

# *Healing on the Edge: The Construction of Medicine on the Jesuit Frontier of Northern New Spain*

REBECCA CROCKER

Like a servant of God who bends his back over virgin soil, they recorded the charge of misery in the presence of our Lord God: the introduction of Christianity occurs; blood-vomit, pestilence, drought, a year of locusts, smallpox are the charge of misery, also the importunity of the devil.

*The Book of Chilam Balam of Chumayel*

Healing, sickness, and disease formed the backdrop of Spanish colonization of the Americas, a process that unleashed such rapid decimation of Native populations that it is recognized as one of the greatest demographic collapses in the history of humankind (Cook and Lovell 1991). Illness and death were so pervasive in the daily experiences of regional peoples following initial Spanish contact in 1492 that Reff (1991) has noted the entire process of colonization should be understood to have taken place in a “disease environment.” As such, scholars have extensively examined the demographic demise and the important role played by such extreme loss of life in Spain’s rapid political and military victories throughout the region. As with most historical treatises, however, the story generally relayed is that of the core regions—in this case, the colonial capitals of Mexico City, Puebla, Santiago de Guatemala, and Lima—populated by highly organized and hierarchical societies with developed medical and apothecary systems, while a dearth of knowledge exists regarding the experience of health on the remote colonial outposts.

This is certainly the case for the colonial province of Sonora, an isolated

REBECCA CROCKER *is a doctoral candidate in the School of Anthropology at the University of Arizona.*

and sparsely populated region along the northwestern Spanish American frontier. This article examines historical, ethnographic, and archival records to portray how medicine and healing were constructed in this frontier region during the Jesuit period (1617–1767), and the influence of Jesuit philosophy and practice on local medicinal practice. Chambers and Gillespie (2000:228) argue that a geographic region can constitute a “scientific locality” when there exists “a local frame of reference in which we may usefully examine the role of knowledge construction and inculcation.” I maintain that colonial Sonora during the Jesuit period constitutes its own scientific, and specifically medical, locality due to three primary factors: (1) the influence and healing perspective of the erudite and scientifically minded Jesuit missionaries, (2) the area’s geographical isolation, and (3) the biopharmaceutical composition of the arid northwest. The available historical record reveals that these three factors interacted to necessitate and encourage the continued use of regional healing substances and practices in concert with imported modalities. Due to the dearth of medical informants from the era, much of the information in this article comes from the broader region of Sonora rather than O’odham territories specifically. Nonetheless, the regional experience of fusing medical techniques and theories is applicable to the O’odham, and the second section of this article will employ a modern ethnographic resource (Bahr et al. 1974) to focus the discussion more specifically on what we can glean about the O’odham historical experience. If we take as true Porter’s (1985:192) statement that “health is the backbone of social history,” the hypothesis forwarded here is not just important in the realm of healing, but also in the field of regional processes of cultural change and continuity.

### THE INTERACTION OF CULTURE CONTACT, GEOGRAPHY, AND BIOLOGY

The isolation and apparent desolation of Sonora spelled cultural isolation from the colonial core for a long period following initial exploration of the region by Spanish military parties during the 1540s and 1560s. When European penetration of the area was reinitiated, it took place largely under the auspices of Spain’s newest religious order, the Society of Jesus. Whereas the church and state served as “dual columns of royal authority” on the frontier (Radding 1997:11), the institution of the Jesuit mission was the primary foreign influence on local cultural

order (see also Sheridan 1992; Valdés Aguilar 2009). The Jesuits distinguished themselves from their fellow religious brethren by refusing tithes, declining to wear the habit, applying themselves to learning the languages of their converts, and educating themselves in the sciences. Many Jesuits on the northern frontier became prolific chroniclers of American natural history, including Manuel Aguirre, Juan de Esteyneffer, Juan Nentvig, Joseph Och, Ignaz Pfefferkorn, Andrés Pérez de Ribas, Hernando de Santarén, Luis Xavier Velarde, and Miguel Venegas, several of whom ministered to or traveled through O’odham territory.<sup>1</sup> In response to widespread interest in botanical cures, the Jesuits developed what Anagnostou (2007) refers to as a “worldwide drug transfer,” in which missionaries from China, India, Japan, the Philippines, and Spanish America interchanged knowledge and *materia medica*. They took inspiration particularly in natural history, not only for its practical applications to knowledge expansion and healing, but because, on a higher scale, they believed that God’s love was embodied in nature’s bounty (Acosta 1962). Anagnostou (2007:294) maintains that, “according to Jesuit philosophy and spirituality, nature reflected God’s omnipotence and divine providence. To describe and explore nature was, therefore, one way of worshipping God.” According to Harris (2005), this predilection to see God in nature opened the minds of Jesuits throughout the world to more readily incorporate and accept the healing traditions they encountered. What is more, as the most educated of the European religious orders, many Jesuits took seriously the mandate to learn indigenous languages as a means to decipher how the order in language reflects the order in customs and culture, a process that then forced them to “contemplate alternative truths” (Reff 1999:36).

Jesuit interest in healing knowledge was compounded by a firmly held belief that “the bodies of their spiritual charges should be aided along with their souls” (Kay 1996:25). The Jesuits held an “activist” approach to missionization, in which the role of healing or witnessing illness was deemed more important than a night spent in isolated prayer (Reff 1999). Jesuit preoccupation with illness and remedy was evidenced in the essays on missionary life they left behind, which addressed sickness, doctoring, and specifically their own roles as physicians. Ignaz Pfefferkorn (1949:178), for example, in his *Sonora: A Description of the Province*, wrote of his missionary years that “the vigilant care of the sick was one of the most important concerns of the missionary.” Missionary chroniclers report having traveled long distances in harsh and uncertain conditions to attend to the sick and baptize the terminally ill lest they be left to take

their last breath as “sinners.” The report of Captain Juan Mateo Manje (1701), who accompanied Father Eusebio Francisco Kino on many missions of discovery through O’odham territory, noted such activities, stating that “the father rector was confessing the sick and catechizing others in order to baptize them, for they are currently [suffering] from the epidemic commonly called *pitiflor*. A sick man died the following night without baptism, [causing] the father great sorrow because he had not counseled him.”

However, the aforementioned factors that contributed to Jesuit interest in and openness to local healing modalities must be understood within the framework of the essential colonial order imparted by the mission system, which was deeply rooted in a belief in the superiority of European culture and peoples. Indeed, the reverence with which Jesuit missionaries on the Spanish American frontier describe the botanical bounty of the region contrasts starkly to the often condescending and dismissive tone with which they address the culture and habits of their Native converts.<sup>2</sup> “Their nature is based upon four traits, each more despicable than the one that follows: ignorance, ingratitude, inconstancy, and laziness,” wrote Nentvig (1980:55) in his *Rudo Ensayo: A Description of Sonora and Arizona in 1764*. Moreover, while the Galenic medical theories imported by the Jesuits from Europe offered precedent for the use of new botanical remedies in the colonies, they held firmly that their Christian God alone ruled the supernatural realm. Harris (2005:75) notes that this distinction was crucial, explaining, “Especially in the hands of Jesuit missionaries, medical botany was as much a matter of defining and stabilizing ‘the natural’ and monopolizing ‘the supernatural’ as it was of fending off illness.” This division between salubrious botanicals and supernatural evildoing—a distinction common in missionary writings from throughout Mexico (Fields 2008:44–45)—was evident in the conflicted nature with which the Jesuits viewed *curanderos* and medicine men, and in their quick denunciations of Native religion. Fear of the devil and evil forces was very much alive in sixteenth-century Europe (Reff and Kelly 2009), rendering the supernatural element so intertwined with Native concepts of healing a direct threat to Catholicism.

But while the Jesuits may have had the intention of stamping out indigenous spiritual traditions and imposing their own religious theories of healing, the reality of Sonora’s geographic isolation and harsh landscape often frustrated such efforts. It was not by chance that the province of Sonora came to form the northern edge of the colonial empire. The region served as a formidable natural barrier of vast open and arid land

of dramatic temperature extremes, divided by the rugged Sierra Madre. Crossing this region proved perilous to the newcomers, and its topography provided ample escapes for the Native populations, many of whom successfully avoided incorporation into colonial society and even waged rebellions against the intruders long after Tenochtitlán, the capital of the Aztec empire, fell in 1521 to Spanish forces. Radding (1997:5) notes that in this region Spanish settlement stabilized only in the mid-eighteenth century (just as the Jesuits were being expelled from the colonies) and as such “indigenous peoples moved in and out of the colonial domain.” Sheridan (1992:168) maintains that such was the isolation, rebellion, and challenge to European settlement in the region that “much of the Greater Southwest remained contested ground—the frontier of a periphery, not a periphery itself—throughout the entire colonial period and beyond.”

Sonora’s standing as a frontier meant it was virtually forsaken in terms of European medical supplies and treatment. In medicine, as in many other aspects of culture contact, this isolation forced greater interdependence between the foreigner and the native, and increased reliance on local resources. Few, if any, European-trained medical doctors made their way north, other than the occasional Jesuit father with scientific background or the rare surgeon accompanying military expeditions into the northern hinterlands (Lanning and TePaske 1985). The shortage of European medical personnel meant not only a lack of practitioners, but also a lack of exposure to modern medical theories and practices emanating from Europe and its other colonies. Moreover, the European and Asian herbs employed in classical cures abroad were extremely difficult to come by, expensive, and of lower potency due to long travel times. When the Jesuit missionaries from Sonora sent their annual *memorias*—lists of needs for missionary upkeep and functioning—to Mexico City, orders could take months to arrive and often would not arrive at all or only in small quantities. As such, Jesuits who considered themselves lay doctors in the region, including Pfefferkorn, Nentvig, and Esteyneffer, all quoted local herbal substitutes for imported remedies.

Even in cases where the Jesuits did not approve of local traditions, such as those of Native shamans whom they believed were really just “wicked imposters” (Pfefferkorn 1949:221), suppressing these practices was difficult on the remote and isolated frontier. The administrative means through which medical personnel and religious leaders sought to eradicate supernatural practices in the Nahua heartland of the colony—the courts of the Inquisition and the laws of the *Royal Protomedicato*

(Lanning and TePaske 1985)—were for all intents and purposes nonexistent in Sonora, leaving the Jesuits with few formal venues for enforcement. In the urban colonial centers, regulations under the umbrella of the *Royal Protomedicato* were established, albeit loosely, as early as 1527, regulating the practices of apothecaries, surgeons, medical doctors, bone setters, bloodletters, and herbalists, and dictating that only people of pure Spanish blood were to serve as doctors in the colonies (Valdés Aguilar 2009). However, by the turn of the eighteenth century it remained uncertain whether the doctrine held jurisdiction over the entire territory or merely the urban centers and their surrounding five leagues, and its reach into the far northern territories was intermittent at best. The lack of colonial regulatory bodies and European trained doctors and medical supplies, in concert with the high level of mobility among Native communities, likely afforded the O'odham and other Native groups more leeway in the continuance of their traditional practices. While European doctors and medical supplies had formed part of Spanish colonization from its inception, on the frontier the Jesuits were forced to put whatever scientific knowledge they had into practice, and to look to the people and the earth around them for cures.

Jesuit correspondence with the Crown was laden with Eden-like descriptions of these surroundings, as part of a conscious effort to justify continued financial investment in the missionization of these remote regions, often envisioned by the Spanish Crown as dry wastelands inhabited by bellicose nations (Reff 1999). While such descriptions served a practical purpose, as scientifically educated natural historians the Jesuits were not wrong in their assessment of the region's wealth. Indeed, the isolated territory in which they worked to establish Catholic society was rich in terms of medicinal plants, roots, minerals, and animal products. Because the plants of the Sonoran Desert evolved to withstand great extremes of temperature and aridity, they contain particularly high quotients of the phytochemicals that make plants both medicinally active and potentially toxic (Kay 1996). Whereas the more tropical regions of Mexico report higher numbers of known medicinals (Lozoya et al. 1988), arid-adapted plants have a uniquely high rate of toxicity, alkaloids, and tannins (Tewari 1979). According to Kay (1996), the fact that plants imported from the Mediterranean were less phytochemically rich but therefore safer to use may partially explain why these imported plants became so widely accepted by lay practitioners throughout Mexico.

Nentvig, Pfefferkorn, Esteyneffer, and Velarde were among the Jesuits who described the northwest fringes of the Spanish empire as a veritable

panacea of curing medicinals. Nentvig (1980:43–44) proclaimed, “the providence of nature or should I say the Divine Providence? has endowed Sonora, devoid of physicians, surgeons, and apothecaries with excellent medicinal herbs, shrubs, gums, fruits, mineral and animal products of such quality that there is no collection like it in Europe.” Certain plants were so efficacious that they were described as virtual miracle drugs. Nentvig extolled the virtues of the *jojoba* nut for healing arrow wounds, including a personal story in which the nut had cured him of an intense bout of indigestion. Velarde (1716) recorded the valuable cures he learned from various missionized communities—for example, he recounted that the Sobaipuris told of *jojoba* (coveted from Mexico to Spain), and the Julimes taught that the *jicamilla* root is an antidote to poison arrows and venomous bites. These Jesuits touted not only the potency, but also the great variety of plants that could be used effectively to combat every nature of venomous stings and bites, lesions, fractures, fevers, and a host of intestinal ailments. Nentvig (1980:53) stated: “To attempt to name and describe all the medicinal plants that Sonora so lavishly produces would be an enormous task. If ten people were afflicted with the same ailment, each could use a different medication to effect a cure.” There was *jua* gum to heal the lockjaw induced from red ant stings, seep willow to reduce muscle tension and inflammation, *hierba manza* to relieve toothache, and passion flower to address fevers and imported European contagions. To these lists there were added many nonbotanical cures, such as the medicinal incense emitted by the cocoon of a worm known to the Ópatas, which when inhaled had been known to cure malaria, and the intestinal stones<sup>3</sup> wrought from local deer, said by Velarde (1716) to be so coveted throughout Mexico and even Spain that the supply was already dwindling and prices increasing by the early 1700s. These accounts suggest that the efficacy of local herbs contributed to the Jesuits’ use of Native resources of Sonora.

#### REALITIES OF ILLNESS AND HEALING ON THE SPANISH AMERICAN FRONTIER

Although the framework elaborated in the preceding section helps to establish the parameters within which medicinal traditions on the frontier developed during the period of initial Spanish contact, scarce documentary sources paint only limited sketches of the daily reality of health and healing in the early colonial period. Moreover, because the few colonial

medical reporters were all Europeans, the little information available on O'odham and other Native healing traditions and theories of disease is heavily filtered through the lenses of Catholicism and ethnocentrism. Sheridan (1988) has cautioned against relying blindly on this biased documentary record, as doing so is a tacit acceptance of the contemporaneous interpretations of the reporters themselves. Biases on the part of the Jesuit recorders color and distort their interpretations of all elements of Native culture, including theories of healing and sickness, making it crucial to carefully scrutinize colonial interpretations which are necessarily "crippled by the ethnocentric assumptions of the Spaniards and Mexicans themselves" (Sheridan 1988:181). Relying exclusively on the documentary record can lead to what he calls "documentary reductionism" (Sheridan 1988:177), which assumes that because the European reporters of the time did not mention a certain cultural tradition or pattern, no such tradition existed. Indeed, even the most careful reading of the Jesuit documentary record would not elucidate any highly developed theory of illness and healing on the part of the natives. By contrast, most of the Jesuit reports criticize a perceived lack of healing knowledge amongst the natives and what was widely misinterpreted as a lack of investment in their own lives and those of their loved ones (Pfefferkorn 1949).

A potentially powerful means of filling in some of these informational gaps is modern ethnographic research, which can be "upstreamed"<sup>4</sup> and applied to historical times. This line of evidence is available only relatively recently in the area of O'odham medicine, thanks to the collaborative work of Bahr et al. (1974) in *Piman Shamanism and Staying Sick*, which elaborates the theories of illness, diagnosis, and healing of a contemporary O'odham shaman. Their work clearly indicates an elaborate and sophisticated O'odham cultural domain in the area of disease that is unlikely to be a recent development or a dramatically distinct post-colonial evolution. Kozak and Lopez (1999:3), in referencing the space considered to be indigenously O'odham and how deeply connected that space is to the sacred, state: "The staying earth is more than physical geography, plant life or precipitation patterns. Sacred mountains, hills, springs, and shrines loom large in the O'odham imagination . . . . The staying earth is both sacred and profane and delineates the perceptual and physical boundaries of their universe." This highlights the extent to which notions of sacred space are built into O'odham culture and also suggests longevity of such beliefs and traditions. Yet this very delineation between "staying sickness" and "wandering sickness" at the center of Bahr et al.'s (1974) work could well have been a post-colonial theoretical



divide in response to the European-introduced contagions. This point highlights the clear limitations of upstreaming ethnohistory to reinterpret the past; most importantly, the risk of assuming “a ‘uniformity’ and ‘static quality’ to change” (Sheridan 1988:180) that can muddy the effort to decipher historical processes. It is not possible to apply Bahr et al.’s work directly and without scrutiny to the healing traditions encountered on the northern frontier of Spanish America in the early colonial period, as the interceding centuries have surely introduced new elements and created hybrid traditions. Nonetheless, their work, which notes widespread constancy and agreement amongst modern-day shamans, clearly establishes that the O’odham had complex theories of disease, diagnosis, and healing that pre-date missionization. The discussion that follows attempts to interpret and fuse information from texts in the traditions of narrative history and modern ethnography, while taking into account what Spicer (1962, as quoted in Sheridan 1988:171) aptly noted, that “the expansion of Spain in the New World . . . is a series of events the record of which will remain forever incomplete.”

The status of health pre-conquest in the region has been a topic of considerable debate, with an initial assumption of “a relatively disease-free paradise” (Dobyns 1976:1) being slowly replaced by a more nuanced examination of mortality from disease, warfare, and injury (Alchon 2003). Valdés Aguilar (2009) notes the presence of locally borne illnesses such as dysentery, syphilis, and pneumonia, and Quebbeman (1966) states that stomach disorders, arthritis, neuralgia, pleurisy, and pneumonia colored the region prior to conquest, as did every variety of bodily injury and infection as well as poisonous bites and stings. Despite the clear presence of such daily afflictions, most missionaries observed that the Indians suffered relatively fewer maladies than Europeans. Pfefferkorn (1949) remarked that the Indians had clean blood and healthy humors and were unaffected by common European scourges such as dropsy, gout, sciatica, and apoplexy. He attributed this healthy constitution to their having been toughened through exposure as children, as well as to their untainted natural diet, the latter of which, according to Cajete (2000), played a crucial role in pre-conquest health maintenance. Valdés Aguilar (2009) maintains that the average lifespan of Sonora’s early inhabitants exceeded that of Europe at the time (40 years as compared with 25), given the high levels of vitamins, minerals, proteins, and calories afforded by a varied diet of fish and game, gathered wild foods such as mesquite and agave, and the propagation of corn, beans, squash, and chiles.

Though isolated from the colonial core, during the post-contact era

the far northern frontier was no stranger to European-introduced epidemics. Together the missions, pueblos, and presidios on the northwestern fringes of the empire proved to be effective loci for inviting and spreading germs from afar. Reports by Jesuits in O'odham and surrounding territories make evident that outbreaks and contagions abounded and life for the colonizer and colonized alike was colored by death, disease, and risk. It is the greater challenge to piece together the intricate combination of healing modalities and theories that were employed to face these health challenges. European missionaries brought a medicinal knowledge that was blended even before their arrival to the Americas, both because the Jesuits drew their ranks from diverse European nations (such as Spain, Italy, Germany, and France) and also because the medical practices of these missionaries had previously been influenced by Arab, Chinese, and Ayurvedic traditions gleaned during prior missionary experience. Relying on imported Galenic and Hippocratic theories of medical diagnosis and healing, the Jesuits on the frontier struggled with a lack of European-trained personnel and familiar healing materials, increasingly fusing Catholic prayer with European theory and local medicinals (Kay 1977).

In the face of devastating epidemics, Sonora's Native inhabitants willingly received this new medicine yet did not abandon their own traditions. Rather, through movement, evasion, and/or necessity, Native peoples continued to rely upon traditional healing foods and medicines and to venerate the shamans so feared by the Jesuits. Although the historical record does not often decipher how distinct ethnic communities in the region shaped their medicinal practices, nor does it reflect a linear and progressive continuum of cultural change throughout the course of colonial history, modern ethnographic resources (Felger and Moser 1985; Yetman 2002) make evident that those communities remaining on the fringe of the colonial domain due to geographic constraints, revolt, or resistance (such as the Seris, Yaquis, Tarahumaras, and Warijios) retained more culturally traditional healing practices (Kay 1996). Bahr et al.'s (1974) exploration of modern O'odham traditions makes clear, however, that even amongst heavily missionized societies like the Pimas Altos, elaborate Native medicinal traditions and practices survived the process of colonization and far beyond.

Reff (1999) has hypothesized that the inability of Native health techniques to successfully address European diseases induced some degree of disillusionment with Native shamans and healers. Death by epidemic, according to Reff (1999:42), "undermined the structure and functioning

of native societies, including the authority of native shamans and other elites, who could neither explain nor prevent the unprecedented suffering coincident with epidemics.” Although European medicine also failed to fend off sickness and prevent death from epidemic, Europeans benefitted from prior exposure to epidemics, which gave them higher levels of immunity to new outbreaks. The resulting disparity in death toll between the locals and foreigners likely encouraged the Indians to look upon European religion as possessing a great power to protect its believers. Because O’odham were so disproportionately affected in comparison to Spaniards, they may have considered the imported epidemics as “staying sicknesses,”<sup>5</sup> which, according to Bahr et al. (1974: 21), carry implications of individual moral transgression, “an impropriety against rules which were set down for Pimans at the time of creation.” Such an etiological interpretation may have led the missionized O’odham to believe that their balance of life had been drastically upset, thereby inducing disease.

Either way, the unraveling of Native lifeways in the face of disease offered the Jesuits an opportunity to assert their own traditions in healing—what Kay (1987) has called “a medical conquest”—as well as in other ways of life. The missionaries followed in the wake of the epidemics, reconstituting the means of production and establishing the priest as head of the newly established political order (Reff 1999). Because Catholicism developed alongside epidemics in Europe, it provided coping mechanisms for the unique nature of death and disfigurement induced by epidemic, which were perhaps not available in local religious traditions more accustomed to approaching illness on a case-by-case basis with the individual body being the central site of disease causation, diagnosis, and treatment (Bahr et al. 1974). European mechanisms included the combination of prayer with clinical care, rosaries and relics, and soul cleansing, as well as baptism (Deeds 2003). Given this advantage over local traditions in addressing massive death tolls, illness was seen by the Jesuits as affording ripe terrain for conversion and was thus interpreted as being God’s will; it was not dwelt upon as an unprecedented brutal demographic collapse.

The Jesuits brought with them a humoral understanding of the human body and illness, a theory dictating that the body’s four humors (blood, phlegm, black bile, and yellow bile) needed to be maintained in balance for optimum health. Galenic herbal medicine addressed any excesses or deficits in the humors, which were believed to be caused by contamination of the air, odd weather, and vapors or emissions from dead bodies, stagnant waters, or the earth’s broken surface. In addition to botanical

cures, bleeding and purging were used extensively, and elementary surgery was also performed when necessary (Quebbeman 1966). Although the priests' theoretical foundation was defined by the Old World, they incorporated healing techniques and remedies acquired during the long and arduous journey from Spain to the northern frontier, which almost always included time spent in the colonial core of Mexico City. Pfefferkorn (1949) maintained a mission garden in which he cultivated local indigenous medicinals as well as imports from central Mexico. In 1765, when a contagion from the south reached his mission in Sonora, Pfefferkorn recalled that a mixture of the juice of imported citrus with locally sourced sugar water had cured people afflicted by a similar ailment in Mexico City in 1756, and he employed it with great success. These instances tangibly demonstrate the fusion of the European, colonial, and local healing substances.

In order to attend to the practical realities of health challenges on the frontier, the Jesuits planted herb gardens and constructed pharmacies and nursing stations on the missions, where they stocked locally harvested medicinal herbs and animal and mineral products as well as those requested from Mexico City via the annual *memorias*. Examples of medicinal substances requested by the Jesuits in their *memorias* to Mexico City include treacle, myrrh, camphor, and smelling salts (Deeds 2003). In administering herbal medicine in the form of oils, plasters, salves, powders, syrups, etc., the Jesuits were aided by “*mayoris*” or “*madores*,” well-trained Native assistants who regularly cleaned and set wounds, drained abscesses, and performed other basic operations. The missionaries employed basic medical techniques, including measuring the pulse and examining the patient's urine, tongue, and general appearance (Valdés Aguilar 2009). Valdés Aguilar (2009:208) asserts that the role of priest as doctor was crucial to the construction of a national conceptualization of medicine, introducing the Christian concept of attending to the sick as central to the social and moral order of society, and placing “the church in a privileged position with respect to the guidelines pertaining to consciousness and the body.”

Although the imported medical tradition of the Jesuits had far-reaching impacts on the local practice of medicine, this relationship was certainly not unidirectional. Porter (1985:175) argues that medical history must not be understood as a top-down imposition from doctor to society, but rather more broadly as a dialogue among the family, community, the sufferer, and the doctor, often mediated by “complex social rituals.” He contends that much of medicine in historical times has not been carried

out by professional practitioners, but more often by community care and self-medication. Native peoples on the frontier maintained the ability, and often the need, to continue their traditional practices of medicine. Indeed, such cultural continuity could well be interpreted as one example of what Scott (1985) calls “weapons of the weak,” meaning daily manifestations of low-level resistance to ideological changes imposed by colonizing elites. Thus, although the Europeans assumed the role of doctor to the missions, the construction of medicine on the frontier must be understood to have included both European and indigenous conceptualizations of health, disease, and modalities for treatment.

Theorists of modern medicine and science (Foucault 1973; Good 1994) have argued that medicine, though thought to be purely scientific and thus rational and neutral, is indeed culturally constructed. The clash of medical ideologies on the frontier demonstrates how European cultural assumptions left ample room for misinterpretations of Native practices. Such misinterpretation ranged from simple attitudes toward treatments—the Spaniards somehow finding it shocking that the natives initially resisted forced enemas with all of their might—to deeper analyses of natives’ ability to “think in such human terms” (Pfefferkorn 1949:120). Moreover, the different types of conditions known to modern O’odham as staying sicknesses, wandering sicknesses, and bodily afflictions have different sources of origin and thus command different modes of healing, a breakdown which may have been confusing to the outside observer during colonial times. Although wandering sicknesses and bodily afflictions such as lesions, indigestion, and bone fractures arise from knowable disease agents and behavioral or material action, respectively, staying sicknesses derive from the “ways” and “strengths” of dangerous objects which when violated debilitate the body of the transgressor and are far more complicated to address. Such sicknesses imply a violation of “the commandments [that] govern various important roles—parent, hunter, cowboy—as they relate to dangerous objects” (Bahr et al. 1974:21–22). It is certainly possible that these distinctions within O’odham medical theory were significantly different at the time of European contact, yet they likely existed in some form and complicated the Jesuits’ ability to make sense of the vastly different ways in which O’odham peoples approached healing and illness.

Both Pfefferkorn and Swiss Jesuit Philipp Segesser (in Treutlein 1945) perceived that very few natives had any healing ability, and that the few who did largely turned their backs on those suffering from European contagions. “One cannot imagine more distressing circumstances than

those surrounding a sick Sonoran,” wrote Pfefferkorn (1949:219–220). “No one attends to him. What is more, sometimes no one even gives him food or drink . . . Sonorans are without affection and insensitive to the suffering of those with whom nature has so closely allied them.” Bahr et al. (1974:10) offer an alternative interpretation of these observations. With regard to the lack of medical knowledge among the general Native population, they note that in modern O’odham society, “shamans are the sole authorized theorizers on Piman sickness,” and that lay people are loath to comment on or use medical knowledge that would imply shamanistic knowledge and thus violate this code. Even within the ranks of healers themselves, medical responsibility is clearly delineated, with shamans being necessary for the diagnosis of the origin of a staying sickness (via a night-long *Dúajida* ceremony), but not necessarily its cure. Bahr et al. (1974:156) note that shamans do not feel compelled to act when a “strength” reaches a patient’s heart and the threat of death looms large, but rather defer such situations to a ritual curer. A similar hierarchy of knowledge likely existed in colonial times, implying that what the Spaniards observed to be indifference to suffering may have actually been deference to healing protocols and the shamans and ritual curers imbued with medical authority in O’odham society.

The experience of dying itself generated a whole host of misconceptions and accusations on the part of the Jesuits. Pfefferkorn (1949:222–223) dismissed the wailing and songs sung for the dead as “horrible howling,” and stated that “I never noticed tears or sorrow at a death,” concluding this to be “another proof of the savage insensibility of the Sonorans.” According to Bahr et al. (1974), however, far from being signs of indifference to death, songs play an integral role in the process of divining sickness, driving away harmful “strengths” that sicken the body, and offering an ultimate resort for curing. Similarly, Kozak and Lopez (1999:114–115) discuss modern O’odham song poetry as fitting within Herzog’s (1928) classification of “dreamt mythic song series tradition,” explaining that “song inspiration is divine, a blessing for humans, and songs are a type of sacred liturgy.” The centrality of song in healing throughout history has been cited for other regional Native communities as well as for societies around the world (Gioia 2006). Moreover, although the peace and calm with which sick natives approached death was interpreted by the Jesuits as an animal-like indifference, it may well have been the culturally mandated passivity of the patient in reference to the shaman noted by Bahr et al. (1974), as well as an acceptance of personal responsibility for illness believed to have been induced by moral

transgression. These misinterpretations serve as examples of how Europeans and Native peoples constructed concepts of illness, the patient, and the meaning of suffering that were unique to their separate worldviews.

Despite these widespread misinterpretations and denigrations on the part of the Jesuits, they were far too limited in numbers and power to entirely displace local practitioners. Valdés Aguilar (2009) notes that many categories of Native healers were recorded by the Jesuits, including herbalists, bone setters, bloodletters, cataract removers (performed with agave needles), midwives, singers and prayer givers, dancers, *chupadores*,<sup>6</sup> “snake healers,” and shamans. Quebbeman (1966:20) opines, “The medicine men and the missionary were equally zealous in protecting their spheres of influence.” Such healers were said to have received their “*don*,” or gift of healing, from dreams, transformational life experiences, inheritance, and natural aptitude,<sup>7</sup> and during the early missionization period they tended to be men, although virginal women and those women past menopause could also practice. Pfefferkorn (1949) and Nentvig (1980) both refer to the Indian practitioners as “medicine men,” but both also assert that old Spanish women had set themselves up as the primary herbal doctors of the region. This observation is confirmed by Harris’s (2005) assertion that women tended to be keepers of botanical knowledge in most societies dependent on hunting and gathering or small-scale agriculture. Healers were said to have played multiple societal roles, not only in medicine, but as political advisors to *caciques*, and as leaders and instigators of revolt. Velarde took note of the active presence of both evil and healing *hechiceros* among the O’odham. While stating that the Pimas did not consort with the devil, he observed, “*Hechicerías* are not absent among them, the arts of which are limited to killing someone with herbs or [in] some other manner, or making snow fall when they go to battle with the Apaches or other enemies . . . , making rain and removing clouds, and other things of this nature” (Velarde 1716). He assures that such practitioners and ceremonies are abhorred by most Native peoples, while conceding that others who practice healing acts are revered despite their unsafe and “diabolical” cures.

The maintenance of bodily health among Native societies of the northwestern frontier was deeply intertwined with spirituality and the interconnectedness of all people to each other and their spiritual and physical environments. As mediators of this relationship, medicine people played a central role in Native society, embodying “the most complete understanding of the nature of relationship between humans and the natural entities around them,” according to Cajete (2000:116). This



understanding, derived in large part from the knowledge of medicinal plants, helped to maintain the crucial balance between the individual and his or her relationship to the environment (both physical and spiritual), which served as the basis for health. Bahr et al. (1974) note that in modern times, the shaman continues to play the dual role of health guardian and preserver of O'odham consciousness of their humanity as a Native people. Consumption of traditional Native foods and herbs also persisted during colonization out of both necessity and preference, which had an impact on cultural maintenance as well as overall health standards. Segesser (in Treutlein 1945) noted in his letters that the natives still preferred their own foods to the imported culinary traditions of the Europeans.

Although Jesuit missionary chroniclers denigrated the work of *curanderos* and Native ritual, they were forced at times to acknowledge their skill and even to rely on their knowledge for their own survival. Nentvig and Pfefferkorn regale the reader with heroic tales extolling the skill of these practitioners in addressing ailments and injuries "which would exhaust many a doctor's store of knowledge" (Pfefferkorn 1949:68). Such was the priests' faith in the healers' store of knowledge that some very nontraditional modes of curing were accepted and communicated. Nentvig (1980:31), for example, explains the most effective means of healing a bite from the dreaded *teveco* snake: "The most common and efficacious remedy consists of securing the head of the snake between two sticks, keeping the head in such a position that the snake cannot bite. . . . The victim of the snakebite then bites the snake. At this point something truly remarkable happens. The patient does not swell, but the snake does, monstrously so until it bursts."

The European responsible for best documenting the medical fusion that evolved from the meeting of these two highly disparate healing cultures was the Jesuit doctor Juan de Esteyneffer (born Johannes Steinhoffer). Arriving in Sonora in 1700, Esteyneffer came closer than anyone else to serving as European doctor and pharmacist to the northwest missions (Goodyear 1985:120). He applied European medical theories while simultaneously seeking to make curing practical and attainable for everyone by employing Native remedies and treatments (Anzures y Bolaños, in Esteyneffer 1978). In 1712, Esteyneffer published the *Florilegio Medicinal de Todas las Enfermedades*, which, in the tradition of Jesuit medical-pharmaceutical handbooks from missions around the world, called on three principal points of reference: classical Galenic and Hippocratic medical knowledge, healing properties of the Native flora,



and local expertise suited to the particular ailments of the colonies (Anagnostou 2007). The *Florilegio*—which consisted of three volumes covering medicine, surgery, and pharmacology—joined the ranks of other colonial medical tomes that later played an important role in preserving regional herbal traditions. Esteyneffer’s goal, however, was to use simple prose and straightforward presentation to provide accessible medicinal knowledge to the missions.

According to his biographer, María del Carmen Anzures y Bolaños (in Esteyneffer 1978:18), Esteyneffer’s work embodied “a *mestizaje* of his European knowledge and his knowledge of remedies based on the products of New Spain and the northwest in particular.” The text incorporated 49 Nahuatl words and multiple words in the languages of the O’odham, Ópatas, and Tarahumaras as well as other northern tribes. Esteyneffer introduced 35 new remedies from the Mexican colonies (including classics from central Mexico and Peru, such as ipecac, saffron, feverfew, and tamarind) and many present in the northwest (*epazote*, *jojoba*, *maguey*, *mesquite*, and *estafiate*), alongside traditional European pharmacopeia (chamomile, rosemary, mint, and orange blossoms). Having earlier beseeched Esteyneffer to produce a medical guide, the missionaries and others in the region made wide use of the *Florilegio*—Pfefferkorn (1949) explicitly mentions its relevance—and the compendium was reprinted several times following his death in 1716. So wide was the dispersion of Esteyneffer’s work, in fact, that Kay (1977) has posited present-day commonalities found in the traditional medicinal practices of southwestern communities may be due in large part to the common reading and incorporation of the *Florilegio*.

However, the high levels of mobility among indigenous groups in Sonora both before and after Spanish arrival afforded many other opportunities for melding traditions of spiritual healing and physical curing. These came via long-established trade routes and intermarriage, and later in the missions themselves, as well as among herders out on the range, among mine workers, and on ranches and *haciendas*. Deeds (2003:121) states, “In work situations and chance settings, mission Indians and nonlocal groups like Apaches and Sonoras, mulattos, and *mestizos* came together to share magical remedies for overcoming hardship and curing. Among them were the ingestion of various potions, fasting, elimination of salt from the diet, and the use of herbs and hallucinogens like peyote.” Witchcraft, says Deeds, was employed most commonly for purposes of protection from evil, love magic, and other forms of healing, and the use of herbal remedies in such environments was largely overlooked

as insignificant in northern regions policed by the Inquisition, unless the remedies were used in conjunction with a devil pact or for abortion. Given the difficulty of separating what were considered “folk medicine” and “folk religion” practices, the Inquisition was active in persecuting the use of herbs for purposes deemed illicit in frontier regions including New Mexico (Ebright et al. 2006) and rural Guatemala (Few 2002). The hybrid medical traditions resulting from the process of colonization encompassed this unique blending of cultures from throughout Europe, regions previously missionized by the Jesuits, and disparate peoples of the Mexican colony. Although many scholars call this process “*mestizaje*,” Gonzales (2012:214) cautions that the term, and concept, “essentializes Indigeneity as if it had some hard borders that always stop at a particular place or point in history or a specific body.” She cites scholarly agreement that, alongside traditional agriculture, Mexican traditional medicine is the cultural domain that exhibits the greatest perseverance of Native practices. Bahr et al.’s (1974) landmark work is one more testament to such endurance.

### CONCLUSIONS

Research on human interactions with plants and environment has reached the finding that interdependence with nature over the course of human evolution was central to the construction of ancient worldviews consisting of stories that gave order to our surroundings. “All over the world, small family groups of nomadic hunter-gatherers depended on skills and knowledge that were profoundly local, embedded in the flora, fauna, climate and geology of a region,” state Suzuki and McConnell (1997:2). It is difficult to overestimate the impacts of Spanish colonialism on the way in which peoples of the Americas interacted with their environments, the land, and their physical bodies. Their culinary and medicinal traditions, free movement, and interaction with their natural environments were critically altered. Pfefferkorn (1949) noted the impact of this historical trauma, which he believed partially explained the low birth rate of Native peoples and their inability to properly nourish themselves. As such, Native populations suffered extreme cultural dislocation and crisis upon colonization, but they also clung tightly to those traditions that most defined them as a people, including traditions of foodways and medicine.

On the northern fringe of the colonial empire, this motivation was perhaps fueled and facilitated by the three elements discussed earlier in this article: the Jesuit predilection for openness to new herbs and healing traditions, the remote location and harsh geography of Sonora, and the presence of efficacious and bountiful herbal remedies. Kay (1996) notes that keen observers from the Jesuit, Franciscan, and later secular orders reported the use of a similar set of Native herbs amongst the local populations of Sonora. These plants—*batamote*, *cholla*, *chicura*, *estafiate*, *hediondilla*, *jojoba*, *mesquite*, *nopal*, *sangre de drago*, *sauco*, and *hierba del manzo*, among others—remain in active circulation today among Native and *mestizo* communities of the region. Likewise, Valdés Aguilar (2009) presents a list of 60 herbs mentioned by Jesuit chroniclers on the northern frontier of New Spain, and a high level of overlap exists between this list and a recently compiled list of healing substances employed by a Sonoran elder herbalist (Slattery and Ruíz 2010). A recent Mexican study of herbal practices throughout the country (Lozoya 1990) found that despite the relatively high levels of education and wealth in Sonora (which usually correspond to lower rates of traditional medicine), Sonora maintains higher-than-average usage of traditional practitioners, who in turn employ a higher-than-average ratio of Native to imported herbs (50 percent vs. 33 percent). This modern-day reality likely reflects the unique way in which Sonora was colonized and developed over the centuries following Jesuit influx, its geographical character, and the efficacy of its Native plants. ❖

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#### NOTES

<sup>1</sup> Aguirre was stationed among the Ópatas, but visited the Pimería Alta as Father Visitor, traveling as far north as Bac. Esteyneffer (also in the record as Steineffer) was never stationed in the Pimería Alta, but did visit Kino and traveled with him to Tubutama in 1703. Nentvig was stationed only briefly in the Pimería, at Sáric, in 1751. Following the Pima Revolt in November 1751, he was reassigned to the Ópata missions, and a great deal of his information pertains to that region. Och assisted Father Gaspar Stiger briefly at San Ignacio—probably one or two years—but was reassigned to “Sonora” (Ópata) missions. Pérez de Ribas was never stationed farther north than the Yaquis and had very little information about the Pimas Altos at the time of his writing; any information about Pimas was in reference to Nébomes (Pimas Bajos). Pfefferkorn ministered at Guevavi for two years (1761–1763); then, suffering from malaria, he was reassigned to Cucurpe (an Eudeve community just south of Mission Nuestra Señora de los Dolores). Velarde arrived at Dolores in 1714, where he was stationed for more than 20 years.

<sup>2</sup> See Velarde (1716), among others.

<sup>3</sup> Known also as “bezoar stones,” these consist of a concretion found in the stomach and intestines of ruminants and other animals, and were long believed to have medicinal value.

<sup>4</sup> Upstreaming, or “the direct historical approach,” uses what is known about the present to directly interpret the past. This methodology has been criticized by Hu-DeHart (1984) among others for assuming a static uniformity to historical processes that does not allow ample room for change and mutation.

<sup>5</sup> Bahr et al. (1974) cite chicken pox as an example of wandering sickness, which can affect anyone and is caused by knowable disease agents. This understanding could have changed over time, although it is also possible that the epidemics were understood as wandering sicknesses during Jesuit times.

<sup>6</sup> *Chupadores* were traditional medical practitioners who utilized the act of sucking and suction to expel harmful substances and objects from the bodies of the sick. This could have included tainted blood, evil airs, as well as objects inserted via supernatural forces. Bahr et al. (1974) confirm that both sucking and blowing remain central in O'odham divination ceremonies.

<sup>7</sup> These mediums for receiving the *don* of healing closely resemble those documented during later colonial periods and into modern times (Griffith 2003).

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