

# Shamanism in Cross-Cultural Perspective

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This article reviews the origins of the concept of the shaman and the principal sources of controversy regarding the existence and nature of shamanism. Confusion regarding the nature of shamanism is clarified with a review of research providing empirical support for a cross-cultural concept of shamans that distinguishes them from related shamanistic healers. The common shamanistic universals involving altered states of consciousness are examined from psychobiological perspectives to illustrate shamanism's relationships to human nature. Common biological aspects of altered states of consciousness help explain the origins of shamanism while social influences on this aspect of human nature help to explain the diverse manifestations of shamanistic phenomena involving an elicitation of endogenous healing responses.

**Keywords:** *Shaman controversy, prehistoric shaman, shamanic universals, integrative mode of consciousness, biological bases of altered states of consciousness*

The concept of the shaman has spread across the world in recent decades, manifesting, in a 2011 search by the author, in more than 10 million hits for “shaman” on Google and more than 35,000 listings for “shamanism” on Google Scholar. Such extensive listings might indicate that the concept is widely understood and accepted, yet, for some, there persists doubt regarding the very existence of shamanism apart from an invention of the Western imagination.

However, evidence of the relevance of shamanic practices, including altered states of consciousness, exists within many disciplines and professions across history and prehistory. The ancient presence of shamanism in human culture is illustrated in the prominent role of shamanic representations worldwide in ancient art and religious artifacts, beginning in the petroglyphs found in the caves of Europe (Clottes & Lewis-Williams, 1998; Whitley, 2009). The persistence of shamanistic practices in contemporary societies is widely attested cross-culturally (e.g., Walter & Fridman, 2005; Winkelman, 2003). Further, fields having demonstrated interest in the world of the shaman, include archaeology (e.g., Aldhouse-Green, 2005; Hayden, 2003; Staller & Currie, 2001), art (e.g., Reichel-Dolmatoff, 2005), emerging and world religions (e.g., Craffert, 2008; Keeney, 2006; Macrae, 1998; Ruck, Blaise, Staples, & Heinrich, 2001; Winkler, 2003), ethnography (e.g., Bean, 1992; Blacker,

1999; Hoppál & Kósa, 2003; Jakobsen, 1999; Langdon & Baer, 1992; Whitehead, 2002), feminism (e.g., Glass-Coffin, 1998; Tedlock, 2005), healing (e.g., Ewing, 2008; McClenon, 2002; Millones & Lemlij, 2009; Tasorinki, 2009; Walsh, 2007), history (e.g., Laugrand & Oosten, 2010; Narby & Huxley, 2001; Ustinova, 2011; Znamenski 2003), and myth (e.g., Berman, 2008a, 2008b, 2008c; Ruck, Staples, Celdrán, & Hoffman, 2007; Tolley, 2009).

Still, shamanism was not recognized in post-Renaissance European societies, despite them having been exposed to such practices by contact with other cultures (largely through colonization activities). According to Flaherty (1992), the introduction of the term shaman in English and its modern emergence in the intellectual circles of Europe came through German scientific explorations, in turn, having been introduced to the concept, *saman*, from the Tungus of Siberia via Russia. Terms that are etymologically similar to the Tungusic *saman* (e.g., *csaman*, *sama*, *shaman*, *khamman*, *śam*, *csam*, *kam*, *xam*, *xamna*-, and *xamsa*) are widely dispersed in the languages of Siberia, as well as in Asia and even in ancient Indo-European languages (e.g., *śaman*, *śramana*, *samāne*, *saga*, and *wissago*; Winkelman, 2010).

Descriptive portrayals of shamanism that emerged with Russian scientific expeditions into Siberia in the 17th and 18th centuries contributed to

dissemination of knowledge regarding these practices to other Europeans. These early reports of explorers, traders, missionaries, colonists, military, and other representatives of Western culture, however, were not well-based, but rather bred misunderstandings and often sensationalistic exaggerations designed to engage a fascinated readership (Flaherty, 1992). Nonetheless, the concept of shamanism began to impact the Western scientific imagination in the 17th century. These reports from the non-Western world became an increasing part of the literary and cultural life of Europe, contributing to a re-examination of shamanistic phenomena of the past (Flaherty, 1992). This revealed a repeated encounter of the West with shamanism in the context of contact with other cultures. Knowledge of such practices had entered Europe more than a millennium earlier, often labeled as “devil worship” (Siikala, 1978). An emerging understanding of the concept of shamanism led to a reconceptualization of a variety of past, Western phenomena as having been shamanistic—including the life of Jesus (Craffert, 2008; Keeney, 2006).

The influences of Enlightenment thought contributed to a conceptualization of shamanism as something in contrast to rational thought, instead representing an irrational side of human nature where charisma and emotions dominated social life. The skeptical perspectives of Europeans provided a view of shamanistic phenomena as a representation of the irrationality of the non-Western “other,” with the sensationalistic approaches characterizing the shaman as a theatrical performer who used deceit to control a simpleminded community.

These depreciative perspectives began to change as early fragmentary and non-professional descriptions were augmented by more accurate and complete understandings of shamanic practices that emerged with 19th and 20th century anthropological studies on Siberian groups. Although these practices had already been substantially changed by Russian colonization and the political and societal reforms that crushed or radically transformed Siberian shamanistic practices (Siikala, 1978), an increasing number of ethnographies attested to the vestiges of cross-cultural phenomenon synthesized in Czaplicka’s (1914) book *Aboriginal Siberia*. Studies on shamanistic practices regarding Finnish, Hungarian, and Turkish peoples soon followed, expanding on the Siberian, Russian, and other Eurasian materials for what was increasingly recognized as shamanism. While

not always labeled as shamanism, it became apparent that cultures around the world manifested certain similarities that constituted basic aspects of shamanistic practices (e.g., Benedict, 1923). These emerging cross-cultural perspectives contributed to further recognition of shamanism in ancient literary and mythological materials (Flaherty, 1992).

### Eliade’s Insight

The seminal and classic work of Mircea Eliade (1951/1964), *Shamanism: Archaic Techniques of Ecstasy*, provided a ground-breaking synthesis of a body of ethnographic studies on shamanistic practices. A key implication of Eliade’s approach was that the concept of shamanism was cross-cultural, pointing out that these were not just Siberian and Eurasian practices, but were found in cultures around the world. Eliade summarized the core of shamanism as involving the use of *techniques of ecstasy* in interaction with the spirit world on behalf of the community and emphasized activities involving healing and divination. This nighttime ceremony was attended by the entire local group and was of central importance as a social gathering in society, a “spectacle unequaled in the world of daily experience” (Eliade, p. 511). Shamanic ritual and the associated beliefs involved the society’s most important cosmological, spiritual, religious, social, and healing activities, providing the context for establishing the relationship of the individual to the group and bringing the spirits into the community. This dramatic ritual enactment evoked powerful emotional experiences as the shaman recounted battles with the spirits while beating drums, singing, chanting, and dancing excitedly. Finally, the shaman collapsed exhausted into an ecstatic state where he communicated with the spirits and sought to obtain their cooperation.

Eliade (1951/1964) emphasized that a core aspect of shamanism involved ecstasy and magical flight—altered states of consciousness (ASC) used to enter the spirit world and manifested in the shaman’s visionary experiences. ASCs were induced by multiple methods, particularly through drumming, singing, chanting, dancing, and in many cultures the use of psychoactive substances. Shamans also typically prepared for ASC through austerities such as fasting and water deprivation, exposure to temperature extremes, extensive exercise, painful exercise, celibacy, sleep deprivation, dream incubation, and social isolation to enhance these experiences.

The shaman's ecstatic state was characterized as a soul flight, "a trance during which his soul is believed to leave his body and ascend to the sky or descend to the underworld" (Eliade, 1951/1964, p. 5). This classic shamanic flight took a variety of forms involving some aspect of the practitioner separating from the physical body, entering into an experiential world, and interacting with spirit entities. The shaman's flight might be experienced in corporeal form or in the transformed guise of animals or spirit allies. Other shamanic ASC involved journeys to the underworld and/or transformation into animals. Shamans were not normally possessed by spirits; rather they controlled spirits and were believed to accomplish their feats through the actions of their spirit allies.

The entry into the spirit world was key to many of the shaman's activities, which included divination, clairvoyance, acquiring information about group members, hunting, healing, recovery of lost souls, communication with spirits of the dead, escorting souls of the dead, and protection against spirits and sorcerers (Eliade, 1951/1964). The shaman's entry into the spirit world was conceptualized as a multi-tiered universe, with a tripartite division into a lower, middle, and upper worlds subject to further subdivisions often involving seven or nine levels. Movement through these worlds involved accessing an axis mundi, a "ladder," "hole," or "tree." This axis, often conceptualized as a Cosmic Tree, Sacred Tree, or Sacred Mountain, provided the medium for the shaman's movements across worlds.

Shamanic activities were typically concerned with health. The shaman's rituals played an essential role in the psychic defense of the community, defending "life, health, fertility, the world of light, against death, diseases, sterility, disaster, and the world of darkness" (Eliade, 1951/1964, p. 509). The theories of illness typically focused on *soul loss*, which was considered to be caused by spirits' aggression or by theft by other shamans. Other prominent causes of illness were thought to involve spirit aggression and sorcery where health was affected by the actions of ghosts and spirits, or the malevolent action of other shamans, sorcerers, or witches. Shamanic rituals typically involved the dramatic enactment of struggles with spirits to remove them and recover the patient's soul. In addition to spirit-focused rituals with a variety of socio- and psychotherapeutic functions, the shaman's healing ceremonies also incorporated physical medicine—cleansing of wounds, extraction of objects, and the use of herbal medicine.

### **Shamanism in Cross-Cultural Perspective**

The shamanic universe is based on animism, a belief in spirit entities that have effects on all aspects of human life. Spirits were seen as the essence of natural forces and humans, as well as the animals on which the shamans depended for their powers. Developing relationships with the spirits was central to training of shamans, with animal spirit helpers the bases of shamanic powers and the agents through which the shaman carries out a variety of activities. A common belief was that the shaman accomplished tasks in the guise of animals into which the shaman transformed.

The selection for the role of the shaman was generally open to all, but largely found among descendants of shamans who received their powers from the spirit allies of their ancestors. Shamans were most typically men, but, in most cultures, women could also practice shamanism in pre- and post-reproductive periods of life. It was generally accepted that the spirits themselves selected the shamans, with the indications often manifesting in a prolonged period of illness or insanity that was caused by the spirits. The afflictions of the spirits often led to experiences that were interpreted as death of the selected individual, an experience often described in terms of being attacked and dismembered by animals. During this experience of personal death, the spirits eventually healed and empowered the initiate, giving special powers and new rules for life that transformed the person into a "wounded healer." It was this death and rebirth experience that empowered the shaman. This personal encounter with death might also be deliberately sought during a vision quest, when the initiate undertook an arduous ordeal to acquire spiritual power. Although other shamans might guard the neophyte, vision quests often took place in a solitary vigil in the wilderness. During these deliberate and spontaneous quests, the powers of the shaman might appear as savage beasts that attacked and killed the initiate. Spirit animals, then, incorporated into the neophyte and reassembled the person into a new being with special capacities and powers.

#### **The Shamanism Controversy**

When Eliade (1951/1964) published *Shamanism: Archaic Techniques of Ecstasy*, shamanism was already recognized in comparative religion. As Eliade's cross-cultural conceptualization gained adherents, descriptions of foreign religious practices around the world were communicated through the concept of the shaman. With Harner's (1980) publication of *The Way of the Shaman: A Guide to Power and Healing* and the

training workshops of the Foundation for Shamanic Studies (FSS), the academic concept shaman linked with popular cultural revitalizations that expanded the application of the term and concept. The burgeoning domain of shamanism also generated cultural and academic counter-reactions that alleged that the notion of a universal, indigenous spirituality manifested cross-culturally was a Western invention and part of continuing Western intellectual appropriation and imperialism. The early portrayals of the shaman as the irrational other reinforced these efforts to put the term into disrepute and abolish the alleged conceptual error.

As anthropologists began to question and criticize the use of the term shaman, the principal counter-arguments focused on the notion that there is no similarity in spiritual healing practices around the world. Kehoe (2000) contended that the concept of the shaman was a fabrication of the Western imagination. In contrast to a cross-cultural or universal phenomena, as proposed by Eliade (1951/1964), opponents (e.g., Francfort, Hamayon, & Bahn, 2001) asserted that the spiritual healing practices found cross-culturally vary and reflect local cultural concepts, thus negating any claims to a universal shamanism.

Although Kehoe (2000) legitimately criticized Eliade (1951/1964) for his impressionistic methods, lack of systematic cross-cultural research, and generalizations regarding shamanism, subsequent cross-cultural research (Winkelman, 1986a, 1990, 1992) supported Eliade's conclusions. Nonetheless, Kehoe and others (e.g., Francfort et al., 2001), who have rejected shamanism as a cross-cultural concept, have continued to ignore the empirically based, cross-cultural evidence. Rather than consider the evidence, they prefer to engage in misrepresentation and character assassination, which is exemplified in Bahn's (2001) use of the term "shamaniacs" to disparage scholarly research.

Part of Bahn's (2001) argument involved an arbitrary approach to conceptualizing shamanism, characterizing Siberia as "the heartland of true shamanism" (p. 59). However, the idea that the word must be restricted to the cultural region of its origin makes little sense. Just as terms such as *taboo*, *mana*, and *kula ring* have been borrowed by anthropologists and extended outside of their cultures of origin, so too should the term shaman. When similar concepts are found cross-culturally, terminology must be developed to convey the similarity found in diverse places. While

Francfort et al. (2001) contended that there is no basis for a cross-cultural use of the term shaman, the statements from other authors who contributed articles to their collection, and even their own comments, actually stated just the opposite. Le Quellec's (2001) article claimed that "true shamanism is only conceivable there [Africa] in the case of the Thonga and the San" (p. 148), and, in reviewing cases from the Insular Pacific, Francfort (2001) argued that "if we look at these societies with a loose definition in mind [unspecified] . . . we can take them to be shamanic too" (p. 37).

In an introductory chapter to one of the sections, Francfort (2001) noted: "Archaeologists and art historians look to ethnologists for an operational definition" (p. 43) of shamanism. Yet, unfortunately, his article made no consideration of the ethnological research characterizing cross-cultural similarities and differences in shamanistic practices or establishing the empirical, cross-culturally valid characterizations of shamanism. Similarly, Hamayon (2001) despaired, in his introduction, that the concept of the shaman has defied efforts to provide a definition for it. However, he neglected the literature that has attempted to do so, as well as the more relevant research that describes the empirical characteristics associated with shamanism cross-culturally. This is not mere ignorance of the literature, but an apparently deliberate effort to ignore relevant research establishing the etic status of shamanism. Hamayon apparently had access to such material (e.g., Winkelman, 1992). However, he did not refer to the research presented therein.

Some scholars continue to deny a valid concept of shamanism, despite empirical evidence, by ignoring the evidence or grossly distorting the arguments made by other scholars. Many of their claims (e.g., Francfort et al., 2001) are faulty and erroneous and have been rejected by others in detail (e.g., Clottes, 2004; Lewis-Williams, 2004, 2006; Lewis-Williams & Pearce, 2005; Pearce, 2004; Whitley, 2006, 2009; Winkelman, 2010). For example, what Bahn and his colleagues have criticized is their own misconceptions and misrepresentations rather than the actual ideas presented by those whom they purport to criticize (for details see Clottes, 2004; Lewis-Williams, 2006; Pearce, 2004; Whitley, 2006).

#### **The Weakness of the Arguments for Prehistoric Shamanism**

Those who criticize the cross-cultural concept of the shaman do have legitimate concerns with some of the methods and evidence used by many archaeologists

who characterize shamanism as a cross-cultural phenomenon. One problem, representative of much of the work characterizing prehistoric shamanic practices, is the lack of an explicit reference to ethnological models of shamanism. Instead, those who argue for shamanic interpretations of Paleolithic art (e.g., Clottes & Lewis-Williams, 1998; Lewis-Williams, 2002, 2006; Lewis-Williams & Pearce, 2005) attempt to defend the thesis through ethnographic analogy, which, unfortunately, is still a dominant theoretical approach in the archaeology of ritual (Fogelin, 2007). Ethnographic analogy proposes that there are direct parallels between some (near-) contemporary practices that have been observed and those that are presumed to have occurred in the past. This approach is exemplified in the common practice of using hunter-gatherer societies as a general model for human life in the past. A specific ethnographic case in the present or historical past of something called shamanism has little power in establishing its presence in another time or place. In the arguments for shamanic prehistory, the application of the hunter-gatherer model has often been more based on a personal selection of ethnographic cases rather than a reliance on cross-cultural data that established similarities across societies.

Lewis-Williams (e.g., 2002; Lewis-Williams & Pearce, 2005) exemplified this failure to use systematic cross-cultural data to support arguments regarding shamanism in the past. Instead he engaged in a long-discredited practice of hand-picking societies that have interesting shamanistic practices as examples to use as models for interpretation of the past. In his approach, Lewis-Williams assumed that the concept of shamanism was not problematic and could be comprised haphazardly from ethnographic cases to produce a list of features that he has occasionally modified. This methodological shortcoming is most unfortunate, especially considering that it was avoidable due to his awareness of relevant cross-cultural research since the 1980s (e.g., Lewis-Williams & Dowson, 1988).

Using the term shaman without an empirical grounding and to describe a diverse range of religious practitioners makes use of the term problematic. Cross-cultural research methods are indispensable tools for empirically establishing a valid, ethnological model of shamanism based on actual cross-cultural patterns. These kinds of cross-cultural studies were published more than two decades ago (Winkelman, 1984, 1986a, 1986b, 1990, 1992). The empirical cross-cultural research

summarized below establishes the basis for a shamanic paradigm and validates the existence of an aboriginal, hunter-gatherer shamanism worldwide. It also provides a basis for distinguishing an aboriginal shamanism from other forms of shamanistic healing that emerged from that basis as a consequence of the processes of sociocultural evolution.

#### **A Cross-Cultural Approach to Shamanism**

Eliaide's (1951/1964) subjective characterization of the shaman is appealing but not convincing. A cross-cultural or holocultural method (see Murdock & White, 1969) is required to answer these questions regarding the issue of the universality of shamans and their characteristics. I decided to address the issue regarding the cross-cultural validity of the concept of the shaman in an empirical ethnological research project (Winkelman, 1984, 1986a, 1986b, 1990, 1992, 2000; see Winkelman & White, 1987, for data). I proposed to empirically determine the validity of the shaman concept by a study using the Standard Cross-Cultural Sample (SCCS; Murdock & White, 1969), which is representative of the major geographic, social, and cultural regions of the world and spans a time period from 4,000 years ago until the mid-20th century.

Winkelman's study focused on the culturally recognized magico-religious practitioners found in a 47 society stratified subset of the SCCS. The culturally recognized positions (statuses or roles) in these societies that had their functions based in an interaction with supernatural entities or powers were descriptively assessed through a formal questionnaire that coded data from ethnographic resources. This questionnaire, developed from the descriptions of these practices and derived from extensively reading ethnographic literature on magico-religious practices, provided a common set of variables reflecting magico-religious activities. More than 100 variables were used to characterize these practitioners (see Winkelman, 1992; Winkelman & White, 1987).

In each society of the sample, the different types of magico-religious practitioners recognized in that culture were individually assessed, using the questionnaire to code their characteristics. This resulted in coding for one to five different types of culturally recognized magico-religions in the societies of the sample. Each of the culturally recognized types of practitioners were assessed separately with the questionnaire variables, which included: types of magico-religious activity (e.g., healing, divination, propitiation, malevolent acts, agricultural

and hunting rituals, life cycle rituals); political, social, and economic characteristics; professional organizations and functions; role selection procedures (e.g., spirit illness, inheritance, purchase of position); training conditions; ASC characteristics and procedures; sources of supernatural power; relationships to spirits; and the social context of and motives for professional activities. The coded variables for the characteristics of these magico-religious practitioners were submitted to coding reliability checks and had a 95% inter-coder agreement (Winkelman & White, 1987).

This cross-cultural data-base was statistically analyzed to determine the empirical similarities among these practitioners and to determine whether there was a cross-cultural pattern of religious practices corresponding to Eliade's (1951/1964) impressionistic concept of the shaman. The cross-culturally valid types of magico-religious practitioners, and the concept of the shaman in particular, was determined through the use of cluster analyses procedures and confirmed with independent validation methods (see Winkelman, 1986a, 1992).

The cluster analyses procedures established that the same types of practitioners are found cross-culturally. That is to say, practitioners from diverse parts of the world, for instance Eurasia, the Americas, and Africa, are more similar to one another than they are to other magico-religious practitioners found in their own regions and even within the same society. This finding established that, rather than culturally arbitrary religious forms, magico-religious practitioners constitute social universals, with magico-religious practitioners in different societies of the world constituting different examples of the same type. By analogy, when we study the diversity of family forms found cross-culturally, nuclear families, polygynous families, and extended families are found in different regions of the world. Like the nuclear family, shamanism is something real, sharing empirically determined characteristics found cross-culturally. The empirically shared characteristics are more relevant than arbitrary definitions or geographical location.

Furthermore, the empirically derived characteristics of one type correspond directly to classic characteristics attributed to the shaman by Eliade (1951/1964) and others. The other distinct types of empirically derived practitioners had features that both subjectively and empirically distinguish them from shamans. These empirically derived types of magico-

religious practitioners were identified with terms based on labels commonly used by ethnographers: shaman, shaman/healer, healer, and medium. These practitioners, together with the shamans, collectively constitute a similar group of practitioners sharing key characteristics of ASC, community rituals, and spirit relations, which I have called *shamanistic healers* (Winkelman 1990, 1992). In addition, two other types of magico-religious practitioners labeled the priest and the sorcerer/witch were identified (see Winkelman, 1992, for coverage of priests and sorcerer/witches).

### **An Etic Model of the Shaman**

Winkelman's cross-cultural research (1986a, 1990, 1992) has illustrated that empirically similar religious healers are found in hunter-gatherer and simple agricultural and pastoral societies worldwide. These practitioners, whom I have labeled as shamans, were found in all world regions of the sample studied with the exception of the Circum-Mediterranean, reflecting the lack of hunter-gatherer societies in that region (Winkelman, 1986a). The societies in which this empirically-derived group was found are statistically associated with variables measuring nomadism and a lack of political integration beyond the local community; these predictors maintained significance independent of controls for diffusion, indicating independent origins (Winkelman, 1986a, 1992).

The practitioners in this empirically-derived cluster labeled as shamans had characteristics core to Eliade's (1951/1964) description, that is, someone who enters ecstasy to interact with the spirit world on behalf of the community. Also associated with shamans worldwide were:

- a dominant social role as the preeminent charismatic leader;
- a night-time community ritual;
- use of chanting, singing, drumming, and dancing;
- an initiatory crisis involving a death and rebirth experience;
- shamanic training involving induction of ASC, particularly with fasting and social isolation;
- an ASC experience characterized as a soul journey (but not possession);
- ASC involving visionary experiences;
- abilities of divination, diagnosis, and prophecy;
- healing processes focused on soul loss and recovery;

- illness believed to be caused by spirits, sorcerers, and the intrusion of objects or entities;
- animal relations as a source of power, including control of animal spirits;
- the ability of the shaman to transform into animals;
- malevolent acts or sorcery, including the ability to kill others;
- and hunting magic, assistance in acquiring animals for food.

These features of shamanism collectively distinguished them from other types of magico-religious healers (such as priests and sorcerer/witches) as well as other types of shamanistic healers found in more complex societies (e.g., mediums, healers, and shaman/healers; see Winkelman 1986a, 1990, 1992). While some of the core features of the shaman (such as the ASC, healing rituals, spirit interactions, divination, and other) are cultural universals found in every society, these characteristics are manifested in different kinds of shamanistic healers in more complex societies. Ecological and social influences modified the original forms of shamanism, giving rise to a variety of other socially structured forms of shamanistic healers—mediums, shaman/healers, and healers (see Winkelman, 1992). The types of shamanistic healers not only differed with respect to the types of societies in which they were found but also in terms of their training, the nature of their powers, the characteristics of their ASC (i.e., soul flight versus possession), the types of healing that they do (i.e., soul recovery versus de-possession), and their relationships to social power and institutions (see Winkelman, 1992).

#### **Mediums and Possession**

An important contrast in understanding the differences among magico-religious practitioners involved the distinctive features of the mediums, who are often confused with shamans. While both use ASCs and do healing, their features differ significantly, specifically with respect to their sources of power and the nature of their ASCs. Although mediums are found mostly in agricultural societies, their presence is significantly correlated with the presence of political integration beyond the level of the local community, and, consequently, they are found in quite different societies than the shamans of hunter-gatherer and pastoral societies. Winkelman's (1992) cross-cultural research found that a possession state of consciousness was not associated with shamans,

but with another type of shamanistic healer, the medium. While mediums are frequently referred to as shamans, mediums are empirically different types of magico-religious practitioners distinct from shamans, as indicated by formal quantitative analysis (cluster analysis).

The differences between shamans and mediums involve the consequences of the different socioeconomic conditions under which each type of shamanistic healer is found. The shamans were associated with animal spirits and hunting magic, reflecting their subsistence patterns as foragers, while mediums were involved in agricultural rituals. Mediums had lower social and economic status than shamans, while shamans had high social esteem derived from their informal political power and preeminent roles in group leadership. Mediums are predominantly women and generally of low social status, as opposed to shamans, who are predominantly men and of high social status. Shamans were also involved in malevolent activities designed to magically harm their enemies, an activity absent among mediums.

The differences between shamans and mediums are particularly seen in the medium's ASC, which is characterized by the experience of possession where a spirit is thought to take over the person's behavior. Although both shamans and mediums undergo experiences during the selection period in which they have illness, involuntary dreams, or visions, full mediums are more likely to continue to have experiences that occur beyond their control or intention. Although it was believed that sometimes the shamans' spirits could be out of their direct control, shamans were generally thought to control the spirits. This is in stark contrast to the mediums, who are generally thought to act under compulsions from the spirit world. Even though the medium generally intends to enter into an ASC, these experiences are thought to involve possession of the medium, who is believed to be controlled by the possessing spirit.

#### **The Biological Bases of Shamanistic ASC:**

##### **The Integrative Mode of Consciousness**

Critics of the idea of a neuropsychological basis of shamanism fail to adequately address the biological nature of altered states found in shamanistic practices. For instance, the articles in Francfort et al. (2001) pointed to variability in shamanistic practices as the evidence of the lack of a biological basis for shamanism and ASCs. Part of the confusion regarding the nature of shamanism and other forms of shamanistic healing

is a consequence of both similarities and differences in ASCs. One way of understanding the commonality underlying this diversity involves recognizing a variety of mechanisms for eliciting similar brain responses. I have called this similar response of the brain the *integrative mode of consciousness* (Winkelman, 2010, 2011). A second factor involves differences in how access to this integrative mode of consciousness is experienced. These differences in ASCs such as soul flight, meditative states, and possession provide a basis for distinctions between shamans and other types of shamanistic healers.

The integrative mode of consciousness involves the common mechanisms underlying diverse ASCs that produce an overall slowing of the brain waves, parasympathetic relaxation, and a shift of brain activity towards lower regions. A typical shamanic mechanism involves the manipulation of the autonomic nervous system through extensive ergotropic (sympathetic) activation that eventually leads into a collapse into a trophotropic (parasympathetic) dominant state. This collapse phase is accompanied by a slowing of the brain wave discharges into a more synchronized and coherent pattern. This greater coherence of ASC is manifested in the presence of synchronized theta wave patterns reflecting action on serotonergic mechanisms that result in an enhanced integration of information from lower levels of the brain. This integration is manifested in brain wave entrainment in which the frontal cortex is synchronized by highly coherent and synchronized slow-wave discharges emanating from the limbic system and related lower-brain structures. These entrainments are characterized by a variety of frequencies of brain waves, but there are two predominant patterns: synchronized slow-wave theta bands (3-6 cycles per second) and the high-frequency gamma oscillations (40+ cps). The features of these synchronized brain wave patterns are what justifies my reconceptualizing ASCs as involving the integrative mode of consciousness, a basic and normal feature of the human cycles of experience (Winkelman, 2010).

The biological foundation for altered states and the integrative mode of consciousness is reflected in the wide variety of natural agents (i.e., psychedelic drugs) and ritualized procedures (i.e., drumming, trauma, extreme fasting, and exertion) that elicit these brain wave responses. The hypothesis of a common underlying dynamic involving this integrative consciousness originates in the work of Mandell (1980), who suggested

that physiological mechanisms underlying transcendent states are based in a common neurochemical pathway involving the temporal lobe. Mandell suggested that the neurobiological basis underlying transcendent states, including their ineffable and religious components, involved a “biogenic amine-temporal lobe limbic neurology” (p. 381) based in the “mesolimbic serotonergic pathway that extends from the median raphe nucleus in the mesencephalon, coexistent with part of the mesencephalic reticular formation regulating arousal . . . to the septum and hippocampus” (p. 390). This produces hypersynchronous discharges across the hippocampal-septal-reticular-raphé circuit, which links what Maclean (1990) conceptualized as the R(reptilian) complex and paleomammalian brain. Many agents and procedures result in a loss of serotonin inhibition to the hippocampal cells, which result in the manifestation of hippocampal-septal slow-wave EEG activity (alpha, delta, and especially theta) that imposes a synchronous slow-wave pattern across the lobes of the brain. Agents and procedures that invoke this pattern include hallucinogens, amphetamines, cocaine, marijuana, polypeptide opiates, long-distance running, hunger, thirst, sleep loss, auditory stimuli such as drumming and chanting, sensory deprivation, dream states, meditation, and a variety of psychophysiological imbalances or sensitivities resulting from injury, trauma, disease, or hereditarily transmitted nervous system conditions (see Winkelman, 2010, for review).

Mandell (1980) proposed that the hippocampus is the focal point of the mechanisms that reduce the inhibitory serotonin regulation of temporal lobe limbic function. The loss of inhibitory regulation by serotonin results in a reduction or loss of the “gating” of emotional response and an enhancement of dopamine circuitry that results in an emotional flooding or ecstasy. The synchronous brain wave patterns originating in the hippocampal-septal-reticular raphe circuits reflect linkages of the attentional mechanisms in the behavioral brain regions (reticular formation) and the emotional brain. These synchronous electrical discharges propagate up the major axon bundles from the base of the brain into the frontal cortex, integrating activity from ancient levels of the brain into the frontal lobes.

The deregulation of serotonin also results in the activation of dopamine mechanisms (see Previc, 2006, 2009). Previc proposed that the human drive to seek ASCs directly involves the dopamine system, which is



inhibited by serotonin, and consequently disinhibited by the psychedelics. Previc argued that a common neurochemical profile underlies ASCs in spite of the numerous different neurotransmitters involved. He proposed that the diverse drugs that alter consciousness ultimately lead to elevated levels of dopamine in the brain. Common to ASCs is a disinhibition of dopaminergic extrapersonal brain systems, particularly those involving the ventral cortex and the limbic circuit that runs from the medial temporal lobe to the ventral striatum (Previc, 2009). These dopamine effects involve a number of cognitive processes fundamental to the emergence of the modern human psyche and orientations to extrapersonal space. Previc implicated the role of dopamine in a variety of cognitive abilities crucial to humans' advanced intelligence and cognition including motor programming, working memory, parallel processing, spatial and temporal abstraction, cognitive flexibility, stimulus associations, exploratory behavior, motivation, goal-directedness, reward prediction, cognitive shifting, motor programming, abstract representation, temporal processing, and processes linked to generativity and creativity (Previc, 2006, 2009).

Previc (2006, 2009) noted that all of these higher cognitive functions are concerned with extrapersonal responses, the processing of information regarding events in distal space and time. The ability for extrapersonal responses or cognition is exemplified in the capacities for mental time travel, the ability to experience and think about things other than those in the here and now. I (Winkelman, 2010) have proposed that these extrapersonal functions of dopamine are key to understanding central aspects of the shamanic soul flight or out-of-body experience, which exemplifies the ability to have a context-independent consciousness of people and places far removed from the physical body (also see Arzy, Molnar-Szakacs, & Blanke 2008; Blanke & Mohr 2005; Metzinger, 2009).

I have proposed that the similarity across shamanistic healers and many different forms of ASC involves disturbances in the serotonergic and dopaminergic connections between the limbic system and brain stem regions that enhance the integration into the frontal cortex of the activities of these lower levels of the brain. In the remainder of this article, I will briefly review evidence for this integrative pattern regarding the effects on the brain of psychedelics, meditation, hypnosis, and possession. Altered consciousness also necessarily

### **Shamanism in Cross-Cultural Perspective**

involves selective segregation or deafferentation of input from brain systems. This dissociation is specifically seen in the highly focused dynamics of meditation and hypnosis, as well as in more obviously dissociative conditions such as possession. This dissociation may nonetheless reflect the integration of the principles of lower brain systems and their imposition on the frontal cortex.

### **Psychedelics and Cortico-Striato-Thalamo-Cortical Feedback Loops**

The integration of brain networks as a generic feature underlying ASC is illustrated by Vollenweider's (1998) research on the mechanisms of action of psychedelics on the major cortical loops. The frontal-subcortical circuits provide one of the principal organizational networks of the brain involving neuronal linkages and feedback loops of the cortical areas of the frontal brain with the thalamus of the brain stem region (Cummings, 1993). These loops unite specific regions of the frontal cortex with lower brain regions, providing circuits that are central to brain-behavioral relationships, social actions, motivations, and executive functions. Vollenweider attributed the consciousness-altering properties of psychedelics to their selective effects on the brain's cortico-striato-thalamo-cortical feedback loops that link the information gating systems of lower levels of the brain with the frontal cortex. These loops are regulated by the thalamus, which limits the ascending information to the frontal cortex from the environment and body. Psychedelics disable this disinhibition process; this increases access to the flow of information that is ordinarily inhibited, overwhelming the frontal cortex and leading to an alteration of experience of self, other, environment, and the internal world of psychological structures and projections.

### **Meditation as Integrative and Dissociative Brain Dynamics**

The integrative brain dynamics of ASCs are exemplified in meditation. Since the earliest studies, the ASCs of meditative disciplines have been characterized by an overall decrease in frequency of the brain waves towards the alpha and theta ranges, resulting in increases in alpha and theta amplitude and regularity in the frontal and central regions of the brain (Taylor, Murphy, & Donovan, 1997). More recent research confirms that typical brain waves associated with meditation involve an increase in alpha waves, which then decrease in frequency toward dominant theta rhythms (Cahn & Polich, 2006;

Takahashi et al., 2005). Hebert, Lehmann, Tan, Travis, and Arenander (2005) implicated alpha EEG during meditation as involving higher-level cognitive processes that result from an increase in integration within the brain. These are the same basic systemic physiological principles underlying the concept of the integrative mode of consciousness—enhanced synchronization of brain wave patterns. An additional level of meditation-induced integration in the brain is reflected in biphasic, hyper-synchronous, high-frequency gamma waves (35-44 cps; see Lehmann et al., 2001; Lutz, Greischar, Rawlings, Richard, & Davidson, 2004; Vialatte, Bakardjian, Prasad, & Cichocki, 2009). The presence of gamma in meditation is a direct confirmation of the integrative model because gamma is associated with binding of diverse signals within the brain; furthermore, gamma synchronization is modulated by the theta and alpha rhythms (Fries, 2009).

### **Hypnosis as Dissociation**

Selection for a biological disposition to these highly focused internal states of awareness and limbic–frontal integration characterized by theta wave discharge patterns is illustrated by hypnosis. Crawford (1994) reviewed evidence that highly hypnotizable people have attentional filtering mechanisms that provide a concentration, accompanied by dissociation of some cognitive functions. Crawford proposed that hypnosis and its enhanced attention reflect an interaction between subcortical and cortical brain mechanisms that enable highly hypnotizable people to sustain attention as well as disattention. Highly hypnotizable individuals' more efficient frontal limbic attentional systems enables them to disattend extraneous stimuli, known as cognitive inhibition, which is associated with enhanced theta-wave production. Enhanced limbic frontal interaction characteristic of highly hypnotizable individuals is a pattern of brain functioning that typifies the integrative mode of consciousness, an enhanced interaction between the limbic and the frontal brain that produces integration across the neuraxis and holistic information-processing styles.

Highly susceptible hypnotic subjects also have dissociation, reflected in their ability to engage an alternative reality that is demanded by a social relationship with the hypnotist and which reflects the person's cooperation with the hypnotist. Hypnotic susceptibility also exemplifies lower-level brain control. This is illustrated by highly hypnotic people's tendency to subject themselves to the requests of the

hypnotist, doing things suggested by the hypnotist, while having a general inability to voluntarily alter their own strategic performance (see Jamieson, 2007; Jamieson & Woody, 2007; Ray, 2007). This reflects a predominance of paleomammalian brain functions over those of the frontal cortex. Hypnosis shifts the interaction between the frontal and limbic systems to the latter's evolved capacities for processing of survival-related information and feelings (Woody & Szechtman, 2007), allowing social feelings to take precedence in determining behavior. Hypnotic susceptibility engages the motivational systems that manage social hierarchy, with the individual accepting subordination to the will of a dominant other. This reflects the dominance of the limbic structures in an enhanced orientation to the emotional/motivation engagement with the hypnotist, reflecting the survival value of the evolved capacity to subordinate the individual's personal perceptions and behaviors to the wishes of the leader.

This reflects the basic features of the model of the integrative mode of consciousness, where lower-level structures impose their dynamics on the overall functional outcomes. The model is supported by the state approaches to hypnosis, which see it as engaging structures of consciousness and brain networks distinctive from those of waking consciousness. In contrast to the orientation to the external sensory world, hypnosis and other ASC reflect the principles of the integrative mode of consciousness involving an engagement with the imagination that controls the body, including physiological responses, perceptions, emotions, behaviors, and thoughts.

### **Possession as Integration and Dissociation**

The interactive dynamic of integration and dissociation is illustrated in the context of possession and dissociative disorders. Since dissociation is by definition “a lack of integration of psychological processes that normally should be integrated” (Cardena & Gleaves, 2003, p. 474), it would seem that the dissociative interpretation of possession directly contradicts the fundamental thesis of the integrative mode of consciousness. Without question, possession involves some forms of dissociation and separation, such as manifested in amnesia. These symptoms reflect an integrated functioning of the individual, where the processes of dissociation provide defense mechanisms that allow the integrated functioning of the emotional self in the face of self-destroying trauma.

Seligman and Kirmayer (2008) reviewed research on dissociation in normal populations, which has similarities with pathological forms in terms of an intense focus of attention, isolation from the external environment, and absorption, particularly with internally generated thoughts and images such as daydreams. Dissociation appears to have evolved as a mechanism to block awareness and memories in order to escape the stress of interpersonal situations, for example, protecting oneself from extreme emotional stimulation and associated autonomic arousal that comes from an attack or betrayal. The ability of traumatic stress to block consolidation of conscious narrative memories provides an explanation based on evolutionary adaptations. Distancing of self and identity provides emotional numbing mechanisms that can inhibit the flight-or-fight response, enabling a more objective search for survival strategies rather than being driven by emotional fears. In order to seek solutions to pressing problems, certain information is compartmentalized, kept out of consciousness, so that adaptive responses may be made.

Seligman and Kirmayer (2008) showed how one can reconcile the adaptive paradigm of dissociation with the obvious nonadaptive pathological dimensions by examining how the social context interacts with psychophysiological bases. Dissociation involves a regulation of attentional mechanisms that allow a selective suppression of perceptions and memories and a reduction of physiological stress. In shamanistic rituals, these traumatic dissociative experiences are addressed in processes that allow the emergence of an integrated sense of self, linked to others who provide a variety of attachment functions for self integration. Sar and Ozturk (2007) proposed that dissociation involves a detachment of the psychological self from the sociological self. In this dissociation, the sociological self becomes amplified. This sociological self, which functions in the interface between the individual and society, undergoes an accelerated development as a consequence of trauma. This protective dissociation of the psychological self allows for a reestablishment of connections between the inner and outer world through the sociological self. I propose that these reflect mediation through processes of the ancient paleomammalian brain, which is pre-eminently social, reflective of the necessities of mammalian societies.

Social roles of possession exemplify this control, where higher-order representations embodied in the personalities of possession spirits redirect identity and

behavior to adapt to varying social circumstances. Possession must be seen in light of an extreme tendency to identify with idealized social norms embodied in the social functions of the paleomammalian brain.

### **Religious Universals and Societal Specifics:**

#### **Shamanistic Healers**

The hunter-gatherer shamans' utilization of ASC to communicate with the spirit world through community rituals for purposes of divination and healing is found in all societies; these cultural universals of religion reflect biological bases (Winkelman, 1992, 2000, 2010; also see Winkelman & Baker, 2008). These biologically-based cultural universals of ASCs, spirit relations, and community rituals, that are the basis of shamanism, are associated with different types of magico-religious practitioners in more complex societies (mediums, healers, and shaman/healers). I (Winkelman, 1990, 1992) proposed that a more inclusive term, shamanistic healers, be used to refer to these universally distributed practitioners who share characteristics including:

- induction of ASC in training and professional activities;
- providing divination, diagnosis, and healing;
- use of rituals to interact with spirits;
- removal of detrimental effects of spirits (spirit aggression and possession);
- and curing illness caused by human agents (e.g., witches and sorcerers).

Universally distributed shamanistic healers, found in all societies of the world, also share many additional features by virtue of their social healing activities. Among the healing effects are those that derive from providing psychophysiological relief by counteracting anxiety and its physiological effects. Shamanistic healing processes provide relief by the ritual elicitation of community support, providing a social reference group that can meet needs for belonging and bonding with others. Shamanistic healing practices provide many mechanisms for addressing psychological and emotional problems. Shamanistic healing practices utilize what Dow (1986; also see Winkelman, 2010) referred to as the universal aspects of symbolic healing. The processes of symbolic healing involve placing the patient's personal circumstances within the context of the culture's mythology and cosmology, and then using the drama of ritual to manipulate the patient's emotions,

attachments, and relationships. The prior linkages of emotions and cultural symbols permit ritual enactments to produce emotional transformations of the patients. The ritual elicitation and manipulation of unconscious culturally-programmed psychological, emotional, and physiological structures enables shamanistic healers to produce a variety of healing responses, reflected in the psychodynamic differences in the ASCs of soul journey, possession, and meditation.

### Conclusion

This cross-cultural research has provided not only an empirically derived typology of magico-religious practitioners and different types of healers but also, more importantly, establishes the etic status of shamans and the validity of shaman as a cross-cultural concept as real as any other anthropological concept such as bands, tribes, and chiefdoms. The empirical similarity establishes that the term shaman should be based on shared characteristics rather than arbitrary definitions. Unfortunately, the literature has not followed such principles, with the term shaman applied to religious practitioners that differ significantly from the empirically derived characteristics of this cross-cultural study. Instead, many times so-called shamans would be classified as mediums or healers based on the empirically derived typology of magico-religious practitioners. If there is to be a science of religious practices, then it is these empirical characteristics that should take precedence over arbitrary definitional approaches. An over-extension of the term shaman has undermined its usefulness. Based on my cross-cultural research, the term shaman should be used to refer to healers of foraging and pastoral societies who share the specific characteristics described above.

This cross-cultural research also establishes the characteristics of other cross-culturally valid concepts regarding the nature of magico-religious practice. I have followed anthropological conventions in labeling magico-religious practitioners as priests, sorcerer/witches, mediums, healers, and shaman/healers. The empirically derived characteristics of these different types of magico-religious practitioners provide a basis for a more powerful interpretation of the past, using an ethnological analogy rather than the more common ethnographic analogy based on selective cases. An ethnological analogy based on cross-cultural research has greater legitimacy and greater explanatory power than the ethnographic analogy that has characterized archaeological interpretations of the past.

These differences between an original hunter-gatherer shamanism and the diversity of related spiritual healing phenomena of more complex societies is key to understanding shamanism and the shamanism controversy. The manifestations of shamanic potentials, specifically those related to alterations of consciousness, differ, as manifested in different types of shamanistic healers. These variations reflect the effects of different subsistence and political conditions that accompanied sociocultural evolution. Post-modern manifestations of shamanistic phenomena often make an effort to reclaim a shamanistic past, but generally with significant departures from the shamanic phenomena and characteristics of pre-modern foraging societies. For instance, the resurgences of shamanistic phenomena manifested in Harner's work (1980) and the FSS reflect core aspects of shamanism—such as ASCs, community rituals, and spirit allies. I have preferred to use the label shamanistic healers (1990, 1992) to refer to spiritual healers that share these features. Shamans have many other characteristics as well, such as soul flight, animal powers, a belief in their ability to transform into animals, and many more. One feature of premodern shamanism that is notably absent in the modern shamanic movement, including the FSS practices and Harner's core shamanism, is the use of shamanic power to kill. The practices of sorcery are an intrinsic part of shamanism, with most societies with shamanism explicitly recognizing the shaman's dual power in the intrinsic similarity of the procedures used in sorcery and healing. Other aspects of the hunter-gatherer life style and associated band level social dynamics are part of the features of premodern shamanism as well—hunting magic, group leadership, high status, directing group movement, leading war parties, and so forth, which are not part of the contemporary neoshamanic movement.

Recognizing the differences between shamans and a variety of subsequent shamanistic phenomena is central to making valid interpretations of the roles of religion and spirituality in the past. Valid reconstructions cannot be derived from modeling based on selective ethnographic cases but rather requires the development of ethnological models based in empirically-determined, cross-cultural patterns. The research summarized here provides this kind of model of shamanism in pre-modern societies and constitutes a compelling framework for interpreting the human past. In addition to the evidence provided about the prehistory of shamanism that is

provided by this cross-cultural etic model, there are additional lines of evidence substantiating the presence of shamanism in the human past. These arguments substantiating the presence of a worldwide prehistoric shamanism are supported by: an ethological analogy based in homologies between shamanic practices and the ritual patterns of other animals, particularly primate cousins such as chimpanzees (Winkelman, 2010), and a neuropsychological explanation for the universals of shamanic practices, particularly the correspondences with aspects of brain functioning involved in ASC.

### References

- Aldhouse-Green, M. (2005). *The quest for the shaman: Shape-shifters, sorcerers, and spirit-healers of ancient Europe*. London, UK: Thames & Hudson.
- Arzy, S., Molnar-Szakacs, I., & Blanke, O. (2008). Self in time: Imagined self-location influences neural activity related to mental time travel. *Journal of Neuroscience*, 28(25), 6502-6507. doi:10.1523/JNEUROSCI.5712-07.2008
- Bahn, P. (2001). Save the last trance for me: An assessment of the misuses of shamanism in rock. In H. Francfort, R. Hamayon, & P. Bahn (Eds.), *The concept of shamanism: Uses and abuses* (pp. 51-93). Budapest, Hungary: Akadémiai Kiadó.
- Bean, L. J. (1992). *California Indian shamanism*. Menlo Park, CA: Ballena Press.
- Berman, M. (2008a). *The shamanic themes in Armenian folktales*. Newcastle, UK: Cambridge Scholars.
- Berman, M. (2008b). *The shamanic themes in Chechen folktales*. Newcastle, UK: Cambridge Scholars.
- Berman, Michael (2008c). *Divination and the shamanic story*. Newcastle, UK: Cambridge Scholars.
- Blacker, C. (1999). *The Catalpa bow: A study of shamanistic practices in Japan*. Richmond, Surrey, UK: Japan Library.
- Blanke, O., & Mohr, C. (2005). Out-of-body experiences, heautoscopy, and autoscopic hallucination brain research. *Brain Research Reviews*, 50(1), 184-199. doi:10.1016/j.brainresrev.2005.05.008
- Benedict, R. (1923). *The concept of the guardian spirit in North America*. New York, NY: American Anthropological Association.
- Cahn, B., & Polich, J. (2006). Meditation states and traits: EEG, ERP and neuroimaging. *Psychological Bulletin*, 132(2), 180-211. doi:10.1037/0033-2909.132.2.180
- Cardena, E., & Gleaves, D. H. (2003). Dissociative disorders: Phantoms of the self. In S. M. Turner, & M. Hersen (Eds.), *Adult psychopathology and diagnosis* (4th ed.; pp. 473-503). New York, NY: Wiley.
- Clottes, J., & Lewis-Williams, D. (1998). *The shamans of prehistory: Trance and magic in the painted caves*. New York, NY: Harry Abrams.
- Clottes, J. (2004). Hallucinations in caves. *Cambridge Archaeological Journal*, 14(1), 81-82. doi:10.1017/S095977430421006X
- Craffert, P. (2008). *Life of a Galilean shaman: Jesus of Nazareth in anthropological-historical perspective*. Cambridge, UK: James Clarke.
- Crawford, H. (1994). Brain dynamics and hypnosis: Attentional and disattentional processes. *International Clinical and Experimental Hypnosis*, 42(3), 204-232. doi:10.1080/00207149408409352
- Cummings, J. L. (1993). Frontal-subcortical circuits and human behavior. *Archives of Neurology*, 50(8), 873-880. doi:10.1001/archneur.1993.005400880076020
- Czaplicka, M. (1914). *Aboriginal Siberia: A study in social anthropology*. Oxford, UK: Oxford University Press.
- Dow, J. (1986). Universal aspects of symbolic healing: A theoretical synthesis. *American Anthropologist*, 88(1), 56-69. doi:10.1525/aa.1986.88.1.02a00040
- Eliade, M. (1964). *Shamanism: Archaic techniques of ecstasy*. New York, NY: Pantheon Books. (Original work published as *Le Chamanisme et les techniques archaïques de l'extase*, 1951)
- Ewing, J. (2008). *Reiki shamanism: A guide to out-of-body healing*. Findhorn, Scotland: Findhorn Press.
- Flaherty, G. (1992). *Shamanism and the eighteenth century*. Princeton, NJ: Princeton University Press.
- Fogelin, L. (2007). The archaeology of religious ritual. *Annual Reviews of Anthropology*, 36, 55-71. doi:10.1146/annurev.anthro.36.081406.094425
- Francfort, H. R., Hamayon, R., & Bahn, P. (Eds.). (2001). *The concept of shamanism: Uses and abuses*. Budapest, Hungary: Akadémiai Kiadó.
- Francfort, H. (2001). Prehistoric section: An introduction. In H. Francfort, R. Hamayon, & P. Bahn (Eds.), *The concept of shamanism: Uses and abuses* (pp. 31-49). Budapest, Hungary: Akadémiai Kiadó.
- Fries, P. (2009). Neuronal gamma-band synchronization as a fundamental process in cortical computation. *Annual Review of Neuroscience*, 32, 209-224. doi:10.1146/annurev.neuro.051508.135603

- Glass-Coffin, Bonnie. (1998). *The gift of life: Female spirituality and healing in northern Peru*. Albuquerque, NM: University of New Mexico Press.
- Hamayon, R. (2001). Shamanism: Symbolic system, human capability and Western ideology. In H. Francfort, R. Hamayon, & P. Bahn (Eds.), *The concept of shamanism: Uses and abuses* (pp. 1-27). Budapest, Hungary: Akadémiai Kiadó.
- Harner, M. (1980). *The way of the shaman: A guide to power and healing*. New York, NY: Harper & Row.
- Hayden, Brian. (2003). *Shamans, sorcerers, and saints: A pre-history of religion*. Washington, DC: Smithsonian Books.
- Hebert, R., Lehmann, D., Tan, G., Travis, F., & Arenander, A. (2005). Enhanced EEG alpha-time domain phase synchrony during transcendental meditation: Implications for cortical integration theory. *Signal Processing*, 85(11), 2213-2232. doi:10.1016/j.sigpro.2005.07.009
- Hoppál, M., & Gábor, K., (Eds.). (2003). *Rediscovery of shamanic heritage*. Budapest, Hungary: Akadémiai Kiadó.
- Jamieson, G. (2007). Previews and prospects for the cognitive neuroscience of hypnosis and conscious states. In G. Jamieson (Ed.), *Hypnosis and conscious states: The cognitive neuroscience perspective* (pp. 1-14). Oxford, UK: Oxford University Press.
- Jamieson, G., & Woody, E. (2007). Dissociated control as a paradigm for cognitive neuroscience research and theorizing in hypnosis. In G. Jamieson (Ed.), *Hypnosis and conscious states: The cognitive neuroscience perspective* (pp. 111-131). Oxford, UK: Oxford University Press.
- Jakobsen, M. D. (1999). *Shamanism: Traditional and contemporary approaches to the mastery of spirits and healing*. New York, NY: Berghahn Books.
- Keeney, B. (2006). *Shamanic Christianity: The direct experience of mystical communion*. Rochester, VT: Destiny Books.
- Kehoe, A. B. (2000). *Shamans and religion: An anthropological exploration in critical thinking*. Prospect Heights, IL: Waveland Press..
- Langdon, J., & Gerhard B, (Eds.). (1992). *Portals of power: Shamanism in South America*. Albuquerque, NM: University of New Mexico Press.
- Laugrand, F., & Oosten, J. G. (2010). *Inuit shamanism and Christianity: Transitions and transformations in the twentieth century*. Montreal, Canada: McGill-Queen's University Press.
- Lehmann, D., Faber, P., Achermann, P., Jeanmonod, D., Gianotti, L., & Pissagalli, D. (2001). EEG brain sources of EEG gamma frequency during volitionally meditation-induced, altered states of consciousness, and experience of the self. *Psychiatry Research: Neuroimaging*, 108, 111-121. doi:10.1016/S0925-4927(01)00116-0
- Le Quellec, J. (2001). Shamans and Martians: The same struggle. In H. Francfort, R. Hamayon, & P. Bahn (Eds.) *The concept of shamanism: Uses and abuses* (pp. 135-159). Budapest, Hungary: Akadémiai Kiadó.
- Lewis-Williams, D. (2002). *The mind in the cave: Consciousness and the origins of art*. London, UK: Thames & Hudson.
- Lewis-Williams, J. (2004). Neuropsychology and Upper Paleolithic art: Observations on the progress of altered states of consciousness. *Cambridge Archaeological Journal*, 14(1), 107-11. doi:10.1017/S0959774304000083
- Lewis-Williams, D. (2006). Shamanism: A contested concept in archaeology. *Before Farming*, 4(1), 1-15.
- Lewis-Williams, D., & Clottes, J. (1998). The mind in the cave—the cave in the mind: Altered consciousness in the Upper Paleolithic. *Anthropology of Consciousness*, 9(1), 13-21. doi:10.1525/ac.1998.9.1.13
- Lewis-Williams, D., & Dowson, T. (1988). The signs of all times: Entoptic phenomena in Upper Paleolithic art. *Current Anthropology*, 29(2), 201-245. doi:10.1086/203629
- Lewis-Williams, D., & Pearce, D. (2005). *Inside the Neolithic mind: Consciousness, cosmos and the realm of the gods*. London, UK: Thames & Hudson.
- Lutz, A., Greischar, L., Rawlings, N., Richard, M., & Davidson, R. (2004). Long-term meditators self-induced high-amplitude gamma synchronization during mental practice. *Proceedings of the National Academy of Sciences*, 101(46), 16369-16373. doi: 10.1073/pnas.0407401101
- MacLean, P. (1990). *The triune brain in evolution*. New York, NY: Plenum.
- Macrae, E. J. (1998). *Guiado por la luna: Shamanismo y uso ritual de la ayahuasca en el culto de Santo Daime*. Quito, Ecuador: Ediciones Abya-Yala.
- McClenon, J. (2002). *Wondrous healing: Shamanism, human evolution, and the origin of religion*. DeKalb, IL: Northern Illinois University Press.
- Mandell, A. (1980). Toward a psychobiology of transcendence: God in the brain. In D. Davidson & R. Davidson (Eds.), *The psychobiology of consciousness* (pp. 379-464). New York, NY: Plenum.

- Metzinger, T. (2009). *The ego tunnel: The science of the mind and the myth of the self*. New York, NY: Basic Books.
- Millones, L., & Lemlij, M. (2009). *Alucinógenos y chamanismo: La otra curación*. Lima, Peru: SIDEA. (Spanish)
- Murdock, G., & White, D. (1969). Standard cross-cultural sample. *Ethnology*, 8, 329-69. doi:10.2307/3772907
- Narby, J. & Huxley, F. (Eds.). (2001). *Shamans through time: 500 years on the path to knowledge*. New York, NY: Tarcher/Putnam.
- Pearce, D. (2004). "Testing" and altered states of consciousness in Upper Palaeolithic art research. *Cambridge Archaeological Journal*, 14(1), 82-85. doi:10.1017/S0959774304220066
- Previc, F. (2006). The role of the extrapersonal brain systems in religious activity. *Consciousness and Cognition*, 15, 500-539. doi:10.1016/j.concog.2005.09.009
- Previc, F. (2009). *The dopaminergic mind in human evolution and history*. Cambridge, MA: Cambridge University Press.
- Ray, W. (2007). The experience of agency and hypnosis from an evolutionary perspective. In G. Jamieson (Ed.), *Hypnosis and conscious states: The cognitive neuroscience perspective* (pp. 223-240). Oxford, UK: Oxford University Press.
- Reichel-Dolmatoff, G. (2005). *Goldwork and shamanism: An iconographic study of the Gold Museum of the Banco de la República, Columbia*. Bogotá, Colombia: Villegas Editores.
- Ruck, C. A. P., Staples, B. D., & Heinrich, C. (2001). *The apples of Apollo: Pagan and Christian mysteries of the eucharist*. Durham, NC: Carolina Academic Press.
- Ruck, C. A. P., Staples, B. D., Celdrán, J. A. G., & Hoffman, M. A. (2007). *The hidden world: Survival of pagan shamanic themes in European fairytales*. Durham, NC: Carolina Academic Press.
- Sar, V., & Ozturk, E. (2007). Functional dissociation of the self: A sociocognitive approach to trauma and dissociation. *Journal of Trauma and Dissociation*, 8(4), 69-89. doi:10.1300/J229v08n04\_05
- Seligman, R., & Kirmayer, L. (2008). Dissociative experience and cultural neuroscience: Narrative, metaphor and mechanism. *Medicine & Psychiatry*, 32(1), 31-64. doi:10.1007/s11013-007-9077-8
- Siikala, A. (1978). *The rite technique of Siberian shaman. Folklore Fellows Communication* (Vol. 220). Helsinki, Finland: Soumalainen Tiedeskaremia Academia.
- Staller, J. & Currie, E. J. (Eds.). (2001). *Mortuary practices and ritual associations: Shamanic elements in prehistoric funerary contexts in South America*. Oxford, England: Archaeopress.
- Takahashi, T., Murata, T., Hamada, T., Omori, M., Kosaka, H., Kikuchi, M.,... Wada, Y. (2005). Changes in EEG and autonomic nervous system activity during meditation and their association with personality traits. *International Journal of Psychophysiology*, 55(2), 199-207. doi:10.1016/j.ijpsycho.2004.07.004
- Taylor, E., Murphy, M., & Donovan, S. (1997). *The physical and psychological effects of meditation: A review of contemporary research with a comprehensive bibliography: 1931-1996*. Sausalito, CA: Institute of Noetic Sciences.
- Tasorinki, Y. (2009). *Chamanismo andino-amazónico: Maestros y plantas maestras de poder coca, ayahuasca, San Pedro, tabacco*. Cusco, Perú: Editorial Piki. (Spanish)
- Tedlock, B. (2005). *The woman in the shaman's body: Reclaiming the feminine in religion and medicine*. New York, NY: Bantam Books.
- Tolley, C. (2009). *Shamanism in Norse myth and magic*. Helsinki, Finland: Academia Scientiarum Fennica.
- Ustinova, Y. (2011). Consciousness alteration practices in the West from prehistory to late antiquity. In E. Cardena & M. Winkelman (Eds.). *Altering consciousness multidisciplinary perspectives* (Vol. 1; pp. 45-72). Santa Barbara, CA: Praeger.
- Vialatte, F., Bakardjian, H., Prasad, R., & Cichocki, A. (2009). EEG paroxysmal gamma waves during Bhramari Pranayama: A yoga breathing technique. *Consciousness and Cognition*, 18, 977-988. doi:10.1016/j.concog.2008.01.004
- Vollenweider, F. (1998). Recent advances and concepts in the search for biological correlates of hallucinogen-induced altered states of consciousness. *Heffter Review of Psychedelic Research*, 1, 21-32.
- Walter, M., & Fridman, E. (Eds.). (2005). *Shamanism: An encyclopedia of world beliefs, practices, and culture*. Santa Barbara, CA: ABC Clío.
- Walsh, R. (2007). *The world of shamanism: New views of an ancient tradition*. Woodbury, MN: Llewellyn.
- Whitehead, N. L. (2002). *Dark shamans: Kanaimà and the poetics of violent death*. Durham, NC: Duke University Press.

- Whitley, D. (2006). Is there a shamanism and rock art debate? *Before Farming*, 4(7), 1-7.
- Whitley, D. (2009). *Cave paintings and the human spirit: The origin of creativity and belief*. Amherst, NY: Prometheus Books.
- Winkler, G. (2003). *Magic of the ordinary: Recovering the shamanic in Judaism*. Berkeley, CA: North Atlantic Books.
- Winkelman, M. (1984). *A cross-cultural study of magico-religious practitioners* (Doctoral dissertation). University of California, Irvine. Ann Arbor, MI: University Microfilms. (UMI No. 8503003)
- Winkelman, M. (1986a). Magico-religious practitioner types and socioeconomic analysis. *Behavior Science Research*, 20(1-4), 17-46.
- Winkelman, M. (1986b). Trance states: A theoretical model and cross-cultural analysis. *Ethos*, 14, 174-203. doi:10.1525/eth.1986.14.2.02a00040
- Winkelman, M. (1990). Shaman and other "magico-religious healers": A cross-cultural study of their origins, nature, and social transformation. *Ethos*, 18(3), 308-352. doi:10.1525/eth.1990.18.3.02a00040
- Winkelman, M. (1992). *Shamans, priests, and witches. A cross-cultural study of magico-religious practitioners* (Anthropological Research Papers #44). Tempe, AZ: Arizona State University.
- Winkelman, M. (2000). *Shamanism: The neural ecology of consciousness and healing*. Westport, CT: Bergin & Garvey.
- Winkelman, M. (2002). Shamanism and cognitive evolution. *Cambridge Archaeological Journal*, 12(1), 71-101. doi:10.1017/S0959774302000045
- Winkelman, M. (Ed.). (2003). Shamanisms and survival. *Cultural Survival Quarterly*, 27(2). (Including introduction)
- Winkelman, M. (2010). *Shamanism: A biopsychosocial paradigm of consciousness and healing*. Santa Barbara, CA: ABC-CLIO.
- Winkelman, M. (2011). A paradigm for understanding altered consciousness: The integrative mode of consciousness. In E. Cardeña & M. Winkelman (Eds.), *Altering consciousness multidisciplinary perspectives* (pp. 23-44). Santa Barbara, CA: Praeger.
- Winkelman, M., & White, D. (1987). A cross-cultural study of magico-religious practitioners and trance states: Data base. In D. Levinson & R. Wagner (Eds.), *Human relations area files research series in quantitative cross-cultural data* (Vol. 3D). New Haven, CT: HRAF Press.
- Winkelman, M., & Baker, J. (2008). *Supernatural as natural: A biocultural theory of religion*. Upper Saddle River, NJ: Prentice Hall.
- Woody, E., & Szechtman, H. (2007). To see feelingly: Emotion, motivation and hypnosis. In G. Jamieson (Ed.), *Hypnosis and conscious states: The cognitive neuroscience perspective* (pp. 141-256). Oxford, UK: Oxford University Press.
- Znamenski, A. A. (2003). *Shamanism in Siberia: Russian records of indigenous spirituality*. Dordrecht, Netherlands: Kluwer Academic.

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