Magical Thinking in Complementary and Alternative Medicine

Homeopathy and other popular therapies demonstrate ancient and universal principles of magical thinking, which some recent research suggests are fundamental to human cognition, even rooted in neurobiology.

PHILLIPS STEVENS, JR.

Many of today's "complementary" or "alternative" systems of healing involve magical beliefs, manifesting ways of thinking based in principles of cosmology and causality that are timeless and absolutely universal. So similar are some of these principles among all human populations that some cognitive scientists have suggested that they are innate to the human species, and this suggestion is being strengthened by current scientific research. Any efforts to correct such thinking should begin with understanding of the nature of the principles involved. When we ask "why people believe weird things" (as has Shermer 1997) we might consider that at least some beliefs derive from a natural propensity to think in certain ways.
This article considers those aspects of belief that accord with the best anthropological meanings of "magic" and "magical thinking." It defines these terms far more specifically than have others. I will first survey the wide range of popular meanings of magic, then elucidate underlying principles involved in the belief system most appropriately labeled "magic." I will identify some popular belief systems that involve magical thinking and indicate some recent scientific studies that suggest that we are dealing with innate principles of cognition.

**Meanings of "Magic"**

The terms magic and magical have a wide range of meanings, both among scholars and the general public. In no significant order, the terms can mean: the tricks and illusions of a stage magician; ability to change form, visibility, or location of something, or the creation of something from nothing; spirit invocation and command; having romantic, awe-inspiring, or wondrous quality; the "high" or "Hermetic" magic of late medieval and Renaissance times, including astrology, alchemy, Kabbalah, and other systems involving complex calculations and/or written notations and formulas; anything "mythical," "psychic," "paranormal," "occult," or "New Age"; some of the beliefs and practices of Wicca and other neo-pagan religions, often spelled "magick"; any of the many meanings of "sorcery" or "witchcraft," or other referents of "black magic": anything seeming mysterious or miraculous; and the terms can be used as a general reference to supernatural power. I have elaborated on these meanings elsewhere (Stevens 1996a).

Even among scholars there is not general agreement, and any of the above meanings may be evident in different anthropological writings. But there are distinct ways of thinking and corresponding ritual practices that are similar among all peoples in the world and at all stages of recorded history—including prehistory—which most anthropologists, and many other scholars, refer to as magic. In this universal sense, as I have indicated in more detail elsewhere (Stevens 1996b), magic operates according to any or all of five basic principles:

1. **Forces.** Most peoples seem to believe in forces in nature that are separate from and operate independently of any spiritual beings and are also separate from those forces identified and measured by science, e.g., gravity, electromagnetism, and the strong and weak nuclear forces. The forces are inherently programmed, apparently since the Creation, to do specific things, either alone or in concert with others, and if left alone they will do those things. Farmers recognize them; poets have written about them ("The force that through the green fuse drives the flower"—Dylan Thomas, 1934).

2. **Power.** The forces, and everything else, are energized by a mystical power that exists in varying degrees in all things. The power in higher-order things, spiritual beings, and people of high status, like African and Polynesian kings, may be dangerous to ordinary people. Power is transferable, through physical contact, sensory perception, or mere proximity. The idea is exemplified in the biblical concept of divine "glory," as halos over the heads of saints in medieval art, and in contemporary New Age "auras" and "psi energy." It is belief in supernatural power that defines the concept of "sacred," and that distinguishes holy water.

In some belief systems, "forces" and "power" may seem to merge; e.g., in the concept of "vital force" that exists in so many forms: Polynesian and Melanesian mana, Iroquois orenda, Algonqian manitou, Sioux wakan, Malay kramat, Indian brâhma, Greek dynamis, Chinese qi, ashe among the Yoruba of West Africa and its Caribbean derivatives (aché, axé),

---

Phillips Stevens, Jr., is in the Department of Anthropology, SUNY at Buffalo, NY 14261; e-mail pstevens@acsu.buffalo.edu.
“karma” and “chakras” in Hindu and Buddhist healing systems, the alleged “energies” in Therapeutic Touch and Reiki, etc.; and ideas of flowing streams of power in Earth, like “ley-lines” in Britain and Europe and earth energies addressed in the Chinese geomantic system of feng shui.

3. A coherent, interconnected cosmos. It is widely believed that everything in the cosmos is actually or potentially interconnected, as if by invisible threads, not only spatially but also temporally—past, present, and future. Further, every thing and every event that has happened, is happening, or will happen was pre-programmed into the cosmic system; and after it has happened, it leaves a record of itself in the cosmic program.

4. Symbols. Symbols are words, thoughts, things, or actions that not only represent other things or actions but can take on the qualities of the things they represent. The American flag is a good example; if the flag is mistreated it is more than the material that is damaged. If the thing the symbol stands for has power, the symbol will become powerful. Some symbols with power appear to be universal, e.g., eggs, horns, and the color red; most are understandable only in their specific cultural contexts.

Words are extremely powerful, as they embody their own meaning, and speech is usually part of the magic act. It is universally believed that spoken words, activated by the life force and the intent of the speaker and borne on his or her breath, carry the power of their own meaning directly to their intended target.

So, magic involves the transfer of power in nature, or the human effort to manipulate natural forces along the network of cosmic interconnections by symbolic projection of power. Magical principles are evident in intentional magic, in which symbols are consciously used, through principles of similarity or contact, for beneficial or harmful results; in taboo, which is the avoidance of establishing an undesirable magical connection; in the direct use of words to achieve results, as in blessing or curse; in some forms of divination, “reading” answers to questions by tapping into the cosmic program through mechanical or clairvoyant means; in harnessing the power of symbols for personal good fortune or protection, as in talismans and “lucky” charms; etc. Indeed, ideas of “luck” and “jinx” are magical concepts. Most “superstitions” are readily explainable by the principles of magical thinking.

Homeopathy and Other Magical Belief Systems

Some of the principles of magical beliefs described above are evident in currently popular belief systems. A clear example is homeopathy. Fallacies in homeopathic claims have been discussed by many, including Barrett (1987) and Gardner (1989) in this journal; but it is curious that this healing system has not been more widely recognized as based in magical thinking. The fundamental principle of its founder, Samuel Hahnemann (1755-1843), similia similibus curentur (“like treats like”), is an explicit expression of a magical principle. The allegedly active ingredients in homeopathic medications were “proved” effective against a particular disease when they produced in healthy people symptoms similar to those caused by the disease.
Hahnemann was well aware, says sympathetic biographer Martin Gumpert, that his theories might be relegated to the realm of "mere magic" (1945, 147), and he sought to explain homeopathy’s alleged effects by reference to established science of the time. He was impressed by Anton Mesmer’s (1734–1815) concept of "animal magnetism," and by the "dynamism" of philosopher Friedrich Schelling (1775–1854) who taught that matter is infinitely divisible, and that the more unsubstantial the matter became by dilution, the purer and more effective could be its ‘spirit-like’ and ‘dynamic’ functions” (Gumpert 1945, 147). So Hahnemann insisted that a "vital force" was present both in the human body and in the medications. He recognized that his successive dilutions ("potentizations") of the allegedly active substance in water inevitably reduced the amount of the original substance to none; but the water carried the essence of the active substance, with which it had been in contact; and that essence worked on the vital force of the patient. Moreover, the power of the medication—its "potency" or "dynamization," terms borrowed from Schelling—was increased by grating or pulverizing the original material and by shaking the solution ("succussion").

Hahnemann’s appeal, then and today, was enhanced because he was a well-educated physician and made legitimate criticisms of certain medical practices of his day; but much in his contemporary scientific worldview was still magical. Three fundamental principles of magic are involved in homeopathy: similarity, power, and contact.

According to a survey about alternative medicine in the November 11, 1998, Journal of the American Medical Association, Americans’ use of homeopathic preparations more than doubled between 1990 and 1997 (Eisenberg et al. 1998). Most modern homeopathic texts are careful to emphasize homeopathy’s limitations and to advise consultation with a physician if symptoms persist. But most insist that homeopathy accords with proven principles of science, citing its basis in experimentation, principles of vaccination (Edward Jenner was a contemporary of Hahnemann), and its apparent parallels to discoveries in immunology and the body’s reactions to various physical and emotional stressors. A popular meaning of "science," apparently, is "complicated" and Dana Ullman (1998, 10) asserts that homeopathy is "too scientific" for ordinary people to figure out. Ullman goes on to argue at length for biological and physical explanations for the concepts of "resonance" and "vital force" and compares them with some of the cultural ideas of mystical "power" I discussed earlier, and even more: Chinese chi, Japanese ki, what “yogis call prana, Russian scientists call ‘bioplasm,’” and Star Wars characters call “The Force” (p. 15); and (p. 34, n. 1) he cites Frazer’s classic study of magic for cross-cultural parallels to "the law of similars!" Later, he and Stephen Cummings (Cummings and Ullman 1991) are more careful, and conclude that science has yet to explain just how it “works.” For now, the best explanations for claimed successes with homeopathic cures—assuming the original ailment was clinically genuine—are 1) as they are completely inert, homeopathic remedies allow nature to run its course, as Duffy (1976, 112ff.) has indicated; and 2) the placebo effect, which currently is the subject of renewed interest in medical research. Indeed, when anthropologists indicate beliefs and cultural/psychological expectations as responsible for magical cures—or for the deleterious personal effects of hexes or taboo violations—it is the placebo effect they are talking about.

Various other “alternative” and “New Age” beliefs are obviously magical: many are ancient and widespread. Crystals have long been believed to contain concentrated power; colored crystals have specific healing effects, as certain colors are associated with parts of the body—as they have been in the West for centuries. Colors enhance powers ascribed to candles and other ritual devices. In the early 1980s, I gave accommodation in my home to a young New Age enthusiast, Tom, as I shall call him, for some weeks wore a small cloth bag of crystals pinned inside his shirt, over his heart. One morning I noticed that among the items he had laid out for his day was a small brown bottle of liquid, bearing the label “Tom’s Red Water.” He explained that a member of his therapy/discussion group produced this for all who wanted it: he wrapped a large glass jug of water in red cellophane and placed it in sunlight all day long. Each person carried a small bottle of this energized liquid and sipped from it four times a day.

But the magical healing power of colors seems universal. My colleague Ana Mariella Bacigalupo informed me that health workers among the Mapuche of Chile found that their patients were indifferent to the standard white antibiotic pills; but they willingly took red-colored pills because red is culturally associated with exorcism (as it is elsewhere, and was in early Europe and England; see Bonser 1963, 219). Six studies reviewed in the British Medical Journal in 1996 confirmed popular European and American expectations about the color of pills: red, yellow, or orange pills are expected to have a general stimulant effect, blue or green are sedative; and specifically, red is cardiovascular, tan or orange is skin, white is all-purpose. The authors correctly point out that cultural associations may vary, though red, for blood, hence vitality, is probably universal (de Craen et al. 1996).

Social-psychological explanations for people’s continued use of magic in an increasingly scientific and technological age agree that it gives individuals a sense of control, hence an important
increase in self-confidence in a confusing and impersonal world. When the objective is relief from some personal ailment, such confidence may generate feelings of improvement, albeit perhaps temporary, through the placebo effect.

The physiological effects of cultural expectations—an explanation for the placebo effect—were indicated in the 1970s, in a number of Swedish/Thai studies that showed that people who liked the appearance, and the taste, of what they were eating absorbed more nutrients from it. This was explained in reference to the “cephalic phase” of the digestive process, affecting the flow of enzyme-laden salivary, gastric, pancreatic, and intestinal secretions. Thai and Swedish diners were indifferent to each others’ cuisines, and neither group was interested in one of its own favorite meals whose components had been blended in a high-speed mixer. In such cases, iron absorption fell by 70 percent (see Hallberg et al. 1977; reported in Tufts University Health & Nutrition Letter, October 2000).

**Neurobiological Bases for Magical Thinking?**

Of all the principles of magical thinking I discussed earlier, Frazer’s principle of similarity is most basic. This is the basis for the universal and timeless beliefs and practices involving notions of resemblance, falling under the general rubric of “imitative magic,” and the principle that has most persuaded scholars to suggest that a basic mechanism of human cognition may be at work. It has long been understood that imitation lies at the basis for learning among higher primates and humans. Specific brain mechanisms involved in imitation among monkeys have recently been identified, and their implications for primate and human perception, symbolism, communication, and action have been recognized (Rizzolatti and Arbib 1998). Therefore, a 1999 discovery among human subjects by brain scientist is especially exciting. Marco Iacoboni and his colleague (Iacoboni et al. 1999) asked healthy participants to observe pictures of specific finger movements, and to imitate those movements while their brain activity was measured; and later to move the appropriate finger when shown only pictures of simple cross marks spatially representing the fingers involved in the earlier movements. Their experiments showed that specific areas of the human brain are involved in imitation, both when the stimuli are actions and symbolic representations of actions. The implications for magical thinking are huge.

But the vast majority of the world’s peoples, including many highly educated research scientists, obviously believe that there are real connections between the symbol and its referent, and that some real and potentially measurable power flows between them. Elisabeth Targ, M.D., and her colleagues recently had “a randomized double-blind study of the effect of distant healing” published in a leading American medical journal, the *Western Journal of Medicine* (Sicher et al. 1998). (Elisabeth is the daughter of “psi energy” proponent Russell Targ.) Martin Gardner (2001, 14) reports that Elizabeth Targ is the recipient of over two million dollars of public funds from the National Center for Complementary and Alternative Medicine of the National Institutes of Health for two studies of “distant healing,” one over three years on 150 HIV patients, and one over four years on persons with glioblastoma. Methods in her 1998 study involved forty American “experienced distant healers” from several different traditions (“Christian, Jewish, Buddhist, Native American, and shamanic,” p. 359), who were given five “subject information packets” containing personal data: subject’s first name, a current color photograph, and written notations on blood count and current symptoms. Healers were instructed to open their packets on certain dates and “to work on the assigned subject for approximately one hour per day for six consecutive days with the instruction to ‘direct an intention for health and well-being’ to the subject” (p. 359). Assuming that Targ’s current methods are similar, we can now recognize that her generous government grants support testing of a modern form of ancient and universal image magic, involving at least four classic principles of magical thinking: power, interconnections in nature, symbols, and similarity.

**Notes**

1. For example, L. Zusi and W.H. Jones, whose studies (Zusi 1985, Zusi and Jones 1989) have set standards for some subsequent investigations (e.g., Krippner and Winkler 1996, Thomas 1999).
2. Glendower: I can call spirits from the vasty deep. Honspur: Why, so can I, or so can any man; but will they come when you do call for them?
3. Some writers, e.g., Plater (1888, 189–191), do categorize homeopathy as magic; but folklorist Wayland Hand is the only scholar I have found who explicitly identifies it as based in specific principles of magical thinking. In his widely reprinted essay “Folk Magical Medicine and Symbolism in the West,” he discusses the ancient and well-known principles of similarity in medicine and refers to homeopathy as “analogic magic” (1980, 306). Hand collected at least as many instances of magical practices among modern populations throughout Europe and North America as Frazer had for the traditional world; see his *Magical Medicine*, 1980.
4. “The largest increases were in the use of herbal medicine, massage, megavitamins, self-help groups, folk remedies, energy healing, and homeopathy” (Eisenberg et al. 1998, 1571). Of “energy healing,” magens were the most commonly used method; others most frequently cited were Therapeutic Touch, Reiki, and energy healing by religious groups. In terms of preference, homeopathy ranked thirteenth of sixteen alternative therapies in the survey, all of which showed appreciable increase between 1990 and 1997. It is interesting to note, however, that under the heading “saw a pra-
tioner in past 12 months," acupuncture and homeopathy declined, whereas all others increased. I know that many do-it-yourself acupuncture devices have appeared on the market. Visits to homeopathic practitioners declined by half. Not only because of the high cost of shop-at-home preparations that became available; apparently homeopath Dana Ullman's (1989, 10; see below) warning to people not to self-prescribe was prescient.

5. Duffy pointed out this value for the eighteenth and nineteenth centuries, when standard treatments such as blood-letting, purging, harsh emetics, applications of heat or cold, etc., might actually harm the patient. "Natural" recovery from any disorder might be temporary or illusory, due to a cyclical nature of the disease or its symptoms, or spontaneous remission, as well as a host of psychological factors (e.g., self-delusion), reporting errors, etc., as Beyestein (1997) has indicated. And, the original ailment may have been psychosomatic.

6. The "placebo effect," apparent physiological improvement by ailing people who unwarily receive ineffectual ("sham") treatment, has been considered especially powerful, attributed to the strength of the "mind-body connection." In the 1990s many studies attempted to determine any clinical efficacy of homeopathy; determining the role of placebo in its relatively narrow clinical sense proved difficult, as many subjective factors may be involved (such as beliefs!—see Linde et al. 1997). On May 24, 2001, while this paper was being revised, news reports blamed the debunking of the placebo effect, calling it "myth," and predicting radical reassessment of medical assumption. But that research (Hróbjartsson and Gotzsche 2001) in fact supports my use of the term here. The cases in which placebo was deemed ineffectual were clinical trials involving "binary outcomes" (e.g., nausea, smoking relapse) measured by objective standards. In cases involving noncontinuous outcomes (e.g., hypertension, pain) and subjective assessment, the researchers found placebo to be beneficial. Psychologists and anthropologists recognize that this is exactly the case of a type of faith healing, which homeopathy really is, "works."

7. Eisenberg et al. (1998) found that "alternative" or "complementary" medicine use was significantly more common among people with some college education (50.6 percent) than with no college education (36.4 percent), among people aged 35–49 than older or younger, and among people with annual incomes above $50,000.

8. And we can be justifiably outraged at this expenditure of taxpayers' money. But Eisenberg, et. al. (1998) calculated that between 1990 and 1997 visits to alternative medicine providers exceeded total visits to all primary care physicians; and several other surveys have shown the increasing use of alternative medicine across the country and throughout the world. So perhaps our outrage might be tempered by the realization that, given the low costs of medical care, the huge numbers of Americans who have consulted "alternative" or "complementary" medical practitioners, the government has an obligation to support research into their effectiveness. Still, any traditional person in any region of the world could advise Dr. Targ that her chances of success would be greatly increased if she had added to her "subject information packets" items that had been in direct intimate contact with the subjects, such as hair or nail clippings or any bodily fluids, or just a fragment of an item of unwashed underwear.

References