts investigation of the most salient phenomena associated with psychedelic intoxication. Although he notes the problems that he encountered, throughout the book Strassman stays with the process and results of conducting his research and stays out of the political fray concerning psychedelics.

I like this book, more for the questions that it raises than for those that it answers. However, lest the reader expect too much, it should be pointed out that this is a trade book and, as such, while it gives an accessible account of what transpired, it does so without the technical details and supplementary materials that the reader would expect in an academic book. This limitation becomes apparent in Strassman's identification of alien encounters reported in his DMT studies with the accounts given in the alien-abduction literature. While there are similarities, there are also differences between the two that Strassman does not address. For example, there is no mention in the reports of his participants of the presence of UFOs, or greys, or physical lacerations apparently typical of abduction experiences. Similarly, while his speculations about how quantum computing in the brain may lead to perception of events in parallel universes made of dark matter is clear as far as it goes, I would have liked to have seen a more comprehensive discussion of the manner in which heightened DMT levels could lead to such phenomena. In fact, in keeping with the main thesis of the book, I would like to have seen the contention that DMT is the spirit molecule discussed in the context of other neurological mechanisms that have been proposed to explain mystical experiences. But this is a good book for what it is, which gives the reader a feeling for what DMT experiences are like and leaves her with some profound questions about the nature of consciousness and reality.

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Mind Science: Meditation Training for Practical People by Charles T. Tart. Novato, California: Wisdom Editions, 2001. 215 pp., \$18.95, paper. ISBN 1931254001.

This book is based on a day-long workshop delivered by the author during the *Toward a Science of Consciousness* meeting in Tuscon, Arizona, in 1998. The format of the text is essentially word for word what was spoken in the