

To Warm the Blood, to Warm the Flesh: The Role of the Steambath in Highland Maya (Tzeltal-Tzotzil) Ethnomedicine

KEVIN P. GROARK

University of California, Los Angeles

. . . I have seen that a minor stomach pain or a fleeting temperature are all that they suffer from [in Zinacantán]. The bark of *palo xiote*, taken in decoction, pellitory to refresh the head and honey to soothe the breast are all the drugs they need. This appears to be due to the sweatbath in which they enter periodically and frequently . . .

—Fray José de León y Goicoechea,
Zinacantán, 1797

We always need the *pus* [steambath]. If there were no *pus*, we could not cure ourselves. . . . That's the way it is. We heat the *pus*, it makes steam and warms us, and always cures us—we will always use it in this way. We use the *pus*, medicinal herbs, and shamans [in order to cure ourselves]. This is how we live, how we grow . . .

—Xun López Kalixto, *Chamula, 1992*

These two statements—the first made by a Dominican priest living in the Tzotzil community of Zinacantán in the late eighteenth century, and the second from a contemporary Tzotzil man from Chamula—attest to both the historical and continuing importance of steambathing as a therapeutic strategy among the highland Maya. In this study I present the results of a five-month

investigation into the therapeutic use of the steambath (*pus*) in the Tzeltal Maya-speaking municipality of Santo Tomás Oxchuc, Chiapas, Mexico.¹

In Oxchuc, the steambath is an important therapeutic tool in household-level preventative and curative medicine. The primary function of steambath therapy is to “warm the flesh and the blood,” to expel pathogenic “cold winds” from the body, and to restore the vital “heat” or “warmth” that is necessary for a long and healthy life. Most common health conditions are treated within the family unit in this small mud structure, usually in combination with a wide variety of medicinal herbs and animals. In the course of this project, more than 100 steambath-associated remedies (derived from 63 plants and 7 animals) were identified. These herbal and animal preparations are regularly used in conjunction with the steambath in the treatment of at least 32 discrete health conditions, ranging from mild cases of stomachache and diarrhea to such severe conditions as rheumatism, edema, and madness. The most important use of the steambath, however, is in the treatment of obstetric and gynecological disorders, the promotion of lactation, and the restoration and maintenance of fertility following childbirth.

Despite de León y Goicoechea’s early recognition of the therapeutic role of the steambath among his Tzotzil parishioners, its significance in highland Maya ethnomedicine has been consistently overlooked by contemporary investigators. I suggest that this omission stems from a historic tendency for anthropologists to focus on illnesses of supernatural etiology and associated specialist therapies, neglecting quotidian illness experiences and the preventative, therapeutic, and health maintenance function of lay healing (cf. Finerman 1989; Kleinman 1980). Until recently, ethnographic descriptions of Tzeltal-Tzotzil medical practice have largely followed this pattern, emphasizing illnesses of supernatural origin and complex ritual healing (cf. Fabrega and Silver 1973; Holland 1989 [1963]; Metzger and Williams 1963; see Maffi 1994 and Berlin and Berlin 1996 for notable exceptions). While it is true that serious supernatural (or “personalistic”) illnesses occur with some frequency—and generate a tremendous amount of anxiety and fear—they do not represent the day-to-day illness experiences of most highland Maya. More important, an exclusive focus on supernatural conditions obscures the complex and dynamic empirical tradition of “household” or “domestic” medicine that forms the bedrock of modern Tzeltal and Tzotzil therapeutic practices. Steambathing provides a productive lens through which to view this household-centered

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therapeutic tradition in action. It forms a unique nexus in which hygienic, preventative, and curative therapies merge, united by lay ethnomedical theories of blood and body that stress the importance of maintaining and restoring endogenous warmth.

The following presentation is divided into two parts. In Part 1, I provide an overview of the wider Mesoamerican context in which Tzeltal-Tzotzil therapeutic steambathing must be understood. I begin with a discussion of the distribution of the steambath in the Americas, followed by an overview of archaeological steambaths in southern Mesoamerica, and closing with a diachronic survey of ethnohistoric and ethnographic accounts of steambathing throughout Mesoamerica. Part 2, the heart of the article, is an extended case study of the contemporary steambathing tradition of the Tzeltal and Tzotzil Maya of highland Chiapas, including: (1) a complete description of the material culture of the steambath, associated rituals, and religious associations; (2) a discussion of Tzeltal-Tzotzil medical epistemology and its relation to steambathing, with a revision of highland Maya humoral theory as it applies to the body, pathology, and therapeutic agents; (3) an overview of hygienic, preventative, and curative steambathing; (4) a compendium of health conditions considered amenable to treatment in the steambath; and (5) a pharmacopoeia of more than 100 steambath-associated herbal and animal remedies.

Primary research took place over a four-month period (February–May 1992) in Santo Tomás Oxchuc, a small Tzeltal Maya-speaking community located in the central highlands of Chiapas. The town center (*muk'ul lum*) lies about 50 km from the regional center of San Cristóbal de las Casas, located along a major road that branches off the Pan American Highway and runs out of the highlands to the eastern lowland towns of Ocosingo and Palenque.² Composed of mostly of high mountains, rocky limestone escarpments, and pine-oak-liquidambar forest, the entire municipal territory is located between 1000 and 2000 m above sea level, with a median elevation of 1200 m. As a result, the temperatures tend to be low and the rainfall high for much of the year, particularly at higher elevations. The hamlets located to the north and northeast of the town center lie at a somewhat lower elevation, and are therefore drier and more temperate. Some even enjoy semihot country climates, particularly Mesbil Ja', Koralito, and Tzonte'al Ja' (Gómez Ramírez 1991:7). The present research was conducted largely in the cold country hamlets of Media Luna, Pak'bil Na, Tz'unun, Muk'ul Witz, and

²Tzeltal and Tzotzil words are presented in the practical orthography currently used when writing the two languages. The following equivalencies should be kept in mind: tz = /ç/; x = /š/; j = /h/; ch = /č/. An apostrophe following a consonant indicates glottalization (as in *k'ixin*); when it follows a vowel it indicates a glottal stop /ʔ/. All other letters are pronounced as in Spanish, and all words are accented on the final syllable. Unless otherwise indicated, native language terms presented in the text are in the Oxchuc dialect of Tzeltal Maya.

Oxchuc center. Comparative data were also collected in the Tzotzil hamlet of Laguna Petej in the municipality of San Juan Chamula in April 1993 and July–September 1996.

Oxchuc was chosen as the principal research site based on its reputation as the Tzeltal community with the strongest tradition of therapeutic steambath usage in the highlands. In addition, it has been suggested that Tzeltalan speakers were the bearers of Classic Maya culture in the region, since the aboriginal Tzeltal zone corresponds exactly with the distribution area of Classic Maya sites in southeastern Chiapas (Campbell 1978:9).³ This area is therefore interesting from both an ethnographic and an ethnoarchaeological perspective. A thorough study of contemporary steambath therapy in Oxchuc provides a detailed picture of an unexamined and rapidly disappearing facet of highland Maya ethnomedical practice—one which may have implications for our understanding of prehistoric steambath usage throughout Mesoamerica.

PART 1. Steambathing in Mesoamerica

Distribution of the Sweatbath

Abundant archaeological and ethnohistoric evidence indicates that sweatbathing was almost universally practiced in the Americas from the Bering Coast of Alaska to southern Mesoamerica. The only exceptions in North America appear to be the central and eastern Eskimo, a few groups in the southern Great Basin, and the Yumans (except the Diegueño) and Pimans (Driver and Massey 1957:314). A large gap in the distribution of sweatbaths occurs in the northern half of Mexico, particularly in the Desert and Mexican Oasis areas (Driver and Massey 1957; Beals 1932:133). Steambaths reappear in Central Mexico and continue in an almost unbroken distribution well into Guatemala, extending as far south as El Salvador.⁴

The New World sweatbath can be divided into two distinct types based on mode of heating: (1) the direct fire or dry-heat sweat bath; and (2) the water vapor or steam bath (cf. Driver and Massey 1957; Lopatin 1960; Maressa 1986). The dry heat bath appears to be the earliest form, and was used by the northwestern Alaskan Eskimo, various indigenous groups of northern and southern

³Linguists and archaeologists have determined that Tzeltalan peoples (proto-Tzeltal-Tzotzil) entered Chiapas from the Petén lowlands around 200 A.D., after having migrated out of their homeland in the Guatemalan Highlands (Campbell and Kaufman 1985).

⁴Driver and Massey (1957:314) suggest that this skewed distribution represents a positive correlation between environment and culture—the climate in this region tends to be hot and dry, and many of the local cultures were “among the most impoverished on the continent.” While there may be a general correlation between the lack of steambaths and hot climates, it is not universal. Although no longer present in the Yucatán, steambaths were used there at the time of the Conquest (Barrera Vásquez 1980:651; Houston 1996:136).

California, and the Puebloan peoples of the southwestern United States. This technique is based on the induction of sweating by exposing the body directly to a source of heat (such as fire or heated rocks) inside of an enclosed structure. As a rule, no water is used for ablutions in the dry heat sweat bath.

The vapor or steam bath, on the other hand, is achieved by sprinkling highly heated rocks with water, which evaporates instantly and produces a surge of hot, moist steam. The subject of this research, the highland Maya steambath, represents a further elaboration of the water vapor bath—it is a continuous-burning, or oven-heated, vapor bath, in which the stones are located over a bed of coals in an interior oven. This type is identical with the Finnish *sauna* and Russian *bania*, and allows the bath to be heated to extreme temperatures owing to the continuous heating of the rocks.

The steambath of the highland Maya lies at the extreme southeastern margin of New World steambath distribution, occurring primarily in the mountainous highlands of southeastern Mexico and Guatemala. In a study of domestic compounds in the Chiapas highlands of Mexico, Blake and Blake (1988:41) found contemporary sweatbath distribution to be strongly associated with two factors: environment and traditionalism. Sweatbaths were commonly found in isolated communities located in the rugged highland environment, where rainfall is high and temperatures low; but the frequency declined sharply with lower elevation, increased acculturation, and greater market incorporation. Unfortunately, recent years have seen a rapid decline in steambathing throughout the Maya region. For a number of reasons related to changing attitudes toward indigenous identity and tradition, the hygienic and therapeutic functions of the steambath have been increasingly restricted and its religious significance has all but vanished (Houston 1996:138; Virkki 1962).

In the Chiapas highlands, the steambath was present—to a greater or lesser degree—in most cold-country Tzeltal and Tzotzil communities as recently as fifty years ago. Today this tradition is strongly maintained only in the Tzotzil community of Chamula and the Tzeltal communities of Oxchuc and Chanal. Nash (1970:65) reports that the steambath was used in the hot-country Tzotzil community of Amatenango until the mid-1950s, but from 1958 to 1964 the percentage of houses with steambaths dropped from 52.1 to 41.5. In the following ten years no new steambaths were built, and many of those recorded earlier fell into disuse (Nash 1970). A similar process has taken place in many neighboring Tzeltal and Tzotzil communities in Chiapas. Steambathing still persists in parts of the Tojolobal region, but is now extinct in the center of the municipality of Las Margaritas (Furbee 1986; Estrada Morales and Pérez García 1991). Among the Ch'ol of Yajalon and Palenque the steambath is rarely used, and it is undergoing a similar process of extinction among the Zoques of the municipalities of Tapalapa and Ocoatepec (Estrada Morales and Pérez García 1991).

In Guatemala, steambath use extends throughout the Central Highlands and Chuchumatan Mountains. Among the Mamean (Mam, Ixil, Aguacatepec), Kanhobalan (Kanhobal, Jacalteca, Solomec), and Chuj-speaking Maya of the northwestern highlands, almost every house traditionally has a steambath (Wagley 1969:54). The Quichean-speaking communities (Quiché, Cakchiquel, Tzutujil, Rabinal, Uspantec) of midwestern highland Guatemala are all reported to have used steambaths, in contrast to the eastern highlands, where they are almost universally absent (Virkki 1962:74-77; Tax and Henshaw 1969:81). However, steambaths are reported to occur occasionally along the northern fringes of the eastern highlands among the Kekchí and Pokonchí of Alta Verapaz (Villa Rojas 1969:238; Stoll 1886:162-163).⁵ During the 1918 influenza epidemic, Guatemalan public health workers turned their attention to the steambath as a probable vector of infection, ordering that all of the structures be destroyed (Termer 1957). According to Virkki (1962:81), the practice was later revived in many communities.

Although the use of sweatbaths among Mayan-speaking peoples is currently limited to the highland regions of Chiapas and Guatemala, colonial sources and archaeological evidence demonstrate that the distribution was much wider during the pre-Columbian period—for at least two millennia sweatbaths were found in abundance in both the hot tropical lowlands and cool highlands of southern Mesoamerica. In the following section I examine the archaeological evidence for steambathing in the Maya region.

Archaeological Sweatbaths in Southern Mesoamerica

The first archaeological sweatbaths reported from the Maya region consisted of eight impressive examples identified by Cresson, Mason, and Satterthwaite at the Classic period site of Piedras Negras (Mason 1935; Satterthwaite 1936:62-63; Cresson 1938). Since then, the number of well-attested sweatbaths has increased significantly. We now have examples from both the tropical lowlands and the highlands spanning at least 2,000 years, extending from the Middle Formative period (ca. 600–400 B.C.) to the Late Postclassic/Colonial transition (ca. 1500–1660 A.D.) (see Table 1).

Alcina Franch et al. (1980) suggest that archaeological sweatbaths in the Maya region should be divided into two broad classes: “elite” (urban) and “campesino-style” (rural). These categories crosscut the highland-lowland distinction, and provide a useful framework for examining both the archaeological evidence for, and the social context of, pre-Columbian sweatbathing (for site-by-site overviews, see Alcina Franch et al. [1980]; Alcina Franch [1981]; Taladoire [1981]; Ciudad Ruiz [1984:111-126]; and Girón Méndez [1985]. For a detailed formal taxonomy of pre-Columbian sweatbaths, see Servain [1986]).

⁵Many of the reports cited here (particularly those pertaining to Guatemala) are based on ethnographic observations made before the 1960s—it is likely that current steambath distribution is much reduced owing to acculturative pressures and modernization.

Table 1
Archaeological Steambaths Reported for the Maya Region

PERIOD AND SITE ^a	STEAMBATH TYPE	NUMBER OF EXAMPLES	SOURCE
FORMATIVE			
Dzibilchaltun	Urban-Elite	1	Andrews and Andrews (1980:30)
EARLY CLASSIC			
Chiapa de Corzo	Urban-Elite	3	Lowe and Agrinier (1960:34-35); Mason (1960:9)
Ocozocoautla	Urban-Elite	1	Agrinier (1992:243-245)
CLASSIC			
Cerén	Rural-Campesino	1	Sheets (1992); McKee (1990:Fig. 2)
El Chile (?)	Urban-Elite	1	Pollock (1965:424)
Quiriguá	Urban-Elite	2	Morley (1935:135-136, 141-142, Figs. 30 and 38a)
Tikal (?)	Urban-Elite	2	Ichon (1977:203-205, Fig. 3); Taladoire (1974:265, 1981:161)
Uaxactun (?)	Urban-Elite	1	Smith (1950:20, 30)
Zacualpa (?)	Rural-Campesino?	1	Wauchope (1938:137)
LATE CLASSIC			
Agua Tibia	Rural-Campesino	1	Alcina Franch (1981); Ciudad Ruiz (1984:109-112); Alcina Franch et al. (1980:93-98)
Finca El Paraíso	Urban-Elite	1	Kidder and Shook (1959:Fig. 3)
Los Cerritos-Chijoj	Urban-Elite	1	Girón Méndez (1985:35)
Los Cimientos	Rural-Campesino	2	Rivero Torres (1977, 1987:12, 16, Figs. 6d, 7, 9)
Palenque	Urban-Elite	2+	Ruz Lhuillier (1952:56, Fig. 3, Plate 13); Houston (1996:144)
Piedras Negras	Urban-Elite	8	Satterthwaite (1936:62-63, 73, 1952:56,79, Figs. 31-36)
San Antonio	Urban-Elite	2	Agrinier (1966:29-30, 1969:16, 18-28)
Toniná	Urban-Elite	2	Taladoire (1974:262-263)
POSTCLASSIC			
Chichén Itzá	Urban-Elite	2	Ruppert (1935:Fig. 349, 1952:56, 82-83, Figs. 50-51)
Dzibilchaltun	Urban-Elite	1	Andrews (1975)
Iximche (?)	?	1	Ichon (1977)
LATE POSTCLASSIC			
Cerro Vfbora	Rural-Campesino	1+	Lee and Bryant (1979); Lee Whiting and Bryant (1996:57, 60, Fig. 4)
El Limón	Rural-Campesino	1	Rivero Torres (1990)
Los Cimientos-Chustum	Urban-Elite	1	Ichon (1977:204-206)
Los Encuentros	Rural-Campesino	1+	Lee and Bryant (1977, 1979)
Nueva Independencia	Rural-Campesino	1	Navarrete (1978)
Pueblo Viejo Chichaj	Urban-Elite	1	Ichon (1975:73-79)

Table 1 (Continued)

COLONIAL			
Coapa	Rural-Campesino	83	Lee (1979a,b); Lee and Bryant (1988); Lee Whiting (1996:183, 184)
Coneta	Rural-Campesino	16	Lee and Markman (1977); Lee and Bryant (1988)
UNDATED			
El Almolillo	Urban-Elite (?)	1	Alaminos Arévalo (1990)
Las Margaritas	Urban-Elite (?)	2	L. Lowe (personal communication)

a. Sites with poorly documented or questionable steambaths are followed by a question mark.

“Elite” (Urban) Sweatbaths

Until recently, the archaeological literature on sweatbaths in the Maya region has been dominated by reports of “elite” or “urban” structures found at large tropical lowland centers. These baths occur in the “ceremonial center” at each site (often in close association with temples, royal residences, and platforms), and are usually distinguished by their large size, and fine, solid masonry construction. The earliest securely dated example is a Formative period semioval sweatbath at Dzibilchaltun (Andrews 1975:29, 1981:317-318). “Elite” steambaths are also found at highland sites (above 800 m in elevation) in Chiapas, Guatemala, and El Salvador.

Most “elite” sweatbaths (excepting the Dzibilchaltun and El Paraíso examples) are rectangular structures. They are typically characterized by a reduced entrance, raised lateral benches, drains and ventilation holes, and a large adjoining hearth or firebox (sometimes separated from the bathing area by a masonry screen). Some sweatbaths—most notably the Piedras Negras examples—have a large antechamber removed from the main bathing room which was probably used for undressing or escaping the heat of the bath (cf. Satterthwaite 1952:20). Thompson (1965:353) speculates that the presence of “elite” sweatbaths at Classic period lowland Maya sites derives from a Toltec influence in the region, but their presence in Formative period sites suggests a local trajectory of development among Mayan-speakers.

The location of steambaths in the ceremonial centers of major cities, as well as their grand size and fine construction, suggests that they possessed religious significance and played an important role in the ceremonial lives of the urban elite. Based on ethnographic analogy and new translations of Classic Maya inscriptions, Houston (1996:144) proposes that these sweatbaths may have represented the natal sweatbaths of rulers and members of their immediate family, to which they would return for rites of purification during life crises. Given the universal importance of sweatbathing in pre- and postpartum observances, it is almost certain that sweatbathing was involved in rituals surrounding royal births and postpartum recovery. According to Houston (1996:136), the Maya

glyph transliterated as *u-pibna-il* represents the steambath (Figure 1).⁶ It is interesting to note that this sign occurs primarily in the Cross Group texts at Palenque, associated with descriptions of mythological births.

Beginning in the Classic period, a close spatial and temporal association between ballcourts and large sweatbaths begins to appear at many sites (cf. Talamo 1974, 1981). This “ballcourt-sweatbath dyad” has been recorded at Tikal, Quiriguá, Chichén Itzá, Toniná, Los Cerritos Chijoj, and San Antonio. Agrinier (1969:16) suggests that the physical proximity of sweatbaths and ballcourts indicates a ceremonial connection to the game—possibly playing some purificatory role—and that the unusually large size of the baths suggests that players and officials (as well as rulers and priests, who were presumed to be the principal spectators) took part in sweatbathing either before or after the game. Further investigations are needed to clarify the exact nature of this relationship.

“Campesino” (Rural) Sweatbaths

Non-elite or “campesino-style” sweatbaths (so named for their strong resemblance to contemporary rural sweatbaths) have only recently been identified archaeologically. One of the first discoveries of a rural sweatbath in a pre-Columbian context was made in 1979 at the Late Classic/Early Postclassic settlement of Agua Tibia in the southeastern Guatemalan Highlands (Alcina Franch et al. 1980:93-98; Alcina Franch 1981; Ciudad Ruiz 1984:109-112). This poorly preserved, semisubterranean sweatbath formed part of a Late Classic habitation compound, along with a house and an open ceramic firing pit. The small rectangular structure resembled those currently in use in the region, with a packed-earth floor, walls made of plaster-covered stones, poles, and mud, and a hearth built directly on the floor of the bath near the entrance.⁷

The New World Archaeological Foundation has identified a large number of campesino-style sweatbaths in Chiapas. These sweatbaths are particularly relevant to the present study, as they occur in the ethnohistoric Coxoh Maya region of Chiapas and bridge the transition from the Late Postclassic to the Colonial period. Archaeological projects at two Late Postclassic Coxoh sites, El Limón and Los Encuentros, identified the remains of small circular stone sweatbaths as part of the typical domestic compound (Lee and Bryant 1977; Rivero Torres 1990). Investigations in the nearby Colonial period Coxoh

⁶The *u* in *u-pibna-il* is a third person singular possessive prefix. The Motul Maya dictionary glosses *pib* as a “very hot bath for women.” Other sources suggest it is a subterranean oven used for steaming food or people—a sweatbath. The *na* in *pibna-il* is the word for house, followed by an *-il* suffix attached to nouns inflected for possession (Houston 1996:136).

⁷Interestingly, the investigators reported the presence of large fragments of utilitarian pottery in this burned deposit. Such pottery is often found in the ovens in contemporary steambaths, as it helps the rocks to retain their heat (cf. Rus 1969:44).



a



b

Figure 1. Two *u-pibna-il* (steambath) glyphs from the Cross Group texts at Palenque. *A* comes from the alfarda slab in the Temple of the Foliated Cross (after Robertson 1991:Figure 13c); *B* is from the alfarda slab in the Temple of the Sun (after Schele and Mathews 1979:Plates 271-272).

reducciones of Coapa and Coneta have also revealed the presence of a large number of sweatbaths.⁸

Located directly on the Camino Real, Coapa was founded sometime prior to 1554 and abandoned by about 1660. Of the 336 visible domestic structures at this site, 331 were identified as structures of the lower and middle classes, and 83 of these were sweatbaths. After houses, sweatbaths are the most frequent domestic structures, with a sweatbath to house ratio of 1 to 4 (Lee and Bryant 1988:12). At Coneta, 16 of 87 recorded domestic structures were identified as sweatbaths, for a sweatbath to house ratio of 1 to 5.43 (Lee and Bryant 1988; Lee and Markman 1977). The colonial sweatbaths at Coapa and Coneta closely resemble those at the Late Postclassic site of Los Encuentros—all are round units made of limestone slabs, placed on end, from which wattle-and-daub wall probably curved upward and inward, forming a domed roof (Lee 1979b).⁹

The high sweatbath frequencies recorded at Coneta and Coapa seem remarkable considering that both towns were major colonial communities located on or near the central artery for Spanish ecclesiastical and civil traffic. In spite of this, sweatbaths flourished well into the Colonial period. It is interesting to note that in the seventeenth century, survivors from Coapa blamed the demise of the town on mosquitoes, bats, bad water, and the unhealthy environment in which the town was located (Lee 1979b:20). It is possible that sweatbaths flourished because they provided the Coxoh with a means of coping with the increased morbidity associated with life in these Colonial *reducciones*, which were located on or near swampy lands.¹⁰

Drawing on Gossen and Leventhal's (1993) analysis of ancient Maya religious pluralism, I suggest that we rephrase the elite-urban/campesino-rural contrast in terms of Redfield's Great Tradition and Little Tradition (cf.

⁸The Coxoh are an extinct Mayan-speaking group that lived around the Central Depression of Chiapas at the time of the Conquest. It is thought that they spoke a language belonging to the southeast dialect of Tzeltal (Campbell 1978, 1988), but the exact linguistic affiliation remains problematic (cf. Lee and Bryant 1988:5). Late Classic Coxoh sites were located primarily along large rivers, and they usually occupied the best arable land in the region. Soon after the Conquest, the surviving Coxoh were relocated into seven towns near the Camino Real, which ran through eastern central Chiapas connecting San Cristóbal de las Casas to Guatemala City (Lee 1979a:95, 97).

⁹Located less than 1 km from Coneta, Los Encuentros is thought to have been the original home of the Coxoh Indians resettled at Coneta soon after the Conquest (Lee and Bryant 1977, 1988). The similarities between the Los Encuentros structures and those found at Coneta and Coapa suggest that the steambathing tradition continued into the Colonial period largely undisturbed, despite forced relocation and intense acculturative pressures.

¹⁰However, contemporary house-sweatbath ratios from other regions in Mexico are very similar: in the Totonac region estimates of steambath to house ratios in two communities are 1:3 and 1:5 (Ichon 1973:295), while Redfield (1930:34) reports a 1:4 ratio in the Nahuatl community of Tepoztlán. These data suggest that this may be a typical pattern in some rural settings, where small clusters of three to five houses share a single sweatbath. In Chiapas, each family has its own steambath constructed near the house within the limits of the family compound.

Redfield 1941, 1960). The Great Tradition lies at the urban end of the folk-urban continuum, and consists of state-level ideology, social structure, and religious practice. The Little Tradition, on the other hand, lies at the “folk” extreme and consists of alternate local ideologies and religious practices, often of a decidedly conservative nature. As Borhegyi (1956) has argued, the Little (“folk”) Tradition appears to be a stable belief system that underlies and antedates the Great Tradition of the urban centers. Gossen and Leventhal (1993) point out that, while the lowland regions witnessed the rise of the Classic Maya, the highlands were the hearth of Maya culture, and continue to shelter the majority of Mayan-speaking peoples in Chiapas and Guatemala. Life in these small communities has maintained a basic peasant or folk pattern for 2,000 to 3,000 years, despite the occasional development of state-level superstructures.

Given that the ancient lowland Maya originated from small-scale highland Guatemalan populations that migrated into the Petén region, it seems reasonable to suggest that the great masonry structures of the lowlands represent state-level transformations of the humble highland steambath, associated with elite ideology and ritual (cf. Thompson [1965:353] and Borhegyi [1965:32] on similar points). However—as the archaeology of “rural” steambaths has demonstrated—the folk tradition continued alongside the urban tradition, associated primarily with such concerns as personal hygiene, the maintenance and restoration of health, and childbirth. The contemporary steambath is not a remnant of ancient Maya practices, but a vigorous folk tradition that in all likelihood preceded Maya urbanization. With the arrival of the Spaniards the Great Tradition was rapidly eliminated, while the Little Tradition of rural steambathing continued on largely unaffected, surviving in isolated Indian communities up to the present (Alcina Franch et al. 1980). The continuity in both style and location of domestic sweatbaths in Late Postclassic and Colonial Coxoh sites suggests that an uninterrupted rural sweatbathing tradition persisted in Chiapas from pre-Columbian times well into the Colonial period—if not to the present day.¹¹

The Function of the Steambath: Colonial and Ethnographic Accounts

The earliest descriptions of steambathing are found in the accounts of colonial chroniclers and historians living among the Aztecs of Central Mexico in the years immediately following the Conquest. The steambath (usually referred to by the Nahuatl name *temazcalli*) was unknown in sixteenth-century

¹¹Despite demonstrable regional continuity, all recorded Coxoh sweatbaths were round, unlike the rectangular baths currently used by the Tojolobal, Tzeltal, Tzotzil, and Chuj Maya in the region. However, Virkki (1962) reports the presence of both round and rectangular steambaths in the Quiché region, suggesting the possibility of significant formal variation within a single ethnic group.

Spain, and throughout much of Europe bathing was still viewed as an unhealthy practice. As a result, the colonial Spaniards were intrigued (and often horrified) by the zeal with which the Aztecs engaged in steambathing. This practice impressed the historian Clavijero (1945:349) sufficiently that he characterized the steambath as “one of the most notable peculiarities” of the Central Valley of Mexico. Indeed, throughout Mesoamerica the steambath possessed a triple significance—hygienic, therapeutic, and religious.

Hygienic and Therapeutic Use

From the very beginning, the Spaniards recognized the unparalleled importance of steambathing in the treatment of diverse health conditions. In one of the earliest descriptions of therapeutic steambathing, Fray Bernardino de Sahagún wrote:

[In the sweatbath] the sick there restore their bodies, their nerves. Those who are as if faint with sickness are there calmed, strengthened. They are to drink one or another of the medicines, as has been mentioned. And one who perhaps has tripped and fallen, or who has fallen from a roof terrace; or someone who has mistreated him—his nerves are shattered, he constantly goes paralyzed—there they make him hot. When he has endured the sweat bath, the body, the nerves, are somewhat relaxed. There they manipulate him, they massage him. Once again as [this] is done, he there becomes strong And one who has scabs, [one] whose body is much festered, [one] whose body is not [too] much covered with sores, they there have [such as these] wash. When the humor has come out, then they apply the medicine. And the pustules, their pustules, are there cleansed. The sweatbath is very hot. (Sahagún 1950–1969:Bk. XI, 191)

In a similar passage, Clavijero relates that:

The *temazcalli* has always been used [in the treatment of] many illnesses, especially for fevers caused by some chill. Female Indians customarily use it after childbirth, [as well as] those who have been wounded or bitten by some poisonous animal. It is likewise an efficacious remedy for those who need to expel thick and stubborn humors. . . . When a more copious sweat is needed, the sick person is placed closer to the ceiling [of the steambath], where the vapor is most dense. To this day the *temazcalli* is still so common that there are no Indian villages where many baths of this type are not seen. (Clavijero 1945:351; author’s translation)

In addition to the above-mentioned conditions, steambathing is also reported to have been used to treat various traumas, broken bones, malaria, cough, sore throat, rheumatism, swelling, muscular aches, syphilis, leprosy, chest and back pains, dermatological conditions, ringworm, neck stiffness, and weals raised by flogging, to name but a few (Alcina Franch 1994; Moedano 1986).

To this day, the steambath continues to be used in the treatment of diverse health conditions, especially those resulting from an imbalance of “hot” and “cold” in the body (cf. Ibach 1981). The steambath cures by restoring

“warmth,” thereby eliminating illnesses that can be “sweated out” (Houston 1996:139). Herbal remedies are often administered in conjunction with the steambath, either before entering, during bathing, or immediately after exiting (cf. Alcina Franch 1994; Silva Galeana 1984; Moedano 1986:283-284). While bathing, the sick person is usually accompanied by an assistant who flagellates his body with a bundle of leaves in order to “drive out the illness” and “strengthen the flesh.” Among the Aztecs, the individual who fanned the sick person was always of the opposite sex. The elite are even reported to have had special “fanners,” the majority of whom were dwarfs or hunchbacks (Pihó 1989:217).

While the Spanish clergy appreciated the therapeutic use of the sweatbath, they were horrified by the “abominable custom” of mixed bathing which often accompanied it. An anonymous Spanish annotation to the Codex Tudela (1980:Folio 62-r) reads, “if one was sick he would go to bathe in this oven that had water inside, and it would happen that many men and women would enter this bath, and there inside in the heat—men with women, and women with men, and men with men—would use it illicitly.” Commenting on Aztec steambathing, Diego Durán remarked that, “mingled and naked as they are, there cannot fail to be great affronts and offense to our Lord” (Houston 1996:139).

Alcina Franch (1991) suggests that this “mixed bathing” was actually a fundamental aspect of bathing etiquette among the Aztecs, and represented an ideal of gender complementarity. Durán informs us that bathers always entered the steambath in mixed groups in order to avoid supernatural punishment. This custom was observed in both hygienic and curative bathing, and was “so common in all the land that no one feigned ignorance of it” (Durán 1967:Bk. I, 276). Even after mixed bathing was suppressed, bathers continued to adhere to this practice by bathing with wives or small children of the opposite sex.

Although the Spaniards may not have realized the depth or complexity of this notion of gender dualism, their fears of illicit sexual activity were not wholly unfounded. The steambath is closely associated with sexual activity in many communities, and is often the preferred location for both licit and illicit encounters. This pattern has been reported for the Mixtec (Parsons 1936:Note 40), the Mam (Wagley 1949:35), the Quiché (Carmack 1979:361-367), and the Tzeltal and Tzotzil (Groark 1996:56, Footnote 1). According to J. Rus (personal communication), the Chamula Tzotzil tell a number of hilarious stories about old male curers (*j'ilol*) who prescribe the steambath for their nubile young patients, then take advantage of them as they swoon in the heat. It is even said that you can tell when a woman has lost her attractiveness, because the *j'ilol* no longer insists on accompanying her to the steambath!

Today, as in the past, the most important therapeutic use of the steambath is during childbirth and in the treatment of various obstetric and gynecological disorders (cf. Alcina Franch 1991). Before, during, and after childbirth, a midwife enters the steambath with the parturient and administers a series of massages and herbal remedies to speed delivery and facilitate postpartum recovery. At the time of the Conquest, many Nahuatl groups gave birth in the steambath, but today this practice survives only among certain highland Maya groups in Guatemala, particularly the Quiché (Virkki 1962:79; Cosminsky 1972:307; Girón Méndez 1985:68; Orellana 1987:58). The warmth of the bath is considered essential to the well-being of both mother and child in the period immediately following birth, and an extended postpartum steambathing regimen is still observed in many communities (Cosminsky 1972:311; Lewis 1951:363; Virkki 1962). Sahagún, Durán, and Clavijero provide detailed accounts describing the role of the steambath in Aztec childbirth practices and midwifery (Sahagún 1950–1969:Bk. VI, 155–160; Moedano 1986). Similar data are also recorded for the Zapotec (Córdoba 1578) and the Colonial Mixtec (Herrera 1726).

Religious Dimensions of Steambathing

In the first and only focused ethnographic treatment of Mayan steambathing, Virkki (1962:30) commented, “The indigenous steambath has its ancient mythology, very little of which, unfortunately, is known.” This observation is undeniably true—much has been lost to passing time and acculturative forces—but I suggest it is somewhat overstated. A preliminary survey of the extant historic, mythic, and ethnographic corpus has revealed several important accounts which provide a window into the connotative world of Mesoamerican steambathing.

At the time of the Conquest, hygienic and therapeutic steambathing was intimately associated with certain deities and rituals. The most complete data on the religious dimension of steambathing come from the Florentine Codex. According to Sahagún, the Aztecs believed the steambath to be under the auspices of various avatars of the goddess Teteoinnan, the Mother of the Gods, also referred to as Toci (“Our Grandmother”). In her various aspects, this goddess was referred to as Tlazolteotl (“Filth Eater”), Yoaltícitl (“Goddess of the Night”), Xochiquetzal (“Flower Quetzal”), and Temazcaltoci (“Grandmother of the Steambath”).¹² When a sick person entered the steambath, it was said that he or she was going to see Yoaltícitl, “the healer of the night,” who could “see the secret things [and] mend that which was disturbed in the bodies of men, fortifying all things tender and delicate” (Carrasco 1946:740).

¹²Moedano (1977, 1986) suggests that this deity was widely known among all groups that practiced steambathing. According to Antonio de Herrera, a similar cult also existed among the Mixtecs, where “. . . fiestas were made in honor of the Goddess of the Baths [in which] they sang, and feasted, and danced” (Moedano 1986).

All of these goddesses possessed strong connections to both the earth and moon, and were closely associated with female fertility, pregnancy, childbirth, midwifery, and curing.¹³ According to Sahagún (1950-1969:Bk. I, 15-16), “This Teteo innan the physicians served . . . and the women, midwives, those who administered sedatives at childbirth, those who induced abortions . . . Also those who had the sweat-houses prayed to her. Because of this they set up her image in the front of the sweat-house, and they gave her the name, ‘Grandmother of the Baths’ [Temazcaltoci].”

As mentioned above, the image of Teteoinnan-Toci often adorned the faces of Aztec steambaths, executed in brightly painted stone or plaster. A plate in the Codex Magliabechiano (Nuttal 1903:65) shows a man praying to such an image (Figure 2).¹⁴ An anonymous Colonial-period annotation to this plate reads: “. . . when some sick person goes to the baths, they made offerings . . . and stained [their] body black in veneration of the idol . . . who is one of their principal deities. They carried out other abominable acts in these baths, [with] many naked male and female Indians bathing [together] and committing acts of great depravity and sin inside.”

Missionaries quickly became aware of the complex religious significance attributed to the steambath, and immediate and concerted steps were taken to eliminate these pagan beliefs and practices. The 1546 Código Penal u Ordenanza para el Gobierno de los Indios of Charles V states that: “. . . male or female Indians who are not sick may not bathe themselves in hot baths under penalty of one hundred lashes and two hours tied up [and displayed] in the market” (Moedano 1986:300). While such laws undoubtedly decreased steam-

¹³Teteoinnan and Toci appear to be associated with the moon in her aged aspect, while the closely related goddess Xochiquetzal (“Flower Quetzal”) represents the young, fertile aspect of the moon. According to Nicholson (1971:421), all of the goddesses subsumed under the Teteoinnan Complex are various aspects or avatars of earth-mother deities, and all display close lunar associations (cf. Seler 1902:23; Thompson 1939:129-130). In fact, Thompson (1970:246) argues that Tlazolteotl was derived from a Huastec moon goddess, and that this complex of associations (goddess of the earth and its products, patroness of childbirth, medicine, etc.) is very ancient and was probably widespread throughout the Mayan area during the pre-Classic, but lost ground in most areas to the rival cults of the Young Maize God and Itzamna, the deified manifestation of the Earth Reptile. This may explain the survival in Chiapas of myths linking the steambath to both the earth and moon, as well as its close association with fertility, childbirth, and curing.

¹⁴This plate depicts a rectangular steam room with a flat roof and a fire chamber as an additional construction on one side, much like present-day examples from Central Mexico. Arreola (1920:28-29) describes this plate as follows: “The woman at the left is placing sticks in the fire chamber, and a bundle of wood lies in front of the building. Flames protrude from the door of the fire chamber, while tongues above the roof indicate the vibration of the heat. The man who is to take the sweat bath is at the lower right. The purpose is to cure some disease, for his sickness is indicated by the tear in his eye, and a woman offers him a medicinal drink. Above these two a man offers prayers for the success of the bath, his speech being shown by two scrolls. He addresses himself to the image of a god, which is on the wall of the steam room just above the door.” For a detailed analysis of all known pre-Columbian and Colonial steambath images, see Krumbach (1982). Pího (1989) closes his paper with a smaller selection of images.

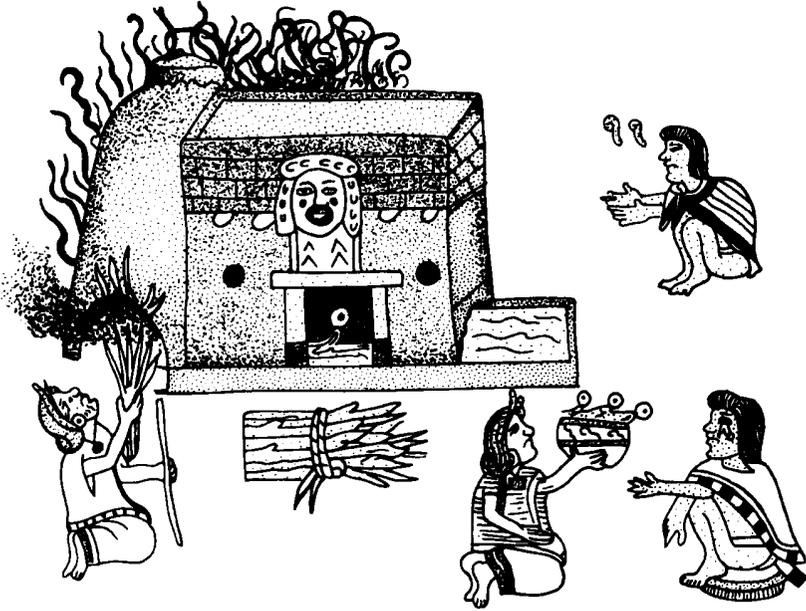


Figure 2. A plate from the Codex Magliabechiano showing an Aztec *temazcal* adorned with the visage of Temazcaltoci, “the Grandmother of the Steambath” (see footnote 14 for a full description of the scene) (after Nuttall 1903:63).

bath-associated public rituals and drove religious beliefs underground, they did not destroy them entirely. In many communities, the painted image of Teteoinnan-Toci has been replaced by a cross of plaster or stone above the entry to the steambath, and to this day bathers often pray for health in front of the family bath (Starr 1901:5; Wagley 1949:23; Silva Galeana 1984:231).¹⁵ As we shall see, the widespread cult of the steambath deity persists to this day in reinterpreted forms. Despite five centuries of Catholicism, the steambath remains a sacred structure.

Throughout Central Mexico, the contemporary steambath is often found to be closely linked to a protective deity or “owner,” usually female, who protects and heals those who come to the bath seeking relief. Despite her

¹⁵Silva Galeana (1984:231) presents a contemporary Nahuatl account in which exhortations are directed toward the steambath before a newborn child is taken inside. The father places incense and candles inside of the bath, then addresses the structure by its “baptismal name,” saying: “Look, José, we have put incense and candles here for you. I beg of you to permit us to bathe this little baby here, that you make him grow well, that Our Father protects him, that he always helps him, that illness never befalls him, that he may live many years and that he is always content. We will all be happy if he lives well.”

benevolence, this guardian is jealous and easily offended, and often punishes bathers with illness if they fail to make appropriate offerings (Moedano 1977, 1986). This belief is widely distributed among contemporary groups that practice steambathing, and appears to derive from the same mytho-religious tradition as the Teteoinnan-Toci beliefs of the Aztecs.¹⁶

In most cases, the steambath deity is portrayed as an old woman, and is often referred to as “mother” or “grandmother” (Moedano 1977:13). However, in two cases this deity is considered to be male: among the Tlapanec, the steambath is associated with a male deity referred to as *Aku* (Schultze-Jena 1938, in Moedano 1977), while the Totonacs consider the male fire god *Taqsjoyut* or *Taqsjoyutchishku* to be the “owner” of the steambath oven (Ichon 1973:151). Ichon reports that the Totonac steambath represents the female earth, with the old fire god *Taqsjoyut* (a local version of the Aztec god *Huehuetéotl*) residing in the oven—the fifth cardinal direction and the “navel of the earth.” Upon entering the steambath, the sick person or the parturient “actually penetrates the womb of the earth mother, and leaves healthy, purified by the fire and water, like a new-born baby” (Ichon 1973:151).¹⁷ Remarkably similar beliefs are held by the modern Tzeltal and Tzotzil Maya, who consider the steambath to be “owned” by either the Earth Lord (a male agricultural deity), or the Holy Earth (a female agricultural/lunar deity). In the Tzotzil town of Chamula, the Sun-Christ deity is said to manifest in the steambath in the form of the fire, and is directly responsible for its curative power.

Reflections of these beliefs can be found in a series of myth fragments analyzed by Moedano (1977) and Vásquez (1981) in which an old woman (usually identified as the Moon) is asphyxiated in the steambath by her children, the young Sun and Venus (or Sun and Moon, depending on the version). Before she dies, or soon after, they inform her of her future role as the deity or protector spirit of the steambath and newborn children. They also tell her of her powers, both beneficial and malevolent, and inform her that the bathers must offer gifts to her if they want to enjoy her protection (Moedano 1977:13).

A related myth from the Trique of San Andrés Chichahuaxtla, Oaxaca, accounts not only for the steambath deity (who is clearly identified as the wife of the Sun, the Moon), but also describes the origin of the structure itself and its association with both illness and curing:

¹⁶Moedano (1977:13) reports beliefs in a “steambath deity” for the following groups: Totonac, Otomi, Nahuatl, Tlapanec, Ixcatec, Mixtec, Trique, Zapotec, Chatino, and even the mestizos of Puebla. Interestingly, the idea of an owner or deity of the steambath appears to be universal in both Europe and the Americas. In Russia, the owner of the bath is known as *Bannik*, and bathers burn offerings of salt to him in the hearth upon first heating the bath, then before and after subsequent bathings (Lopatin 1960:981).

¹⁷Although *Taqsjoyut* (the “owner of the steambath’s oven”) is male, the entire structure has strong female associations consistent with the female steambath deity reported for other groups.

One day the Sun had an argument with his wife [the Moon], sending her to live on the earth. Upon seeing the helpless state of their mother, the Moon's daughters—the stars—agreed to make a house for her to live in. This house was the *temazcal*, and she lives in it up to the present time. In order to keep her happy, men have to give her food to eat. When she becomes hungry, she shows it by sending illness to a member of the family, who will recover only when the goddess is given something to eat. . . . (Moedano 1977:24; author's translation)

Comparable data for the Maya region are not as abundant as those for Central Mexico. The best extant data on mythical associations of the sweatbath come from the Tzutujil communities along the shore of Lake Atitlán. In a remarkably intact cosmogonic myth recorded in Santiago Atitlán by Tarn and Prechtel (1986:174, 178), the steambath plays a central role in the succession of Suns and world creations, effectively ushering in the Third World:

At the very beginning [of the First World] the being [called] Tetixel was the world. Nothing had blossomed yet. When he died, he split in two and became male and female. [He divided himself into] Tetixel the male sun, and Tetiej the female moon. [This was the beginning of the Second World.] When a god dies, he becomes the sun and moon, just as, when we die, we become stars. That first [primordial] Tetixel was the First World; the second Tetixel became the First Sun, and his Tetiej was the Moon, and they were the Second World.

The First Sun and First Moon had three [male] children. The two elder children killed their “grandmother” [who is actually their mother, the moon] by stifling her to death inside of a sweatbath, where she remains as a *quisquil* plant [*chayote*; *Sechium edule* (Jacq.) Sw.].¹⁸ From [this chayote plant] stems the original *siljutay* (lineage) tendrill which would bear all creation. [After killing their mother] the two boys became the Second Sun and Venus. The third [and youngest] son became the Lord of the Hill(s). There are also two sisters: one became the moon, and the second, the moon's star. [Thus the Third World begins.]

Throughout Mesoamerica, the woman killed in the steambath is identified as the moon, and is typically spoken of as an aged woman, closely associated with purification, curing, and birth—and paradoxically, linked to destruction,

¹⁸The most frequent assertion in Santiago Atitlán is that the moon is a grandmother, an old woman with flowing white hair (hence, the reference to the elder sons killing “their grandmother” in the sweatbath). The moon (“Our Grandmother”) is also referred to as *Iyom pak'lom*, the midwife (*iyom*) and generative force in the universe (Tarn and Prechtel 1986:174-175). This myth sequence is an abbreviated version of what Tarn and Prechtel refer to as the Mesoamerican “Core Myth.” The full myth continues on to recount the birth and ascension of the Third Sun (our sun), who is Jesucristo, and the creation of the current Fourth World. This Core Myth, of which there are many variants, details the childhood of the Sun and Venus (or Sun and Moon in many versions), emphasizing the asphyxiation of the mother in the steambath and the children's eventual ascension into the heavens. This appears to be the most common surviving episode in a longer pan-Mesoamerican sequence of stories which details the succession of Suns or world creations. Two additional fragmentary Tzutujil versions can be found in DeLeón (1977:174; in Girón Méndez 1985:63-64) and Shaw (1971:239). Also, a number of interesting versions from outside of the Maya area have been analyzed by Moedano (1977) and Vásquez (1981).

illness, and death. She enters the sweatbath as a barren old woman, and through her death she is transformed into a progenetrix figure. Here we have a complex image: steambath-as-tomb/steambath-as-womb. The steambath is created as the instrument of the mother's death, and through her death becomes the "ancestral womb from which all of humanity is born" and the source of subsequent creation (Tarn and Prechtel 1990:78). In addition to the manifest uterine association of the steambath, the chayote plant presents us with an interesting visual metaphor. Chayote (*Sechium edule*) is a cucurbit with a globular fruit that grows along the ground on a winding vine or tendril. Its very shape suggests a uterus attached to an umbilical cord.¹⁹ Furthermore, in Atiteco thought, tendrils of plants, umbilical cords, and the "roots" of lineage are seen as conceptually equivalent (Tarn and Prechtel 1986:175).²⁰

Ethnographic parallels to these mythic associations can be found in Wagley's account of the Chuj community of San Juan Chimaltenango, where the placenta of the newborn is buried beneath the floor of the sweatbath, tying the individual to the natal bath:

The afterbirth should be buried in the floor of the family sweatbath. . . . There is a belief that the afterbirth continues to be part of the individual. According to Diego Martín, "it is part of a man, and it will [continue to] be for his entire life." Each individual should therefore know where his afterbirth was buried. Later, one may be sick and the soothsayer's divinations may indicate that the treatment calls for prayers to be offered in front of the steamhouse in which one was "first bathed" and in which "the afterbirth lives." Thus, when a birth occurs far from home—on a trading trip or at a coffee plantation—the afterbirth should be cooked in a clay vessel until it is dry. In this form, it may be carried back to the village and buried in the family sweatbath. "The sweatbath will be happy again," said Diego Martín, "when the family returns with a new child and when there are fires in it once again." Even after a person is an adult, he or she should return to this same bath from time to time to burn a candle and to pray. According to several of my informants, most people forget to observe this ritual until a crisis forces them to remember. (Wagley 1949:23, 1957:129-130)²¹

¹⁹This sexual association is not lost on contemporary Maya—among the Tzotzil of Chamula, the word for chayote (*ch'um te'*) is a favorite euphemism for "vagina" in male joking speech (because of the strange, labia-like, inverted base of the vegetable).

²⁰This link between wombs/placentas and lineage is emphasized by Tarn and Prechtel (1986:175-176) in their description of a sacred "María cloth" used by Tzutujil priest-shamans in prepartum rituals. Ribbons at the base of the cloth represent "umbilical cords and the tendrils of plants and lineage," and beneath them are two small, round, hard cloth bags referred to as "divine twins," one of whom is male, the other female. They are the original placentas, the original "seeds" of the human race. They are called "the root of children" (*rukux ac'al*), "the first midwives" (*nawal taciyoma*), and "the first birthmakers" (*nawal tacalaniem*). The whole object represents a womb. One of their informants stated that each object in the world has a different father, but an umbilical links them to a single large womb-root, which he also called a tree root, in reference to the "roots" of lineage.

²¹Wagley (1957:129) mentions that the practice of burying the afterbirth in the sweatbath was almost forgotten by the mid 1950s, suggesting that its ideological basis was being lost in these communities.

Since the sweatbath in which an individual's placenta is buried belongs to the house of his father, the individual is considered to be bound to the patrilineal descent group through this ritual. Before a person can construct his own family sweatbath, he must break the tie that connects him to his natal bath by means of a ceremony (Wagley 1957:130). Just as the cutting of the umbilical cord severs the child from the sustenance of his mother, so the breaking of this tie severs the connection between the individual and the steambath-womb. Virkki (1962:79) reports similar practices among the Quiché, who believe that an "invisible cord" connects the individual to the placenta. It is interesting to note that many Central Mexican groups, including the Classical Aztecs, refer to the sweatbath's firebox as the "navel" or "umbilical" of the bath (cf. Ichon 1973:151; Silva Galeana 1984:229). As Houston (1996:139) has pointed out, this coupling of the afterbirth and umbilicus with a sense of "home" and "rootedness" is widespread in Mesoamerica (cf. Ichon 1973:151).

The sweatbath is more than just a "home" for the placenta—the structure itself is a man-made womb. Among the Quiché of Rio Hondo San Marcos, most mothers still give birth inside of the sweatbath. They say that the child should be born in the bath so it "won't suffer from the change in environment" when entering the cold world from the warmth of the body (Girón Méndez 1985:68; for similar information, see Cosminsky 1972:307; Orellana 1987:58; Virkki 1962:79). In a very real sense, the sweatbath is an extension of the womb, and continues to nurture and protect the body throughout life.

In the highlands of Chiapas and Guatemala, steambaths are metaphorically associated with caves and the generative powers residing in the interior of the earth.²² Caves represent entrances into the underworld domain of the "dueños," earth deities responsible for agricultural growth and fertility. In the Huastec region of Mexico, Stresser-Péan (1952) recorded a very old and unusually intact Mayan myth which describes the source of the yearly agricultural cycle and its connection to caves and the underworld. The myth is set inside of mountains, which the Huastec think of as hollow and regard as the homes of the lightning gods. Inside, the lightning gods are served by a cadre of divinized ancestors called *mamlab*. These young "godlings" are miniature replicas of the great god of lightning, who is married to the goddess of the earth. Armed with machetes and axes, the *mamlab* are the sources of lightning and thunder. They make great noise with their thunderous voices as they brandish their lightning weapons and fight among themselves. Hearing the calls of their female consorts—the frog goddesses who summon the rains of warm season—the *mamlab* drive the female clouds toward the mountain, where they will be fertilized by the male lightning gods. The mountain caves now become

²²Two small caves near the hamlet of Laguna Petej in Chamula are referred to as "steambath cave" (*pus ch'en* and *pus ch'entik*). One is said to have been used as a steambath by the people of previous creations, while the second represents an underworld steambath (located in the belly of a turtle) that all souls must pass through after death, burning away their sins in the searing heat.

the scenes of nightly orgies and parties during which the lightning gods and the clouds, as well as the frogs and the *mamlab*, copulate wildly. Upon leaving the cave, the clouds are pregnant with rain.

The *mamlab*, debilitated and weakened by sexual excess, float out of the caves on rivers toward the eastern ocean, where they turn into *ocel*: degenerate, old, decrepit gods. They are now associated with vegetation and wild animals, and rest on certain plants whose leaves retain rain water. They continue dancing and singing, beating out rhythm on the bloated bellies of drowned beasts floating on the waters. In an inversion of their previous association with life-giving rains and sexual intercourse, they now bring only a variety of diseases. Eventually they are carried out to sea, where they swoon in a deep sleep of drunkenness, from which they are reborn as the *mamlab*, the young godlings of thunder and lightning.²³

Myths found among contemporary Maya in southern Mexico and Guatemala show striking similarities to this Huastec myth. In highland Chiapas and Guatemala, the ancient lightning/rain gods (usually referred to in the literature as *chacs*) have been replaced by the gods of mountains (earth lords, *dueños*, and “angels”) who exercise dominion over fertility, rain, and the products of the earth (cf. Mendelson 1967; Thompson 1970:267-270). In highland Chiapas, caves are seen as portals into the underworld. They are the houses of the Earth Lord, the master of wind, water, thunder, and rain. He lives in a cave with his virginal daughters, who spend their time fluffing cotton, which will be transformed into rain clouds by the fertilizing lightning bolt of Anjel. Guarding the entrance to the Earth Lord’s cave is a toad, who is variously described as his musician, wife, or shaman. The rain-laden clouds then issue forth from the mouths of caves, beginning the rainy season and bringing life to the land (Morris 1987:105-119).

Although the overt cyclicity of the Huastec myth is not emphasized in Tzotzil accounts, the theme is the same: the seasonal restoration of the earth’s fertility is made possible through the supernatural union of fire and water—an event that takes place every year at the beginning of the rainy season, in the depths of hollow mountains and caves. Steambaths and caves are linked, both literally and figuratively, to the generative powers of the earth. In addition to their manifest physical similarities, steambaths and caves are functionally equivalent in their ability to generate life-giving clouds which nourish body and field. This metaphorical connection (steambath-as-cave) has deep resonance for the highland Maya, deriving from an analogy between female reproduction and the annual agricultural cycle—both of which are processes of cyclical regeneration (cf. Furbee [1986] for a similar argument based on Tojolobal data).

²³This synoptic account is based on summaries provided by Mendelson (1967:406-408) and Furbee (1986:104-105).

As mentioned in both the Huastec and the Tzotzil accounts, rain originates not from the sky, but from within the earth. Rain clouds grow in the hearts of hollow mountains, then issue forth, pregnant with rain, from the mouths of caves. These rains replenish the exhausted fields, ensuring that they will be productive and that the crops will be healthy. In a similar manner, the woman enters the steambath after birth, exhausted and barren, and the warm vapor clouds of the steambath—produced through the union of water and fire—nourish and replenish her body, renewing fertility and bringing forth milk. All of the elements which the Maya perceive as critical to the cycle of agricultural productivity are reproduced in microcosm within the steambath, and are directed toward the restoration and fortification of the female body.

The constellation of associations I have been discussing (steambath-as-womb, steambath-as-tomb/instrument of death, steambath-as-cave, and steambath and sex/fertility/conception) are all represented in a rich corpus of beliefs and myths associated with the complex San Martín-Mam (Maximón) deity in the Tzutujil community of Santiago Atitlán (cf. Tarn and Prechtel 1986, 1990; Tarn 1991). As in Chiapas, each aspect of the earth has a *dueño*, or owner. San Martín is the chief *dueño* in Santiago Atitlán—an earth-deity responsible for rain and the growth of crops. In a pattern typical of Mesoamerican deities, San Martín is understood to have three aspects: young, mature, and old.²⁴

Mam (or Maximón), the “Old God,” represents both the young and aged aspect of San Martín, and is the principal transformative power within Atiteco conceptions of cyclicity.²⁵ He is the lord of earth and fire, and is associated with dry and warm things, particularly the sun of the dry season. During the dry season, Mam preserves rainwater underground, allowing the people to plant their crops. During the wet season (which is controlled by the Martines, the mature aspect of the deity), Mam is said to “go to sleep” in his underground “sleeping place” (*warabal*). The food crops grow throughout the wet season, until Mam, awakened from his sleep, begins the dry season and the time of harvest. Tarn (1991) suggests that Mam is the local incarnation of the cave-dwelling *mamlab* described by Stresser-Péan for the Huastec, embodying associations with both birth (planting) and death (harvesting).

Significantly, Mam is closely associated with the steambath. His “sleeping place” is described as an underworld steambath where he lives with a harem

²⁴Tarn and Prechtel (1986, 1990) emphasize the importance of a tripartite vision of human life in Atiteco thought, within which maturity (fertility) is stressed, contrasting with immaturity (highly sexual but sterile, socially disoriented, and disorganized) and old age (powerful, but asexual and barren). The Mam is associated primarily with the immature and aged aspects of San Martín and embodies the aforementioned qualities. This tendency to separate a single deity into several aspects or avatars based on sex and age is widespread in Mesoamerican thought (cf. Mendelson 1967; Nicholson 1971).

²⁵Lothrop (1929:20) proposed that the name Maximón be translated as “the great lord (or grandfather) who is bound” (< *mam*, ‘grandfather’ + *xmon*, ‘bound’). Tarn rejects this etymology, stating that Atitecos derive the name from Mam Shimón, “Old God Simon” (1991:97)

of hypersexual women, and in myths he is often portrayed as standing on the roof of a steambath while performing his magical feats. Tarn and Prechtel (1986:Note 14) report that before being moved to *cofradía* Santa Cruz, the disarticulated wooden Mam figure “lived” in a small cave referred to as a sweatbath, high in the wall of the church. The cave displayed a carving of Mam’s face, and had a hole that was said to lead underground through which his washing water was poured. These images are evocative of the Tzeltal-Tzotzil Earth Lord living in his underworld cave with his virginal daughters, guarding the rain clouds of the wet season.

In addition to having dominion over sexual affairs and love magic, Mam is responsible for fertility and the continuity of lineage, and is closely associated with childbirth and childhood health. Just as he causes crops to grow, “separating the fruit from the stem,” he also causes babies to mature. Mam forms children in the “night and darkness” of the womb, his heat cooking them into existence and facilitating their birth. Atitecos suggest that the state of the unborn child in the mother’s womb is analogous to that of Mam during the wet season, asleep in his steambath—the warmth of the steambath, the womb, and Mam are all essential to the forming of a child.

During childbirth (and in cases of childhood illness) Mam is received as a guardian figure in the center of the house with incense and candles. The quality of the reception and duration of the offerings determine the ease of birth. During delivery Mam acts as the “road-opener” (*c’amal be*), parting the bones of the pelvis to allow the child passage. After birth the mother enters the steambath to regain lost warmth. Interestingly, the old woman who entered the steambath and was stifled to death in the previously cited Atiteco myth is Francisca Batz’bal (associated with the aged Moon), the mother/wife of the old Mam. Commenting on a similar myth fragment, a Tzutujil narrator remarked, “Today, when the women enter the *temazcal*, they remember their grandmother, a poor woman who entered [the bath] one day and died there” (Girón Méndez 1985:64). A strong equation between the steambath-womb and the cave-sleeping place of the Mam is apparent, each possessing both life and death aspects.

In addition to presiding over the beginnings of life, Mam also receives the recently deceased in his “sleeping place.” Upon dying, those people who failed to pay for their sins are bound like prisoners, or tied up like loads of firewood, then taken by Mam to his steambath, where their sins are burned away. It is there in the steambath, during the dark of night, that Mam works as “captain, jailer, guard, nocturnal elder, advocate, protector, and strict judge of the souls” (Tarn and Prechtel 1990:79). This idea finds parallels in Chamula, where a small rock-shelter known as “steambath cave” (*pus ch’en*) is said to represent an underworld sweatbath where the sins of the dead are baked away before judgment. The steambath is seen to function simultaneously as a place

of purification as well as punishment, where badness (either sin or sickness) is steamed and sweated out of the body.

The preceding comparative discussion of steambathing has ranged widely, drawing freely from historical, archaeological, and ethnographic data. We have seen that the steambath possessed hygienic, therapeutic, and religious significance throughout Mesoamerica at the time of the Spanish Conquest. It was closely associated with female reproductive functions, and was therefore equated with a womb or place of origin. The wide distribution and homogeneity of steambath use patterns and symbolic associations further suggests that we are dealing with a very ancient, pan-Mesoamerican complex of practices and beliefs.

In addition to its functional characteristics, the steambath implicitly integrates a unique combination of images, concepts, and themes that have persisted through time across a very wide geographic area. As we have seen, the steambath is connected to a (usually female) progenetrix figure who is associated with fertility, health, and birth, but, paradoxically, is also responsible for barrenness, sickness, and death. The steambath itself shares in this ambiguity, and is variously depicted as a cosmic womb, an instrument of death, a cave, or an underworld oven. Houston (1996:146) has argued that certain salient structures can act as enculturative agents, their shape and function “coupling events and beings of the distant past with actions carried out in the present.” This idea is echoed in Chamula, where the steambath is often referred to as a *senyail*, a trace from a previous creation, a reminder of the things that came before. The steambath acts as a pole of attraction—a focal structure—around which these half-remembered metaphors and images coalesce, imbuing current practices with deep connotative associations.

In Part 2, I present an extended case study of contemporary steambathing practices in the Tzeltal Maya community of Oxchuc, in highland Chiapas, Mexico. As we shall see, Tzeltal-Tzotzil steambath therapy clearly derives from the wider pan-Mesoamerican context described above, but it also reflects at least two millennia of local development among Mayan-speakers. I begin with a description of the material culture of the steambath, moving on to a discussion of dedication rituals and religious associations. Next, I present an overview of highland Maya ethnophysiology, grounding contemporary steambathing practices in local understandings of the body and its functioning in health and illness. Three primary uses are explored: hygienic-preventative bathing, curative bathing, and the female-centered preventative bathing regimen. The study concludes with a discussion of health conditions treated in the steambath, and an extensive pharmacopoeia of steambath-associated remedies.

PART 2. The Therapeutic Steambath (*Pus*) of Oxchuc

In Oxchuc, most families have a steambath (*pus*) built close to the house, usually facing the patio clearing. The traditional steambath is a small, rectangular, flat-roofed, pole and mud structure with a beehive-shaped rock and mud oven protruding from the back wall. The body of the steambath consists of a post-and-beam framework lashed together with vines, then covered over with a thick layer of insulating mud plaster. Enclosing the steambath and protecting it from the elements is a freestanding rain shelter with a peaked thatch roof, “the house of the steambath” (*snail pus*). Despite its small size (2.30 m wide x 2.70 m deep x 1.20 m high), the steambath is surprisingly spacious and accommodates two or three adults and several children comfortably (Figure 3). Although most steambaths are independent structures, some are built against an exterior house wall with the door opening directly into the house, thereby allowing the bath to be used as a small dormitory. In other cases, the steambath is built into a niche excavated into a sloping hillside near the house.

Oxchuqueros have elaborated upon this basic model to create a plethora of steambaths that combine traditional and modern materials in new and innovative ways. Many new steambath types have developed over the years, built of everything from adobe to mass-produced cement blocks. A short walk down the main street in Oxchuc reveals the variety of materials employed: there are brick steambaths with corrugated tin or asbestos sheet roofs, steambaths made of gray cement blocks, wood plank siding, or adobe blocks, and of course, the traditional steambath made of poles, rock, and mud. These different types vary as greatly in cost as they do in aesthetic impact, reflecting both the social and economic status of the owners. In the town center, the more expensive brick and cement block steambaths are owned by upwardly mobile Oxchuqueros. In the surrounding communities, however, steambaths tend to be mud and pole or wood plank structures with thatch roofs (Figures 4, 5, and 6).

Crawling inside of a steambath is like entering a large rectangular bread oven or kiln. The soot-covered mud walls of the interior are dimly illuminated by the glow of oak coals and a small candle. Built into the back wall of the bath is a large, roughly fashioned, semicircular rock oven referred to as “the steambath’s fart” (*tzis pus*). Inside of this oven, a makeshift metal stand supports a pile of limestone cobbles (*jij ton*) which is continuously heated over a bed of coals. A discarded metal corn grinder or large pottery sherds are often added to the rock pile in order to help retain heat (Figure 7).

The unclothed bathers sit on a raised plank floor and bathe with a zacate “broom” (*mes*). This broom or scourge is usually a simple bundle of bound zacate blades (or a leafy tree branch), which is dipped into a container of hot water and slapped repeatedly against the body in order to increase body temperature and promote sweating. The highland Maya steambath is a classic

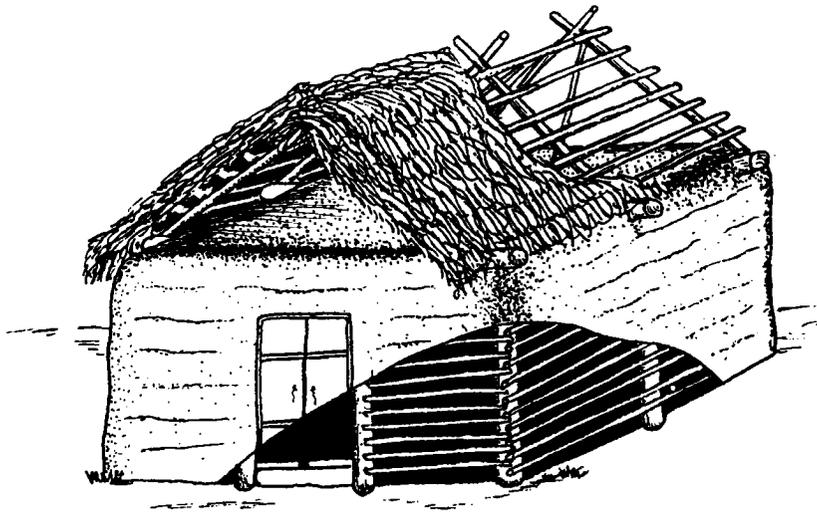


Figure 3. Cutaway view of traditional Oxchuc wattle-and-daub steambath
(© 1997 by K. P. Groark).

water vapor sweatbath (or steambath), in which prodigious clouds of steaming vapor are produced by throwing water directly onto heated rocks. The bathers relax in the wet heat of the bath, which can reach temperatures of 170°–195°F, for up to an hour. Interestingly, the Tzeltal and Tzotzil name for the steambath, *pus*, appears to be an onomatopoeia derived from the hissing sound made by the water as it is converted into steam.²⁶

Although the highland Maya are avid steambathers, there appear to be subtle penitentiary undertones to the experience, and they regard the steambath and its use with a degree of ambivalence. In both Oxchuc and the neighboring Tzeltal community of Tenejapa, bathers are said to “submit” (*-a’i*) to the smoke and steam of the bath. The steambath is sometimes used as a sort of jail to confine people suffering from madness (*chawoj*), and all adult Mayan women are familiar with the extended period of steambath confinement that follows childbirth. In fact, the Tzotzil of Chamula and Zinacantán claim that a dream about steambathing presages impending imprisonment, and jokingly refer to the tiny jail cell of the *cabildo* as a steambath, saying that someone who is being thrown in jail is “taking a steambath.”

²⁶In fact, Tzotzil possesses a number of onomatopoeic verb forms related to *pus* (“steambath”), including: *puset* (“it is steaming hot”); *puslajet* (“it is hissing” [such as gas escaping from slaughtered pig’s or cow’s stomach]); *púslíj* (“it is hissing suddenly”); and *pústepúste* (“it is hissing in several places”) (Laughlin 1975:292). The onomatopoeic basis of these sound-symbolic “affect verbs,” as well as the term “*pus*” (which could be glossed as “hissss!”), is readily apparent (cf. Maffi 1990 for a detailed analysis of Tzeltal affect verbs).

Architecture and Construction of a Traditional Steambath

After the family house has been built, the next addition to the domestic compound is usually the steambath. The construction process takes four or five days and requires the labor of three or four men. Since the steambath is a mud structure, it is important that it be built during the dry season, before the arrival of the wet season rains (see Table 2 for species used as construction materials).

Table 2
Steambath and Rain Shelter Architectural Elements
and Species Used in Construction

ARCHITECTURAL ELEMENT	SPECIES USED
STEAMBATH	
1. "primary and secondary support posts" (<i>yuyal</i>)	<i>Morus celtidifolia</i> (<i>tsaj lum</i>) <i>Pinus</i> spp. (<i>taj</i>) or <i>Abies guatemalensis</i> (<i>taj</i>) <i>Quercus candicans</i> (<i>k'an tulan</i>) <i>Quercus</i> sp. (<i>jij te'</i>)
2. "wattle" or "siding poles" (<i>xulal</i>)	<i>Cleyera theaeoides</i> or <i>Trophis</i> sp. (<i>ixim te'</i>) <i>Cornus excelsa</i> or <i>Acalypha</i> sp. (<i>sijban te'</i>) <i>Lippia</i> sp. (<i>pixko nich wamal</i>) <i>Quercus</i> sp. (<i>jij te'</i>)
3. "horizontal roof supports" (<i>spoyin te'al</i>)	<i>Cleyera theaeoides</i> or <i>Trophis</i> sp. (<i>ixim te'</i>) <i>Pinus</i> spp. (<i>taj</i>)
4. "major roof tie beams" (<i>stz'am te'al</i>)	See #3
5. "minor roof cross poles" (<i>spamul te'al</i>)	See #2
6. "lashing vines" (<i>ak'</i>)	<i>Gaudichaudia albida</i> (<i>ak'</i>) <i>Passiflora membranacea</i> (<i>ak'</i>) <i>Smilax subpubescens</i> (<i>ak'</i>)
7. "door" (<i>ti'pus</i>)	<i>Pinus</i> spp. or <i>Abies guatemalensis</i> (<i>taj</i>)
8. "raised plank floor" (<i>sch'ujt'te'al pus</i>)	<i>Pinus</i> spp. (<i>k'an taj, mokox taj, tem taj</i>)
9. "support poles for plank floor" (<i>stz'am jol te'al te sch'ujt'te'al pus</i>)	See #1
RAIN SHELTER	
10. "primary support posts" (<i>yuyal snail pus</i>)	See #1
11. "horizontal roof supports" (<i>spoyin te'al snail pus</i>)	See #3
12. "horizontal tie beams" (<i>stz'am te'al snail pus</i>)	See #3
13. "rafters (principal and secondary)" (<i>sch'ujt'k'al</i>)	See #2
14. "roof siding poles" (<i>xulal snail pus</i>)	See #2
15. "roof crown poles" (<i>stenil sjol te puse</i>)	See #3

DAY 1: After a suitable location has been found, the ground is leveled and prepared for construction. The locations of the corner poles are determined, and the diagonal distances between them are measured to ensure that the structure will come out a true rectangle. Next, the poles that will serve as the primary and secondary support posts (*yuyal*) are collected and the bark is removed. The



Figure 4. Traditional wattle-and-daub steambath with thatch rain shelter, Tz'unun, Oxchuc. This form has become increasingly rare in recent years (© 1997 by K. P. Groark).



Figure 5. Plank steambath with flat mud roof, Tz'unun, Oxchuc. Note the firewood stored against the structure for the evening bath (© 1997 by K. P. Groark).



Figure 6. Modern brick-and-cement steam bath with corrugated tin rain shelter, Oxchuc center (© 1997 by K. P. Groark).

corner posts are set to a depth of 50–75 cm, while the posts which frame the door and the oven are sunk to a depth of only 20–30 cm. After all six posts are in place, a notch is cut into the end of each corner pole to carry the two horizontal roof supports. Then the top of each pole is whittled down to a uniform level. With the erection of the walls, the first day's work comes to an end.

DAY 2: The second day is occupied solely with the application of the wattle poles (*xulal*). These long, thin siding poles are applied horizontally to the outside of each side wall, spaced 15–20 cm apart, working from the top down. Once the outside row has been completed, another layer of poles is applied to the inside of each wall, creating a hollow space between the interior and exterior rows of wattle. This space is later filled with mud and rock to insulate the steam bath. After the two side walls are finished, the siding poles are applied to the front and back. The process is the same, except that an opening must be left in the center of the front and rear walls for the door and oven. The siding begins at the top with one or two poles that run across the entire face or back of the structure, with all following rows being applied to the right and left sides of the door and oven opening. This lengthy and slow process takes most of the day. By the time it is completed, afternoon has arrived and work stops.

DAY 3: The third day consists of beginning the flat roof (*spamul*), then applying mud plaster to the walls of the structure. First, the horizontal roof supports (*sпойin te'al*) are seated in the notches in the side walls, and lashed in place



Figure 7. Interior view of a brick steambath, facing the oven. Note the raised plank floor, the bathing scourge (*mes*), and the metal corn grinder placed among the limestone cobbles in the oven (© 1997 by K. P. Groark).

with vine. Then the major roof tie beams (*stz'am te'al*) are positioned above the support pole. One pole is placed horizontally at the front of the *pus*, one in the middle, and another at the rear. Each pole is lashed firmly to the horizontal roof support.

After these poles are in place, the mud plaster is mixed for the walls of the steambath. A load of mud is brought in and mixed with several burlap bags of pine needles. This adobe-like mixture is then slapped against the post-and-beam framework. All open spaces between the wattle are carefully filled in, and the outer shell is smoothed over with wet hands. Sometimes, the owner will place a wasp (*xux*) and a bumblebee (*jonon*) within the mud walls of the bath to ensure that it burns hot and “stings” or “bites” (*-ti'van*) the bathers.²⁷ The roof is left unfinished so that the builders can stand in the middle while plastering the interior of the structure.

²⁷Although the use of these stinging insects and chiles is described as an attempt to transfer their “sting” or “fieriness” to the steambath, there appear to be widespread and very old symbolic connections between stinging insects, chile smoke, and steambaths. Thompson (1970:359) records an unattributed Mayan myth in which the Moon attempts to kill her sons by locking them in a steambath filled with burning chile smoke. It should also be noted that in the aforementioned Central Mexican myths analyzed by Moedano (1977), an attack by stinging insects forces the old woman to seek relief in the steambath, where she is stifled to death by her children (for similar accounts, see Dyk [1959:10-16] and DeCicco and Horcasitas [1962]).

DAY 4: On the fourth day, the body of the steambath is usually completed. First, the roof is finished. The small minor roof cross-poles (*spanul te'al*) are positioned in between the three major roof tie beams (*stz'am te'al*). They are not lashed in place, but are held in position by the tie beams and the thick layer of mud which will be placed on top of them.

Before covering the roof in mud, the oven and door are constructed. At the rear of the bath, flat limestone rocks are carefully piled on top of one another in a mud mortar until a semicircular, beehive-shaped rock oven has been formed. This oven opens into the steambath, and extends out from the rear wall like a tail, measuring approximately 1 m long x 1 m wide x 1 m high. The oven narrows near the top and is capped by a large, flat, limestone slab. It is important that the interior dimensions of the oven be sufficiently large, for a small oven will never become hot enough to produce steam.

Next, the door is constructed. Two pieces of pine, which have already been planed down into planks, are cut to fit the opening. At the top and bottom of one side of each plank, cylindrical nipples (*yat sti'pus*) are carved and placed into sockets in the door frame. The door of a traditional steambath is constructed so that it opens in the middle, swinging outward. More commonly, doors are made by binding two planks together with another piece of wood. This single-hinged door is then attached to the left door frame post with hinges of metal or tire rubber.

After the door and oven have been completed, the roof is covered over with a thick layer of mud, and the raised plank floor (*sch'ujt'te'al pus*) and its support poles (*stz'am jol te'al te sch'ujt'te'al pus*) are placed inside. With this, the construction of the steambath proper is completed. On the fifth day, the rain shelter is constructed and the "first warming" ceremony is held.

DAY 5: As with the body of the bath, the first step in the construction of the "house of the steambath" (*snail pus*) is the placement of the four corner support posts (*yuyal snail pus*). These large posts are sunk into the ground just in front of the corner posts of the *pus*. After they have been leveled, a notch is cut into the top ends and the roof support beams (*sпойin te'al snail pus*) are lashed into position. It is important that these roof support beams overhang the corner posts, as these extensions form the seat for the major rafters.

Next, the horizontal tie beams (*stz'am te'al snail pus*) are laid across the front and rear ends of the roof support beams. By lashing these poles firmly to the roof support poles, the walls are prevented from splaying out under the weight of the roof. These two poles are often placed directly on the upper margin of the front and rear lip of the *pus*.

The rafters (*sch'ujt'k'al*) are now positioned. At the front, middle, and rear of the *pus*, poles are raised to form an A-frame roof with an angle of 40° to 45°. These six poles have notches cut in their bases and rest on the horizontal roof support poles. At the top, these poles cross to form a small bed for the

crown pole (*stenil sjol te puse*). The crown pole is then seated and lashed into place against the three major rafters. Two support rafters are then added to each side. The base of each pole is positioned at the base of the middle rafter, running diagonally up to the peaks of either the front or rear rafters. These cross-rafters increase the structural integrity of the roof and prevent it from flexing in strong winds. Next, the siding poles (*xulal snail pus*) are applied to the roof. Nine rows are lashed into place on each side, and then the thatch is tied into place.

The construction of a traditional thatch roof is a slow process. First, each handful of zacate thatch is separated into two smaller bundles. Then, starting at the third siding pole from the bottom and working across, the thatch is woven into place with vine. A row of thatching is applied to every third siding pole, beginning with the seventh, proceeding to the fourth, then to the first. Each layer of thatch overlaps the row below it, creating a thick, watertight roof. Once both sides have been covered in thatch, the crown of the roof is covered.

First, two brushy tails (*stzuk'*) are tied to each end of the crown pole. Then a thick layer of thatch is placed sideways over the entire length of the crown pole. Next, two poles are laid parallel to the crown pole on both sides of the roof. These poles hold down the ends of the loose thatch, forming a cap of zacate which is simply bent over the crown pole of the roof and held in place by the poles. The ends of these two poles are then lashed to the first or second siding pole. With this, the construction of the *pus* is finished. All that remains is the all-important “first-warming ceremony” which will be performed in the evening, just after the sun has set.

“Asking Pardon of the Earth”: The First-Warming Ceremony

The highland Maya regard the steambath and its use with a degree of ambivalence. While they recognize and value its role in renewing physical health and preventing and curing illness, they are also acutely aware of its potential to do physical and/or psychic harm to the bathers. Like all recently finished structures, the new steambath is viewed as a dangerously precultural force possessed of the unpredictable wildness of the forest. The souls of the building materials are angry at being cut, and the entire structure is still the property of the Earth Lord and the Holy Earth, who own all natural products. As one Tzotzil man told me, “The steambath cures, but only after we’ve given gifts to the earth. We have to be careful when the steambath is new, because we haven’t yet asked permission [to build and use it]. This is why sickness comes to the steambath. . . .”

The Earth Lord (*yajwal banamil* [Tzotzil], *yajwal lum* [Tzeltal]) is one of the few deities of obvious pre-Columbian origin in the pantheon of the

contemporary highland Maya. Despite his indigenous pedigree, nowadays he takes the form of a greedy, fat *ladino* (non-Indian) who lives inside of hollow mountains with his virginal daughters. The Earth Lord owns all of the water holes upon which life depends, the storm clouds and rain that nourish the cornfields, and all products of the earth—including the wood, rock, mud, and water used in the construction of domestic structures (cf. Vogt 1969:302-303). Despite the central role he plays in the agricultural cycle and the productivity of the land—or perhaps because of it—the Earth Lord is regarded with a deep ambivalence born of fear. While he provides the food, water, and raw materials necessary for civilized human life, he does not give them freely. He demands respect, the offering of proper words, and the presentation of “gifts” in payment for the natural products that have been taken from him. The Earth Lord is especially feared for his tendency to steal the souls of those who have failed to make offerings to him, imprisoning them as slaves in his underworld domain “until the iron *huaraches* he gives them wear out!” (Vogt 1976:57).²⁸

In many communities, particularly Chamula, the Earth Lord is closely associated with the Holy Earth (*ch'ul banamil*), a female agricultural deity linked to the moon. In the Tzotzil community of Chenalhó, the Earth Lord is described as a subordinate of the Holy Earth, who is regarded as the supreme agricultural deity. Like the Earth Lord, the Holy Earth possesses an ambiguous nature, often “punishing” those who fail to show her proper respect by inflicting illness upon them. Whereas the Earth Lord is associated primarily with caves and the dark interior of the earth, the Holy Earth appears to control the earth’s surface. She owns the land itself and must bear the burdens of human life (e.g., structures, waste, crops, people) upon her very body.

In order to render the steambath safe for bathing, a ceremony must be held in order to compensate the Earth Lord for incursions into, and utilization of materials from, his domain. The purpose of this ceremony is to “purchase” (*-man*) the structure from the Earth Lord and Holy Earth, to placate the souls of the building materials, and to imbue the steambath with an innate soul (*ch'ulelal*).²⁹ If these ritual observances are not performed, the bath will not heat properly, and the Earth Lord, Holy Earth, and the construction materials

²⁸The Earth Lord is best understood as a superordinate deity, which is often fragmented into any number of secondary “owners” or subdeities, usually called “angels” (*anjeletik*). These angels are specialized owners of particular localities or things, and like the Earth Lord, are often associated with lightning (which is also called Anjel). These various earth lords are thought of alternately, or simultaneously, as a totality, or as parts of a totality (therefore singular or plural) depending on the context. This confusing Earth Lord Complex, which incorporates the Holy Earth in extension, may reflect the strong tendency in Mesoamerican thought to identify several aspects of each deity, ascribing to each special characteristics (cf. Mendelson 1967; Nicholson 1971).

²⁹A variant of this “christening” or “warming” ceremony final step in the construction of any significant domestic structure (cf. Vogt 1969:461-465). In recognition of the primary function of such rituals, Vogt (1976:56-58) refers to these domestic dedication ceremonies as “rituals of repayment.”

will persecute the bathers by inflicting illnesses upon them. However, once the Earth Lord has accepted his gifts, a safe space is created within the steam-bath—a space free of illness and accidents.

I was able to record various “first-warming ceremonies” in both the Tzeltal community of Oxchuc and the Tzotzil community of Chamula. While they are remarkably similar in their general features, the Oxchuc ritual appears to be undergoing a gradual process of fragmentation and general disorganization, reflecting the erosion of the traditional religious beliefs that provide its rationale and meaning. In Chamula these same beliefs are vigorously maintained, and as a result, the Chamula “first-warming” ceremony exhibits a much higher degree of structural and semantic coherence than the Oxchuc examples.

The First-Warming Ceremony in Chamula

In the evening, after the construction of the steambath and the rain shelter has been completed, the first-warming ceremony takes place. The owner of the new bath places candles, flowers, and incense in the steambath, then enters with a black range rooster. He removes the middle plank from the raised floor, digs a small hole into the earth in the center of the bath, then cuts the head off of the rooster and drains its blood into this hole. By sacrificing the soul of a rooster and burying its blood in the earth, an offering is made to the Earth Lord/Holy Earth in order to “purchase” the steambath and protect the bathers from illness. This sacrificial rooster takes the place of a human victim, and in this capacity is referred to as a “replacement” or “substitute” (*k'exolil*).³⁰ The offering of the rooster's blood satisfies the Earth Lord's hunger (or according to some consultants, the Holy Earth) and discourages him from inflicting illnesses upon the bathers or stealing their souls. In the following narrative, one Chamula man describes his motivation for performing the first-warming ceremony:

Our Father in Heaven visits his blessing (*sbendisyon*), his goodness (*slekilal*) upon the *pus*, and we cure ourselves with it. But we have to pay attention when the *pus* is new. Well, once the *pus* is finished, we kill a rooster inside. We do this for the *pus*, so that it won't do anything to us, so the earth won't punish us, so we won't become ill. The rooster is alive when we break its neck. We cut off its head, and drain its blood into a hole in the center of the *pus*. Its blood stays in the earth, and is buried with the rooster's head. Because the earth has its “owner” (*yajwal*), we give it a little bit of the rooster. But the rooster is really for the “punisher” (*li j'utilanvanej*), which is like a sort of demon (*pukuj*) or a witch. We give the rooster to the demon so he won't punish us. The rooster is our “replacement”—the one who torments (*ti buch'u ta x'ilbajinvan*), the demon, receives it. The rooster is his food—with it he is content and won't torment us.

³⁰Vogt (1976) points out that the rooster is the only bipedal domesticate, and thus is an acceptable human substitute. While this alone is not convincing, the Earth Lord is usually satisfied with the sacrifice of the rooster, and will not seek a human soul. Anderson (1975:127) reports that black roosters and turkeys are also sacrificed during house construction in Chamula.

To the earth, to the Earth Lord, we beg pardon, we beg permission. We give gifts of candles and incense to the earth so that it will defend us. This way the demon can't punish us—the earth will protect us. But we don't just pray to the earth—we also pray to Our Father in Heaven. This is how we make a good agreement with both the earth and the sky, the Earth Lord and Our Father in Heaven. Since the strength of Our Father is in the *pus*, the Earth Lord and Our Father say to one another, “the demon cannot molest them, he cannot bother them.”³¹ The earth gives a little of its favor, as we say. That is why we give the flowers. We leave the gifts here on the earth, but Our Father receives our attention in Heaven. Thus the pardon is given, as we say. So this is how the prayers for the *pus* go, which we say to the earth:

<i>ch'ul banamil, ch'ul vinajel</i>	Holy earth, holy sky
<i>ch'ul ach'pus, ch'ul ach'k'ok'</i>	Holy new steambath, holy new fire
<i>ta xi'atinkutik, ta xitzebinkutik</i>	We bathe, we wash
<i>pere mu chopluk chava'i</i>	But don't feel bad
<i>mu yan sbuk xava'i</i>	Don't feel hurt
<i>ti k'alal li ta xi'atin</i>	When we wash here
<i>ta xkak'kutik jk'a'epalkutik</i>	When we give our rubbish
<i>ta xkak'kutik kik'obalkutik</i>	When we give our filth
<i>ta xi'atinkutik ta yutil</i>	We bathe inside
<i>taj ch'ul k'ok'e</i>	That holy fire
<i>taj ch'ul iskrivanoote</i>	You are that holy scribe
<i>pasun perton</i>	Forgive us
<i>juteb kich'ojkutik tal</i>	We have only brought you a little
<i>tzakojkutik tal</i>	We have only carried you a little
<i>li jnichimkutik</i>	Of our flowers
<i>li jkantelakutik. . .</i>	Of our candles. . .

After the offering has been made and the prayers spoken, the new fire is kindled in the steambath and the rooster is prepared as the evening meal.³² The wife prepares a broth from the sacrificed fowl and sets aside a portion containing no chile or salt. The family then cooks and eats the meat, carefully saving all of the bones. After the meal, the head of the house gathers together the bones, the unsalted broth, and thirteen dried red chiles, and enters the heated bath.

Once inside, he makes a series of offerings in the form of a quincunx—a rectangular representation of the Maya universe. First, he pours a bit of

³¹Anderson (1975) reports that in Chamula, after a house has been properly warmed, supernatural lizards (*okotz*) perch on the roof, “blocking the road of evil [sickness].” This is similar to the pact made between the Earth Lord and Our Father in Heaven, who work together to guard the steambath and bathers from the *pukuj*, the “demon” or “evil.”

³²In the neighboring Tzotzil community of Chenalhó, it is also believed that only old men should light the first fire, whether it be the first fire in a steambath, or the first lighting of a hearth in a new house: “If the owner of a house lights his own fire, his span of life [*ora*] will be shortened. An old man or an old woman must light it. It cannot be lighted (*sic*) by a young person. If our parent[s] are living it is they who will come [for that purpose]” (Guiteras-Holmes 1961:218). This practice appears to be grounded in gender-based ontological assumptions which attribute greater “heat” to men, particularly old men—women, who possess a colder nature, would draw warmth away from the hearth or fire, thereby preventing it from burning well.

chicken broth at the base of each of the corner posts and the center of the steambath, then repeats the action with a small chunk of meat. The chicken broth and meat mixture is placed below each of the corner poles as an offering to the souls of the organic materials used in the construction of the steambath. If this part of the ceremony is neglected, the wood and thatch will punish the bathers with minor illnesses such as headaches and dizziness. In the neighboring Tzotzil community of Chenalhó, it is believed that the souls of the trees felled for use in the structure go to heaven and complain to God if this ceremony is not performed. God then sends illnesses as a punishment to the owners of the structure (Guiteras-Holmes 1961).³³

Next, the rooster's bones and the dried chiles are placed on the hot rocks—"the place where the fire burns" (also referred to as "the penis of the steambath"). These "hot" substances are given to the oven in order to "feed the steambath" and impart the burning quality of the chiles to the rocks. Interestingly, the chiles are said to be the "very blood of Our Father [the Sun-Christ deity]," given to the fire (which is the heart of the Sun) in order to "impart more strength to the bath." The owner then leaves the steambath and seals the door tightly, trapping the burning chile smoke inside.

After an hour or so, the owner returns and opens the door to air out any remaining smoke. Although it was never articulated explicitly, there seems to be a general feeling that the steambath actually absorbs the burning smoke from the bones and peppers, augmenting its ability to "burn good and hot." Once the air inside is clear, the bathers enter the steambath. Only men enter the first time, as the bath is still considered unpredictable and dangerous. The rocks have never been heated before, and might explode when water is thrown on them. Before bathing begins, three cups of unsalted rooster broth are thrown onto the hot rocks to "feed" the bath itself. Women enter the second time the bath is heated. Only after the third or fourth heating are children allowed inside. With this, the ceremony is concluded, and the steambath is rendered safe for bathing. These ritual measures have "left the earth free, left the earth unoccupied." The Earth Lord and the Holy Earth have their gifts and give permission for the family to use the structure, withholding illnesses and giving the steambath the power to cure.

Occasionally, someone will build a steambath and neglect to perform the warming ceremony. After several days, the bathers become ill. The Earth Lord may stop up their ears, deplete their energy, steal their souls, or affect their heads, causing a chronic dizziness and "drunkenness" known as "the insanity of the steambath":

³³It is said that the posts, the thatch, the vine used as lashing, the rocks, and the adobe all punish the bather with mild but annoying illnesses if they are not "fed." The more serious conditions (insanity, soul loss, edema, etc.) are usually sent by the Earth Lord or (according to some consultants) the Holy Earth.

If the earth is “bad”—if there is an Earth Lord, or if a “demon’s path” (*sbe pukuj*) runs nearby—the heat will make us sick. We enter the *pus*, but our heart begins to pound—soon our eyes are closed, the earth grows dark, and our ears are covered over [loss of consciousness]. This is because the earth is bad—it is the “punisher” (*ti j’utilanvanej*), the demon, that we encounter. It is because of this—because the Earth Lord doesn’t want to give permission, doesn’t want us to come and build a *pus*—that we become sick. This is how sickness enters the *pus*. If the earth doesn’t watch over you, it won’t help you when the demon comes.

If such problems persist, a special ceremony is held to ask the Earth Lord for permission to use the steambath. A curer places three white candles, four cream candles, and an *incensario* with copal resin incense inside of the bath. The three white candles are burnt for Our Lord in Heaven (*yajwal ta vinajel*), and the four cream-colored tallow candles are burnt for the Earth Lord (*yajwal banamil*). While the candles and incense are burning, the curer begins a lengthy prayer to these deities of earth and sky, in which he asks permission to use the bath:

<i>ch’ul banamil, ch’ul vinajel</i>	Holy Earth, holy Sky
<i>pasbunkutik perton</i>	Grant us pardon
<i>pasbunkutik lisensya</i>	Grant us license
<i>jech li’oy ti jpuskutike</i>	Indeed, here is our steambath
<i>li’oy ti kak’ojkutik</i>	Here is that which we have given
<i>ta li’ti xi’atinkutik</i>	Here we bathe
<i>pere jech komem</i>	But thus it has remained
<i>jech itajem</i>	As it was before
<i>ti vo’ne, ma’uk ta jpaskutik</i>	Before, we failed to do it
<i>ja’no’ox ti mu jnakutik smelol</i>	It is just that we did not know the proper way
<i>mu jnakutik mi oy yajwal ti</i>	We didn’t know if the holy
<i>ch’ul osil li’e</i>	ground here had its owner
<i>ti ch’ul banamil li’e</i>	The holy earth here
<i>mi xa ch’ul abolaj</i>	Will you already do the holy favor?
<i>jech k’u yepal chajk’opon</i>	This much I pray to you
<i>kich’oj tael amoton</i>	I have brought your gifts
<i>kich’oj tael anichim</i>	I have brought your flowers
<i>kich’oj tael akantela</i>	I have brought your candles
<i>Mi xa’abolaj</i>	Will you do the favor?
<i>xavich’bun</i>	Will you receive them from me?
<i>xachanbun</i>	Will you teach me?
<i>ta avok</i>	At your feet
<i>ta ak’ok’ . . .</i>	At your fire. . .

Following the prayer, a rooster is killed and the ceremony described earlier is performed. If the “gifts” brought into the steambath are accepted by the Earth Lord, he will give permission to bathe, allowing the people to occupy the land and protecting them from illness. With this, the steambath is rendered safe for bathing and begins to cure, “causing the illness to pass.”

*First-Warming Ceremonies In Oxchuc:
A Tradition in Dissolution*

Oxchuc provides an example of the first-warming ceremony undergoing a gradual process of dissolution. The form of the ceremony has been preserved in a non-cohesive, fragmented form, and the rationale behind it is all but lost. In Oxchuc, the warming ceremony described above has broken down into three separate and interchangeable ceremonies. They serve to warm the steambath and ensure that it burns hot, and to “feed” the soul of the structure, thereby rendering it safe for bathing. If this ceremony fails to be effective, a second ceremony is performed to “reheat” the bath.

At around six o'clock in the evening on the final day of construction, while the walls are still moist, an old man or woman enters the steambath. He is the first person to enter and is charged with the task of building the first fire and “warming” the bath. One hour before the ceremony, he builds a fire of oak logs (*jij te'*) and allows the rocks to heat. Once the rocks are sufficiently hot, he enters with a rooster (*tat mut*) and a bowl of corn gruel mixed with eggs and ground chiles (*wolol ich*). The old man throws the hot gruel onto the rocks, bathing the rooster in the steam with the zacate scourge. After several minutes he lets the rooster go free, and the rest of the family enters the *pus* to take an hour-long steambath.

A second variation on this ceremony is performed as follows: After the steambath has been heated, the head of the house obtains a range rooster. While standing outside of the bath, he cuts off the rooster's head and drains its blood into a small container. The family then enters and throws the blood on the hot rocks. The blood is followed by several cups of water, and the family bathes in the vapors for one hour. After the bath, the wife scalds the bird with boiling water to remove the feathers, quarters it, and prepares it as the evening meal. If no rooster can be obtained for the warming ceremony, the owner purchases 1 kg of beef, which his wife prepares as a broth. The head of the house takes the first bowl of broth and throws it onto the rocks, bathing in the vapors. Afterward, the family eats the remaining stew.

When asked why these “warming” rituals are so important, Oxchuqueros often reply that when people build houses and steambaths, the Holy Earth (*ch'ul lum k'inäl*) becomes angry: “She is just like a woman burdened under a load of firewood—she tires of the strain.” Sometimes when a man is building a new structure, the Holy Earth will come to him in a dream, saying: “Why have you come to burden me with this load! You know that this burden is not for a little while, not for a day! I am going to have to support this great weight forever, and you have given me nothing in return!” (Gómez Ramírez 1991:226). Some consultants attribute these same qualities to the Earth Lord.

The Holy Earth/Earth Lord demands a sacrifice for this new burden, usually a decapitated range rooster. As in Chamula, this sacrificial rooster is referred to

as the “substitute” or “replacement” (*jelolil*) of a human being. If the man does not perform the proper ceremony, the Holy Earth will let loose illnesses upon the bathers.³⁴ This explains the ritual bathing of the rooster described above. Since no blood sacrifice is made in this version of the warming ceremony, the Earth Lord/Holy Earth attempts to strike the first bather with a serious illness as a punishment for their neglect. In Oxchuc, the principal illness “given” by the steambath and/or Earth Lord/Holy Earth is “the insanity or dizziness of the steambath” (*chawoj yu’un pus*), a complex illness category in which the victim cannot see properly, experiences dizziness, falls down frequently, and shows symptoms similar to schizophrenia (cf. Shepard 1992). By being bathed in the steambath and then released, the rooster becomes the first bather and “carries away” the illness that the Earth Lord/Holy Earth would otherwise have inflicted upon one of the human bathers.³⁵

If the steambath is to burn hot and be useful in therapeutic contexts, the owner must also purchase the cooperation of the bath itself. This is accomplished by “feeding” the soul of the steambath with *atole*, dried chiles, and the meat of domestic animals (particularly beef). If the bath is not fed in this way—or if it is unsatisfied with its gifts—it will never become hot enough to bathe in.

Sometimes this “first-warming” ceremony fails and the steambath refuses to heat properly. In such cases the steambath must be “reheated” with a second ceremony. Once the head of the house is convinced that the first ceremony has failed, he goes out in search of two wasps (*xux*) and two bumblebees (*jonon*). The warming ceremony is repeated, and the insects are buried in matched pairs in the earth on both sides of the oven. This is a final attempt to impart the stinging, burning qualities inherent in wasps and bumblebees to the oven, thus creating a steambath which burns hot enough to create thick steam clouds. As mentioned earlier, stinging insects are sometimes plastered into the mud walls during construction.

³⁴Some consultants substitute the Earth Lord (*yajwal lum*) for the Holy Earth when talking about the “owner” of the steambath and the recipient of these warming rituals. In Oxchuc, it was most common for people to avoid both deities altogether, explaining the rationale for the “warming” ritual solely in terms of satisfying the soul of the steambath. This latter phenomenon is probably due to the large number of Evangelical Protestant converts in Oxchuc (who profess not to believe in the Holy Earth or the Earth Lord), as well as an aggressive program of re-Catholicization. As mentioned, the Earth Lord and the Holy Earth are often conflated and spoken of interchangeably, although it is generally acknowledged that the Earth Lord is subordinate to the Holy Earth. This confusion probably stems from the fact that both deities are associated with agricultural productivity, the control of rain, fertility, and the products of the land.

³⁵Similar practices have been reported from contemporary Nahuatl-speaking groups, where a dog was traditionally bathed in the steambath before people entered: “. . . a long time ago when they were going to use the *temazcal* for the first time, before a person entered they put a dog inside. And it was said that, in case something dangerous was found in the bath, it would strike the dog, who would then carry it away. With this, the badness would not strike the people, and nothing would happen to them. . . .” (Silva Galeana 1984:229; author’s translation)

Each of these three distinct ceremonies can be identified in Chamula ritual presented above—but in a unified, structurally integrated form. This suggests that what we see in Oxchuc is a fragmented version of a larger, more complex original ceremony. When viewed in this context, the “first-warming” ceremony as practiced in Chamula takes on particular significance, providing the most complete and internally cohesive example of a “first-warming” ceremony for a steambath.

This secularization of steambathing, and the concomitant fragmentation of religious associations, appears to be a general trend linked to increasing religious conversion and changing attitudes toward traditionalism. Despite the erosion of the mytho-religious significance of steambathing, its therapeutic value remains undiminished. In the following section I provide a general overview of Tzeltal-Tzotzil ethnoanatomy and ethnophysiology, focusing on the local “hot-cold” model of the body and its relationship to steambathing.

An Overview of Highland Maya Medical Epistemology

Highland Maya ethnophysiological precepts form the model which governs all therapeutic practices, both preventative and curative. This overview contextualizes steambathing within a particular model of the human body and its functioning, both in health and illness—a perspective that is essential for understanding the therapeutic rationales upon which hygienic, preventative, and curative steambathing rest.

Like many indigenous groups in Mesoamerica, the highland Maya are often said to possess a “humoral” model of the body (cf. Currier [1966]; Foster [1953, 1978, 1979, 1994]; and López Austin [1988] for classic descriptions of humoral theory). Traditional “New World” humoral theory holds that a healthy body is characterized by a slightly warm thermal equilibrium. Physical and mental health result from a dynamic balance between hot and cold fluctuations, while illness is caused by a preponderance or deficiency of either cold or heat. Exposure to certain thermal insults often precipitates this imbalance, which may develop into a pathological condition if equilibrium is not restored through appropriate therapy. Most organic products, foods, illnesses, and remedies are integrated into this system and considered to be either “hot” or “cold.”³⁶ In therapeutic contexts, a principle of humoral opposition (which states that a “cold” illness requires a “hot” treatment, and vice versa) is usually followed in order to achieve balance.

As Maffi (1994:202-211) has pointed out, the highland Maya conceptualization of the body and its processes differs from this traditional model in several important respects. The Tzeltal-Tzotzil model is centered on the maintenance of vital warmth, a pervasive quality that infuses blood, flesh, and soul.

³⁶Throughout this study, “hot” and “cold” occur in quotes when referring to humoral or metaphorical qualities. When referring to actual temperature states, they occur without quotes.

This warmth bias appears to be much stronger than described for most New World “humoral” systems, and therapeutic measures usually focus on the *com-plete* expulsion of cold, with no attempt to balance the two. Maffi has provided the most complete description of this pervasive warmth bias, and the following discussion derives largely from her work.³⁷

Blood, Flesh, and Vital Warmth

The Central Chiapas Plateau ranges in elevation from 1100 m to 2500 m and is often cloaked in misty fog or soaked by chilling rains. In this environment, “warmth” and “coldness” exist as highly charged symbolic polarities—the former embodying health, power, vitality, fertility, and life; the latter suggesting illness, weakness, barrenness, and death.

Physical health is based on the quality or “strength” (*’ip*) of the blood, which is phrased in terms of this idiom of warmth (*k’ixin*) and cold (*sikil*). The heart (*ot’ani*) plays a critical role in maintaining an appropriate level of warmth in the blood. In the Tzotzil township of Chenalhó, it is said that the heart is the “mother of the blood,” and that the blood is warm because there is “fire” in the heart (Guiteras-Holmes 1961:213-214). A Tzotzil man from Chamula described this relationship of the heart, blood, and vital warmth as follows:

The heart creates warmth inside of us, inside of our bodies. Our heart is called “the mother of our flesh” (*sme’jbe*k’taltik) because it makes us strong, because it makes us live. But the warmth is also created in our heads. Our head and our heart are companions—they work together. First the blood passes through the heart, then it goes to our head. We think in both our heart and head, and this warms the blood.

The role of the heart in circulation is clearly recognized, and the heart organ is conceived of as the primary source of heat in the body, which manifests in the blood. In fact, the Chamula Tzotzil say that the Sun gave his heart to humankind in the form of fire, so that they could warm their bodies and cook their food (cf. Maffi [1994:193-196] for a comprehensive discussion of the role of “heart” in Tenejapa Tzeltal ethnophysiology).³⁸

³⁷For similar observations on the warmth bias in Maya ethnophysiology, see Gossen (1974a,b) on the Tzotzil; Groark (1992, 1996) and Stross (1977) on the Tzeltal; Neuenswander and Souder (1977) and Tedlock (1987) on the Quiché; and White (1979) on the Tojolobal.

³⁸Although it has been stated that the highland Maya do not recognize internal organs as being functionally interrelated (cf. Holland 1989 [1963]:155-168), recent investigations have demonstrated a clear recognition of symptoms, prodromes, and complex illness conditions that are based upon the notion that disorder or pathology in one organ or part of the body can trigger or “change into” another illness, often in a different part of the body (Maffi 1994; Berlin and Berlin 1996). My own data from Chamula indicate that there is a strong relationship between diet, respiration, heartbeat, thought, and the warming of the blood (therefore a corresponding functional interrelationship between stomach, lungs, heart, brain, and blood), and the maintenance of “vital warmth.”

This relationship between the heating quality of the heart and the strong circulation of the blood forms the basis of Tzeltal-Tzotzil notions of good health and, I would argue, approximates a sort of “folk immune system.” The normal temperature of healthy blood is warm (*k'ixin*), and this same term is used to describe the body in a state of good health. The degree of warmth in the blood is directly correlated with its “strength” and the energy with which it courses through the body. This physical warmth is attributed to the heating action of the sun, the ingestion of “warm” substances, physical exertion, and regular steambathing. Warm blood is said to be “strong,” pumps strongly and quickly, and results in health and vigor. This warm, flowing blood is referred to as “living” or “lively blood” (*kuxul ch'ich'*), which contrasts with sluggish or coagulated blood known as *sikuben ch'ich'* (“blood that has become cold”) (Maffi 1994:213). In Chamula, this cold blood is said to possess very little moisture and to have “thickened” (*-tatub*). Warm blood, on the other hand, is said to be “good and moist” (*lek yox*), and therefore fluid.

Cold (*sikil*) blood is said to be “weak” or to “have no strength” (*ma'yuk yip te ch'ich'ele*). This “cold” or “weak” blood is responsible for illness and is the manifest indicator of sickness and death. While “warm” blood is desirable, excessively “hot” blood is not—overheated blood can result in “hot” illnesses, as well as a wide variety of extreme emotional states, such as anger, envy, and resentment, many of which may precipitate a “hot” illness.

The centrality of warmth also predominates on a metaphorical level, where it is closely linked to ontological assumptions about the nature of power, social authority, and gender inequality (cf. Stross [1977] on the Tzeltal, and Gossen [1974a,b] on the Tzotzil). On this metaphorical level, warmth is associated not only with the blood, but also with the heart and soul (*ch'ulelal*), which act as reservoirs of heat. The Tzotzil of Chamula conceive of the life cycle of the individual, from baptism to death, as a process of gradually increasing warmth, terminating in death and coldness (Gossen 1974b). A successfully completed human life, like a solar or agricultural cycle, follows a trajectory of steadily increasing heat, followed by cold. Old people of both sexes possess a great deal of heat because “they have lived longer . . . they have seen many things . . . and they have more things in their heart” than younger people (Guiteras-Holmes 1961:235). Although old people are thought to be metaphorically very warm, the process of aging and the approach of death results in gradually diminishing physical warmth (and therefore, increased vulnerability to illness).³⁹

This idiom of heat, which is synonymous with power and strength, is used to naturalize the pronounced gender inequality of contemporary highland Maya society. Since power, strength, and authority are asymmetrically distributed both within and between the sexes, this metaphorical heat must also be asymmetrical in its distribution. While older people are felt to possess more

³⁹This example highlights the importance of distinguishing between physical/thermal heat, and metaphoric heat, as thermal and metaphoric attributions of warmth can sometimes be at odds.

heat than younger people—regardless of sex—at any given age men are felt to possess more intrinsic heat than women.⁴⁰

The Tzeltal-Tzotzil “hot-cold” paradigm, like many similar systems in the New World, appears to derive primarily from careful observation of the body and the natural temperature cycles that characterize health and illness. Throughout the world, people experience alterations in body temperature as a result of external influences and physical processes. The importance attributed to these fluctuations varies, but in many places, including Central and Southern Mexico, people have developed complex explanations for these physical sensations (McKeever Furst 1995:121–124). The strong association between warmth and health found in most New World systems is directly perceptible (and intuitively obvious), stemming as it does from straightforward observations of the qualities that characterize healthy, vigorous individuals (cf. Kay [1987] and Kay and Yoder [1987] on similar points). For years, a debate has raged over whether or not New World “humoral systems” are indigenous or introduced (for overviews of the issues involved, see Worsley [1982], Anderson [1987], Colson and Armelada [1987], Manderson [1987], and Foster [1994]). My purpose here is not to revive this argument; however, the widespread occurrence of pre-Columbian practices designed to manipulate body temperature for therapeutic ends suggests that well-developed notions of warmth and cold (and their respective roles in health and illness) were in place long before the arrival of the Spaniards.⁴¹

Illness: The Cold Path toward Death

Given the overwhelming literal and metaphorical association among warmth, health, vigor, and power, it comes as no surprise to find illness closely associated with the loss of warmth, or the intrusion of cold into the body (and not with a humoral imbalance, as in the classic model). Berlin and Berlin (1996) suggest that this association stems from the assimilation of illness with death, the ultimate cold state. They point out that the term for illness (*chamel*) derives from the verb root *-cham* (“to die”), as does the word for sick person (*jchamel*).⁴² When one becomes sick, “one has entered into, as it were, the (not

⁴⁰It is interesting to note that this gender-based differential is not entirely without basis. Although men and women possess the same average body temperature, men do have more blood than women. Adult females average 4 to 5 liters of blood, while men average 1 liter more (McKeever Furst 1995).

⁴¹McKeever Furst (1995:124) captures the essence of this position, arguing, “. . . before the Spanish set foot in the New World indigenous people had already observed—no, felt in their flesh—the effects of changes in, and changing, body warmth and had attempted to balance the internal fire with ceremony and probably with food, ritual action, and herbal medicine as well. But then, so had the Europeans and Asians.”

⁴²Maffi (1994:213) points out that both noun forms are derived by means of a *-VI* suffix which indicates an “x-like thing or state.” Illness (and patienthood) is therefore literally considered to be a “death-like state.”

irreversible) process toward death. . . . Death is the ultimate cold state, and the sick [person] has entered the cold path to death” (Berlin and Berlin 1996:55).

In keeping with these observations, my data from Oxchuc suggest a strong—almost total—bias toward cold in the domain of illness. Cold thermal influences are thought to pose a much greater risk to health than hot influences. As a result, most illnesses are classified as “cold,” reflecting their presumed etiology (cf. Groark 1996:64-65). Berlin and Berlin (1996:60-61) have proposed that the highland Maya universally consider illness to be “cold,” except where there is a generalized or localized elevation in body temperature (such as fevers, dermatological conditions, and pregnancy). Therefore, when health conditions are classified as “hot,” this usually reflects empirical properties of the health condition itself, and not an etiologic judgment.

Based on data from the Tenejapa Tzeltal, Maffi (1994, n.d.) has suggested that cold is thought of as the only exogenous source of illness. Reflecting this emphasis on exogenous etiology, Chamulas say that one “finds” or “encounters” (*-ta*) illness, usually while walking at night along cold trails. In contrast with the classic “hot-cold model,” heat has no comparable exogenous pathogenic role, and hot (*k’ajk’al*) illness states (such as fevers, infections, and dermatological conditions) are considered to be endogenously produced (Maffi n.d.:8).

As a rule, illness originates when the warm body comes in contact with an external influence (usually an environmental element) that is significantly colder than the body. Many “cold” conditions are caused by exposing the body to cold water (*sikil ja’*), cold earth (*sikil lum*), cold air or wind (*ik’*), or rain (*ja’al*), all considered to be diffuse but extremely dangerous sources of “pathogenic cold.” The cold “wind/air” (*ik’*) issuing from these elements is believed to “enter” (*-och*) into the body, usually through body orifices, joints, pores, or the soles of the feet. If sufficiently serious, these thermal fluctuations can manifest throughout the body in a wide range of pathological conditions.

In other cases, the body can be placed at risk for “cold” illnesses by less serious exposures to cold. While these thermal insults are usually not serious enough to result in pathology, the loss of warmth they engender weakens the body, rendering it highly vulnerable to even mild exposures to cold. Similar “at risk” states can result when the body shifts rapidly from a state of heat (such as outdoor labor) to one of coolness (such as rest)—accordingly, Oxchuqueros are careful not to lie down after physical exertion, not to allow sweat to evaporate off the body, and not to ingest “cold” food or drink after physical exertion (cf. Foster [1994:33-39] on the importance of “at risk” states).

In the treatment of “cold” conditions, the augmentation of heat is the primary concern. Steambathing, usually in conjunction with “warm” herbal or animal-based remedies, is considered the most effective method for treating such conditions because of its ability to generate radical changes in the thermal state of the patient, thereby restoring the body to a state of warmth. The therapeutic action of the steambath can be divided into two complementary processes or

treatment modalities: restorative and expulsive. Restorative therapies attempt to eliminate the deficit of warmth within the body by modifying the immediate environment, or by supplementing the body with foods and/or medicines that possess the needed quality. By bringing warmth to the body, symptoms are alleviated and the body is fortified, thereby removing it from an “at risk” state and preventing the onset of “cold” illnesses. On an analytic level we can distinguish this from expulsive therapies, which cure illness at the level of ultimate etiology by forcing or flushing out the intrusive pathological “cold” responsible for the condition (through such means as bloodletting, forced sweating, or flagellation).

Steambathing derives its potent efficacy from the fact that it incorporates both restorative and expulsive strategies simultaneously. By ingesting “warm” medicines inside of the hot, moist, environment of the steambath, the patient’s body is heated both internally and externally, augmenting endogenous warmth and expelling the “cold winds” responsible for the illness. As we will see below, all forms of steambathing (hygienic, preventative, and curative) have the therapeutic effect of restoring the blood and body to the natural state of “warmth” that characterizes vigorous health.

Therapeutic Use of the Steambath

Steambathing, Personal Hygiene, and Preventative Medicine

The most common and enjoyable use of the steambath is for bathing and personal hygiene. The Tzeltal and Tzotzil Maya are assiduously clean people, and great care is taken to keep the body and clothes fresh. They are also extremely modest and are reluctant to bathe in the open—particularly in cold water, which would sap the body’s natural warmth and place it at risk for “cold” conditions:

When you want to bathe, you hide yourself inside the *pus*. One can’t bathe outside at a spring or a river—it always makes us feel ashamed to bathe this way, for we don’t want people to see us naked. Each afternoon, we “burn” the *pus* and its rocks, and in the early evening we enter to bathe. The flesh needs warmth, this is why we bathe with warm water. If there is no *pus*, thus we end up dirty and dusty. But if we have the *pus*, we enter to bathe, we wash our hair well and scrub each others’ bodies.

In Oxchuc, two or three times a week the entire family gathers for an evening steambath. Just before sunset a fire is kindled in the oven, and several logs of dry, hot-burning, relatively smokeless wood are added.⁴³ After an hour

⁴³Unfortunately, over the past twenty years deforestation has become a serious problem in the highlands. As a result, firewood has become increasingly difficult to obtain. Inasmuch as the whole family can bathe with a single heating, the steambath is quite economical. However, the associated increased demand for oak generated by steambathing (for both construction materials and firewood) has undoubtedly contributed to the problem of deforestation.

or so, when the steambath is hot enough to bathe in, any unburnt firewood is removed. Men, women, and children bathe together if space permits; otherwise, the men bathe first, followed by the women and children. Typically, the bathers are members of the nuclear household (husband, wife, and married and unmarried children), although it is not uncommon to invite neighbors or parents to join in. Everyone derives great pleasure from the physical intimacy created by the steambath, and the event often takes on a distinctly social tone. The bathers enter naked, crawling in on hands and knees, then lie down on the raised plank floor with their feet to the fire. After everyone is inside, the door is pulled shut and sealed with a woolen blanket.

The air inside is dry and searingly hot, ranging from 170° to 195°F depending on the size and thermal dynamics of the bath. As the bathers enter and draw the hot air into their unprepared lungs, all are overcome by an intense sense of suffocation. With a call of "*Wayan me!*" ("Let's sleep!"), they close their eyes and lie down on their backs on the raised plank floor. This period of "sleep" allows the body to acclimatize to the intense heat, while avoiding the scalding air and smoke trapped near the roof of the bath.

After several minutes of "sleeping" on their backs in the dry heat, the eldest male sits up in the darkness and throws the first cupful of water on the glowing cobbles. With a frightening hiss, an immense cloud of scalding steam bellows out of the small oven, engulfing everyone in the hot, wet vapors. The bather takes a "broom" (*mes*) made of bunched zacate blades or a leafy tree branch (usually laurel; *Liquidambar styraciflua*), dips it in a pot of hot water, and begins to beat his entire body with it. Sometimes a young boy is appointed to "give the *mes*" to the bathers while they relax and "sleep." After all the bathers have whipped themselves with the bathing broom, they scrub each other with tepid water and soap.⁴⁴ The atmosphere is jovial, and ribald jokes are often exchanged among the men. After about an hour, the bathers exit. Being particularly vulnerable to "cold" influences at this time, they cover their heads with blankets to maintain warmth and limit exposure to the cold night air.

The "whipping" action described above lies at the very core of both hygienic and therapeutic steambathing. The rapid beating motion creates a thin layer of vaporized water just above the surface of the skin, increasing the surface heat of the body far beyond the baseline temperature generated by the bath alone. During all of this, the bather grunts and sweats profusely. This whipping causes the heart to pump quickly, which in turn "heats and strengthens" the blood. At the same time, the pores open to allow sweat to pass out of the body (carrying with it any pathogenic "cold"), simultaneously allowing the ambient moist heat of the bath to penetrate the flesh and further warm the blood.

⁴⁴Although sweating is considered to be intrinsically cleansing, a foamy herbal bath made from *Polygala floribunda* (*pum ch'opak*) was traditionally employed in place of soap during steambathing.

Steambathing does more than just cleanse the surface of the body. The entire steambathing process restores the body to its natural, healthy state of “warmth,” eliminating any intrusive “cold winds” by expelling them through the pores of the skin and the soles of the feet (where “cold” is thought to enter). Done several times a week, this practice fortifies the body and prevents the onset of “cold” illnesses.

Because of the inherently therapeutic effects of steambathing, the distinctions among hygienic, preventative, and curative bathing are necessarily artificial. In Oxchuc, the steambath constitutes a powerful therapeutic nexus in which all three practices merge, united by their common goal of preserving warmth and expelling “cold.” Since “the flesh needs warmth” to stay healthy, regular steambathing acts as a constant prophylactic measure by rewarming the blood and preventing pathogenic “cold” from gaining a foothold in the body. When the highland Maya bathe in the steambath, they are doing so as much to maintain health as to restore it.

Steambathing and the Care of Women

Throughout the highlands, the steambath is intimately associated with the maintenance of female health and the treatment of uniquely female health conditions and life circumstances. It is indispensable during the postpartum recovery period, and is an important component in the treatment of various obstetric and gynecological disorders (including irregular, absent, excessive, or painful menstruation; infertility; lack of breast milk; and difficult delivery). All of these conditions are considered to be illnesses by the highland Maya, and most normal female life events (especially menstruation, childbirth, and the period immediately after childbirth) are felt to place the woman at risk for serious “cold” illnesses. According to many Oxchuqueros, the steambath was created by the ancestors specifically to protect women from cold during these high risk periods, and constant reference is made to conception, childbirth, and the restoration of fertility in any discussion of female steambathing. While much of the therapeutic significance of the steambath has disappeared in the highlands, the female preventative and postpartum steambath regimen persists in almost all municipalities.

While a dynamic fluctuation in warmth is characteristic of all living things, women are biologically predisposed to suffer far more significant and threatening thermal fluctuations than men. Ideological reflections of this notion of female vulnerability can be found in myth-based gender distinctions which metaphorically link men to the sun and women to the moon. The sun and moon provide natural models for highland Maya understandings of human sex-based physiological differences, and through a series of ideological inversions serve to naturalize the pronounced gender inequality typical of traditional Tzeltal and Tzotzil communities.

The Moon (often assimilated to the Virgin Mary) is considered to be cold and is viewed as the archetypal female. She is variously thought of as the wife or mother of the Sun (Jesus Christ), who is identified with males and is considered

to be the source of all light and heat in the world (cf. Gossen 1974b). Throughout the highlands, the moon is intimately associated with female menstruation, fertility, and reproduction (cf. Holland 1989:78). Unlike the sun, the moon passes through regular, monthly phases during which her brightness (heat) waxes and wanes. These lunar cycles are seen as analogous to female physiological cycles, which similarly distinguish women from men. Menstruation (which, because of the loss of blood, is considered to place women in a dangerously cold state) takes place at the time of the new moon, when the moon is dark and at its coldest. Conversely, women are thought to be the warmest and most fertile at the time of the full moon, when lunar brightness (and heat) is at its maximum. Sexual intercourse is often scheduled around this lunar/reproductive cycle—the likelihood of conception is thought to increase significantly if intercourse occurs when the woman is at her warmest (during the full moon), especially if it takes place in the warmth of the steambath.⁴⁵ Men, on the other hand, are considered to be “like the sun.” They are characterized by a constant baseline of physical warmth (except in cases of illness or physiological disorder) and suffer none of the physiologically based thermal fluctuations that characterize women.

A Chamula Tzotzil myth reveals that the origin of this heat differential is closely linked to the steambath. At the beginning of the present creation, the Moon (Mary) and her young son the Sun (Jesus) were the first people to bathe in the newly created steambath. At that time the Sun and Moon possessed equal heat and burned with equal brilliance. Once they were inside the bath, the Sun threw a cupful of water on the glowing rocks, and a scalding vapor cloud shot out of the oven and (accidentally?) blinded the Moon in one eye. With only half her vision, the Moon was dimmed and burned with only half the heat and light of the Sun. This story was repeated to me on several occasions by Tzotzil men as a way of explaining the subordinate social position of women and their vulnerability and general lack of strength. In one mythic act, the Sun asserted the ascendancy of masculinity and heat over femininity and cold. His action effectively halved the heat of women and reduced them to a state of subservience, weakness, and vulnerability.⁴⁶

⁴⁵In Oxchuc, many people report that the steambath is used by couples (as well as unmarried youths) as a private location for sexual activity. Husbands and wives take advantage of the warmth of the steambath when trying to conceive. By increasing the warmth of the woman's body, it is believed that the likelihood of conceiving a male child increases.

⁴⁶This fragment appears to be a local version of the aforementioned Core Myth. Thompson (1970:359) presents a variant of this myth collected among the Zapotec of Mitla: Two children are imprisoned in a steambath by an old childless woman and her brother. After suffocating the old woman with chile powder, they manage to escape from the steambath. Finally, after various episodes, the children kill the brother and take his eyes. By a trick, the boy gets the stronger right eye, while the girl receives the weaker left eye (the boy had offered her a rabbit for the stronger eye, suggestive of the Mayan rabbit-in-the-moon belief). God transforms the boy into the Sun because he has the stronger eye, while his sister is turned into the Moon—they still quarrel about the eye. A number of related myths from Central Mexico have been analyzed by Vasquez (1981).

Given women's inherent tendency to experience fluctuations in vital warmth, the steambath has come to play a critical role in preventative therapy. In an ironic reversal, the very steam that the Sun used to diminish female heat now plays an indispensable role in replenishing it. In Oxchuc, women regularly bathe in the steambath whenever they experience any form of blood loss. As discussed, blood is a substance highly charged with natural and metaphoric qualities that closely link it to notions of vital warmth and good health. Physiological states or conditions that result in the loss of blood (e.g., menstruation, menorrhagia, childbirth) are viewed with alarm, as any significant blood loss threatens to throw a healthy body into a dangerously "cold" state. Steam-bathing provides a warm, moist environment which fortifies the woman's cold and weakened body, preventing these "cold" states (many of which are considered cyclical and inevitable) from developing into "cold" pathologies.

In addition to the monthly, lunar-based cycles of fluctuating warmth, women experience dramatic and often dangerous changes in endogenous warmth during pregnancy and childbirth. From conception until delivery, the woman's body undergoes a gradual but dramatic increase in heat (owing to the menstrual blood that is retained in her body, which solidifies to form the flesh of the growing fetus), culminating in a dangerously hot state before birth. During this period the woman either avoids steambathing altogether, or else takes mildly warm baths, but avoids heating her belly with the zacate bathing broom. A midwife (*jtam alal*) often accompanies the woman in the steambath, administering a series of stomach and back massages to ensure that the fetus is properly positioned.

This extreme warmth is maintained until parturition, when the woman is plunged into a dangerously cold state by the loss of blood and the intrusion of cold winds into the womb. In this chilled state the parturient is extremely vulnerable to various cold conditions (e.g., "cold stomach," amenorrhea, failure to lactate, and infertility). In order to restore her body to a state of warmth, renewing her fertility and physical strength, the new mother follows a rigorous postpartum regimen of steambathing and ingestion of "warm medicines." This regimen is designed to restore and purify the blood, promote lactation, calm the pains that follow birth, and to rewarm the flesh, blood, and womb, thereby restoring an appropriate amount of heat to the woman's body. If the postpartum steambath regimen is not followed, the woman will suffer a variety of gynecological disorders, culminating in an extended period of reversible infertility.⁴⁷

When the woman is about to give birth, the midwife is called to the house to help with the delivery. The woman delivers on the floor in a squatting

⁴⁷In Chamula, the parturient's bones are said to "soften" or "loosen" during pregnancy, then split apart at birth. Prepartum bathing warms the child, and the heat helps it to form in the womb, "firming its flesh." After birth, the heat of the bath hardens the mother's skeleton and heals internal injuries, particularly the small spot where the fetus was attached to her spine (cf. Browner [1985] for similar data from the Chinantec). Bathing of the infant further ensures that "his flesh will grow," and that he will be free of illness.

position, and the baby is usually born on a woven straw mat. If the woman is having difficulty expelling the baby (or placenta), the midwife will administer a hot tea made from the shell and tail of the nine-banded armadillo (*Dasypus novemcinctus*), or more commonly, from the tail of the Virginia opossum (*Didelphis virginiana*). These medicines induce strong uterine contractions, causing the infant to slip easily from the mother's body.

After the infant has been delivered, the umbilical cord is tied off with a length of cotton twine, then severed with a hot knife, and the newborn is swaddled in a warm blanket. The tying of the umbilicus and the tight swaddling prevent cold air from entering the infant's stomach and causing illness. The placenta and the umbilical cord are then buried together in the family cornfield.

Immediately after giving birth, the woman enters the preheated steambath to bathe. An hour later, after the bath has cooled to a safe level, the infant joins the mother inside. She drinks a "warm medicine" (*k'ixin pox*) that was prepared by her husband or the midwife, then rubs a small quantity of the decoction over the lips of the infant to help warm his body. These warming teas consist of a principal herbal or animal ingredient boiled with black peppercorns (*Piper nigrum*) and cloves (*Eugenia caryophyllus*). Many women add distilled cane liquor (*pox*) and sugar to increase the "heat" of the drink. These are the most significant and widely known remedies used in the steambath and, like childbirth, are intimately associated with it. (Table 3 lists the principal herbs used as "warm medicines" under the heading "postpartum recovery.") Every morning and evening for three or four days the mother drinks these decoctions, and every evening at dusk the steambath is reheated for bathing. During this period the woman remains in the bath day and night and is relieved from all household duties.⁴⁸

After this period of seclusion has passed, the woman may safely leave the steambath, but she must be careful to avoid all "cold" dietary and environmental influences. She bathes every evening (or every other evening) for the next 14 to 21 days, often passing the cold nights inside of the warm steambath. Domestic duties are usually resumed after a month has passed. Although some women now give birth in clinics (often local, but sometimes located in distant urban centers such as San Cristóbal de las Casas), most insist that the steam-bathing regimen should begin as soon as they have returned to their hamlet.

It appears that these pre- and postpartum steambathing regimens are adaptations to the fluctuating body temperatures of new mothers and neonates. As McKeever Furst (1995:98-99) has described, soon after parturition both mothers and infants experience a dramatic drop in body temperature. Expelled from the warmth of the womb, the infant's temperature plummets by as much as 3 degrees Fahrenheit within one hour of birth. Within three hours, the newborn's skin feels perceptibly colder, and the temperature may drop as low as

⁴⁸Women do not enter the steambath after childbirth if they are running a fever or show signs of infection. To do so is widely regarded as potentially fatal. In such cases, the woman waits until the infection has passed, then begins the postpartum bathing regimen.

94 degrees (4.5 degrees below normal). Since newborns cannot regulate their body temperature through shivering, this mild hypothermia can lead to malaise and lethargy. Much of the mother's warmth is also lost during childbirth, and she may experience chills and uncontrollable shivering soon after delivery. In a community where almost all women give birth at home, the tradition of postpartum steambathing would appear to decrease the risk of hypothermia-induced neonate mortality significantly. By "stoking the inner fire" of mother and child, both emerge from the birth experience fortified and strengthened.

Steambathing and Curative Medicine

Despite the constant measures taken to conserve vital warmth and avoid the cold that causes many ailments, illness is a part of everyday life for the highland Maya. It comes with the rain and fog, borne on the wind, and bleeds from the cold earth into the soles of bare feet. The envy of neighbors, daily worries, encounters with demons, and bad food can all precipitate the onset of illnesses mild or threatening.

As mentioned, the Tzeltal and Tzotzil Maya recognize that health conditions can have either natural or supernatural/social etiologies. In Oxchuc, steambathing is a central component in the treatment of naturalistic illnesses that have their origin in "cold" influences—etiologically "hot" conditions are never treated in the steambath. All aspects of treatment, from initial diagnosis to the preparation and administration of remedies, are carried out within the family unit. Symptomatically based health conditions, such as those treated in the steambath, are generally easily recognized and respond to relatively straightforward, empirical therapies. The vast majority of common conditions can be remedied through these lay treatments and are rarely brought to the attention of specialized healers. Such specialists are usually sought only in cases of uncertain diagnosis, or when the illness is particularly severe, progresses rapidly, and/or fails to respond to household treatments.

Once a diagnosis is made, the sick person's spouse collects the herbs (or animals) that will be needed for the remedy, then prepares them as either a bath (*atinel*), decoction or infusion (*uch'el*), or poultice. Throughout treatment, the sick person is careful to avoid all foods, objects, and environments that would exacerbate the condition. If the person is suffering from a "cold" illness, she would eat only "hot" foods, avoid exposure to cold temperatures and things (e.g., water, rain, cold winds), and keep her body warm (through frequent steambathing, warming herself near fires, keeping her head covered when walking at night, and drinking appropriate "warm" medicines). Central to these efforts to "rewarm" the body is steambathing and the administration of associated remedies.

The treatment always begins at night, usually about an hour after sunset. The patient enters with another family member—usually a spouse or parent—

the remedy is administered, then bathing proceeds as usual. If the condition is localized (e.g., swelling of legs, rheumatic joints, or “cold air” in the stomach), the patient uses the zacate bathing scourge to beat the “cold” out of the affected area, and massages are often administered. The length of time spent in the bath varies depending on the condition—the treatment for a simple case of stomachache might consist of an herbal tea and an hour-long steambath, while the treatment regimen following childbirth can last anywhere from one week to one month. Most common conditions are treated with a series of three evening steambaths. In many cases, the patient will choose to spend the night inside the bath, exiting only under the warmth of the morning sun.

Although it is often used in conjunction with herbal remedies, the steambath itself is felt to be imbued with curative properties existing quite apart from any medicines that may be used inside of it. In the Tzotzil township of Chamula, some individuals believe that the strength of the bath alone is enough to cure even the most tenacious illnesses. Steam (*sobal*) is regarded as the primary therapeutic element in the steambath; baths that are unable to produce thick vapor clouds are considered ineffective. The steam enters the body through the nose and mouth, warms the blood in the lungs, and is then carried by the blood to all parts of the body. The induction of copious sweating is the primary goal. The steambath is “given” (*-ak'*) to certain parts of the body (through flagellation with the bathing scourge) until the flesh is “baked” (*-ta'aj*), thereby generating a heavy sweat which drives out the illness through the pores. If one does not sweat enough, the illness will remain in the body.

In Chamula, the steambath is often described as a “guardian” (*jk'elvanej*) that “looks after” or “attends” (*-k'elvan*) to the bathers. In many therapeutic contexts, it is said that the steambath is “like a shaman” (*ja' k'u cha'al j'ilol*), and that it “cures shamanically” (*ta xilolaj*). These terms carry heavy connotations of human-like agency, in particular a quasi-supernatural curative power. This “shamanic” therapeutic power is said to come from *jotik ta vinajel*, Our Father in Heaven [the Christ-Sun deity], who “gave his strength and goodness to the steambath” and who manifests inside it in the form of the fire.⁴⁹

⁴⁹Although not directly linked to curative steambathing, Gossen (1989: 222) provides us with a rare biographical account of a Chamula man who is “called” to his career as a healing shaman (*j'ilol*) through a visionary experience in the steambath: “A few days after his . . . homecoming [to Chamula, Miguel Kaxlan] took a sweat bath in the household *temazcal* and had an unexpected revelation. A vision came to him. He was sucked up into the vortex of a whirlwind and was bodily lifted out of the sweat bath and carried 10 m through the air and dropped on the ground. After this extraordinary event, he became desperately ill and dreamed continuously. During this period, an unspecified sacred being appeared to him and ‘called’ him to a new career as a shaman.” It is well known from the North American ethnographic record that extended sweatbathing can induce altered states of consciousness, but this is the only account for Mesoamerica that describes a connection between visionary experiences and steambathing. J. Rus (personal communication) reports that similar stories are quite common in Chamula, and that the steambath is frequently used in order to promote propitious dreams.

The *pus* is like Our Father, it is our guardian. Our Father in Heaven has given his power, his goodness, to the *pus*. Even though Our Father is in Heaven, his power is here on earth—his power is in the *pus*. Since he is a curer (*j'ilol*), his power allows the *pus* to cure all by itself. There in the *pus* it helps us—if there is sickness, it cures our flesh. The *pus* watches over us. This is why we call the fire *iskrivano* ["scribe"].⁵⁰

The fire is the heart of the Sun-Christ deity, left on earth so his children could cook their food and warm their bodies. When bathers enter the steam-bath, their bodies are being warmed by the very heart of the sun. The fire, being the earthly manifestation of the power of the Sun-Christ, acts as a conduit or channel of communication with him. Before bathing begins, the oldest person in the steambath will sometimes pray to the fire, asking the Sun-Christ deity to "release" the sufferer and make the illness pass:

Dyos kajval
ch'ul k'ok', ch'ul iskrivano
chak'elbun, chavilbun
ti jbek'tale, ti jtakopale
yu'un oy 'ip
yu'un oy k'ux
'ip ti jol
'ip ti jbakile
ta x'avan, ta xlub
ti jbek'tale, ti jtakopale
pere li'e chakoltabun
li'e chatitunbun
ch'ul k'ok', ch'ul iskrivano
ch'ul antonyo suyó

God, my Lord
 Holy fire, holy scribe
 Look upon me, see me
 My flesh, my body
 Because there is illness,
 Because there is pain
 My head is sick,
 My bones are sick
 It aches, it tires
 My flesh, my body
 But here you release me,
 Here you unbind me
 Holy fire, holy scribe
 Holy Antonio Suyó

After the prayer has concluded, water is thrown on the hot rocks and bathing begins. While the individual is bathing, the steambath "begins to close, begins to mend the flesh" (*ta xlik smak, ta xlik spak'taj jbek'tale*), which is described as being "loosely woven together" (*chajal*), much like an open-weave basket or a burlap bag.⁵¹ This loosely knitted flesh has lost heat and "become cold" (*ta sikubtas*), so the steambath "heats the blood and thoroughly

⁵⁰As a manifestation of the Sun-Christ deity, the steambath fire is called *iskrivano* ("scribe"). This refers to the belief that the Sun (or Jesus) possesses a large book in which he records our sins (cf. Nash [1970:200-201] for similar data from Amatenango). It also refers to the ability of fire to "write on" or burn whatever it touches. For this reason, in ritual speech the fire is also referred to as the "holy writer, holy embroiderer" (*ch'ul jtz'ibajom, ch'ul jluchajom*).

⁵¹Interestingly, the verb *-pak'* which I have glossed as "to mend," also means "to plaster over" (as in applying mud daub to the walls of a house). In this context, the verb appears to refer to the sealing up or "plastering over" of the body, which is described as *chajal*, "in an open, loosely-woven state" (Laughlin 1975). This same adjective is also used to describe the state of the body at the conclusion of a major shamanic curing ceremony (such as the *muk'ta 'ilel*, the "Great Seeing Ceremony"), after which a series of steambaths is required in order to "close the flesh."

warms the flesh” (*ta xk'ixinaj sch'ich'el*, *ta xk'ixinaj ta junul jbek'tal*), causing the body to “become strong” (*ta statzub*), and ultimately to “escape” or “recover” (*-kol*) from the illness. In this way the steambath “fixes up the body” (*ta smeltzaj li bek'tale*) and proves itself to be efficacious (*ta sbalin*).⁵² Because they have prayed to the fire, the power of the steambath causes the illness to pass from their flesh, unbinding them and releasing them from their suffering.

These observations suggest that curative steambathing derives its efficacy as much from the therapeutic potential inherent in the bath itself as from the remedies which are administered inside. I suggest that the use of steambath-associated herbal and animal remedies is directed primarily toward symptom relief, while steambathing is thought to act at the level of ultimate etiology by expelling (*-lok'es*) the intrusive cold that is responsible for the illness. When viewed in this light, therapeutic steambathing and the associated use of remedies should be viewed as a complex of separate but related treatment modalities that co-occur in the treatment of many conditions. This point is important, as it emphasizes steambathing as a therapeutic strategy separate from, but often coextensive with, lay herbal treatment.

Steambathing and Bloodletting

In several highland Maya communities, a steambathing-bloodletting complex still persists. Curative bloodletting is closely associated with steambathing and is employed both as a home remedy and as part of more elaborate shamanic curing ceremonies. Small bottle glass lancets, rodent incisors, and sometimes serpent fangs are used to make a series of small, rapid incisions or punctures on the affected body part, and the resulting pathogenic blood is then disposed of. In some communities the blood is collected and used for diagnostic purposes before disposal (cf. Nash 1970:148-149). The number and location of punctures vary with the condition being treated. The incisions may be made either inside of the steambath or shortly before the person enters (for

⁵²In Chamula Tzotzil, the verb used when referring to the steambath's “shaman-like” ability to cure is the transitive verb *-ilolaj*. Derived from the noun for shaman or *curandero* (*j'ilol*), this unusual verb seems to suggest a form of curing that can only be glossed as “shamanic.” Interestingly, such verbs are usually applied only to animate agents. When referring to the steambath, it is used to denote curing which derives from the inherent power of the bath, and not from an herbal remedy administered inside. This term contrasts with the transitive verb *-balin* “to be effective,” which takes only inanimate agents (such as herbal remedies, or curing rituals). Interestingly, *-balin* is used when referring to the curative action of plants, as well as the steambath. This suggests that both plants and steambaths are thought to possess an intrinsic curative power (*'ip*, *pwera*), but that the power possessed by the steambath is qualitatively different, resembling that power which is normally found only in shamans. Maffi (1996:Note 20) has identified an identical animate/inanimate agent contrast in the Tenejapa Tzeltal verbs for “to cure” (*-poxta/poxilin*), and suggests that this is marked morphologically in Tzotzil by means of the *-aj/-in* suffixes.

a comprehensive ethnographic overview of bloodletting in the Maya region, see Deal and Hayden 1987:251-263).⁵³

In Oxchuc, steambathing and bloodletting are often jointly employed in the treatment of severe headaches (*muk'ul k'ux jolol*), rheumatism (*julbak sik*), and aggressive madness (*chawoj*). The first two conditions can be treated by anyone, but only a curer possesses the skill and power to let blood in cases of madness. After a plant-based medicine has been administered to the patient inside of the steambath, the individual flagellates himself with the zacate bathing scourge to “get the blood flowing.” The curer then makes ten incisions from left to right across the patient’s forehead with the incisor of a large rodent. After bleeding out the “stupid blood” (*bol ch'ich'*) that causes the condition, the patient bathes with hot water and leaves the steambath. The warmth of the bath is said to alleviate the pain associated with bloodletting, promoting a copious flow of blood and preventing the cuts from swelling. Once in his house, the patient rubs tobacco leaves or rubbing alcohol over his forehead, then covers the punctures with a kerchief so that no pathogenic wind (*ik'*) can enter.⁵⁴ Despite the fact that the steambath is currently restricted to the high-altitude, cold-country communities, the bloodletting-steambathing complex has also been reported in such hot-country municipalities as Aguacatenango (Tzeltal) and Amatenango (Tzotzil), although in these areas the steambath is a simple, temporary, nonenclosed structure built especially for this purpose (cf. Stubblefield 1961:23-24; Nash 1970:149).

Overview of Health Conditions Treated in the Steambath

Most of the “illnesses” treated in the steambath are relatively simple symptom-based conditions, rather than complex illnesses characterized by a constellation of related symptoms. Although all are referred to by the general term for illness (*chamel*), most of these conditions are either difficulties generated by certain life events or accidents (such as childbirth, menstruation, and bone fractures), or simple physiological conditions that can be variously interpreted as symptoms, prodromes or sequelae of other illnesses, or as illnesses in and of themselves. All conditions listed in Table 3 are diagnosed and treated (at least initially) at the household level, and all are considered amenable to treatment in the steambath.

⁵³Steambathing, followed by bloodletting from the forehead with special lancets, was one of the attempted cures reported in a 1715 witchcraft case from the Totonicapán region of Guatemala (Hill 1988:273-274).

⁵⁴Deal and Hayden (1987:251-253) collected data on home bloodletting cures for headaches, muscle aches, and rheumatism from the nearby community of Chanal (which split off from Oxchuc about 100 years ago), but they report that these practices have been abandoned as a result of increased access to Western medical care and the associated decline of therapeutic steambathing.

Table 3
Health Conditions Treated in the Steambath and
Associated Herbal and Animal Remedies

BIOMEDICAL CORRELATE	OXCHUC TZELTAL CONDITION	REMEDIES
GASTROINTESTINAL		
Abdominal Pains		
Abdominal distention	<i>botil ch'ujt'</i>	69
Abdominal gas/bloating	<i>pumel</i>	—
Collateral abdominal venation	<i>nujk'ul ch'ujt'</i>	71
Cholecystitis (“mother of man”)	<i>me'ch'ujt'/me'winik</i>	28, 36, 39
Intestinal obstruction	<i>mak tza'il</i>	—
Stomach pain	<i>k'ux ch'ujt'ul</i> <i>k'ux ch'ujt'ubel</i>	7, 8, 11, 26, 33, 34, 37, 41, 43, 44, 48, 54, 59, 60, 66, 69, 71
Diarrheas		
Bloody diarrhea	<i>ch'ich'tza'nel</i>	1, 4, 8, 14, 15, 19, 31, 33, 50
Watery diarrhea	<i>ja'ch'ujt'</i>	3, 7, 8, 11, 14, 16, 20, 33, 34, 49, 50, 55, 59, 60
“Stinging caterpillar illness”	<i>tzujk'um</i>	43
WOMEN'S CONDITIONS		
Amenorrhea, chronic	<i>mak u</i>	—
Postpartum recovery	<i>aljel</i>	5, 9, 15, 17, 21, 23, 24, 25, 27, 30, 36, 39, 41, 49, 51, 58, 62, 63, 66, 70
“Cold Stomach”	<i>sik ch'ujt'ubel</i> <i>sik ta ch'ujt'</i>	27, 39 (also, postpartum recovery medicines)
Lactation, promotion of	<i>chu'ul</i>	See “postpartum recovery”
Childbirth	<i>aljel</i>	See “postpartum recovery”
Childbirth, difficult	<i>ma xk'ax alal</i> <i>ma xk'ax sme'alal</i>	64, 65
Menorrhagia/uterine hemorrhage	<i>al ch'ich'</i>	15, 38, 51
Menstruation, excessive	<i>chamel antz</i>	—
Infertility, female	<i>sikil antz</i> <i>ma xtal yal antz</i>	—
Infertility, female (witchcraft- induced)	<i>ak'bil sikil chamel</i>	—
URINARY/GENITALPROBLEMS		
Impotence/sterility, male	<i>sikil winik/sikubel atil</i>	67
Retention of ejaculate (from <i>coitus interruptus</i>)	<i>sujt'el</i> <i>sujt'el nalil</i>	32, 40
Urination, painful	<i>k'ux chuxil</i>	22
ARTHRALGIAS AND MYALGIAS		
Rheumatism	<i>julbak sik</i>	12, 18, 37, 42, 61
Musculoskeletal pains	<i>k'uxetik ta bak'etal</i>	70
BITES AND ACCIDENTS		
Snakebite	<i>ti'el ta chan</i>	2, 10, 12, 13, 47
Wounds	<i>ejch'en</i>	35

Table 3 (Continued)

WEAKNESS AND WASTING		
Lethargy/lack of energy (children)	<i>mayuk yip</i>	68
FEVERS		
Malarial chills and fevers	<i>nijk'el chamel</i>	36
MENTALCONDITIONS		
Madness, aggressive	<i>chawoj</i>	6, 46, 56, 57, 71
EDEMAs		
Edema	<i>sijt'ubel</i> <i>sijt'uben</i>	5, 9, 12, 29, 32, 48, 52, 53, 54, 61
BREAKS AND SPRAINS		
Bone fracture/sprain	<i>bijel</i>	12, 43, 45

Maffi (1994:214) has pointed out that the Tenejapa Tzeltal classify most symptom-based illnesses as *k'unil chamel*, “minor” or “soft” illnesses. This contrasts with serious illnesses, which are called *tulan chamel* (“hard illness”), or *muk'ul chamel* (“big illness”). “Soft” conditions tend to be of natural etiology and are treated by nonspecialists using a number of empirical therapies (such as herbalism, bloodletting, and steambathing). “Hard illnesses” are usually considered to be of supernatural origin and are invariably treated by specialists through highly ritualized shamanic curing ceremonies (which usually lack empirically based therapies).

Although cognate terms were not elicited in either Oxchuc or Chamula during my fieldwork, this distinction between “soft” and “hard” conditions reflects the local therapeutic hierarchy of resort that I observed. In the case of symptom-based conditions, little diagnosis is necessary, since the symptoms are usually classificatorily unambiguous—if a person experiences watery stool with frank blood, he or she knows immediately that the condition is *ch'ich'tza'nel* (‘bloody diarrhea’), and that it should therefore be treated with an herb that alleviates that specific form of diarrhea. Furthermore, in the case of many of the health conditions discussed below, the etiology is usually assumed to be intrusive “cold”—therefore steambath therapy is also indicated in order to sweat out the illness and restore warmth.

Presented below is a brief overview of the health conditions most often treated in the steambath, grouped according to locally recognized ethnomedical categories as established by Berlin and Berlin (1996:56-60). Within each category, basic data on illness frequency, symptoms, and perceived etiology are provided for each health condition treated in the steambath. All of these conditions, along with associated plant and animal remedies, are presented in tabular form in Table 3.

Gastrointestinal.—Gastrointestinal conditions (*chameletik ta ch'ujt'ul*) are the most common health conditions experienced by the highland Maya,

accounting for close to 24 percent of all reported health problems (Berlin and Berlin 1996:69). The extremely high frequency of gastrointestinal complaints explains the preponderance of plant remedies targeting gastrointestinal disorders. According to Berlin and Berlin, the Tzeltal and Tzotzil distinguish three “core groups” or clusters of gastrointestinal conditions encompassing eight primary conditions: (1) diarrheas (watery, bloody, mucoid); (2) abdominal pains (stomachache, epigastric pain, abdominal distension, “mother of man”); and (3) intestinal worms. In Oxchuc, only diarrheas and abdominal pains are usually considered amenable to treatment in the steambath. Although most of these conditions are etiologically ambiguous, they are almost always thought to have natural causes (usually eating “cold” foods or beverages, bad food, or exposure to cold insults) and are classified as “cold” conditions.

Diarrheas (*tza'neletik*) are ubiquitous in both adults and children, and diarrhea-related dehydration is a significant cause of infant mortality. While it is felt that all diarrheas (and gastrointestinal conditions in general) benefit from treatment in the steambath, it is only considered essential in the treatment of pediatric diarrhea. The highland Maya recognize many types of diarrhea, each of which is classified as a distinct health condition with its own remedies. Watery diarrhea (*ja' ch'ujt'*) is by far the most commonly experienced condition, accounting for 28 percent of all reported gastrointestinal disorders in Oxchuc (Berlin et al. 1992:10). Bloody diarrhea (*ch'ich' tza'nel*) occurs at a much lower frequency (approximately 3 percent), but is considered a much more serious condition (Berlin et al. 1992:10). Because of the associated blood loss, this condition is considered extremely “cold,” and is attributed to personalistic causes more often than watery diarrhea.

A third diarrheal condition treated in the steambath is “stinging caterpillar illness” (*tzujk'um*), a supernatural ailment occurring only in infants. The name refers to the short, stinging hairs that grow on the infant’s neck and back, causing restlessness, incessant crying, and green diarrhea (which explains its inclusion as a gastrointestinal condition). This malady is said to arise when a pregnant woman steps over a woolly bear caterpillar (*tzujk'um*), and its spirit enters her vagina, placing its stinging hairs on the back of the infant’s neck. Treatment consists of rasping the hairs off in the steambath, applying a tobacco (*Nicotiana tabacum*) poultice to the child’s back and neck, then disposing of the hairs at a crossroads, where they will be carried away by an unsuspecting passerby.

Various abdominal pains (*k'uxetik ta ch'ujt'ul*) are also frequently treated in the steambath. The intense pain associated with gastrointestinal conditions is often associated with the intrusion of “cold” into the belly (usually through the ingestion of excessively “cold” food or drink), and the warm heat of the steambath helps to assuage symptoms. Encounters with demons (*pukujetik*) are also cited occasionally as a cause (Berlin and Berlin 1996:286). Stomachache (*k'ux ch'ujt'ul*) is the second most commonly reported gastrointestinal ailment in Oxchuc, with a frequency of 16 percent (Berlin et al. 1992). It is considered a

distinct illness, as well as a prodrome of other illnesses, particularly diarrheas. A closely related condition is “cold stomach” (*sik ch’ujt’ubel*), caused when cold air or wind enters the stomach or uterus, resulting in intense, cramp-like abdominal pains.

Two forms of abdominal distension, as well as intestinal gas (*pumel*), are also commonly treated in the steambath. “Swollen belly” (*botil ch’ujt’*) is characterized by a bloating of the abdomen and is attributed to intrusive “cold wind.” In a related pediatric condition, “leathery belly” (*nujk’ul ch’ujt’*), the abdomen swells, takes on a hide-like appearance, and exhibits prominently visible, blue collateral veins. It is most common in children under five years of age and appears to be associated with heavy parasite loads. Maffi (1994) has suggested that it may be closely linked to severe watery diarrhea in children. It has also been suggested that this condition may signal alcohol-induced liver disease in adults (Berlin et al. 1992).

The final gastrointestinal condition treated in the steambath is “mother of man” (*me’ch’ujt’*, *me’winik*), a culture-specific ailment in which an egg-sized mass is felt pulsating in the periumbilical region, then gradually moves up toward the heart (Berlin and Jara 1993; Berlin and Berlin 1996:344-360). The condition is marked by intense pain, nausea, vomiting, cold sweats, and diarrhea. If prolonged, the condition leads to anorexia, emaciation, and sometimes death. This malady is prevalent in both women and men in a 2 to 1 ratio and accounts for 12 percent of all reported gastrointestinal conditions (Berlin et al. 1992). E. A. Berlin has correlated *me’ch’ujt’* with cholecystitis, and in some cases, pancreatitis brought on by excessive alcohol consumption (Berlin and Berlin 1996:355). The condition is often treated with herbal remedies administered in the warmth of the steambath.

Gynecologic/obstetric.—As mentioned previously, the single most important use of the steambath among the highland Maya is during the postpartum recovery period and in the treatment of gynecological and obstetric disorders. The Tzeltal and Tzotzil view pregnancy and childbirth (*aljel*) as potentially dangerous states that render the parturient vulnerable to many illnesses. During birth, intrusive “cold winds” are thought to enter the body, causing a condition called “cold stomach” (*sik ch’ujt’ubel*) in which residual birth blood cools and thickens inside the body, thereby chilling the womb. If this chilled blood is not flushed out through steambathing and administration of special warming medicines, the woman will become lethargic, her belly will swell, and she may suffer a variety of gynecological disorders, including irregular menstruation, lack of breast milk, and in extreme cases, an extended period of reversible infertility. In order to prevent these conditions, all women are careful to undergo a postpartum steambathing regimen lasting from 3 to 21 days, during which time they are confined to the steambath, drink a number of special decoctions known as “warm medicines” (*k’ixin pox*), and refrain from all household duties (see “Postpartum recovery” in Table 3 for a list of herbs and animals used as “warm medicines”).

The purpose of this recovery period is the restoration of female fertility. The warmth of the bath expels intrusive “cold” and rewarms the womb, cleansing it of the thickened blood that remains inside, promoting a copious supply of breast milk, and hardening the skeleton (which softened during gestation). The most important purpose of the postpartum regimen, however, is the restoration of fertility following childbirth. The steambath is an adjunct therapy in cases of difficult delivery and is also used by women who are recovering from a miscarriage.

The steambath is also an important therapeutic tool in the treatment of menstrual-bleeding disorders, which, as mentioned above, often result from an incomplete post-partum recovery. Menstruation is considered to be a distinct illness and, along with excessive menstruation (*schamel antz* [‘woman’s illness’]) and chronic amenorrhea (*mak u* [‘closed moon’]), is treated in the steambath. Uterine hemorrhage (*al ch’ich* [‘heavy blood’])—often a sequela to difficult deliveries—is similarly treated in the steambath, and is signaled by the sudden appearance of a copious, usually painless, nonmenstrual blood flow. This condition may correlate with the chilled, thickened blood that is sometimes retained in the uterus after delivery. Given the overwhelming physical and metaphorical importance of blood as a regulatory force in the maintenance of vital warmth, any significant loss is taken seriously and often precipitates illness or death. Steambathing protects the woman from cold insults during these vulnerable periods by supplementing her body with additional warmth (see “Women’s Conditions” in Table 3 for a complete inventory of remedies).

Urinary/genital.—Both male and female sexual dysfunction is closely linked to the pathogenic effects of cold, and like obstetric and gynecological conditions, all problems affecting the urinary tract and/or genitals (excepting dermatological conditions) are treated in the steambath. Impotence (*sikil winik* [‘cold man’], *sikubel atil* [‘chilled penis’]) is considered a serious condition, caused by a lack of “warmth” or “heat” in the body (particularly the penis), resulting in ‘cold semen’ (*sikil nalil*). The “heat” that promotes vigorous sexual desire and performance derives from the warmth of the blood, which is the basis of all sexual potency and fecundity. In a society where children form an important part of the labor pool, the inability to produce a family is both an economic liability and a social embarrassment. Aremedy made from the toasted penis of the coatimundi (*Nasua narica*) is the only recorded treatment for this condition. Other remedies exist, but this one is universally acknowledged as the most potent. In fact, an excessive dose is said to result in super-potency and a permanent erection.

Sujt’el nalil (‘returned semen’) is a painful condition caused by the retention of ejaculate as a result of unintentionally interrupted sexual intercourse.⁵⁵ It usually manifests as a localized genital pain, which can become quite acute.

⁵⁵It is interesting to note that contemporary Tzeltal and Tzotzil Maya believe that the soul leaves the body during sexual intercourse, and that any interruption can lead to soul loss. This idea is also found among the classical Aztecs, who admonished against sudden interruptions of sexual intercourse for fear that the soul, or *tonalli*, might be unable to return to the body, resulting in

This extremely “cold” condition is mandatorily treated in the steambath. Painful urination (*k'ux chuxil*) is the final urinary condition treated in the steambath. It occurs at a relatively low frequency in Oxchuc, but is most common in children.

Arthralgias and myalgias.—Rheumatism and various corporeal pains are two of the most significant classes of health conditions treated in the steambath. Rheumatic joint pain (*julbak sik* [‘bone-piercing cold’]) is an extremely painful condition caused by cold wind (*ik'*) or other cold influences that enter the bones through the pores and joints, causing sharp, chronic pains. The long bones of the extremities, as well as the joints, are most commonly affected by *julbak sik*. Without exception, this extremely “cold” condition is treated in the steambath with herbal baths and prayers, but only after the period of acute inflammation has passed.

Like rheumatism, corporeal/musculoskeletal aches and pains are always “given the steambath.” Included in the category of “body pains” (*k'uxetik ta bak'etal*) is a variety of more specific conditions, such as backache (*k'ux patil*), leg pain (*k'ux akanil*), bone pain (*k'ux bakel*), rib pain (*k'ux mochil*), shoulder pain (*k'ux nejk'elil*), and neck pain (*k'ux ste'el nuk'il*). The etiologies of aches and pains may be accidental (e.g., carrying a heavy burden, overexertion, or falling), or they may lie in exposure to cold, which manifests as a sharp localized pain or ache that indicates the presence of chilled blood. Whatever the cause, the moist heat of the bath is usually enough to alleviate pains, but warm herbal baths are often combined to treat particularly acute cases. A salve made of grease derived from the body of the master snake (*Pituophis lineaticollis*) was recorded as being a particularly powerful remedy.

Bites and accidents.—Snake and insect bites, along with various accidents (wounds, bone fractures, sprains, etc.), occur frequently in the highlands. Such misadventures constitute a distinct set of health conditions and are always treated in the steambath. Snakebite (*ti'el ta chan*) is a constant threat while working in a swidden field or gathering firewood. This category includes bites from both venomous and nonvenomous snakes, although nonvenomous species predominate in Oxchuc. Poultices made from medicinal plants are applied to the site of the bite, and the victim bathes in the steambath on a nightly basis. Broken bones, fractures, and sprains (*bijel*) and wounds (*ejch'en*) are similarly treated through the application of herbal poultices and steambathing.

Interestingly, these are the only steambath-treated conditions that are classified as “hot.” The likely explanation for this apparent paradox is that these conditions are not really illnesses, but accidents. As such, their “hot” attribution does not reflect an etiological or humoral judgment. Rather, it reflects the empirically based feverish sensation which accompanies these conditions. Since the

illness (López Austin 1988, in Ortiz de Montellano 1990:60). Whether *sujt'el* has any relation to soul loss among the contemporary highland Maya is uncertain, but the parallels between Aztec and Maya beliefs concerning *coitus interruptus* and soul loss are provocative.

etiology is not humoral, these conditions can be safely treated in the steambath without fear of “overheating” the individual and exacerbating the condition. The moist heat of the steambath reduces swelling and helps to relax muscles and soothe sharp pains, allowing bones to be set and wounds to be cleansed.⁵⁶

Edemas.—*Sijt'ubel* (‘having become swollen’) is a particularly feared health condition in Oxchuc, characterized by painful swelling of the entire body. If not treated, it is said to result in death. Like rheumatism (*julbak sik*), this condition is extremely “cold,” and without exception is treated in the steambath with warm herbal baths. A specialist in herbal medicine (*jpoxtawanej*) is often sought in the treatment of this serious ailment, which is frequently attributed to the action of malevolent witches.

Weakness and wasting.—Chronic lack of energy (*mayuk yip* [‘has no strength’]) is a pediatric condition characterized by lethargy, weakness, and wasting. It is unclear how often it is considered a distinct illness, rather than a sequela to some other condition (such as fever or diarrhea), and opinion is split as to whether it should be treated in the steambath.

Mental conditions.—Aggressive madness (*chawoj*) is the only psychological disorder treated in the steambath, usually in conjunction with herbal medicines and shamanic therapies. This complex illness category appears to refer to several conditions, ranging from dizziness induced by severe headaches and extreme heat, to a form of aggressive madness. The condition referred to here is a temporary form of madness in which the individual is seized by fits of paranoia, hears voices, and sees knife-wielding assailants chasing him. The victim often flees into the forest, disappearing for days or weeks at a time. Shepard (1992) suggests that this condition may correlate with paranoid schizophrenia, but its temporary nature (often marked by full recovery) suggests important differences. Alcoholism and excessive worries about money are reported to precipitate this illness.

In Oxchuc, the steambath is said to “give” *chawoj* to those who have not performed the proper warming ceremonies, but it is uncertain whether dizziness or insanity is meant. Interestingly, recent research in the neighboring Tzeltal municipality of Cancuc indicates that at least one manifestation of *chawoj* can be subsumed under what biomedicine recognizes as heatstroke (Brett and Niermeyer, personal communication). The treatment for *chawoj* typically consists of warm baths poured over the victim’s head, or drops of herbal medicines administered in each nostril, followed by bloodletting.

After the medicine has been administered, the patient whips himself with the zacate bathing scourge to “get the blood flowing.” The curer makes ten incisions into the patient’s forehead (from left to right) with a rodent incisor, then the patient bathes with hot water and leaves the steambath. The purpose

⁵⁶Throughout Mexico, it is believed that broken bones, dislocations, strains, and sprains are “hot,” yet must be protected from “cold” while mending (Foster 1994:50, 73). Although they are not illnesses in and of themselves, they render the sufferer vulnerable to subsequent illness.

of the bloodletting is to get rid of the “stupid blood” (*bol ch'ich'*) which is responsible for the condition.

Fevers.—Conditions characterized by a generalized elevation in body temperature are never treated in the steambath, and fevered individuals are careful to avoid any thermal influences that would further raise their temperature. To bathe in the steambath in such a state would surely cause the condition to worsen, and many people believe that to do so would prove fatal. The only exception to this general rule is found in the treatment of malaria. Although malaria does not occur in the highlands, in earlier years it was contracted during wage labor on lowland coffee plantations. After returning home, the individual would bathe in the steambath when suffering from malarial chills, but never during fevers. Although several herbal remedies were mentioned, no voucher specimens were collected.

It is important to point out that the illness categories and etiological assumptions described above are not static—one condition can “change into” another, and a given condition may be reclassified from natural to supernatural (also from “cold” etiology to “hot” etiology) depending on the progression of the illness and its response to earlier treatments. Whether or not a given illness episode is treated in the steambath depends on fluid interpretations of symptoms and presumed etiology. For example, stomachache caused by “cold air” in the stomach might be viewed as amenable to steambath treatment, while the same condition, when caused by eating bad food, would not be treated in the steambath. Given this observation, the compendium of health conditions outlined above should not be viewed as exhaustive or inflexible. Preliminary data show significant variation in treatment strategies among individuals in the same community (as well as among members of different communities), based primarily on differences in ascribed etiologies.

Steambath-Associated Remedies

The state of Chiapas in southeastern Mexico is one of the most biologically diverse regions in all of the Mexican republic, second only to Oaxaca in total number of plant and animal species (Breedlove 1981; Miranda 1952; Toledo 1988) In fact, with an estimated 9,000 species of vascular plants, the flora of Chiapas accounts for more than 30 percent of the total for all of Mexico (Breedlove 1981, 1986). The current landscape of the Central Chiapan Plateau includes rapidly diminishing stands of old-growth forest, surrounded by a complex habitat matrix consisting of young secondary forests, grasslands, and extensive cultivated areas. From this abundant and diverse environment, the Tzeltal and Tzotzil Maya have elaborated an extensive and efficacious pharmacopoeia treating everything from headaches and diarrhea to epilepsy, insanity, and infertility (cf. Berlin et al. 1990; Breedlove and Laughlin 1993; Berlin and Berlin 1996).

Throughout Mesoamerica, the therapeutic use of steambaths was almost universally associated with the administration of herbal and animal remedies. From colonial accounts, we know that the various Nahuatl groups of Central Mexico were avid steambathers at the time of the Spanish Conquest and possessed an extensive pharmacopoeia of associated remedies (cf. Silva Galeana 1984; Moedano 1986; Alcina Franch 1994). Unfortunately, voucher specimens of these herbal remedies were rarely collected, and when an identification was included, it was usually a vernacular or indigenous name. Alcina Franch (1994) has analyzed these accounts and provides botanical identifications for 28 of 55 herbal steambath remedies culled from both colonial and contemporary Mesoamerican ethnographic sources (five of which had been previously reported by Vogt 1976). The herbal and animal-based remedies presented in Appendixes 1 and 2 more than triple this number.

As discussed, the Tzeltal and Tzotzil Maya view the steambath as a valuable—often indispensable—component in the treatment of many illnesses. Inasmuch as a given illness must be treated in the steambath, any associated remedies necessarily become linked to steambath therapy. For instance, when *Tagetes filifolia* (*kulentu tz'i' wamal*) is used in the treatment of “cold” rheumatic joint pains (*julbak sik*), it is always administered in the steambath. However, when the same plant is used to treat fevers (which are humorally “hot”), it is never administered inside (because fevers are not treated in the steambath). In general, any remedy used in the treatment of a “cold” health condition is thought to be maximally effective only when administered in conjunction with the steambath—but the same remedy may also be used frequently in therapeutic contexts that are in no way connected to steambathing.⁵⁷

Plant-Based Remedies

Almost all steambath-associated herbal remedies are administered as either decoctions (*uch'el*), baths (*atinel*), or poultices, depending on the condition treated and the nature of the remedy. All remedies are prepared from fresh herbs, usually just before administration. The young growing tips of the plant are most commonly used, but mature leaves, stems, roots, and flowers are also employed. Most adults know a wide variety of herbal remedies, eliminating the need to consult a specialist in the treatment of common health conditions. Much of this knowledge is gained in childhood by observing adults collecting and preparing remedies, and children 8 to 10 years old (particularly girls) are able to correctly identify a large number of plants and accurately describe their preparation.

⁵⁷An exception to this is the class of postpartum remedies known as “warm medicines” (*k'ixin poxetik*), which are exclusively associated with steambathing. As this discussion suggests, it is somewhat misleading to speak of “steambath remedies”—remedies are simply viewed as having maximum therapeutic effect when employed in conjunction with the steambath.

In all, 97 remedies derived from 63 herbs in 33 botanical families were recorded as being utilized in conjunction with the steambath. The majority of remedies (69 percent) are administered as warm herbal teas, prepared by boiling one or more standard handfuls of the principal ingredient and any admixtures (either whole, ground, or mashed) in a small quantity of water. Sugar or sweet herbs are often added to improve the taste. These are drunk either before entering the steambath, during bathing, or soon after exiting. Approximately 15 percent of recorded remedies are administered inside the steambath in the form of warm baths, especially those remedies treating corporeal pains, rheumatism, and edema. Baths are usually prepared by boiling the herbs in a pot of water, then pouring the warm decoction over the sick person's head and splashing it over the body with the zacate bathing scourge. Poultices account for approximately 10 percent of recorded herbal remedies and are used exclusively in the treatment of bone fractures, sprains, bruises, and open wounds. The herbs used in poultices are usually mashed between rocks, bruised between the fingers, or heated near a fire, then plastered over the affected body part and covered with a kerchief. Poultices are changed twice a day. Two additional forms of administration were also recorded, but at a much lower frequency. In the treatment of aggressive madness (*chawoj*), all recorded remedies are administered in the form of nasal drops. The herbs are mashed, placed in a kerchief with some water, then squeezed to dispense several drops into each of the patient's nostrils. Interestingly, one of these remedies (*Tagetes lucida*) is reported to be hallucinogenic and was used by both the Aztecs and the Maya as a medicine and inebriant (Elferink 1988; Garza 1990; Ott 1993). Uncured tobacco powder (*Nicotiana tabacum*) mixed with lime is the only remedy that is eaten.

While most herbs were reported to treat only one health condition, 40 percent have multiple therapeutic uses (of these, 27 percent treat two or more conditions, 11 percent treat three or more conditions, and only one plant treats four conditions).⁵⁸ In addition, highland Maya herbalism shows a marked tendency toward polypharmacy—fully 70 percent of all remedies are compound, consisting of the principal ingredient plus one or more admixtures (42 percent have one admixture, 27 percent have two, and only one has three). As Berlin and Berlin (1996) have suggested, polypharmacy would appear to be an effective strategy for dealing with common mixed infections (rather than the relatively few conditions with a single, discrete etiology). This suggests that the highland Maya are aware of the potential synergistic effect of many phytochemicals and emphasize compound preparations in an attempt to maximize therapeutic effect.

Appendix 1 lists the principal plant-based remedies utilized in Oxchuc as part of steambath therapy. All of these remedies are classified as humorally

⁵⁸Although many plants are used to treat more than one health condition, Berlin and Berlin (1996) have found that each species is closely associated with a single condition or class of conditions against which it is considered to be the most effective remedy.

“warm” (*k'ixin*) in relation to the specified illnesses, and are administered in conjunction with an hour-long steambath. While these remedies are widely known in many Tzeltal and Tzotzil municipalities, there is some variation in the naming of the plants, their admixtures, administration, and uses (cf. Berlin et al. 1990; Breedlove and Laughlin 1993; Berlin and Berlin 1996). The extent to which these data apply to other municipalities is uncertain, and further research is needed to establish the degree of variation.

Animal-Based Remedies

In addition to the herbal remedies utilized in the steambath, there are several important and widely recognized animal-based remedies (see Appendix 2). Traditionally, medicinal animals have received little attention from anthropologists. It is only within the past few decades that researchers have begun to systematically investigate the uses of medicinal plants, and an awareness of the variety and importance of nonbotanical remedies (of insect, animal, and mineral origin) is emerging.

As Hunn (1977:116) has pointed out, the number of medicinal animals recognized and used by the highland Maya is relatively small compared to the inventory of medicinal plants recorded for the same region. Animal-based remedies do not possess critical importance in the ethnopharmacopoeia of the highlands, as all conditions treated with animals can also be treated with at least several species of local plants. However, these remedies are well known among the Tzeltal Maya of Oxchuc, and several are regarded as the best remedy for a given ailment. It is interesting to note that, while almost 70 percent of all recorded herbal remedies are compound, no animal-based remedies employ admixtures.

In Oxchuc, the most frequently mentioned medicinal animal is a large, unidentified, gray rodent called *tz'ej*.⁵⁹ The intestines of this animal are considered to be extremely effective in the treatment of gastrointestinal ailments because of their extreme bitterness. Oxchuqueros explain that this rodent eats only the most powerful medicinal plants, most of which are bitter, turning its plant-filled intestines into a sort of “multivitamin.” Most rodents (including gophers) are thought to share similar therapeutic virtues and are often used interchangeably. Medicinal value is attributed to almost all parts of these animals: the toasted bones are used as “warm medicines” and the teeth serve as lancets for bloodletting, the roasted skin is eaten in the treatment of stomachaches, and the charred fur is rubbed on the stomach in the treatment of abdominal distention.

⁵⁹This rodent, a large gray rat, is considered a traditional local delicacy in Oxchuc, and can be purchased fresh in the markets of Oxchuc center and Yochib. It is a common milpa pest, often killed in deadfall traps and eaten for dinner. The meat is usually roasted, then boiled and served in a broth with tortillas and chayote tips. The skinned animal is also frequently hung over the kitchen fire, producing a tantalizingly smoky “rat jerky.”

In many cases, the therapeutic use of animal remedies appears to be based on morphological or behavioral peculiarities of the creature in question. In Oxchuc, a tea made from the toasted and ground penis of the coatimundi (*Nasua narica*) is considered the most potent remedy for male impotence. Descola (1996:183) has recorded a similar remedy among the Achuar Jivaro of the Ecuadorian Amazon and provides an enlightening account of its probable origin: "The penis of the coati rejoices in a long fine bone that keeps it constantly rigid. This anatomical peculiarity has made a forceful impression upon the imagination of the Indians, and the men make the most of it, grating the bone into a decoction of green tobacco to make a love philtre. Quaffed at the right moment, it is reputed to prevent any flagging of the male member."

It is worth mentioning that such "natural modeling" does not necessarily preclude empirical efficacy. In Oxchuc, the two most common medicines given to speed delivery in cases of protracted labor are made from the toasted tail and shell of the nine-banded armadillo (*Dasypus novemcinctus*) and the tail of the Virginia opossum (*Didelphis virginiana*). Both animals are characterized by odd reproductive habits: Nine-banded armadillos regularly give birth to litters of identical quadruplets, and the opossum produces 10 to 20 offspring per year (no doubt owing to its 13-day gestation period, one of the shortest in the animal kingdom [Janson 1981:117]). While these reproductive anomalies undoubtedly influenced their therapeutic use, the tail of the Virginia opossum has demonstrated uterotonic action in recent laboratory and clinical trials. This action probably derives from the presence of prostaglandins, which are known to be oxytocic in very small doses (Ortiz de Montellano 1990:186-187).⁶⁰

Most of the remedies listed in Appendix 2 can be used either inside or outside of the steambath. However, since the conditions treated are "cold," the remedies are considered to be most efficacious when administered in the steambath. All taxonomic designations are from Hunn (1977).

Summary and Conclusions

My goal in this text has been to present a comprehensive treatment of highland Maya therapeutic steambathing, emphasizing its origin in pan-Mesoamerican culture, while at the same time situating it within a uniquely Mayan context. As we have seen, in southern Mesoamerica steambathing has been an important part of life for at least two millennia and was widely practiced in both the hot lowlands and the cool highlands. This tradition was characterized by large, finely constructed, masonry structures associated with urban centers

⁶⁰The use of opossum tail teas during delivery has been widely reported throughout Mesoamerica since the Conquest. In describing Aztec birthing practices, Sahagún (1950-1969:Bk. VI, 159-60) wrote: "If the woman suffered much labor pain, they gave her as much as two fingers of opossum tail [ground up, in water], to drink, which would probably carry all with it. Thereby she quickly gave birth. . .

and the elite class, as well as the small wattle-and-daub “campesino” steam-baths typical of rural domestic compounds. Although steam-baths are no longer found in the lowlands, small structures identical in every respect to the rural steam-baths of the ancient Maya continue to be used in many indigenous communities throughout the highlands of southeastern Mexico and central Guatemala.

An examination of the ethnographic and ethnohistoric record indicates that the significance of the steam-bath has changed little in the past five hundred years. At the time of the Conquest, the steam-bath was used for general hygiene, but most important, it was a structure dedicated to curative bathing and recovery following illnesses and dangerous life events such as childbirth. Reflecting its importance in the maintenance of health, the steam-bath was closely associated with a deity—usually female—who acted as the “owner” or “protector” of the bath, and from whom its curative powers originated. While therapeutic practices remain vigorous in all communities that still use the steam-bath, the religious associations have for the most part disappeared, fragmented, or undergone a process of clandestinization, often becoming syncretized with Christian deities and concepts.

The second part of this essay consisted of an in-depth ethnographic case study of the contemporary significance of the highland Maya steam-bath (*pus*) in the Tzeltal community of Santo Tomás Oxchuc. Oxchuc is one of the only highland Maya (Tzeltal-Tzotzil) communities to retain a vigorous tradition of therapeutic steam-bathing. Detailed data were provided on the material culture and construction of a traditional Oxchuc steam-bath, associated rituals and religious beliefs, as well as an overview of highland Maya medical epistemology and its relationship to steam-bathing. As we have seen, the steam-bath is a central component in household-level, nonspecialist therapies. Its use focuses on the management of quotidian illness episodes of “natural” etiology, ranging from stomachache to infertility. Its most important function, although by no means the most common, is during the postpartum recovery period, when it serves to rewarm the parturient’s womb, returning her body to a state of warmth and fertility.

The rationale behind the therapeutic use of the steam-bath becomes clear when viewed in light of highland Maya ethnomedical precepts concerning the functioning of male and female bodies in both health and illness. Unlike other New World “hot-cold” (or “humoral”) models of the body, the Tzeltal-Tzotzil system is overwhelmingly biased toward the importance of pervasive physical warmth in the maintenance and restoration of health, and the almost exclusive role of exogenous “cold” in illness causation. Illness enters the body in the form of intrusive “cold winds,” which chill the body, resulting in a variety of physical symptoms. Health is regained through a combination of restorative and expulsive therapies that purges the body of pathogenic “cold,” restoring it to a natural state of vigorous warmth.

Steambathing is the first line of defense in the constant struggle against cold. Sweating in the moist heat of the bath cures illness at the level of ultimate etiology by expelling the intrusive “cold” responsible for the condition, then rewarming the blood and flesh. Medicinal preparations are said to achieve maximum potency when administered in conjunction with the steam-bath and are considered to be responsible for the alleviation of proximate symptoms. Regular hygienic bathing is also considered to be therapeutic, as the regular rewarming of the flesh drives any chills from the body, removing the bather from an “at risk” state and preventing the onset of “cold” health conditions. I have presented a compendium of 32 health conditions considered amenable to treatment in the steam-bath, along with a pharmacopoeia of more than 100 associated remedies derived from 63 plants and 7 animals.

The ability of the steam-bath to cure a given health condition is usually explained in terms of these straightforward understandings of the role of warmth in maintaining and restoring health. However, in the Tzotzil community of Chamula the ultimate source of this potent therapeutic efficacy is said to derive from an agreement between the Sun-Christ deity and the Earth Lord, embodied in the union between fire and water inside of the earthen walls of the steam-bath. The Earth Lord is said to own the steam-bath until it is “purchased” from him with appropriate ceremonies. The Sun-Christ deity, the source of all warmth and light, is said by some to manifest inside of the steam-bath in the form of the fire. When properly petitioned, these deities agree to work together to keep illness away from the bathers. The Sun-Christ deity then visits his “strength and goodness” upon the structure, endowing it with the ability to cure.

Unfortunately, both the steambathing tradition and herbal knowledge described in this study are disappearing at an alarming rate. As this tradition of lay therapy is increasingly replaced by visits to clinics and the purchase of patent medicines, the potential for individuals to successfully treat the more common and troublesome health conditions without recourse to specialists (either Western or Maya) is significantly compromised. It is hoped that the data presented here will draw attention to the value and importance of steambathing as a core therapeutic strategy in the ethnomedical system of the highland Maya, and thereby contribute to the survival (and revival) of this ancient Mesoamerican medical practice.

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Appendix 1
Herbal Remedies Used in Conjunction with the Steambath in Oxchuc

#	MAJOR INGREDIENT; FAMILY; VOUCHER NUMBER ^a	OXCHUC TZELTAL TAXON AND PLANT PART USED	CONDITION TREATED	ADMIXTURE(S) AND PLANT PART USED	ADMINISTRATION; SCHEDULE ^b
1	<i>Acacia angustissima</i> (Miller) Kuntze; Leguminosae—HV11	<i>me ja' te'</i> ('mother of water tree'); root	Bloody diarrhea	<i>Castilleja integrifolia</i> (leaf) and <i>Psidium</i> sp. (leaf)	Infusion; 2/3
2	<i>Adiantum andicola</i> Liebm.; Adiantaceae—HV118	<i>ijk' al ok tzib</i> ('black foot fern'), <i>ijk' al akan tzib</i> ('black leg fern'); leaf	Snakebite	<i>Borreria laevis</i> (leaf) and <i>Ranunculus pettolaris</i> (leaf)	Poultice; 2/3
3	<i>Ageratina pringlei</i> (Rob. & Greenm.) King & H. Robinson; Asteraceae—HV119	<i>sakil nich wamal</i> ('white flower herb'); leaf	Watery diarrhea	<i>Hydrocotyle mexicana</i> (leaf)	Infusion; 2/2
4	<i>Arbutus xalapensis</i> HBK; Ericaceae—HV87	<i>onkon te'</i> ('avocado-like tree'); leaf	Bloody diarrhea	—	Infusion; 2/2
5	<i>Argemone mexicana</i> L.; Papaveraceae—HV175	<i>ch'ix itaj</i> ('spine cabbage'); leaf	Edema	—	Bath; 4/2
6	<i>Aster exilis</i> Elliot; Asteraceae—HV152	<i>yak' choj wamal</i> ('puma's tongue herb'); leaf	Postpartum	Peppercorns (<i>Piper nigrum</i>), clove (<i>Eugenia caryophyllus</i>), cane sugar, and distilled cane alcohol (<i>poz</i>)	Infusion; 1/3-15
			Aggressive madness	—	Nasal drops; 1-?

7	<i>Baccharis serraefolia</i> DC; <i>B. trinervis</i> (Lam.) Pers.; Asteraceae—HV37, HV15	<i>bak te' wamal</i> ('bone tree herb'); leaf	Stomach pain	<i>Quercus</i> sp. (leaf); <i>Piper nigrum</i> (leaf)	Infusion; 2/3
8	<i>Baccharis vaccinioides</i> Kunth; Asteraceae—HV38	<i>mes te'</i> ('broom tree'); leaf	Watery diarrhea	<i>Calliandra houstoniana</i> (leaf) and salt	Infusion; 2/2
9	<i>Berula erecta</i> (Hudson) Cov.; Apiaceae—HV176	<i>tzajjal pay te'</i> ('red skunk tree'); leaf	Bloody diarrhea	<i>Psidium</i> sp. (bark); <i>Liquidambar styraciflua</i> (bark)	Infusion; 2/2
10	<i>Borreria laevis</i> (Lam.) Griseb.; Rubiaceae—HV16	<i>k'uxum buluk' sit wamal</i> ('food of the bulging-eyed [worm] herb'); leaf	Stomach pain	—	Infusion; 2/2
11	<i>Brickellia paniculata</i> ; Asteraceae—HV178	<i>ch'ej te'</i> ('bitter tree'); leaf	Watery diarrhea	<i>Persea americana</i> (seed)	Infusion; 2/2
12	<i>Brugmansia x candida</i> Pers.; Solanaceae—HV76	<i>kampana nichim</i> ('bell flower'); leaf	Edema	—	Bath; 4/4
			Postpartum	See #5	Infusion; 1/3-15
			Snakebite	<i>Adiantum andicola</i> (leaf), <i>Nicotiana tabacum</i> (leaf), and <i>Vernonia letocarpa</i> (leaf)	Poultice; 2/3
			Stomach pain	<i>Vernonia deppeana</i> (leaf)	Infusion; 2/2
			Bone fracture/sprain	Distilled cane alcohol (<i>poz</i>)	Infusion; 2/2
			Edema	—	Poultice; 2/3
			Rheumatism	<i>Ricinus communis</i> (leaf)	Bath; 4/2
			Snakebite	<i>Ricinus communis</i> (leaf)	Bath; 4/2
				—	Poultice; 2/3

Appendix 1 (Continued)

13	<i>Buddleia crotonoides</i> A. Gray; Loganiaceae—HV125	<i>sak munus te</i> ('white munus tree'); leaf	Snakebite	—	Poultice; 2/3
14	<i>Byrsonima crassifolia</i> (L.) Kunth; Malpighiaceae—HV181	<i>nantz chi</i> (unan. < Sp. <i>nance</i>); bark	Bloody diarrhea	<i>Quercus</i> sp. (bark) and <i>Hydrocotyle mexicana</i> (leaf) or <i>Psidium guineense</i> (leaf)	Infusion; 2/2
15	<i>Calliandra houstoniana</i> (Mill.) Standley; Leguminosae—HV17	<i>ch'ich' ni' te</i> ('bloody nose tree'); root	Watery diarrhea Bloody diarrhea	<i>Quercus</i> sp. (bark)	Infusion; 2/2 Infusion; 2/2
16	<i>Chenopodium ambrosioides</i> L.; Chenopodiaceae—HV77	<i>k'ajk'an</i> ('fiery?'); stem and leaves	Menorrhagia; uterine hemorrhage Postpartum Watery diarrhea	Black peppercoms (<i>Piper nigrum</i>) See #5	Infusion; 2/2 Infusion; 1/3-15 Infusion; 2/2
17	<i>Cleyera theaeoides</i> (Sw) Choisy; Theaceae—HV78	<i>ixim te</i> ('corn tree'), <i>k'an ol te</i> (yellow seedling?) tree'; leaf	Postpartum	See #5	Infusion; 1/3-15
18	<i>Conostegia xalapensis</i> (Bonpl.) D. Don; Melastomataceae— HV105	<i>tza' tuluk' te</i> ('turkey shit tree'); leaf	Rheumatism	—	Bath; 2/3
19	<i>Crataegus pubescens</i> (Kunth) Steudel; Rosaceae—HV89	<i>ch ix te</i> ('spine tree'); leaf and root	Bloody diarrhea	<i>Quercus</i> sp. (bark); <i>Ambrosia camanensis</i> (leaf)	Infusion; 2/2
20	<i>Crusea calceophala</i> DC; Rubiaceae—HV19	<i>tzajal buluk' sit wamal</i> ('red bulging-eyed [worm] herb'); leaf	Watery diarrhea	—	Infusion; 2/3
21	<i>Dyssodia papposa</i> (Hitch.) A.; Asteraceae—HV186	<i>kulentu ch'o wamal</i> ('mouse coriander herb'); leaf	Postpartum	See #5	Infusion; 1/3-15

22	<i>Equisetum myriochaetum</i> Schlechtendal & Cham, <i>E. hymale</i> ; Equisetaceae—HV28	<i>tujj' wamal</i> (unan.); whole plant	Painful urination	Corn silk (<i>Zea mays</i>); <i>Ruta graveolens</i> (leaf)	Infusion; ??
23	<i>Eryngium longirameum</i> Turcz.; Apiaceae—9.0252	<i>yax wamal</i> ('green/blue herb'); leaf	Postpartum	See #5	Infusion; 1/3-15
24	<i>Escobedia longiflora</i> Pennell; Scrophulariaceae—9.0331	<i>sakil nich wamal</i> ('white flower herb'); leaf	Postpartum	See #5	Infusion; 1/3-15
25	<i>Euphorbia graminea</i> Jacq.; Euphorbiaceae—HV25	<i>k'an chu' wamal</i> ('likened to breast herb'), <i>pojowil wamal</i> ('milky- sap herb'); leaf	Postpartum	See #5	Infusion; 1/3-15
26	<i>Fleischmanniopsis leucocephala</i> (Benth.) King & H.; Asteraceae—HV69	<i>sakil nich wamal</i> ('white flower herb'); leaf	Stomach pain	—	Infusion; 2/?
27	<i>Fuchsia macrophylla</i> ; Onagraceae—HV6	<i>choj nich wamal</i> ('mouse flower herb'); leaf	"Cold stomach"	Pepperorns (<i>Piper nigrum</i>) or <i>Zanthoxylum foliosum</i> (leaf)	Infusion; 2/3
28	<i>Fuchsia splendens</i> Zacc.; Onagraceae—HV129	<i>tzajal nich wamal</i> ('red flower herb'); leaf	Postpartum	See #5	Infusion; 1/3-15
29	<i>Gaultheria odorata</i> Willd.; Ericaceae—HV50	<i>ajtres wamal</i> (unan.); leaf	"mother of man" (cholecystitis)	Pepperorns (<i>Piper nigrum</i>) and cane sugar; <i>Tagetes lucida</i> (leaf)	Infusion; 2/?
30	<i>Geranium seemannii</i> Peyr.; Geraniaceae—HV91	<i>tzajal pox wamal</i> ('red medicine herb'); leaf	Edema	<i>Rumex crispus</i> (leaf); <i>Rumex obtusifolius</i> (leaf)	Bath; 2/2
31	<i>Holodiscus argenteus</i> (L.f.) Maxim.; Rosaceae—HV162	<i>ch'ixil te'</i> ('thorny tree'); leaf	Bloody diarrhea	See #5	Infusion; 1/3-15

Appendix 1 (Continued)

32	<i>Iresine celosia</i> L.; Amaranthaceae—HV9	<i>majjal akan wamal</i> ('segmented leg herb'), <i>majjal ok wamal</i> ('segmented foot herb'); leaf	Edema	<i>Rumex crispus</i> (leaf); <i>Rumex obtusifolius</i> (leaf)	Bath; 4/2
33	<i>Lantana camara</i> L.; ^c Verbenaceae—HV1	<i>ch'il wet wamal</i> ('fox rib herb'); leaf and root	Retention of ejaculate Bloody diarrhea	<i>Cucurbita ficifolia</i> (root) —	Infusion; 2/2 Infusion; 2/2
34	<i>Lantana hispida</i> Kunth; Verbenaceae—HV13	<i>tzajal ch'il wet wamal</i> ('red fox rib herb'); leaf	Stomach pain Watery diarrhea Stomach pain	<i>Hydrocotyle mexicana</i> (leaf) and <i>Psidium</i> sp. (bark) <i>Verbena littoralis</i> (leaf) <i>Tagetes lucida</i> (leaf)	Infusion; 2/2 Infusion; 3/2 Infusion; 2/2
35	<i>Lippia chiapasensis</i> Loes.; Verbenaceae—HV163	<i>pixko nich wamal</i> ('hat flower tree'); leaves	Watery diarrhea Wounds	— <i>Saurauia scabrida</i> (leaf) and <i>Quercus</i> sp. (leaf)	Infusion; 2/2 Poultice; 2/?
36	<i>Liquidambar styraciflua</i> L.; Hamamelidaceae—HV193	<i>so'te</i> (unan.), <i>likidambar</i> (< Sp. <i>liquidambar</i>); leaf	"mother of man" (cholecystitis)	Peppercombs (<i>Piper nigrum</i>) and cane sugar or <i>Tagetes lucida</i> (leaf) ?	Infusion; 2/?
37	<i>Litsea glaucescens</i> Kunth, L. <i>neesiana</i> (Schauer) Hemsl.; Lauraceae—HV57	<i>tiztil u'ch</i> ('opposum fart' [archaic?]); leaf	Malaria Postpartum Rheumatism Stomach pain Watery diarrhea	See #5 <i>Pinus</i> sp. and <i>Cupressus lusitanica</i> (needles); <i>Juniperus gambocana</i> (needles) Peppercombs (<i>Piper nigrum</i>) or <i>Sambucus mexicana</i> (leaf); <i>Lantana camara</i> (leaf); <i>Ruta graveolens</i> (leaf) See Stomach pain (above)	Infusion; ? Infusion; 1/3-15 Bath; 2/? Infusion; 2/2 Infusion; 2/2

38	<i>Llavea corallifolia</i> Lag.; Adiantaceae—HV194	<i>tzajal nich wamal</i> ('red flower herb'); leaf	Menorrhagia/uterine hemorrhage	<i>Brugmansia candida</i> (leaf?)	Infusion; 2/3
39	<i>Lobelia laxiflora</i> Kunth; Campanulaceae—HV5	<i>tzajal nich wamal</i> ('red flower herb'); tubercule and leaf	"Cold stomach"	Peppercombs (<i>Piper nigrum</i>); <i>Zanthoxylum foitososum</i> (leaf)	Infusion; 2/3
40	<i>Lycopersicon esculentum</i> var. cerasiforme; Solanaceae— HV131	<i>ichil ok</i> ('chili-footed'), <i>chichol ok</i> ('tomato-footed'); leaf	"mother of man" (cholecystitis)	Peppercombs (<i>Piper nigrum</i>) and cane sugar	Infusion; 2/3
41	<i>Microplaura renifolia</i> Lag.; Apiaceae—HV196	<i>lot'bak wamal</i> ('bone setting herb'), <i>lot'pox wamal</i> ('compress medicine herb'); root	Post-partum	See #5	Infusion; 1/3-15
42	<i>Myrica cerifera</i> L.; Myricaceae—HV3	<i>ch'a k'olol te'</i> ('bitter rattle tree'), <i>k'olol te'</i> ('rattle tree'); leaf or roots	Stomach pain	<i>Rubus</i> sp. (leaf)	Infusion; 2/2
43	<i>Nicotiana tabacum</i> L.; Solanaceae—HV72	<i>mcy</i> (unan)	Rheumatism	—	Bath; 2/2
44	<i>Perymenium ghiesbreghtii</i> ; Asteraceae—HV167	<i>bajk'al te'</i> (unan); leaf	Bone fracture/sprain	—	Poultice; 2/?
			"Stinging caterpillar illness" (<i>tzujk'um</i>)	—	Poultice; 1/1
			Stomach pain	Remedy is ground, green tobacco mixed with slaked lime (<i>bantidal mcy</i>)	Painful eaten; 4/2
			Stomach pain	Peppercombs (<i>Piper nigrum</i>) and <i>Eugenia caryophyllus</i> (leaf)	Infusion; 2/2

Appendix 1 (Continued)

45	<i>Phytolacca icosandra</i> L.; Phytolaccaceae—HV 110	<i>ob wamal</i> (unan.)	Bone fracture/sprain	<i>Senecio cristobalensis</i> (leaf)	Poultice; 2/?
46	<i>Piper</i> sp.; Piperaceae—HV40	<i>mumun te'</i> (unan.)	Aggressive madness	<i>Allium sativa</i> (clove)	Nasal drops; 1/?
47	<i>Piptothrix areolaris</i> ; Asteraceae—HV73	<i>chikin buro te'</i> ('burro's ear tree'); leaf	Snakebite	—	Poultice; 1; 2/?
48	<i>Pluchea odorata</i> (L.) Cass.; Asteraceae—HV96	<i>kavlan may te'</i> ('Castillian tobacco tree'); leaf	Edema	—	Bath; 4/2
49	<i>Prunella vulgaris</i> L.; Lamiaceae—HV31	<i>yax nich wamal</i> ('blue flower herb'); root	Stomachache Postpartum	<i>Nicotiana tabacum</i> (leaf) See #5	Infusion; 2/? Infusion; 1/3-15
50	<i>Psidium guineense</i> Sw.; Myrtaceae—HV97 root	<i>pata te'</i> ('guava-like tree'); bark, leaf,	Watery diarrhea Bloody diarrhea	— <i>Quercus</i> sp. (leaf)	Infusion; 3/3 Infusion; 2/2
51	<i>Ranunculus petiolaris</i> Kunth; Ranunculaceae—HV32	<i>nitrin k'ajk' wamal</i> ('nitrin fire herb'); root	Watery diarrhea	<i>Verbena litoralis</i> (leaf); <i>Acacia angustissima</i> (leaf); <i>Ocimum selloi</i> (leaf)	Infusion; 2/2
52	<i>Rumex crispus</i> L., <i>R. obtusifolius</i> L.; Polygonaceae—HV138, HV82	<i>yak' tz'i' wamal</i> ('dog's tongue herb'); leaf	Menstrual/uterine hemorrhage Postpartum	<i>Micropleura renifolia</i> (root) and Peppercorns (<i>Piper nigrum</i>) See #5	Infusion; 3/2 Infusion; 1/3-15
53	<i>Rumex mexicanus</i> Meisner; Polygonaceae—9.0087	<i>pajal akan wamal</i> ('bitter legged herb'); leaf	Edema	<i>Hibiscus uncinellus</i> (leaf)	Bath; 4/2
				<i>Hibiscus uncinellus</i> (leaf)	Bath; 4/2

54	<i>Sonchus oleraceus</i> L.; Asteraceae—HV141	<i>ch'ix wamal</i> ('spiny herb'); leaf	Edema	<i>Litsea glaucescens</i> L., <i>neescana</i> (leaf); <i>Bidens pilosa</i> (leaf); <i>Solanum americanum</i> (leaf)	Bath; 4/2
55	<i>Stevia ovata</i> Willd.; Asteraceae—HV64	<i>ch'al wamal</i> ('bitter?' herb'); leaf	Stomach pain Watery diarrhea	<i>Verbena litoralis</i> (leaf) <i>Baccharis serraeifolia</i> B. <i>Trinervis</i> (leaf); <i>Hydrocotyle mexicana</i> (leaf); <i>Citrus sp.</i> (leaf)	Infusion; 2/3 Infusion; 2/?
56	<i>Tagetes lucida</i> Cav.; Asteraceae—HV65	<i>k'anal nich wamal</i> ('yellow flower herb'); leaf	Aggressive madness	—	Nasal drops; 1/?
57	<i>Thalictrum guatemalense</i> C.; Ranunculaceae—HV145	<i>tzis chawuk wamal</i> ('thunderbolt fart herb'); leaf	Aggressive madness	—	Nasal drops; 1/?
58	<i>Tithonia diversifolia</i> (Hemsley) A. Gray; Asteraceae—HV146	<i>xch'ajkil te'</i> (unan.); root	Postpartum	See #5	Infusion; 1/3-15
59	<i>Verbena litoralis</i> Kunth; Verbenaceae—HV2	<i>yekan k'utub wamal</i> ('grasshopper's leg herb'); leaf	Stomach pain	<i>Baccharis serraeifolia</i> (leaf); <i>Hydrocotyle mexicana</i> (leaf); <i>Quercus sp.</i> (leaf) and <i>Calliandra houstoniana</i> (root)	Infusion; 2/3
60	<i>Verbesina turbacensis</i> H.B.K.; Asteraceae—HV115	<i>tzelek pat te'</i> ('ridged-bark tree'); leaf	Watery diarrhea Stomach pain	<i>Baccharis serraeifolia</i> (leaf); <i>Hydrocotyle mexicana</i> (leaf)	Infusion; 2/3 Infusion; 2/3
61	<i>Vernonia leiocarpa</i> DC.; Asteraceae—HV44	<i>may te'</i> ('tobacco-like tree'); leaf and flower	Watery diarrhea Edema Rheumatism	<i>Zanthoxylum foliolosum</i> (leaf) <i>Lippia chiapasensis</i> (leaf)	Infusion; 2/3 Bath; 3/2 Bath; 3/2

Appendix 1 (Continued)

62	<i>Viburnum elatum</i> Benth.; Caprifoliaceae—HV150	<i>manzana te</i> ('apple tree')	Postpartum	See #5	Infusion; 1/3-15
63	<i>Zanthoxylum foliolosum</i> J.D. Smith; Rutaceae—HV116	<i>tz'ab ch ix</i> (unan.), <i>ermunix te</i> (unan.)	Postpartum	See #5	Infusion; 1/3-15

- a. Prepared herbarium specimens in PROCORRITH's Traveling Herbarium (Herbario Viajero) were used for elicitation purposes. All voucher numbers refer to stimulus specimens in the Traveling Herbarium, which are on file at the Ethnobotanical Herbarium of Chiapas (HECH) at El Colegio de la Frontera Sur (ECOSUR), San Cristóbal de las Casas, Chiapas, Mexico.
- b. Administration schedule is presented in the following format: # of times per day/# of days of treatment. A question mark indicates that there is no preferred treatment regimen. In such cases, therapy continues until improvements are seen.
- c. *Lantana camara* should not be taken internally, as it contains a poisonous crystalline compound called lantamine (Balée 1994:95).

Appendix 2

Animal Remedies Administered in Conjunction with the Steam Bath in Oxchuc

#	SPECIES	COMMON NAME	OXCHUC Tzeltal TAXON	CONDITION TREATED	PART USED, PREPARATION, ADMINISTRATION
64	<i>Dasyptis novemcinctus</i> ; Dasyptodidae	Nine-banded armadillo	<i>mayil chan</i> ('squash snake')	Difficult birth	Tail (toasted, ground, and drunk as tea)
65	<i>Didelphis virginiana</i> ; Didelphidae	Virginia opossum	<i>uch</i> (unan.)	Difficult birth	Tail (toasted, ground, and drunk as tea)
66	<i>Heterogeomys hispidus</i> ; Geomysidae	Hispid pocket gopher	<i>ba</i> (unan.)	Post-partum	Bones (toasted, ground, and drunk as tea)

67	<i>Nasua narica</i> ; Procyonidae	Coatimundi	<i>kojtom</i> (unan.)	Stomach pain	Skin (roasted over fire, charred fur rubbed on belly); also Intestines (boiled then drunk as tea)
68	<i>Odocoileus virginianus</i> ; Cervidae	White-tailed deer	<i>te'itil chij</i> ('forest sheep')	Impotence, male	Penis (toasted, ground, and drunk as tea)
69	<i>Peromyscus mexicanus</i> ; Sigmodontinae	White-footed mouse	<i>yaxal ch'oj</i> ('gray mouse')	Lethargy	Antler (tine touched to sides of body at ankle, knee, hip, shoulder, elbow, wrist)
70	<i>Pituophis lineaticolis</i> ; Colubridae	Master snake	<i>qjaw chan</i> ('lord snake')	Abdominal distension	Skin (roasted over fire, charred fur rubbed on belly)
71	identification pending; Rodentia ^a	?	<i>tz'ej</i> (unan.)	Stomach pain	Intestine (boiled in water, drunk as tea); Also, Skin (charred, then swallowed)
				Post-partum cold	Skin (boiled in water and drunk as tea)
				Pains, corporeal	Grease (snake splayed, set in sun, grease collected and heated, then applied to body)
				Abdominal venation	Skin (roasted over fire, charred fur rubbed on belly)
				Madness, aggressive	Incisor (used to let blood from forehead)
				Stomach pain	see preparations for #69
				"Cold Stomach"	Intestines (boiled in water, drunk as tea)

a. This animal is a large, unidentified, gray rodent. See p. 69 for additional details.

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